MASSACHUSETTS CLEAN MARINA GUIDE

Strategies to Reduce Environmental Impacts

A Coastal Zone Management / EOEA publication

Massachusetts Clean Marina Guide

Strategies to Reduce Environmental Impacts

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Introduction

Marinas, yacht clubs, and boatyards provide critical services to the boating public—maintaining, mooring, fueling, storing, and launching vessels of all kinds. While modern facilities and efficient service are essential, clean water is a key attribute of successful boating-based businesses, drawing boaters to the coast and keeping them coming back year after year. The *Massachusetts Clean Marina Guide* is designed as a reference for owners and operators of marine boating facilities, collectively referred to throughout this document as "marinas." It provides information on cost-effective strategies and practices aimed at reducing marina and boating impacts on the coastal environment.

This chapter is an introduction to the Clean Marina concept, as well as an overview of how to use the Guide. It discusses the importance of protecting the environment, explains how and why the Guide was developed, introduces regulatory requirements, explains how different groups can use this information, and presents the purpose and structure of the document.

1.1 The Case for Clean Marinas

When marina operators adopt environmental practices and standards into their daily operations and pass this ethic on to the boating public, their facilities protect coastal resources and thereby become Clean Marinas. Along with serving the needs of their boating customers, Clean Marina staff members understand the potential environmental impacts of boating and willingly take responsibility to reduce these impacts so people can use surrounding waters for other recreational activities, such as swimming, fishing, and shellfishing.

A variety of routine activities can cause pollution. Boating, driving the car, fertilizing the lawn, even walking the family dog can leave behind contaminants that are washed into rivers, streams, lakes, and oceans when it rains. Nonpoint source pollution is the technical term for this "indirect" runoff contamination. The combined impacts of these countless small sources add up to significant pollution problems. In fact, with the tremendous advances in reducing industrial discharges, improving sewage treatment, and reducing other "point" sources of pollution, nonpoint source pollution is now the number one pollution problem facing coastal waters.

Marinas, like most other businesses, can generate significant amounts of nonpoint source pollution through a variety of activities, including hull repair, engine maintenance, and fueling. For example, paints, solvents, oil and gasoline, and other hazardous materials generated through boat operation and maintenance are toxic to humans and marine life. In addition, sewage released by boaters contains bacteria

Please Note

Throughout this document, the term "marinas" is used to refer collectively to all facilities and individuals engaged in boat keeping, storage, maintenance, and repair and includes boatyards, yacht clubs, town docks and ramps, other marine businesses, and do-it-yourselfers.

that can make people sick and contaminate shellfish resources. Finally, trash, which can easily be blown off docks and boats and into the water, is unsightly and can be harmful to marine animals that become entangled or swallow these materials. Because of the close proximity of marinas to the shore, the chance that these contaminants will reach the water is increased.

Adopting Clean Marina strategies and practices results in both environmental and economic benefits. On the environmental side, reducing pollution improves water quality around the marina, enhances marine habitats, and protects fish, shellfish, and other marine life. Many economic opportunities are also available. For example, boatyards using dustless vacuum sanders have found cost savings by virtually eliminating cleanup time to collect dust from the ground and neighboring boats. Use of oil absorption pads in boat bilges keeps oil drips from going overboard, thus avoiding the expense of cleanup and fines. Selling "green" products at the marina store can also generate an important source of income. Most importantly, a Clean Marina attracts and keeps customers, which is clearly good for business.

1.2 The Guide and the Marina Assistance Program

During the last eight years, federal and state agencies have worked together to develop strategies to reduce nonpoint source pollution from various land uses and activities, including marinas. The Commonwealth of Massachusetts adopted these strategies in *The Massachusetts Coastal Nonpoint Pollution Control Plan.* Rather than create new laws, this plan is built on existing laws and regulations and focuses on providing education and technical assistance. The Commonwealth's Marina Assistance Program is a key component in this effort, providing information and technical assistance to marina owners and operators on how to reduce nonpoint source pollution impacts.

The Massachusetts Office of Coastal Zone Management (CZM) is taking the lead on the Marina Assistance Program with support from the Office of Technical Assistance (OTA) and other agencies within the Executive Office of Environmental Affairs (EOEA).

The Marina Assistance Program has three major components:

1. The *Massachusetts Clean Marina Guide.*
2. Workshops designed to help marina owners and operators understand and implement pollution reduction practices.
3. On-going technical assistance.

The *Massachusetts Clean Marina Guide* forms the basis of the Marina Assistance Program, serving as a reference manual of pollution prevention strategies for marina owners and operators. The Guide was developed with the oversight and assistance of a Marina Working Group, which includes numerous representatives from the marina industry (see below). This group was first convened to provide input during the

Consider This

According to the U.S. Environmental Protection Agency (EPA), the single greatest pollution type contributing to the overall degradation of coastal and inland water quality and aquatic habitat is nonpoint source pollution. It's the main reason that approximately 40 percent of U.S. rivers, lakes, and estuaries are not clean enough to meet basic uses, such as fishing or swimming.

See EPA's Office of Water website for more on nonpoint source pollution: www.epa.gov/owow/nps/whatis.html.

development of pollution control strategies in *The Massachusetts Coastal Nonpoint Pollution Control Plan*. Working Group members have continued to assist CZM, contributing valuable information, insight, and recommendations to this Guide.

CZM will hold workshops on Clean Marina management in the spring of 2001 to present the Guide to marina owners and operators, as well as other interested individuals. In addition, both CZM and OTA will provide technical assistance through the Marina Assistance Program. Specifically, CZM and OTA will be available to answer questions about regulations that apply to marinas, provide environmental audits to identify pollution control options, and assist with the development of a marina pollution control plan.

CZM would like to thank the following members of the Marina Working Group who were extremely helpful in developing this Guide.

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Ann Rodney, U.S. Environmental Protection Agency (EPA)
Ken Soltys, OTA
Charlie Swain, Edward's Boatyard and Cape Cod Marine Trades Association
Russ Vickers, Hawthorne Cove Marina and Salem Sound 2000
Tim Walter, Martin Walter Company
Nancy Wrenn, Massachusetts Department of Environmental Protection (DEP)

For More Info

The Massachusetts Office of Coastal Zone Management (CZM) is the state agency responsible for developing and implementing coastal policy to balance resource use with resource protection along the Bay State's shoreline. For more information, visit CZM's website at www.state.ma.us/czm/ or call (617) 626-1200.

Massachusetts Office of Technical Assistance (OTA) is a non-regulatory branch of the Executive Office of Environmental Affairs (EOEA) that helps manufacturers and industrial facilities, municipalities, schools, hospitals, households, and others reduce or eliminate their use of toxics and the generation of hazardous byproducts. See www.state.ma.us/ota/ for more information or call (617) 626-1060.

1.3 Marina Regulations

Although Massachusetts Marina Assistance Program does not create any new regulations, ensuring that your marina complies with existing laws is essential to reducing environmental impacts and avoiding fines and other enforcement actions. This Guide discusses federal and state laws and regulations that apply to marinas, but does not cover local bylaws and ordinances. If you are unsure whether your city or town has local bylaws regarding marina activities, contact your harbormaster, natural resource department, or conservation commission.

Current state and federal laws regulate specific marina activities, such as hull maintenance and pressure washing, fueling, and engine maintenance either through design mandates or discharge restrictions for waste liquids. A number of laws govern the handling and storage of hazardous materials, such as oil, paint, and solvents. Other laws are triggered by a variety of construction activities that range from building a shed to installing new docks and floats. These laws are listed in Chapter 6, which include sources for more information (phone numbers, website addresses, and regulatory citations). Feel free to call CZM for information and assistance.

1.4 Who Should Use the Guide

The primary audience for the *Massachusetts Clean Marina Guide* includes owners and operators of marinas, yacht clubs, and boatyards. Other users may include municipal officials (harbormasters, natural resource officers, etc.), boaters, and do-it-yourselfers (people who maintain and store their own boats). Here is a summary of how the Guide may apply to each of these groups.

- **Marinas** — Many of the strategies discussed in this guide, including solid waste management and stormwater management, apply to all marinas. Because each marina performs different activities and has different facilities and local environmental conditions, the suite of management strategies selected will vary from one facility to the next.

- **Yacht Clubs** — While yacht clubs typically provide fewer services than marinas, they can be very effective in promoting boat maintenance practices for do-it-yourselfers, providing education to boaters, and setting up facilities for proper waste disposal and recycling.

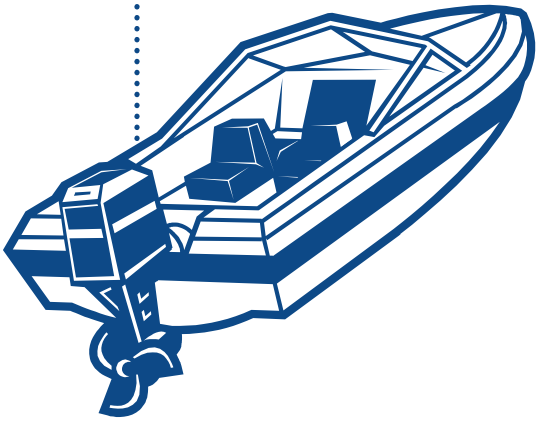
- **Boatyards** — Because of the variety of chemicals that they use to repair and maintain boats (including paints, varnishes, epoxies, solvents, and oil), boatyards have the potential to generate significant pollution. At a minimum, all boatyards should review the status of their National Pollutant Discharge Elimination System (NPDES)

Multi-Sector General Permit (MSGP) with the U.S. Environmental Protection Agency and ensure that they are in compliance. The NPDES Program and its requirements are discussed in Chapter 6. Other management strategies will also apply depending on the services provided by each boatyard.

▶ **Municipalities** — Municipal marinas, landings, and boat ramps provide the public with a variety of services and facilities that can impact the marine environment. Harbormasters play an important role in overseeing the activities at municipal facilities, and in observing boater conduct on the water. This Guide will help harbormasters and other municipal personnel promote sound environmental practices. Municipal natural resource and conservation commission personnel should also review the Guide to become knowledgeable about marina management practices that protect the environment.

▶ **Boaters** — The Boat Operation section in Chapter 4 addresses actions by boaters that can harm the environment and the Boater Fact Sheets supplied at the end of the Guide provide a variety of solutions. Marinas, harbormaster, and others can use this information to establish boat operation procedures, as well as to educate the boating public.

▶ **Do-It-Yourselfers** — Although do-it-yourselfers are not the prime audience for this document, many of the management practices for hull scraping, engine maintenance, boat cleaning, and other boat maintenance activities should be used by this group. If you have do-it-yourselfers working at your facility, communicate this information to them through fact sheets, signs, and other educational strategies. If they show a lot of interest, suggest they call CZM at (617) 626-1212 for their own copy of this Guide.



1.5 Guide Purpose and Organization

The primary goal of the *Massachusetts Clean Marina Guide* is to help marina operators select appropriate pollution prevention strategies, called Best Management Practices or BMPs.

BMPs

Best Management Practices (or BMPs) help solve the environmental pollution problems that result from marina activities, such as boat cleaning, fueling, and waste disposal. BMPs use one or more basic methods to control this pollution, such as preventing accidental spills or leaks, capturing pollutants as they are produced, containing the spread of spills or debris, reducing the use of a potentially harmful material, and filtering or trapping out pollutants. They may include structural changes to a marina, acquisition and use of environmentally-preferable products and equipment, and educational efforts aimed at helping boaters understand how to prevent pollution. Additionally, you may develop your own BMPs to address particular problems based on the specific conditions at your marina. Note that it is less costly to prevent pollution from occurring than to clean it up later. Consider pollution prevention BMPs when prioritizing BMP implementation.

The Guide is organized as follows:

Chapter 2 provides background on the potential environmental impact of marina operations.

Chapter 3 discusses overall strategies and approaches to organize, run, and finance a Clean Marina operation.

Chapter 4 provides Best Management Practices to reduce pollution for different marina activities, along with checklists to help you identify the most appropriate BMPs for your facility.

Chapter 5 focuses on expanding or building marinas, giving details on how to meet current regulations and design a Clean Marina from the beginning.

Chapter 6 summarizes the fundamental environmental regulatory programs that apply to marinas.

Chapter 7 pulls all the other information together to develop a marina environmental plan to prioritize, finance, and schedule environmental improvements.

For More Info

For good examples of marinas that have adopted BMPs and how they have benefited, order the free U.S. Environmental Protection Agency report *Clean Marinas — Clear Value, Environmental and Business Success Stories* by calling (513) 891-6561 and requesting a copy of publication EPA 841-R-96-003. Or read and download the report from the EPA web site: www.epa.gov/owow/nps/marinas/index.html.

Chapter Two: The Coastal Environment and Pollution Impacts

2.1 The Massachusetts Coast

Currents, Waves, and Tides

Coastal Water Chemistry

Coastal Habitats

2.2 Marina Activities and Potential Impacts to the Marine Environment

Hull Maintenance

Boat Cleaning

Gas and Oil from Engine Maintenance, Bilge Water, and Fueling

Boat Sewage

Solid Waste

Fish Waste

2.3 Protecting the Massachusetts Marine Environment

The Coastal Environment and Pollution Impacts

Numerous plants and animals thrive in the water surrounding Massachusetts marinas. Clean water is key to sustaining this diverse and abundant marine life. This chapter provides an overview of the coastal environment around marinas, of marina activities and the contaminants they can produce, and of the potential effects of those contaminants on the marine environment.

2.1 The Massachusetts Coast

The Massachusetts coastline is unique and varied, to a large degree a product of glacial activity that took place more than 10,000 years ago as well as shoreline processes over time. In northern Massachusetts and Buzzards Bay, glaciers scoured the bedrock to form rocky shores as seen at Cape Ann and Sconticut Neck. Interspersed among the rocky stretches are sand and gravel deposits in the form of drumlins such as the Boston Harbor Islands. Drumlins provide the anchor and sediment source for barrier beaches, like those seen on Plum Island and on outer Cape Cod. Large rivers like the Merrimack and the Taunton end as coastal estuaries where fresh and saltwater mix and nutrients contributed from the land feed the smallest marine organisms. On the north coast, a large 10-foot tidal range results in a broad intertidal zone creating other diverse marine habitats.

Southeastern Massachusetts, Cape Cod, and the Islands represent part of the southern margin of glacial activity. When the glaciers stopped their progression southward and receded, they left behind deposits of sand and gravel that formed the Cape and the Islands. The coastline is characterized by vast stretches of sandy beach and bluffs. This shoreline has been sculpted by the Atlantic Ocean, which has eroded some shores and built up others. Broad barrier beaches and associated dune systems have formed along the outer coast, while extensive salt marsh systems have developed in protected bays behind these outer barriers.

Cape Cod also forms a major regional boundary between ecological zones, and separates groups of marine organisms from north to south. For example, different species of crustacean dominate north and south of Cape Cod. To the north, in what is referred to as the Boreal Region extending from Cape Cod to Newfoundland, American lobster and rock crab dominate. To the south, in the Mid-Atlantic Region, which extends from Cape Cod south to Cape Hatteras North Carolina, blue crab dominates. The migratory range of marine animals is also defined by these ecological zones. For example, sea turtles, like loggerhead and green turtles, do not migrate further north than Cape Cod.

Water temperature, more than any other factor, influences species distribution. Currents regulate the water temperature and thus determine these ecological zones. The Mid-Atlantic Region is influenced by the Gulf Stream, which transports warm waters from the lower latitudes northward to Cape Cod where it is deflected and directed across the Atlantic to northern Europe. The Boreal region north of Cape Cod is influenced by the colder Labrador Current, which creates inshore currents south of New Foundland across Nova Scotia and into the Gulf of Maine. As a result, the Massachusetts coastline has a rich assortment of marine habitats and species.

Currents, Waves, and Tides

Coastal energy in the form of currents, waves, and tides is fundamental to defining coastal environments. Coastal energy sustains physical and chemical conditions of each coastal habitat type, particularly by regulating salinity, temperature, and dissolved oxygen.

The Gulf Stream and the Labrador currents regulate regional water temperature. Smaller, nearshore currents, further affect water movement along the coast and contribute to localized changes in water temperature, salinity, and species migration. In addition, wave action influences the development of coastal habitats, both chemically and physically. Chemically, waves mix the water column providing oxygen and nutrients to organisms that live on the seabed. Mixing in the water column also provides for moderated water temperature by transferring heat from surfaces waters warmed by solar energy into the lower levels of the water column. Waves also help define the physical nature of the coast by constantly altering the landscape.

Marine species have adapted to particular parts of the coast subject to different degrees of wave energy. Tides, on the other hand, have a buffering effect on coastal water quality by flushing the coast twice daily and maintaining the strong ties between local waters and the ocean. This process also helps to moderate the effects of pollution on coastal harbors by regularly exchanging coastal and ocean waters. Tides also define distinct nearshore habitats between those that have adapted to regular exposure to the sun and the wind and those that are protected by marine waters.

Marinas are often located in bays and coves that protect boats from the ocean's wave energy. Currents can be swift in these areas at mid-ebb or flood tide when the tides are transferring water on and offshore. These conditions require that marina structures be designed and constructed to withstand energy produced by currents.

Coastal Water Chemistry

Important components of water chemistry in Massachusetts coastal waters include salinity, temperature, dissolved oxygen, and nutrients. Ocean waters off the Massachusetts coast have a salinity level of approximately 33 parts per thousand (ppt). However, salinity varies greatly in nearshore waters where streams and rivers dilute

the concentration of salt. Coastal water temperature is also variable. Surface waters exposed to solar energy are warmed, while isolated bottom waters remain cooler. Dissolved oxygen is also regulated by atmospheric conditions. Oxygen is rich at the water surface where oxygen is regularly infused into the water, but is limited in bottom waters that are not directly connected to sources of oxygen. Energy caused by waves, currents, tides, wind, and other atmospheric conditions is an essential mechanism for mixing oxygen into the bottom waters and sustaining the benthic life forms found at depth. Nutrients, particularly nitrogen and phosphorus, stimulate growth of the smallest marine organisms. Freshwater rivers and stream are important sources of nutrients that contribute to an abundance of marine life.

The water in sheltered bays and estuaries where marinas are often located is less saline, more nutrient enriched, and warmer. These conditions provide a good growing environment for plankton, which feed the fish nurseries of nearshore waters. However, excess pollution from boat sewage systems, septic systems, and stormwater runoff can upset the natural coastal water chemistry and lead to excessive algae growth and depleted oxygen needed by marine life.

The land between low and high tide, also known as the intertidal zone, is biologically-productive, providing habitat for many animals including fish, shellfish, and shorebirds.

Coastal Habitats

Natural communities found along the coast include barrier beach/coastal dune, rocky intertidal shore, salt marsh, eelgrass, mud flats, shellfish beds, the nearshore seabed, and coastal ocean waters. These habitats have developed, as a result of local physical and chemical conditions, and the marine organisms occupying each habitat have adapted to these environmental conditions. Barrier beaches, for example, are formed by wind and wave energy, and the marine organisms associated with barrier beaches have adapted to and thrive on this high energy environment. Salt marsh, on the other hand, is found in low energy environments where currents are weaker, and sediments carried in the water are deposited. Colonization by salt marsh vegetation helps stabilize these areas. Conversely, when salt marsh becomes exposed to waves, it often sloughs and erodes. Other natural habitats are found in different nearshore areas depending on the relationship of the daily tides. For example, eelgrass grows in waters that are shallow at low tide where the plant is exposed to the sun's energy needed for photosynthesis. Mud flats are habitats that are covered by water at high tide but are exposed to the atmospheric conditions at low tide.

Because coastal habitats of sheltered embayments are often found near marinas, conflicts between marina activities and these habitats can occur. While these fragile habitats have adapted to their unique environments, each is sensitive to changes in water chemistry, wave action, and boating activity, and thus, need to be safeguarded from unintentional harm.

2.2 Marina Activities and Potential Impacts to the Marine Environment

Developed areas, including marinas, yacht clubs, and boatyards, collect pollutants of all types. While this Guide focuses on the strategies available to reducing pollution from marinas to coastal waters, a basic knowledge of pollutants and their impacts on the environment is helpful to understanding why pollution reduction is important.

Impacts from pollutants on marine life range from direct poisoning through ingestion of pollutants to indirect habitat degradation through pollution that produces poor water quality and creates coastal waters uninhabitable by marine organisms. Pollution often harms organisms by retarding or preventing reproductive development. Indirect effects can also impact populations by reducing available habitat for successful breeding. For example, where eelgrass beds are degraded by water pollution, scallops no longer have the habitat necessary for reproduction and early life stage development.

The types of pollutants that are produced by individual facilities depend on the activities that occur there. Potential pollutants from marinas are described below by the activities that generate them.

Hull Maintenance

Hull paints can contain metals, such as tin and copper, pesticides, and volatile organic compounds (VOCs), all of which are toxic to marine life. In addition, paints and solvents release VOCs into the air, which are harmful to humans when inhaled.

Hull scraping and sanding generates paint chips that can be washed off-site during rainfall events. Hull painting can expose fresh paint to marine organisms. Shellfish are particularly vulnerable to these pollutants because paint chips sink through the water column and settle in the sediments where clams, oysters, and mussels live and feed. The pollutants may be ingested and build up in the animal tissue without being fatal to the specific individuals. However, when other animals consume the shellfish, they can be affected. Over time, the pollutant works its way up the food chain impacting both animals and humans. Long-term exposure to certain compounds can produce abnormal cell development and cancers.

Because they are located on the water, all marinas have the postential to impact the marine environment.

VOCs

Volatile Organic Compounds (VOCs) are carbon-based chemical compounds commonly used in paints, solvents, and thinners that rapidly evaporate or volatize. In paints, the VOCs evaporate leaving behind the dry pigment in the paint. The characteristics that make VOCs effective for applying paints also make them a potential air/water pollution hazard. When released into the atmosphere, some VOCs can contribute to the development of ozone. (Ozone is a primary ingredient in smog. It leads to health problem such as aggravated asthma, reduced lung capacity, and increased susceptibility to disease.) VOCs are also soluble in water, which can result in pollution. Furthermore, VOCs are flammable and can be toxic to humans and aquatic life. VOC-containing products can be replaced with less hazardous, aqueous or water-based substances at little or no extra cost.

Boat Cleaning

Soaps contain different cleaning agents, such as chlorine, ammonia, and phosphates, at concentrations that can be harmful when ingested. Excess use of soaps and solvents can harm marine life. The greatest impact occurs in surface waters, where soaps are most concentrated and where plankton – tiny creatures at the bottom of the food chain – is most abundant. Soaps can also break down oil products floating on the water surface and become exposed to marine life that inhabits the water column. Impacts decrease from the point of the spill as the concentration of soap is diluted.

Cleaning agent chemicals can also produce cumulative impacts. In particular, excess nutrients, such as phosphates and nitrates, become available at lower concentrations and accelerate the growth of plants. This can upset the natural balance in coastal waters and lead to excessive plant growth and a decrease in dissolved oxygen. Use of biodegradable products can significantly reduce problems associated with boat cleaning. However, even biodegradable soaps can cause an adverse impact, and should be used in moderation.

Gas and Oil from Engine Maintenance, Bilge Water, and Fueling

Oil and anti-freeze are polycyclic aromatic hydrocarbons, a family of chemicals that can cause abnormal cell development and cancer. Oil also contains other chemicals components, such as zinc and sulfur, at toxic levels. Solvents are comprised of carbon compounds that are also toxic.

Most petroleum products, particularly fuel and oil, will float if spilled on water. Bilge water collects oil, grease, and other pollutants from the engine, leaky fuel lines, and the washing down of the boat deck. When gasoline gets into the bilge, a hazardous condition can develop that can lead to gas combustion and an explosion. Because bilge water is always being collected, it and the pollutants it contains, are regularly

Consider This

Read the product label. If the cleaner is harmful to humans when ingested, or when in contact with eyes or skin, then it will harm marine life as well.

discharged to coastal waters where the fuel or oil component can harm birds and small animals, which also float or dive into the water. Floating oil also reduces the normal oxygen exchange into the water. If a detergent is used to disperse the petroleum, it leaves the surface and mixes in the water column where it can harm the plankton communities that are the basic food for fish and small marine animals.

Spills of gasoline and oil during boat fueling are a common source of marine pollution. While large spills are uncommon, small drip spills occur regularly, and can cause minor impacts on the local marine environment.

Boat Sewage

Raw sewage contains water-borne disease and pathogens that can make people sick. Boat holding tanks and marina rest rooms are potential sources of raw sewage. While some marine toilets treat the waste prior to discharge, impacts from nutrient loading and chemical additives still occur. Direct contact with pet waste can also bring people in close contact with unhealthy bacteria. When it rains, pet waste runs into the marina waters causing contamination. Waterbirds, such as geese, ducks, and gulls are also major sources of waste contamination in the water as well as on docks and boats, so feeding them should be discouraged. Bacteria from all these sources collect in shellfish, and then can be passed on to humans who eat them.

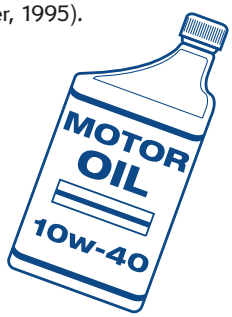
Sewage and animal wastes contain nutrients, which, in large volumes, can disrupt the natural chemical balance in water by reducing oxygen levels. Increased nutrients can trigger a chain reaction that starts with the excessive growth of marine plants and algae, and can lead to an overabundance of bacteria that breakdown dying plants and at the same time further deplete dissolved oxygen in bottom waters. When oxygen is depleted by the bacteria in bottom waters, a dead zone develops. This problem is exacerbated in protected coves and shallow waters, particularly during the very hot days of summer often after heavy rains that add massive amounts of runoff from all sources. Increased water temperature accelerates bacteria metabolism, activity, and growth.

Solid Waste

Just as with all human activities, marinas and boats produce waste. Trash and other solid waste can be harmful to humans and wildlife. Some plastics, such as nylon fishing line and plastic six-pack holders, can be ingested or entangle seabirds and fish. Food garbage left uncovered can attract flies and gulls and can contribute to the nutrient overload in the water.

Consider This

It requires only a small amount of gasoline or oil to cover a large area of water. For example, a single pint of oil released onto the water can cover one acre of water surface area (Buller, 1995).



In addition, large pieces of floating trash, such as boards, can be hazardous to boats and can cause damage in collisions. Floating plastic bags can also be sucked into cooling water intakes, resulting in overheating of engines, or can get wrapped around propellers. Often, the most obvious problems with solid waste are aesthetic. Floating paper cups and cigarette butts in the water are unsightly and detract from the beauty of the ocean and from people's enjoyment of their boating experience.

Fish Waste

If thrown into the water, dead fish and fish parts are unpleasant to look at and attract gulls, which create their own mess to clean up.

The dumping of large quantities of fish wastes in the marina waters, for example, during a fishing derby can harm marine life. Bacteria naturally colonize the waste and break it down. Thus, large quantities of decomposing fish parts can deplete the oxygen in confined water, especially during the hot days of summer when conditions are best for bacteria production. This phenomenon can create low oxygen zones that prevent marine life from surviving.

2.3 Protecting the Massachusetts Marine Environment

The Massachusetts coastline includes natural features and aquatic life that are important to our heritage and our future. Pollution from many sources threatens to impair these valuable resources. Marinas have a vested interest in protecting the coastal waters because clean water sustains recreational boating and the marina industry.

The following chapters will help marina owners identify potential pollution problems at their facilities, plan for improvements, and implement best management practices to prevent pollution and protect Massachusetts' coastal environment.

Chapter Three: Clean Marina Operations and Management

3.1 Staff Training

3.2 Tools to Help Communicate "Clean Boating" to Customers

Customer Contracts

Contractor Agreements

Signs

Fact Sheets

Notices and Clean Boating Tips

Clean Boating Events

Promoting the Marina's Good Work

3.3 Financing Clean Business Practices

New Services

Sell Environmentally-Preferable Products

Environmental Surcharge

Itemized Environmental Charges

For More Info

Check out other Massachusetts marinas on the web at www.charternet.com/marinas/massachusetts.html.

Clean Marina Operations & Management

The most efficient and effective way to run a "Clean Marina" is to incorporate environmentally-sound approaches and management strategies into all aspects of marina operation. The basic goal is to protect water quality and local marine habitats to create a safe and healthy environment and to sustain a strong marine business. A well-run Clean Marina encourages boaters to do their part to protect the environment. This positive attitude is good for business, with boaters spreading the word that your Clean Marina is a great place keep your boat.

This chapter focuses on ways to incorporate a Clean Marina philosophy into daily marina operations. It begins with staff training, which is the key to enlisting your employees in environmental protection efforts. Then it discusses some of the many ways to educate your customers about how to keep the coastal environment clean. Finally, this chapter discusses strategies to make Clean Marina practices pay for themselves through charging for new services, selling new products, and adding surcharges or itemized environmental charges for boaters.

This chapter discusses overall Clean Marina operations and management. See Chapter 4 for Best Management Practices to reduce the environmental impacts of the specific activities that occur at your marina.

3.1 Staff Training

Marina staff and dock crew can be effective spokespersons, providing boaters with valuable information on how to protect the environment. Because they are the front-line for communicating with customers, staff actions and attitude can greatly influence boater behavior at your marina. Consequently, it is essential that your staff is prepared to provide customers with the right message, at the right time, in an appropriate manner. Routinely reinforce the following concepts with your staff so that they are comfortable communicating environmental information to boaters:

- Clean water is important to the marina business.
- Pollution problems have solutions, so work with customers to achieve them.
- Keeping a Clean Marina should be part of the daily work routine.
- Be alert and prevent pollution, rather than cleaning it up afterward. Prevention is both cheaper and more effective.

- Work with the boaters, rather than being confrontational. Building a positive working relationship and leading by example is more likely to persuade boaters to do their share to keep the environment clean than lectures and reprimands.

Regularly scheduled training sessions will help your staff learn what to look out for at the marina. Keep simple records of when you hold these training sessions, what was covered, and who attended. Topics that should be covered include:

- Spill response and proper handling of hazardous liquids, solvents, fuels, and lubricants.
- Trash and maintenance debris.
- Boat sewage discharge.
- Boat maintenance and cleaning activities.

Refer to the activities listed in Chapter 4 for more information on appropriate practices that you can share with your staff.

Training

Training programs that cover a broad range of issues for marina staff and boaters are available from the following organizations: Massachusetts Maritime Academy (508) 830-5098 and the International Marina Institute (941) 480-1212.

3.2 Tools to Help Communicate "Clean Boating" to Customers

A wide range of tools is available to communicate your Clean Marina message. The most important tool, as discussed above, is staff-customer interaction. This regular communication can be augmented by a mix of other tools, which are discussed below.

Customer Contracts

Most marinas have annual lease contracts for customers who rent dock or land space and moorings. An effective way to educate boaters and to enlist their formal support for protecting the environment is to clearly state the marina's environmental rules in the marina contract. Some marinas call this a clean boating pledge, an environmental contract, or a best management practice agreement. Specifically, the customer contract could require boaters to:

- Conduct all vessel maintenance activities in designated locations and use dust- free tools when appropriate.
- Use appropriate spill prevention and collection measures during all maintenance activities, including oil changes.
- Use environmentally-preferable "green" cleaning products, such as biodegradable soaps, whenever possible.
- Use oil absorbent pads in bilges at all times and install fuel/air separators in the fuel tank vent line.

- Dispose of trash in appropriate containers or take it home.
- Recycle all products that the marina accepts.
- Use a pumpout facility as frequently as needed.
- Clean up after pets.
- Use the fish cleaning station or clean fish and dispose of waste offshore, not in the marina waters or dumpster.

A sample of an environmental contract from Edwards Boatyard is provided as Appendix A. Call Charlie Swain at (508) 548-2216 for more information.

Contractor Agreements

Establishing agreements with outside contractors before they do work at the marina is a commonly accepted practice. These agreements should include provisions requiring contractors to meet the marina's environmental policies and procedures. Such agreements should require contractors to:

- Abide by all Best Management Practices used by the marina under its National Pollutant Discharge Elimination System (NPDES) permit.
- Be responsible for removal and disposal of all wastes.
- Keep work areas clean to prevent the spread of pollution.
- Use precautionary measures to prevent the escape of hazardous materials. (Specific measures will depend on the contractor's activity, however, general principles such as isolating the work area and confining the activity would be appropriate.)
- Use environmentally-preferable alternatives. (These requirements will again depend on the contractor. Refer to the specific activity in Chapter 4 for lists of products.)
- Sign in at the marina office before beginning work on any boat and sign out when the job is done.

Signs

Interpretive and instructional signs placed at marinas and boat-launching sites are a key method of providing information to the boating public. Signs should educate customers in a positive way as to what activities are allowed and where they should be conducted. A sign listing the environmental services provided by the marina should also be available. Ideas for different types of language for signs are provided in Appendix B.

Fact Sheets

Handing out fact sheets is a cost-effective way to inform customers about environmental protection efforts. Sample fact sheets are provided on the inside back pocket of this guide covering the following topics:

- Boat Maintenance (including Boat Cleaning and Hull and Engine Maintenance)
- Managing Wastewater (Bilgewater, Sewage, and Graywater)
- Trash, Garbage, and Hazardous Waste Disposal Tips
- Boat Operation and Fueling
- Non-Toxic Cleaning Alternatives

Feel free to copy these fact sheets and distribute them to your customers. Free fact sheets on nonpoint source pollution can also be downloaded from the U.S. Environmental Protection Agency's Office of Water website at www.epa.gov/owow/nps/facts/.

Notices and Clean Boating Tips in Mailings

To continue to inform your customers about water quality protection, include an environmental note or tip in each regular invoice mailing or newsletter. If possible, have the tip correspond to seasonal activities and issues. For example, spring tips could cover proper collection and recycling of shrink wrap, marina requirements for boat scraping and painting, and the benefits of placing oil absorption pads into the bilge before launching. Summer tips could include a list of pumpout facilities and hours of operation (call CZM at (617) 626-1212 for the current list), a list of materials accepted for recycling at the marina, and information on proper boat cleaning techniques. Fall tips could include information on bilge cleaning and the use of environmentally-preferable antifreeze. Finally, winter tips could cover replacing out-of-date toilets, installing fuel/air separators in the vent line, adding a holding tank, replacing old hoses that became permeable to sewage gas, or ordering engine tune ups for more fuel efficiency.

Clean Boating Events

Including Clean Marina information and activities as part of already organized events is a great way to get the message to boaters. Examples of special events suitable for clean boating activities include fishing derbies, boat shows, cruises, picnics, regattas, and sailing races. Some good "how to" activities include demonstrations on the use of: oil absorption pads to keep bilges and water clean, "green" products for boat cleaning, and spill-free fueling techniques for boats and personal watercraft.

Specific activities are also a valuable way to communicate clean boating practices. For example, you could invite a local school science teacher to visit and temporarily set up an aquarium as a showcase of the plant and animal life being protected. You could also conduct a contest with a prize for the customer that guesses the number of

NATIONAL CLEAN BOATING CAMPAIGN

Clean Boating

Join the free National Clean Boating Campaign and become a partner marina by handing out their free fact sheets and organizing some of the activities successfully used by other marinas. Visit their web site at www.cleanboating.org and download their materials.

species found living in the marina. In addition, you can organize a cleanup day for the shore around the marina, and/or hold a "cleanup cruise" to an island or other location popular with boaters. Invite scuba divers to do a marina bottom cleanup and retrieval of lost objects.

Promoting the Marina's Good Work

Spread the word about your efforts to protect the environment whenever possible. Community members, particularly boaters looking for a marina, will be interested in what you are doing. The following strategies can help you promote your efforts:

- Participate in association groups (such as the Massachusetts and Cape Cod Marine Trades Associations) and promote your efforts through the industry. Check out websites for the Massachusetts Marine Trade Associations at http://boatmassachusetts.com/ and the Cape Cod Marine Trades Association at www.cc-waterweb.com/ccmta/index.htm.
- Send a press release to your local paper and/or trade-related publications about the improvements the marina has undertaken, or about the success of a particular program, like pumpout operations.
- Regularly communicate with the harbormaster, Conservation Commission, and Selectmen about marina activities and invite them to participate in clean boating events.

Beach Cleanup

COASTSWEEP is the state-wide beach cleanup organized by CZM. Every year the cleanups are led by a dedicated group of local volunteer coordinators who in 2000 organized about 4,000 volunteers who collected almost 70,000 pounds of trash and marine debris from over 150 locations. Some marinas sponsor cleanups including Edwards Boatyard in Falmouth. For more information on how your marina can participate call (617) 626-1223.

3.3 Financing Clean Business Practices

One of the keys to successfully implementing Clean Marina strategies is to help boaters understand the relationship between good environmental quality and their recreational experience. When a clean marina program is operating properly, boaters will not only be willing to participate in keeping coastal waters clean, they will be willing to invest their time and money. The facility owner can help make Clean Marina practices pay for themselves by marketing new services, renting equipment, selling environmentally-preferable products, and/or implementing an environmental surcharge.

New Services

Adding environmental services can create new revenue streams for your marina. For example, you can charge a fee to perform environmental audits to identify practices, repairs, or products that can reduce a vessel's impact on the environment. Such an audit could include engine inspections for clean, leak-free, and efficient operation; Marine Sanitation Devices (MSD) system inspections for compliance with Federal law and no discharge area use; fuel system inspections including tanks and lines; and bilge inspections for possible oil leaks. Audits can also indirectly generate business by recommending "green" products or services sold at the marina, or by recommending the installation of pollution-prevention devices.

The marina can also charge for regular maintenance services, including dripless oil changes, engine cleaning and repair, and bilge cleaning and repairs to oil leaks. If your marina is equipped to service boats, some services that you may be able to add to your repair shop include hull vacuum sanding, water-based bottom painting, air/fuel separator installation, holding tank replacement and Y-valve removal, and through hull plugging.

The marina could also rent or sell equipment to do-it-yourselfers. Examples of equipment that you could rent include dustless vacuum sanders and sandpaper disks, tarps or filter cloth for use beneath boat during work, and spray booths.

Sell Environmentally-Preferable Products

Selling environmentally-preferable products at the marina will help your customers practice clean boating, while at the same time financially supporting your environmental efforts. The following products (many which are listed in Chapter 4) could be sold at the marina store:

- glycol antifreeze
- environmentally-preferable teak cleaner
- absorbent pads
- biodegradable soaps
- low nitrogen detergents
- non-toxic, water-based paints
- holding tank additives

Environmental Surcharge

Some facilities have included an environmental surcharge to help cover the costs of future environmental improvements, such as stormwater management and pumpout systems. Keep customers informed and show them formal progress on improvement activities to help solidify their support for and understanding of the surcharge.

Itemized Environmental Charges

Requiring payment for tangible items can help cover costs for keeping the marina clean and efficient. This approach may help to avoid complaints about "blanket" charges. For example, specific charges could be used to cover disposal costs for used oil, oil-saturated absorbent pads, other hazardous wastes, shrink-wrap, and solid waste. In rare cases, charging for the proper disposal of materials may encourage illegal actions for those looking to avoid the charge. To avoid this illegal dumping, consider an environmental surcharge instead.

While this chapter focues on overall approaches to operating and managing a Clean Marina, see Chapter 4 for details on the Best Management Practices to use to address specific issues at your marina.

Funding Tip

Brewer Yacht Yards adds a 1% environmental surcharge on all invoices to cover the often hidden Clean Marina costs, such as landscaping, staff training, environmental permit applications, and use of general clean up products and disposal. They report that few of their customers object and most appreciate the visible efforts the marinas have made toward cleaner operations.

Chapter Four: Activities and Environmental Practices

While each marina business is unique, all facilities can adopt environmental practices.

BMPs

Best Management Practices (BMPs) help solve the environmental pollution problems that result from marina activities, such as boat cleaning, fueling, and waste disposal. BMPs use one or more basic methods to control this pollution, such as preventing accidental spills or leaks, capturing pollutants as they are produced, containing the spread of spills or debris, reducing the use of a potentially harmful material, and filtering or trapping out pollutants. They may include structural changes to a marina, acquisition and use of environmentally-preferable products and equipment, and educational efforts aimed at helping boaters understand how to prevent pollution. Additionally, you may develop your own BMPs to address particular problems based on the specific conditions at your marina. Note that it is almost always less costly to prevent pollution from occurring than it is to clean it up later. Consider pollution prevention BMPs when prioritizing BMP implementation.

Activities and Environmental Practices

All marinas are different and can have different activities going on that change from season to season. As a result, every marina will use different pollution reduction strategies.

Marinas are required under federal and Massachusetts laws and regulations to take actions to control pollution from normal operations and to prevent accidents. Some regulations, such as the National Pollutant Discharge Elimination System (NPDES), require that you take specific actions. Other laws, particularly the Coastal Zone Act Reauthorization Amendments of 1990, leave it up to the regulated party (e.g. marina owners) to decide which practices to implement. This chapter lists a range of proven options. Don't feel you are limited to this list. If you have a better way to control a potential pollutant, use it. Because marina operators, by the nature of their business, are creative problem solvers, CZM encourages innovative solutions to be developed and used.

This chapter is organized according to the following activities that occur at marinas:

- Hull Maintenance and Cleaning
- Boat Cleaning
- Engine Maintenance
- Bilge Water Handling
- Fueling
- Spill Response
- Boat Sewage and Wastewater Management
- Shoreside Facilities and Pet Waste Management
- Solid Waste Management
- Hazardous Materials and Hazardous Waste Management
- Fish Waste Management
- Stormwater Management
- Boat Operations

For each activity, a list of applicable state and federal laws that apply is provided. The laws are followed by a list of Best Management Practices (BMPs), or pollution prevention strategies and technologies, which will reduce the environmental impact of each activity. Some BMPs will help you achieve compliance with existing laws and you should be sure that you are implementing these BMPs first. Other BMPs are provided as suggestions for achieving pollution prevention goals.

The following symbols are provided to help you identify which BMPs will help you comply with existing laws and which are recommended for protecting marina waters.

- ▶ **BMP will assist with Regulatory Compliance**
- ▷ **BMP recommended**

Read about each activity that applies to your facility, and follow these steps.

1. Review the regulations for each activity and make sure your facility is in compliance. Refer to Chapter 6 for more details on applicable regulatory programs and contact the agency personnel for details.

2. Read the list of BMPs and highlight those that might work at your marina.

3. Complete the checklist at the end of the section to conduct a formal inventory of pollution sources and available BMPs.

4. Make a list of immediate tasks in the "Action" column on each checklist, such as names and numbers of marinas to call, vendor contact information, and sources of regulatory requirements that need follow-up.

Once you have completed all of the checklists, you have the basic information for a marina environmental plan. Chapter 7 will help you refine your plan including prioritizing, financing, and scheduling environmental improvements.

Consider This

Consider making multiple copies of the activity checklists for future use. Then you can use these checklists in conducting annual self-audits, to document progress and evaluate future improvements.

Boat bottoms should be maintained in desingated areas away from the water.

4.1 Hull Maintenance and Cleaning

If not properly controlled, hull maintenance activities, including scraping, sanding, pressure washing, and painting, can put toxic pollutants into the marine environment. Where marinas do not provide these services, Do-It-Yourselfers and outside contractors may be performing this work on the marina's property. In all cases, this section provides you with tools to reduce the potential negative impacts from hull maintenance.

LEGAL REQUIREMENTS

The following laws apply to hull maintenance activities. If you perform or allow hull maintenance services and activities at your facility, please read the summary of these regulatory programs in Chapter 6.

- National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP) for Industrial Activities
- Organotin Anti-Foulant Law
- Massachusetts Air Quality Program
- Massachusetts Hazardous Waste Regulations
- Massachusetts Industrial Wastewater Regulations
- Massachusetts Waterways Regulations

Please Note

Marinas that provide commercial boat maintenance services where maintenance activities are exposed to stormwater are likely to require a National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit from the US Environmental Protection Agency (EPA). See Chapter 6 for a description of the program and the requirements for complying or call the EPA NPDES Program at (617) 918-1615.

Best Management Practices

Hull Scraping, Sanding, and Washing

Hull scraping, sanding, and washing releases pollutants that are bound up in hull paint and exposes marine organisms to those pollutants. Employing the following BMPs will minimize the potential for pollutants associated with hull paint to reach coastal waters.

- **Designated Maintenance Areas:** Restrict all major vessel repair and maintenance work to designated work areas that are located away from the bulkhead. Activities that should be restricted to designated areas include abrasive blasting, pressure washing, hull scraping and sanding, and hull painting. Maintenance work such as painting, scraping, and hull cleaning should be done on land, not at marina slips or moorings. Underwater cleaning of hulls must be prohibited. The area should be provided with containment as outlined below.
- **Containment:** Maintenance areas should be designed and equipped to minimize the spread of pollutants by:
    - Containing all waste and wastewater generated from hull maintenance activities for proper treatment and disposal; and

- Covering the containment areas to prevent rainwater from entering these areas.

If covering the containment areas is not feasible, then all the stormwater collected within the containment areas must be handled as industrial wastewater generated from hull maintenance activities. Berms or curbs made of concrete or asphalt can be used to enclose the area and prevent runoff from entering or leaving the maintenance area. To prevent pollutants from seeping into the soil below, all maintenance areas should be located on top of a hard, impermeable surface, such as blacktop. These maintenance areas must be kept clean or covered to prevent rainwater from entering these containment areas and washing away the remnant pollution left over after work, or alternatively, the work area must drain to a storage tank for further recycling, treatment or disposal.

- **Pressure Washwater Management:** Pressure washwater is considered to be a "process" wastewater (or industrial wastewater). Therefore, discharge of pressure washwater to coastal waters, the ground, or a sewer system is illegal without a permit. To meet permit conditions, significant pretreatment of the wastewater prior to discharge would likely be required—regardless of the discharge option chosen. In addition, most pretreatment systems (for discharge) must be operated by staff properly certified by the state.

The significant investments in permitting, training, and operator certification for discharge systems likely make them cost prohibitive. Therefore, recycling systems that treat the wastewater for reuse as washwater without discharge may be a more viable option. The recycling systems without discharge need no operational permit if there is no hazardous waste involved. However, these systems will require periodic maintenance. No matter the disposal option selected, all pressure wash facilities must develop a system to collect the wastewater for treatment, recycling, or offsite disposal. For smaller yards that wash fewer boats, collecting all washwater for offsite disposal may be the most cost effective option.

The following practices should be considered when addressing pressure washing at marinas.

Collect Pressure Washwater: Pressure washwater must be collected for pretreatment prior to reuse, permitted discharge, or disposal. Vessels must be washed over an impervious pad that can collect all wastewater (process wastewater).

Handle Pressure Wastewater Properly: One of the following options must be selected for the management of wastewater from pressure washing operations. Facilities will need to consider many variables before selecting an appropriate management option. The number of boats washed (wastewater volume), site characteristics, sewer availability, staff technical ability, cost, and other factors must all be weighed before one of the following options is selected:

- Recycle washwater for reuse. No discharge permit is needed, but this may require periodic hauling for disposal of residual wastewater and solids.

Hazard Alert

Paint chips that are collected must be tested and confirmed as non-hazardous before disposal as solid waste. See Section 4.10 for more information on Hazardous Waste Management.

Please Note

EPA regulates the discharge of pressure washwater under the NPDES Permit Program. If you discharge any washwater to marine (or other surface) waters, you are required to obtain a NPDES Individual Permit for Industrial Discharges. This wastewater is not covered by the NPDES Multi-Sector General Permit for stormwater management.

Consider This

A dust free sander reduces unhealthy dust by as much as 98 percent, which makes for a healthier work area and cleaner natural environment. The dust free sanders are cost efficient as well. A report written by Martin Walter Co., Inc indicated that a marina manager in Missouri increased productivity by cutting sanding time by 30 percent, decreasing cleanup labor by 80 percent, and providing rental profit through weekend rentals to customers.]

- Haul wastewater to treatment facility. This activity will need an industrial wastewater holding tank compliance certification (DEP01) submitted to the Massachusetts Department of Environmental Protection (MassDEP).
- Discharge to sewer system. This activity may require a permit from the local sewer authority, sewage treatment plant, or MassDEP. In addition, a MassDEP certified operator may be required to run the treatment system.
- Discharge to surface waters. This activity will require a NPDES permit from EPA and MassDEP. In addition, a MassDEP certified operator may be required to run the treatment system.
- Discharge/Infiltrate to ground. This activity requires a groundwater discharge permit from MassDEP and a MassDEP certified operator may be required to run the treatment system.

LOCAL EXAMPLE

Parker's Boatyard in Cataumet, MA uses vacuum sanders because they are cost effective, cleaner, and more efficient than old sanding methods. Parker does not allow people to do their own bottom work at the boatyard for both environmental and economic reasons. Other yards, such as Manchester Marine, encourages Do-It-Yourselfers. They rent sanders to their customers, which has allowed Manchester Marine to pay off the cost of the sanders and make a small profit. Call Parker's Boatyard at (508) 563-9366 or Manchester Marine at (978) 526-7911 to find out how vacuum sanders have worked at their marinas.

- **Work Indoors:** Where practical, conduct vessel maintenance indoors or under temporarily covered areas where the rain cannot cause runoff. Sheet plastic shelters are widely used by many marinas.
- **Work Away from the Water:** At a minimum, always move each boat inland to the approved work area before scraping or power washing the hull. Do not allow anyone to perform hull maintenance activities on the launch ramp area or in the lift well.
- **No In-Water Bottom Cleaning:** Removal of seaweed and other marine growth on the bottom of boat hulls by divers must be prohibited. This practice is sometimes carried out by owners of sail boats before races in regattas to enhance boat speed. Cleaning of seaweed also removes anti-foulant paint and associated pollutants.
- **Dustless Vacuum Sanders:** Dustless sanders use industrial vacuum cleaners to trap dust created in the sanding process before it becomes airborne. As the sander removes paint, dust is drawn into several holes located through the sanding pad. The dust is then sucked into a vacuum container that can be emptied for disposal. Dustless vacuum sanders are one of the best ways to control paint dust before it can become a pollutant. Added advantages include keeping a clean workplace, reducing health risks to

workers, and reducing clean-up costs and time. If you choose dustless sanders as a BMP, require all staff, outside vendors, and Do-It-Yourselfers to always use this equipment. Train staff to use equipment and develop a user manual for Do-It-Yourselfers. See Appendix C for vendors of dustless sanders.

- **Tarps and Filter Cloth:** Use tarps and/or filter cloth to catch scrapings and other debris produced during maintenance work. Tarps and cloth are inexpensive "low-tech" methods to collect debris before it can be washed into coastal waters by stormwater. Filter cloths are better than tarps when boat work is expected to last longer than one day. Should it rain, the water passes through the cloth instead of washing the debris off the tarp. Have these items available to rent or sell to customers who do their own boat maintenance.

- **Clean Up Designated Areas:** Clean up the designated work area after scraping and painting. Leaving areas cluttered and messy will cause spills and allow pollutants to be tracked outside the work area.

Painting

Because hull paints contain toxic pollutants, they should be used with care. Consider the following BMPs when painting your boat.

- **Designated Maintenance Areas:** Restrict mixing of paints, solvents, and reducers, as well as the painting itself, to designated areas that are located on a hard surface and isolated from the weather.

- **Prohibit Spray Painting on the Water:** Sprayed paint can be difficult to control. Paint can be inadvertently sprayed into the water and expose marine life to toxic chemicals.

- **Clean Up Paint and Supplies:** Treat paint spills like oil spills. Clean up immediately with absorbent materials, paper, and/or rags. Since liquid paints are classified as hazardous material, dispose of paint brushes and paint properly (see Section 4.10). If your customers are permitted to paint their own boats, require them to clean up after themselves. Provide paint disposal areas for customers to use. Before disposal, all paint cans and worn out brushes and rollers should be allowed to air dry.

- **Appropriate Use and Storage of Hazardous Materials and Waste:** Make certain that all painting materials are used strictly according to manufacturers' instructions. Consult the Material Safety Data Sheets and Massachusetts hazardous waste regulations for proper product handling and disposal of waste. Refer to Section 4.10 for more information about hazardous waste disposal. Keep covers and caps on paints, thinners, and solvents to minimize the release of Volatile Organic Compounds (VOC). Outside contractors working in your marina must, under terms of your contract with them, comply to the same BMP and cleanup standards as adopted by your business.

Please Note

Spray booths may require a permit from the Massachusetts Department of Environmental Protection Air Quality Program.

- **Spray Booths:** A spray booth is a permanent shed or temporary enclosure erected around a boat during painting. Spray booths confine overspray and prevent drifting onto other boats, land, or water. Booths equipped with air filters reduce air quality impacts by filtering paint dust and particulates out of the air. Filters also help protect workers by drawing harmful fumes and paint overspray away from employees.

- **High Volume, Low Pressure (HVLP) Spray Guns:** HVLP sprays are the most efficient means for applying paint. Promote use of spray guns that are rated at 65 percent efficient paint transfer or greater. These spray guns direct more paint onto the intended surface and as a result, less paint gets into the air, and fewer VOCs are released. HVLPs also save money because less paint is used and clean up costs are reduced. Electrostatic spraying is another option that allows more paint to stay on the boat bottom. See Appendix C for companies that sell innovative paint applicators.

- **Traditional Paint Applications:** Use brushes and rollers where possible. Spray guns physically agitate the paint during application, which releases more of the chemical compounds into the air. Traditional applications reduce air emissions.

- **Water-Based Paints:** Use water-based paints wherever possible. Water-based paints are environmentally-preferable because they use small amounts of VOC solvents. Performance can be just as good as oil-based paints and cleanup is easier because brushes, rollers, and equipment can be cleaned in water, making paint thinners unnecessary.

- **Inform Do-It-Yourselfers:** Provide information to customers who work on their boats at the marina about the potential harm caused by uncontrolled release of paint products. Visible signs, clauses in customer contracts, fact sheets, and tips in mailings are all good ways to communicate this information. A Boater Fact Sheet on Hull Maintenance Activities is provided in this guidebook. Photocopy it and distribute it to your customers. For information about communicating clean boating practices to your customers, see Chapter 3.

- **Train Employees:** Train your employees to be on the lookout for hull maintenance activities by Do-It-Yourselfers that may be harmful to the coastal environment.

Useful Contacts

US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Program - Call **(617) 918-1615** or look online at **http://cfpub2.epa.gov/npdes/stormwater/msgp.cfm** for more information about the NPDES Multi-Sector General Permit.

Massachusetts Environmentally Preferable Products Procurement Program has information on acquiring recycled paints **-http://www.mass.gov/epp**.

HULL MAINTENANCE AND CLEANING

Complete this checklist if hull scraping, sanding, pressure washing, or painting occurs at your facility.

Activities that occur at the facility: ❑ **Hull Scraping** ❑ **Sanding** ❑ **Pressure Washing** ❑ **Painting**

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Designated Hull Maintenance Areas			4.3	
*Containment			4.3	
*Proper Pressure Washwater Management			4.4	
Work Indoors			4.5	
Work Away from the Water			4.5	
No In-Water Boat Cleaning			4.5	
Dustless Vacuum Sanders			4.6	
Tarps and Filter Cloth			4.6	
Clean Up Designated Areas			4.6	
*Designated Maintenance Areas for Painting			4.6	
*Prohibit Spray Painting on the Water			4.6	
*Clean Up Paint and Supplies			4.6	
*Use and Storage of Hazardous Material and Waste			4.6	
Spray Booths			4.7	
High Volume, Low Pressure (HVLP) Spray Guns			4.7	
Traditional Paint Applications			4.7	

BMP	YES/NA	NO	Refer to Page	Action
Water-Based Paints			4.7	
Inform Do-It-Yourselfers			4.7	
Train Employees			4.7	

***BMP will assist with regulatory compliance.**

NOTES:

4.2 Boat Cleaning

Cleaning boats and boat equipment is important for aesthetics and longevity. Some of the soaps and solvents commonly used in cleaning boats can be toxic to marine life. Consequently, it is important to educate boaters about environmentally–sound cleaning products and practices. Set an example for your boating guests by selling and using "green" products while providing boat cleaning services by the marina.

LEGAL REQUIREMENTS

The following laws apply to boat cleaning activities. If you perform boat cleaning services at your facility, please read the summary of these regulatory programs in Chapter 6.

- Massachusetts Air Quality Regulations
- Massachusetts Clean Waters Act
- Massachusetts Hazardous Waste Regulations

Best Management Practices

Consider employing the following BMPs for environmentally-protective boat cleaning methods.

▶ **Designated Maintenance Areas:** Cleaning should be restricted to designated maintenance areas. See section 4.1 for more information.

▷ **Natural Cleaners:** Promote the use of natural cleaners at your marina. The most natural cleaner you can use is water. Scrubbing a dirty section of your boat with a rag soaked with water can be as effective as any cleaning agent if you apply more "elbow grease." Other natural cleaners that can be very effective include lime juice, borax, and baking soda. Because even natural cleaners can have a negative effect on the environment, use them in moderation.

▷ **Biodegradable Soaps:** When a boater needs to use a detergent, suggest phosphate-free soaps that are non-toxic and biodegradable. These soaps should still be used sparingly since even biodegradable soaps can harm marine life. Manufacturers and distributors of biodegradable soaps are listed in Appendix C.

▷ **Solvent Alternatives:** Encourage the use of solvent alternatives by distributing a list of non-hazardous cleaning products. For example, teak can be effectively cleaned with a mild soap and abrasive pad or bronze wool. However, never use steel wool as it will leave rust marks. A list of some of these products is provided on a fact sheet in the inside pocket at the back of this guide.

Consider This

Try cleaning with water and some extra "elbow grease" before relying on cleaning products. People forget that water is one of the best solvents available.

- **Use Solvents Properly:** When solvents are needed, they should be used in designated maintenance areas only. Keep covers and caps tightly closed as much as possible to minimize the release of VOCs. Also, limit amounts used to the minimum needed to get the job done. For more about solvent management and disposal, refer to Section 4.10.

- **Inform Do-It-Yourselfers:** Provide information to encourage your customers who work on their boats at the marina to use environmentally preferable detergents, soaps, and other cleaning products. Education can be provided by posting signs, distributing boater fact sheets, inserting clauses in customer contracts, and including tips in mailings. See Chapter 3, for more information.

- **Train Employees:** Train employees to be on the lookout for cleaning activities by Do-It-Yourselfers that may be harmful to the coastal environment.

Useful Contacts

1. US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Program — Call **(617) 918-1615** or look on-line at **www.epa.gov/owm/sw/industry/msgp** for information about the NPDES Multi-Sector General Permit and its requirements.
2. Massachusetts Environmentally Preferable Products Procurement Program has information on natural cleaning products at **www.state.ma.us/osd/enviro/products.htm#building.**

Hazard Alert

Solvents are liquid substances capable of dissolving or dispersing one or more other substances. As a result, they are useful for cleaning up paints, oils, and greases. Solvents are classified as hazardous waste if their flash point is below 140°F. Check the label.

BOAT CLEANING

Complete this checklist if boat cleaning occurs at your facility.

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Designated Maintenance Area			4-11	
Natural Cleaners			4-11	
Biodegradable Soaps			4-11	
Solvent Alternatives			4-11	
Use Solvents Properly			4-12	
Inform Do-It-Yourselfers			4-12	
Train Employees			4-12	

***BMP will assist with regulatory compliance.**

NOTES:

Engines are central to the boating experience. Engine maintenance must be performed regularly to ensure optimum performance and with care to protect the environment.

4.3 Engine Maintenance

Engine maintenance requires using hazardous materials such as oil, solvents, and anti-freeze. These substances must be used with care. Any marina that provides commercial engine services (for a fee) must use BMPs and be covered by a NPDES Multi-Sector General Permit. This section provides you and your boating customers with the information needed to prevent and control pollution from engine maintenance activities.

LEGAL REQUIREMENTS

The following laws apply to engine maintenance activities. If you perform engine maintenance services at your facility, please read the summary of these regulatory programs in Chapter 6.

- Clean Water Act – Discharge of Oils
- National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Industrial Activities
- Massachusetts Hazardous Waste Regulations
- Massachusetts Waterways Regulations

Best Management Practices

Routine Maintenance

Engine maintenance is necessary on a regular basis to ensure proper performance of boat engines. Consider the following list of BMPs when conducting routine engine maintenance.

▶ **Designated Maintenance Areas:** Set up designated maintenance areas for engine work as described under Section 4.1.

▶ **Proper Waste Disposal:** Oil, solvents, anti-freeze, batteries, and other materials generated in engine maintenance is classified as hazardous waste. See Section 4.10 for information on proper handling and disposal of these materials.

▷ **Clean Work Areas:** Keep engine maintenance areas clean. Regularly sweep or vacuum to keep them free of clutter that can cause spills and collect pollutants. Inspect these areas daily to be sure they are clean and all products are properly stored and used.

▷ **Prohibit Hosing Down of Maintenance Areas:** Prohibit engine maintenance areas from being cleaned with water from hoses. Water will collect all oil, grease, and lubricants and wash them to drainage structures. Use absorbent materials to clean up liquids.

▷ **Provide Absorbent Pads:** Make sure that absorbent materials are always available in the designated maintenance area to immediately soak up any spills. Absorbent

materials might include cloths, pads, booms, or granular materials. The latter is often used for small, contained spills on hard surfaces. Several pads or a boom may be employed for a larger spill that is running over land. Any absorbent materials that are saturated (i.e. able to squeeze more than one drop) with oil or other hazardous materials must be disposed of as hazardous waste.

- **Inform Do-It-Yourselfers:** Keep your customers who work on their boats at the marina informed about the proper use of petroleum products and solvents. Use visible signs, clauses in customer contracts, fact sheets, and/or tips in mailings.

Oil Changes

The following pollution prevention strategies should be considered when changing the oil in your engine.

- **Oil Spill Control:** Use drip pans with absorption pads inside to catch and soak up any spills. Avoid mixing different hazardous liquids, a practice that can make them unacceptable for recycling and can seriously increase disposal costs. Always have a sufficient supply of oil absorbent pads near all engine work, whether in a boat or shop, to mop up any drips or spills.

- **Spill-Proof Oil Changes:** Purchase equipment that will conduct spill proof oil changes. These vacuum systems draw crankcase oil out through the dipstick tube. You can rent these systems to Do-It-Yourselfers so they conduct their own oil changes. Some manufacturers of these systems are listed in Appendix C.

- **Recycle Used Oil:** Establish a safe and effective method for collecting, storing, and arranging for transport of used oil for recycling. Used oil collection should be conducted by trained staff only to avoid potential for cross-contamination. The used oil storage area should be safe and secure. If your facility works year-round, you may want to consider used oil as a heating source on-site. See Section 4.10 for more information on recycling and reusing used oil.

Engine Cleaning

Engine cleaning will remove build-up of grease and grime on your engine. The following list of BMPs should be used to make sure the pollutants you remove do not reach coastal waters.

- **Pre-Cleaning Methods:** Before using solvents, clean the engine using environmentally-sound alternatives. One easy example is to loosen the engine grime with a brush and then wipe it away with a rag.

- **Use Solvents Properly:** Use non-VOC (Volatile Organic Compounds) solvents where possible to wash engine parts and tools. If VOC-based solvents must be used, catch excess solvents in a pan below the engine and reuse them. Keep VOC-based solvents in tightly closed containers to reduce the amount of VOCs that are released into the air. Many marinas use the services of companies that provide parts washing equipment and solvents, which are collected regularly for recycling.

Hazard Alert

Oil absorbent materials include pads, booms, and granules that can be used to quickly to absorb small drips and spills. Regular use of these materials will help keep the marina clean and reduce the amount of petroleum falling on the land or escaping to the water. Used pads must be disposed of as hazardous waste if oil can be squeezed from them. Store them with other hazardous waste for pick-up by a hazardous waste hauler. Companies that sell oil absorbent products are listed in Appendix C.

Safe Practice

Popular with marinas in the northeast is the drip-proof tank, which uses a vacuum to suck old oil and dirt from the bottom of the boat engine during oil changes. Once inside the tank and with the valve closed, no oil can spill should the tank tip over or fall into the water. It is a simple to use, clean, quiet, efficient, and inexpensive way to change oil and protect the environment.

- **Bioremediating Systems:** Explore the use of bioremediating systems that use microbes that eat oil and grease. These solvents either contain natural enzymes or live bacteria, which digest many petroleum products. Since they are based on naturally occurring organisms, they pose less of a risk to the marine environment. Some companies that offer bioremediating systems are listed in Appendix C.

- **Solvent Alternatives**: Encourage the use of solvent alternatives by distributing a list of non-hazardous cleaning products. A list of some of these products is provided on a fact sheet in the inside pocket at the back of this guide.

Boat and Engine Winterizing

Specific considerations apply to boat and engine winterizing. Appropriate BMPs are listed below.

- **Use Environmentally-Preferable Anti-Freeze:** Traditional antifreeze can kill on contact or when swallowed. Antifreeze is soluble in water and will sink into the water column. If spilled, it can cause immediate harm to plankton and small fish. The "green" colored ethylene glycol antifreeze, commonly used in automobile engines, will kill dogs if they drink it from a spilled puddle. Unfortunately, it tastes good to animals. Switch to less toxic products, such as propylene glycol (orange or pink color), when possible. Propylene glycol anti-freeze is available at most marine supply stores.

- **Fuel Stabilizers:** Add stabilizers to fuel to prevent degradation. Stabilizers are available for gasoline, diesel fuel, and crankcase oil. Stabilizers protect engines by preventing corrosion and the formation of sludge, gum, and varnish.

- **Fuel Protection:** Fill fuel tanks to between 80 and 90 percent capacity prior to winter storage to minimize the build-up of flammable fumes and reduce condensation that can lead to corrosion. Make sure the gas cap is on tight to prevent fuels from volatilizing. Do not fill the tank more than 90 percent to keep fuel from spilling out of the fuel vent in the springtime when it warms up and expands.

- **Drain Water from the Fuel System:** Rather than using anti-freeze, drain as much water from the water system as is possible. Some marinas successfully use air pressure to blow the lines empty. If there are traps that cannot be drained completely, use a diluted solution of water system-approved antifreeze, such as propylene glycol.

- **Use Canvas Covers and Recyclable Shrink-Wrap:** Encourage the use of canvas covers or recyclable shrink-wrap for winterizing your boat. Information on shrink-wrap recycling is provided in Section 4.9.

- **Train Employees:** Train employees to be on the lookout for engine maintenance activities by Do-It-Yourselfers that may be harmful to the coastal environment.

Useful Contacts

1. US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Program — Call **(617) 918-1615** or look on-line at **www.epa.gov/owm/sw/industry/msgp** for information about the NPDES Multi-Sector General Permit and its requirements.
2. The Department of Defense Pollution Prevention Equipment Program Work Book is available on-line at **www.lakehurst.navy.mil/P2/index.htm.** This reference provides information on innovative pollution prevention strategies.
3. Used Oil Coordinator, Massachusetts Department of Environmental Protection — Call **(617) 292-5898** with your questions about used oil requirements in Massachusetts.
4. Massachusetts Environmentally Preferable Products Procurement Program — **www.state.ma.us/osd/enviro/products/motoroil.htm.** Call for information on propylene glycol and other environmentally preferable products.

ENGINE MAINTENANCE

Complete this checklist if engine maintenance occurs at your facility.

Activities that occur at the facility: ☐ Routine Maintenance ☐ Oil Changes ☐ Engine Cleaning ☐ Boat and Engine Winterizing

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Designated Maintenance Area			4-15	
*Proper Waste Disposal			4-15	
Clean Work Areas			4-15	
*Prohibit Hosing Down of Maintenance Areas			4-15	
Provide Absorbent Pads			4-15	
Inform Do-It-Yourselfers			4-16	
Oil Spill Control			4-16	
Spill-Proof Oil Changes			4-16	
Recycle Used Oil			4-16	
Pre-Cleaning Methods			4-16	
Use Solvents Properly			4-16	
Bioremediating Systems			4-17	
Solvent Alternatives			4-17	
Use Environmentally-Preferable Anti-Freeze			4-17	
Fuel Stabilizers			4-17	
Fuel Protection			4-17	

BMP	YES/NA	NO	Refer to Page	Action
Drain Water from Fuel Systems			4-17	
Use Canvas Covers / Recyclable Shrink-Wrap			4-17	
Train Employees			4-17	

***BMP will assist with regulatory compliance.**

NOTES:

Most boats have bilges where excess water and wastes like oil can collect.

4.4 Bilge Water Handling

Dumping oily bilge water directly into the water can harm marine life, and is illegal. This section provides you and your boating customers with the information you need to minimize the impacts of contaminated bilge water.

LEGAL REQUIREMENTS

The following laws apply to bilge water discharge. Please read the summary of these regulatory programs in Chapter 6.

- Clean Water Act – Discharge of Oils
- National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Industrial Activities
- Massachusetts Clean Waters Act
- Massachusetts Waterways Regulations

Best Management Practices

The following BMPs will help minimize the impacts of oil and other pollution that often results from bilge water discharge.

▶ **Suspend Bilge Water Discharges by the Marina:** Oily bilge water is hazardous waste and it is illegal for marinas to discharge it into the water. If your marina discharges bilge water, you are required to secure a NPDES Individual Permit for Industrial Discharges.

▶ **Prohibit Discharge of Untreated Water by Boaters at Your Marina:** Require as part of the environmental contract, or by other appropriate means, that untreated bilge water not be discharged within the marina perimeter. Provide customers with options for proper discharge either by making oil absorbent pads available or by providing services for pumping out bilge water. Encourage them to do the right thing with bilge water.

▷ **Make Oil Absorbent Pads Available:** Oil absorbent pads absorb oil while repelling water. They are an effective means for collecting oil that leaks into your bilge, and thereby preventing the discharge of oily water. Oil booms can be used in larger boats. Pads should be replaced several times a season and more often if the engine and engine lines are leaky. Make sure your customers who use oil absorbent pads know where they may be properly disposed of at the marina. If oil can be squeezed out of the pad, it must be disposed of as hazardous waste.

▷ **Vacuum Systems for Removing Bilge Water:** Consider purchasing a vacuum pump system to remove bilge water for your customers. A vacuum system removes all of the bilge water and pumps it into drums for off-site treatment and disposal.

The drums should be stored in a hazardous waste storage area prior to pick-up (see Section 4.10 on hazard waste). Providing this service will ensure that boaters can comply with the law. It may also generate revenue for the marina. See Appendix C for list of manufacturers.

LOCAL EXAMPLE

Yellow-Bellied Sump-Sucker™

Manchester Marine in Manchester, MA uses the Yellow-Bellied Sump-Sucker™ to clean out bilges at their marina. It is stored next to a boatlift in a convenient and efficient place for use after boats are hauled. The system consists of a large tank and several hoses. Water and scum are removed from the boat's bilge with a hose connected to the storage tank on the Sump-Sucker. Once the bilge is dry it can be cleaned out with biodegradable soaps and pumped out again into the Sump-Sucker. The Sump-Sucker tank can be emptied through another hose into a storage drum, which can later be removed by a hazardous waste removal company. This system is more efficient, less messy, and reduces the possibility of a spill compared to the more traditional bilge cleaning methods. Manchester has a policy of mandatory bilge cleaning as the boats are hauled, which reduces liability by preventing spills. Manchester has defrayed the cost of the Sump-Sucker with an "environmental charge" to customers every time the Sump-Sucker is used. Call Rob Hoyle at Manchester Marine for more information (978) 526-7911.

- **Mandatory Bilge Water Removal:** Make bilge water pumping a requirement for all vessels hauled out at your marina. Include a charge for this service, which is incorporated into the haulout fee.
- **Bilge Oil Filters:** Sell and install bilge oil filters. These filters clean bilge water on the boat prior to it being discharged overboard. The filter cartridge system is built into the bilge pump system for convenience and efficiency.
- **Portable Oil/Water Separator:** Use a portable oil/water separator to treat oily bilge water and contaminated fuel. These systems treat bilge water on-site by directly pumping it through the separator, which removes petroleum products and sediments. The treated water can then be discharged into coastal waters. The oily water that is removed must be disposed of as hazardous waste.
- **Install Oil/Water Separators:** Promote the installation of oil/water separators in bilges. If your facility is equipped, consider adding separator installation to your list of services. Otherwise, contact local boatyards and find out where these services can be provided. If you discover that your customers are particularly interested in the service, you may be able to receive a commission from the boatyard.

Harzard Alert

Never use detergents to dissipate an oil sheen. It is illegal (see Chapter 6).

▷ **Inform Boaters:** Inform boaters about the negative effects of bilge water discharge. Direct them to solutions for managing bilge water.

▷ **Train Employees:** Train employees to be on the lookout for bilge water discharge by boaters. Discuss with your staff an effective way to deal with customers who are discharging bilge water. Some boaters may not know that it is an illegal act.

Useful Contacts

1. US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Program — Call **(617) 918-1615** or look on-line at **www.epa.gov/owm/sw/industry/msgp** for information about the NPDES Multi-Sector General Permit and its requirements.
2. State Fire Marshall's Office — Call **(978) 567-3300** for information on state spill response and reporting requirements.
3. National Spill Response Center — Call **(800) 424-8802** to report a spill.
4. U.S. Coast Guard Marine Safety Office — Boston (Cape Cod Canal to NH border), **(617) 223-3000;** Providence (RI border to Cape Cod Canal; including Cape & Islands), **(401) 435-2300** or **(800) 644-0217.** Call for information on federal spill response and reporting requirements.

BILGE WATER HANDLING

Complete this checklist if bilge water is discharged at your facility.

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Suspend Bilge Water Discharge by the Marina			4-21	
*Prohibit Discharge of Untreated Bilge Water			4-21	
Make Oil Absorbent Pads Available			4-21	
Vacuum Systems for Removing Bilge Water			4-21	
Mandatory Bilge Water Removal			4-22	
Bilge Oil Filters			4-22	
Portable Oil/Water Separator			4-22	
Install Oil/Water Separators			4-22	
Inform Boaters			4-23	
Train Employees			4-23	

***BMP will assist with regulatory compliance.**

NOTES:

Fueling dock at Hewitt's Cove Marina.

4.5 Fueling

For many marinas, fueling boats is an essential service to boaters and an important revenue generator. Marinas with fueling services must evaluate all aspects of their operation, including fuel station design, delivery, and dispensation, to ensure that their facility complies with safety, fire, and environmental laws. This section provides you and your customers with information about how to minimize impacts to coastal waters from fueling activities.

LEGAL REQUIREMENTS

The following laws apply to fueling activities. If your marina has a fuel pump, please read the summary of these regulatory programs in Chapter 6.

- Clean Water Act - Discharge of Oil
- National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Industrial Activities, Spill Prevention Control and Countermeasures (SPCC) Plan
- Massachusetts Clean Waters Act
- Massachusetts Waterways Regulations
- Massachusetts State Fire Code

Safe Practice

A Spill Prevention Control and Countermeasures (SPCC) Plan is required as part of a Stormwater Pollution Prevention Plan under the federal NPDES Program. A SPCC Plan must be developed for any facility with above ground oil storage capacity in excess of 1,320 gallons or one above ground container of oil with a capacity of more than 660 gallons or underground storage capacity in excess of 42,000 gallons prepare an SPCC Plan. Oil means oil of any kind including petroleum, fuel oil, oil sludge, sulfonated fish oil, etc. Call the U.S. EPA NPDES Program at (617) 918-1615 for more information.

Best Management Practices

Planning and Training

▶ **Develop a Spill Prevention Control and Countermeasures Plan:** A Spill Prevention Control and Countermeasures Plan (SPCC) is required for all facilities that provide above ground oil/fuel storage capacity in excess of 1,320 gallons or one above ground container of oil with a capacity of more than 660 gallons or underground storage capacity in excess of 42,000 gallons.

▷ **Document All Formal Training Sessions:** Keep records of all training sessions for spill response, pumpout use, and other marina pollution prevention procedures. This information will be useful to show the good work your marina is doing.

Fuel Station Design

Fuel stations must be designed to be stable and to decrease the number of accidental spills. Naturally, fuel station design considerations are most effectively included when developing a new fuel station. However, each marina that provides fuel services should consider implementing the following BMPs.

▶ **Spill Containment:** Design boat-fueling stations with spill containment areas so that spills cannot be released to the water.

▷ **Reduce Wakes:** Locate fueling stations where they are protected from passing boat wake waves that may cause unstable conditions for fueling. Request that the Harbormaster establish a "no-wake zone" for the area in close proximity to the fuel docks, if not currently in place.

▷ **PWC Fueling Floats:** Install personal watercraft (PWC) floats at fuel docks to raise PWCs from the water and provide a more stable setting for fueling.

▷ **Secure the Fuel Station:** Secure and lock fueling stations and oil tanks during non-servicing hours.

Fuel System Components

Practical changes at the pump can improve your fueling system and prevent against all types of fuel spills. If you haven't yet made changes to upgrade components of your fueling system, consider the following BMPs.

▶ **Shut-Off Nozzles:** To prevent overflow spills, install automatic back pressure shut-off nozzles on fuel pump discharge hoses. The nozzles automatically stop the flow of fuel into a boat's fuel tank when sufficient reverse pressure is created by the full tank.

▶ **Nozzle Triggers:** If automatic shut-offs are not used, then remove fuel nozzle triggers that are used to hold the nozzle open without being held. Nozzles can be purchased through the fuel companies that service your pumps. Prohibit the use of cans or other items to prop the trigger open, especially on large boats with big fuel tanks.

▷ **Alternative Fuel Nozzles:** Install fuel nozzles that redirect blow-back into vessels' fuel tanks or vapor control nozzles to capture fumes. Blow-back is when fuel comes back out of the fuel vent when the tank fills up. Consult your fuel pump service provider for more information.

Fuel Delivery

The point of delivery for bulk fuel from your fuel service to the marina has the potential to produce major impacts. There any many requirements under fire prevention and underground storage tank design regulations, so consult these regulations to ensure that your system complies with the law. In addition, consider the following BMPs.

▶ **Spill Response Training:** Train all appropriate staff annually in the implementation of a spill response plan. Document the training. Also, review fueling procedure practices with staff and customers to reduce all small drips and spills. Include information about fueling in your spill response plan (see Section 4.6).

▷ **Fuel Delivery Staffing:** Be sure that a member of your staff is always on-hand when fuel is delivered so that the marina staff can be sure that fuel delivery is conducted without incident.

Install easy-to-read signs on the fuel dock that explain proper fueling procedures, and include spill reporting phone numbers.

▷ **Spill Response Locker:** Locate a small locker with spill response equipment near the delivery area so that you can quickly react to a spill. Also post a telephone number to report a spill.

Fueling Procedures

Precautions should be taken every time someone removes the gas nozzle to fill up. The following BMPs will reduce frequent small drips and the potential for more serious spills.

▶ **Disposal Procedures:** Provide for proper disposal of oil absorption materials and rags (refer to Section 4.10 for more tips).

▶ **Fuel System Inspection:** Regularly inspect the fueling system, and maintain, or replace fuel hoses, pumps, and tanks when necessary.

▷ **Fueling Signs and Supervision:** Install easy-to-read signs on the fuel dock that explain proper fueling procedures and list the spill reporting phone numbers. Be sure that an attendant is on hand to do the fueling.

▷ **Spill Equipment and Reporting:** Have a dock box or locker on the fuel dock filled with spill absorption pads and containment booms. Provide a sign that briefly states spill reporting requirements and a phone number for reporting a spill.

▷ **Fuel Collars and Absorption Pads:** Use oil absorption pads, or fuel collars directly at the gas line to catch splash back and small drips during fueling. Some companies that sell these products are listed in Appendix C.

LOCAL EXAMPLE

Seaport Landing Marina in Lynn provides absorbent materials to all its customers while filling up to catch all drips and small spills. A member of the staff is always on-hand during fueling to ensure against topping off and other signs of spill. These practices have become a standard part of their business. Call Jim Perry of Seaport Landing Marina at (781) 592-5821 for more information.

▷ **Proper Fueling Procedures:** Make it a policy to discourage topping off practices. Avoid overfilling boat tanks when selling fuel. Do not fill the tank beyond 95% capacity. Warn boaters not to top-off tanks in summer, since fuel expands when it heats up – an important consideration during the hot boating season. (There is an unfortunate practice among some boaters to keep pumping fuel until it squirts out the air vent indicating a full tank.) Typically even after the pump is shut off and the nozzle removed, fuel can continue squirting out as the boat rocks with waves and as the fuel in the tank warms up and expands.

▷ **Reducing Fuel Overflow:** Attach a container to the boat external vent fitting to collect overflow. Containers with suction cups used for attaching to the side of the boat directly underneath the fueling port are available from vendors. Pads can also be placed over the vent to catch any overflow.

- **Proper Nozzle Placement:** Hang nozzles vertically when not in use to prevent fuel remaining in hose from draining out after vessel fueling. If the fuel pump is high on a pier and a long hose runs out on a floating fuel dock, an alternative is to lay the nozzle into a shallow pan lined with an absorption pad between uses. In the evening when the fuel dock is closed, the nozzle should be locked in its slot on the side of the fuel pump.

- **Use In-Water Sausage Boom During Fueling:** Place a long sausage boom in the water between the dock and the boat to collect any drips and spills. Because fuel can inadvertently spit of the air vent, the boom will trap and absorb spilled fuel.

LOCAL EXAMPLE

Nantucket Boat Basin began using a three-step method to reduce unintentional spills. This method includes placing an absorbent donut around the end of the fuel nozzle, giving the boater an absorbent pad to catch drips, and using the sausage boom between the boat and the dock as added insurance. Small spills can really add up when fueling demand is high. These precautions have greatly the reduced the release of small spills at the Nantucket Boat Basin. Call George Bassett at (508) 228-8941 for more information.

- **Proper Gas Can Placement:** Place portable gas cans in an oil absorbent-lined drip pan when filling.

- **Install Fuel/Air Separators:** Sell fuel/air separators at the marina store and provide services to install them. Fuel/air separators are installed between the fuel tank and fume release vent to prevent fuel from exiting the vent during fueling. When installed properly, they allow air to escape but not fuel. These devices can be installed either by marina staff or the Do-It-Yourselfer (see Appendix C for manufacturers).

Useful Contacts

1. Call the State Fire Marshall's Office at **(617) 566-4500** for information about state fire code requirements and spill response.
2. National Spill Response Center — Call **(800) 424-8802** to report a spill.
3. U.S. Coast Guard Marine Safety Office — Boston (Cape Cod Canal to NH border), **(617) 223-3000;** Providence (RI border to Cape Cod Canal; including Cape & Islands), **(401) 435-2300** or **(800) 644-0217.** Call for information on federal spill response and reporting requirements.

FUELING

Complete this checklist if fuel services are provided by your facility.

Activities that occur at the facility: ☐ Attendant Fueling ☐ Self-Service Fueling ☐ PWC Fueling

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Develop SPCC Plan			4-27	
Document All Formal Training Sessions			4-27	
*Spill Containment			4-27	
Reduce Wakes			4-28	
PWC Fueling Floats			4-28	
Secure the Fuel Station			4-28	
*Shut-Off Nozzles			4-28	
*Nozzle Triggers			4-28	
Alternative Fuel Nozzles			4-28	
*Spill Response Training			4-28	
Fuel Delivery Staffing			4-28	
Spill Response Locker			4-29	
*Disposal Procedures			4-29	
*Fuel System Inspection			4-29	
Fueling Signs and Supervision			4-29	
Spill Equipment			4-29	
Fuel Collars and Absorption Pads			4-29	

BMP	YES/NA	NO	Refer to Page	Action
Proper Fueling Procedures			4-29	
Reducing Fuel Overflow			4-29	
Proper Nozzle Placement			4-30	
Use In-Water Sausage Boom During Fueling			4-30	
Proper Gas Can Placement			4-30	
Install Fuel/Air Separators			4-30	

***BMP will assist with regulatory compliance.**

NOTES:

4.6 Spill Response

Spill response preparedness and training is a basic requirement for any fueling facility. A quick response to a spill on the water can prevent major harm to the marine environment. Effective spill control is dependent on having proper spill response equipment readily available and having a well-trained staff. All marinas should practice the BMPs in this section to prevent against and prepare for a major spill at the marina.

LEGAL REQUIREMENTS

The following laws apply to spill response. All marinas must be prepared to respond to a spill. Please read the summary of these regulatory programs in Chapter 6.

- Clean Water Act — Discharge of Oil
- National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit for Industrial Activities, Spill Prevention Control and Countermeasures (SPCC) Plan
- Massachusetts Clean Waters Act
- Massachusetts Hazardous Waste Regulations
- Massachusetts Waterways Regulations

Best Management Practices

All marinas should be prepared to act quickly in the event of a hazardous waste or oil spill. Consider the following BMPs to make sure you are prepared.

- **Spill Response Plan:** Develop a written spill response plan for the marina and include it as part of your SPCC Plan if you are required to develop one (see Section 4.5). The plan should include a listing of immediate spill response actions, a contact list for response communication, a chain-of-command within the marina, and an inventory of spill response equipment and its location. The list of immediate spill response actions including the phone number of the National Resource Center should be posted at the fueling station and at the spill response station. Make the plan easily accessible to marina staff. Provide a copy of the spill response plan to the harbormaster.
- **Spill Response Station:** Establish a clearly marked and easily accessible spill response station, such as a large dock locker, that contains large booms, mops, and other spill response equipment. Make sure you have enough length of boom available to go around the entire fuel dock and the largest boats that fuel there. A minimum length is two times the length of the largest boat that can fuel at the dock.
- **Spill Reporting:** Provide information on spill reporting requirements at the spill response station, including requirements for notifying local, state, and federal agencies. Clearly post the National Response Center phone number at the fuel dock.

Safe Practice

The first step in spill response should be to notify appropriate marina personnel and report the spill to the National Response Center at (800) 424-8802. Then follow procedures adopted by your facility.

- **Spill Response Training:** Train all appropriate staff annually in the implementation of a spill response plan. Document the training. Contact vendors of spill response equipment listed in Appendix C for available training services.
- **Proper Spill Clean Up:** Prohibit the use of detergents and emulsifiers on fuel spills. Under the Clean Water Act, this activity is illegal.
- **Spill Drills:** Contact the U.S. Coast Guard about organizing a mock-spill training day. A "Spill Drill" will help teach your staff how to respond to a spill. These drills may be conducted at your marina or at a nearby facility and can be conducted in association with other marinas.
- **Absorption Booms:** Use a small floating absorption boom tied on the end of a long pole near the fueling station to quickly mop any small spill from the surface of the water.
- **Make Spill Equipment Accessible:** Make spill equipment available to the harbormaster, who can help you protect your facility after-hours.

Useful Contacts

1. National Spill Response Center — Call **(800) 424-8802** to report a spill.
2. State Fire Marshall's Office — Call **(617) 566-4500** for information about state fire code requirements and spill response.
3. U.S. Coast Guard Marine Safety Office — Boston (Cape Cod Canal to NH border), **(617) 223-3000;** Providence (RI border to Cape Cod Canal; including Cape & Islands), **(401) 435-2300** or **(800) 644-0217.** Call for information on federal spill response and reporting requirements.

Absorption booms are effective for controlling small spills.

Consider This

Neighboring marinas in some ports have a mutual aid agreement to share spill equipment during emergencies. This way each marina needs to have enough supplies for modest spills, but can quickly muster enough equipment from neighbors in rare cases of large spills.

SPILL RESPONSE

All marinas should complete this checklist.

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Spill Response Plan			4-29	
*Spill Response Station			4-29	
*Spill Reporting			4-30	
*Spill Response Training			4-30	
*Proper Spill Cleanup			4-30	
Spill Drills			4-30	
Absorption Booms			4-30	
Make Spill Equipment Accessible			4-30	

***BMP will assist with regulatory compliance.**

NOTES:

Nantucket Boat Basin in Nantucket has been recognized by the U.S. Fish & Wildlife Service for its success in providing pumpouts to boaters.

4.7 Boat Sewage and Wastewater Management

Untreated sewage and other boat-generated wastewater dumped into coastal waters can be harmful to humans and marine life. Therefore, it is in your best interest to steer boaters in the right direction with sewage disposal. This section provides information on pumpouts and other BMPs for reducing impacts from boat wastewater discharge.

LEGAL REQUIREMENTS

The following laws apply to vessel discharge and wastewater. Please read the summary of these regulatory programs in Chapter 6.

- Clean Water Act — Discharge of Sewage
- Clean Water Act — No Discharge Areas
- Massachusetts Clean Waters Act
- Massachusetts Waterways Regulations

Best Management Practices

Pumpouts

Providing pumpout services at your marina gives boaters an easy way to do the right thing, and helps keep the waters around your marina clean. The most important factor in pumpout success is for the service to be convenient and easy for boaters. The most successful services have marina staff doing the pumping out.

Pumpout facilities are available in five primary forms: fixed pumpout stations, dockside pumpouts, portable pumpouts, pumpout boats, and dump stations. For more information on the types of pumpout facilities and which system would be appropriate for your marina, contact the pumpout manufacturers listed in Appendix C. A listing of all pumpout locations in Massachusetts is included in Appendix D. If you do not own a pumpout facility, consider purchasing one if the demand for pumpout services exists. Financial assistance is available through the Clean Vessel Act (see information sources below).

If you already own a pumpout, consider the following measures to ensure maximum and proper use:

▷ **Pumpout Maintenance:** Conduct regular inspections and maintenance on pumpout facilities.

▷ **Pumpout Cleanliness:** Keep pumpout facilities clean and easily accessible.

- **Convenient Service Hours:** Provide pumpout services at convenient times, such as during normal business hours in the boating season. Pumpout service is not expected to be available 24-hours a day, or in the cold non-boating season.
- **Pumpout Staffing and Training:** Staff the pumpout facility and offer to provide pumpout services during weekdays when boats are not in use. Some marinas have sign-up sheets for customers to request such services. Train all your staff on how to use the pumpout so that customer's pumpout needs can always be met.
- **Low Pumpout Costs:** Offer pumpouts at a reasonable cost. Studies have shown when pumpout costs are over $5.00, the willingness of boaters to use the service decreases. Many marinas give the service free to their regular customers because it increases the frequency of use, builds good will, and helps protect the environment. The Clean Vessel Act grant program imposes a $5.00 ceiling charge if federal money was used to purchase the pumpout equipment (see information contacts below). Note that most pumpout facilities in Massachusetts are available at no charge.
- **Pumpout Signs:** Promote availability of pumpout services with signs that identify the pumpout station, list the hours of use, and cost, if any. CZM provides pumpout pennants free to marinas to help them advertise pumpout availability. A separate sign should remind the boat owner to make sure the holding tank vent is clear before pumping out.
- **Holding Tank Additives:** Encourage boat owners to use holding tank additives to help breakdown holding tank contents. Additives increase the rate of breakdown and decrease bacteria and oxygen demand when the contents are legally discharged off-shore.
- **Portable Dump Stations:** Provide portable toilet dump stations near small boat slips and boat ramps.

LOCAL EXAMPLE

Constitution Marina's mobile boat pumpout service

Constitution Marina in Charlestown has a mobile boat pumpout service that is available to its customers free of charge. The marina operators have set up a system for its use to make the pumpout as convenient as possible. Customers call in and set up a time during the week to be pumped out. They don't have to be at the boat when this occurs. Then when they want to use their boat on weekends, the holding tank has already been pumped and they are ready to go. Constitution Marina has made the pumpout boat very popular by making the service easy and convenient and, as a result, the pumpout boat is used everyday. Call Peter Davidoff at (617) 241-9640 for more information.

Please Note

Congress passed the Clean Vessel Act (CVA) in 1992 to help reduce pollution from vessel sewage discharges. CVA established a five-year federal grant program administered by the U.S. Fish and Wildlife Service and authorized $40 million from the Sport Fish Restoration Account of the Aquatic Resources Trust Fund. Up to 75 percent of the costs of approved projects can be paid for with CVA money, with the remaining funds provided by the states or marinas. Reauthorized in 1998, Congress extended the pumpout grant program through 2003, providing $50 million. Pumpout stations installed with CVA funds are restricted to charging no more than $5.00 per pumpout (with certain exceptions), and must be maintained in operating condition, available during reasonable hours of service (such as normal business hours), and convenient to boats for use.

Proper Use and Operation of Marine Sanitation Devices

All new boats over 20 feet with cabins are generally equipped with one of two standard U.S. Coast Guard approved boat toilet systems for on-board waste management. These systems are called Marine Sanitation Devices (MSDs). Type I and II MSDs are systems that mechanically chop up the sewage, chemically treat it, then discharge it through a screen and overboard. These MSD systems can not be used in coastal waters that are designated as No Discharge Areas. Massachusetts has designated many coastal boating waters as No Discharge Areas (see NDA box). Type III MSDs are boat toilets that empty into built-in holding tanks that must be emptied at a pumpout station. It is illegal for any untreated sewage to be discharged into any of the waters of Massachusetts and the United States, except beyond three miles offshore in the ocean. While the U.S. Coast Guard must approve each MSD system, it is up to the boat owner to properly use and maintain the MSD to effectively lessen impacts on the marine environment. To promote proper use at your marina:

- **Prohibit Sewage Discharge:** Prohibit use and discharge of Type I and II MSDs at slips or moorings. While all Coast Guard approved Type I and II MSDs are legal to use on some waters and do treat sewage to approved standards, the discharge still contains high nutrients and chemical disinfectants that may impact water quality and marine life in coastal harbors, coves, and bays. In designated No Discharge Areas, all discharge is illegal. Some marinas in their slip rental contract forbid the discharge of any sewage from Type I and II MSDs to prevent odors, to keep the water cleaner, and to prevent algal blooms.
- **Fill Disinfectant Tanks:** Encourage boaters with Type I and II MSDs to fill the disinfectant tanks each boating day to ensure proper operation.
- **Shoreside Facilities:** Urge boaters to use the marina's shoreside restroom facilities while at dock or staying overnight. Maintenance of clean and comfortable shoreside restroom facilities will help promote use by boaters.
- **Biodegradable Holding Tank Cleaners:** Promote the use of non-toxic biodegradable cleansers and deodorants for holding tank treatment that do not use formaldehyde. Enzyme-based products use aerobic bacteria to accelerate natural breakdown and reduce lingering odor. Vendors of non-toxic biodegradable cleaners and deodorants are provided in Appendix C.
- **Discharge Prevention Steps:** Encourage all boat owners to prevent discharge while boating in coastal waters by removing their existing Y-valves and seacocks with thru-hulls, or plug hulling the holes; or alternatively, by removing the handle on the Y-valve, or using a wire tie.
- **MSD Retrofit Services:** Offer winter services to retrofit MSDs with holding tanks, and inspect MSD systems to ensure their proper operation.

NDAs

A No Discharge Area (NDA) is a designated body of water in which the discharge of treated and untreated sewage is banned. The use of Type I and Type II MSDs is prohibited in NDA's and MSDs must be properly secured when boats are cruising through an NDA. Closing the seacock and padlocking it, using a non-releasable wire tie, or removing the seacock handle (with the seacock closed) are options for securing the MSD. Locking the door of the head with a padlock or door handle key is another acceptable method.

Mass. NDAs

NDAs in Massachusetts include Nantucket Harbor; Waquoit Bay, Falmouth; Stage Harbor Complex, Chatham; Harwich coastal waters, Wellfleet Harbor, and Buzzards Bay. All Rhode Island waters are also designated as No Discharge. See information sources below for a map of No Discharge Areas in Massachusetts.

Proper Graywater Handling

Graywater is the wastewater from the sink and shower (sewage is called blackwater). Graywater can contain detergents, soap, and food wastes and when released to the environment can reduce oxygen levels in small bays and coves by enriching algae growth and bacterial breakdown of wastes, both of which use up oxygen. Help your customers to reduce the impacts of graywater by taking the following steps:

- **Customer Education:** Educate customers about the impacts of graywater and steps they can take to help reduce graywater impacts.
- **Refrain from Using Dish Soap On-Board:** Discourage your customers from using dish soaps to clean dishes on board their boats. If soap is necessary for hard to clean jobs, use biodegradable soaps in moderation.
- **Low Nitrogen Detergents:** Sell only low nitrogen detergents in your ship store.
- **Dishwashing Station/Laundry Facilities:** Consider providing shoreside dish-washing facilities for boaters and encourage their use. Also explore the potential for offering coin operated laundry facilities.
- **Encourage Use of Marina Facilities:** Encourage customers to use the showers and restrooms provided by the marina when at the docks.

Useful Contacts

1. Massachusetts No Discharge Area Program, Massachusetts Office of Coastal Zone Management (CZM). This Program provides assistance to municipalities that are seeking a No Discharge Area designation. Call CZM at **(617) 626-1200** or log on to CZM's website at **www.state.ma.us/czm** for more information.
2. The CZM Coastal Pollutant Remediation (CPR) Program has funds available for pumpout programs. Call CZM at **(617) 626-1200** or log on to CZM's website at **www.state.ma.us/czm/** for more information.
3. Clean Vessel Act Program at the Massachusetts Division of Marine Fisheries — Contact them at **(617) 626-1531** or see **www.state.ma.us/dfwele/com/comcvahm.htm** for more information on the federal Clean Vessel Act Program and pumpouts in Massachusetts.

BOAT SEWAGE AND WASTEWATER MANAGEMENT

Complete this checklist if boat sewage and graywater may be a problem. An indicator of a potential problem is if you have a large number of live-aboards at your marina

Activities that occur at the facility: ☐ Pump-out ☐ Holding Tank Discharge ☐ On-board Dishwashing/Laundry

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
Pumpout Maintenance			4-37	
Pumpout Cleanliness			4-37	
Convenient Service Hours			4-38	
Pumpout Staffing and Training			4-38	
Low Pump-out Costs			4-38	
Pumpout Signs			4-38	
Holding Tank Additives			4-38	
Portable Dump Stations			4-38	
Prohibit Sewage Discharge			4-39	
Fill Disinfectant Tanks			4-39	
Shoreside Facilities			4-39	
Biodegradable Holding Tank Cleaners			4-39	
Discharge Prevention Steps			4-39	
MSD Retrofit Services			4-39	
Customer Education			4-40	
Refrain from Using Dish Soap On-Board			4-40	

BMP	YES/NA	NO	Refer to Page	Action
Low Nitrogen Detergents			4-40	
Dishwashing Station / Laundry Facilities			4-40	
Encourage Use of Marina Facilities			4-40	

NOTES:

4.8 Shoreside Facilities and Pet Waste Management

Bacteria from shoreside restrooms and uncontrolled pet waste can contaminate waters around the marina. Shoreside sanitary facilities should be functioning properly to protect public health and the environment. Keeping them clean will reflect well on your business. Dirty, wet, and dark restrooms are often a source of complaints from boaters. Uncontrolled use of the marina by visiting pets can also create a nuisance. Waste from pets, especially dogs, whether on a marina dock, walkway, or lawn is a major source of complaints from barefoot boaters. Pets should be led to designated walking areas and their owners should take responsibility for properly disposing of pet waste. This section covers some of the BMPs for shoreside facilities and pet waste management.

LEGAL REQUIREMENTS

The following laws apply to shoreside facilities. Please note that many municipalities have enacted local bylaws that regulate pet waste.

- Massachusetts State Sanitary Code Title 5
- Massachusetts Waterways Regulations

Best Management Practices

Shoreside Sanitary Facilities Management

Shoreside facilities make a strong impression on your customers. Take the following steps to be sure that they are pleasing to your visitors and protect the environment.

▷ **Clean Restrooms:** Provide clean, safe, dry, well-lit, and ventilated restrooms for your customers 24 hours a day. Some marinas clean their restrooms four or more times a day on busy summer weekends. Other marinas have found that contracting out restroom cleaning is cost effective.

▷ **Convenient Restroom:** Locate restrooms convenient to all boats, especially for guests sleeping overnight on weekends.

▷ **Septic System Maintenance:** Ensure proper functioning and management of shoreside facilities including septic systems and sewer connections. Pump your septic tank on a regular basis.

▷ **Dishwashing/ Laundry Facilities:** Provide an area near the restrooms where boaters can clean their dishes. Also, consider providing laundry facilities for your customers. Encouraging boaters to use on-shore facilities that provide adequate waste- and washwater treatment will decrease the amount of untreated wastes that enter coastal waters.

Pet Waste Management

Proper management is essential for setting ground rules for pets at the marina, avoiding conflicts between marina users over pet issues, and reducing the impacts of pet waste on marina waters. The following BMPs are important to an effective pet waste management program.

- **Dog Walking Areas:** Provide a specific dog walk area at the marina with signs to direct customers.
- **Pet Waste Disposal:** Require marina customers to immediately clean up all pet feces. Provide free disposable dog scoop or litter bags to boaters and ask them to dispose of the material in the marina dumpster. Also consider installing mini septic systems for pet waste. These systems are buried in the ground and have a lid on top for dropping the waste in. They also come with a digester enzyme. Pet septic systems are available in many pet catalogs for a low cost (<$50). One such product is called the "Doggie Doolie."
- **Pet Regulations:** Include relevant pet rules and regulations in patron contracts and signage.
- **Litter Box Use and Disposal:** Encourage cat owners to maintain litter boxes on their boats and to dispose of used litter in appropriate trash receptacles.
- **Wildlife Feeding Rules:** Prohibit the feeding of wild birds or animals at marinas. Consider posting "No Feeding Wildlife" signs around marina grounds and having staff casually educate children and adults on the negative effects of wildlife feeding.

LOCAL EXAMPLE

Nantucket Boat Basin has an "animal needs park" and biodegradable bags. This program concentrates pet use in one area of the marina and requires owners to be responsible for clean up. For more information, contact George Bassett at (508) 325-1360.

Useful Contact

The State Sanitary Code regulations (310 CMR 15.00) are available from the MA Department of Environmental Protection website at **www.state.ma.us/dep/brp/wwm/t5pubs.htm#regs.**

SHORESIDE FACILITIES AND PET WASTE MANAGEMENT CHECKLIST

Complete this checklist if you provide shoreside amenities like restrooms and laundry facilities, or if pets frequently visit you marina.

Activities that occur at the facility: ☐ Restroom Use ☐ On-Shore Dishwashing/Laundry ☐ Pet Walking

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
Clean Restrooms			4-43	
Convenient Restrooms			4-43	
Septic System Maintenance			4-43	
Dishwashing / Laundry Facilities			4-43	
Dog Walking Area			4-44	
Pet Waste Disposal			4-44	
Pet Regulations			4-44	
Litter Box Use and Disposal			4-44	
Wildlife Feeding Rules			4-44	

NOTES:

Covered dumpster at Seaport Landing Marina in Lynn.

4.9 Solid Waste Management

The type of solid waste found in marinas includes trash from boat maintenance and repair, the marina office and store, and the boats themselves.

Boat maintenance and repair examples: shipping boxes, board and metal scraps, cleaning rags, paper, old engine parts, fiberglass chips, sawdust, construction waste, sand blasting waste, floor sweepings, sanding dust, burned out light bulbs, batteries, garbage, bottles, cans, sheet plastic, worn out tarps, dirty filters, etc. Solid waste that has a hazardous component, such as acid from a leaking battery, or toxic antifouling paint chips, must be disposed of as hazardous waste. See Section 4.10 for more information.

Marina office and store examples: waste paper, boxes, shipping materials, floor sweepings, cups, used office supplies, bottles, cans, garbage, etc.

Boat examples: drink containers, food scraps, garbage, fish cleaning waste, old fishing line, dirty cleaning rags, cigarette butts, papers, plastic bags, utensils and plates, etc.

This section discusses BMPs for appropriate disposal of solid waste.

LEGAL REQUIREMENTS

The following laws apply to solid waste disposal. Please read the summary of these regulatory programs in Chapter 6.

- Massachusetts Solid Waste Regulations
- Massachusetts Solid Waste Master Plan
- Massachusetts Waterways Regulations

Best Management Practices

Solid Waste Disposal

Consider incorporating the following BMPs to make trash disposal easy and effective.

- **Recycling Strategies:** Develop a waste and recycling strategy based on the characteristics of the marina that considers factors such as the number of boats, types of boats and activities, and length of docks. Think of ways to reduce waste generated.
- **Used Battery Storage and Disposal:** Used batteries must be stored in a single layer on pallets or shelving with an impermeable or sealed base until they can be recycled or disposed of at an appropriate location off-site. If a battery is leaking, it must be disposed of as hazardous waste. If you are unable to collect old batteries, require that customers return their old batteries to the retailer where they bought them.
- **Trash Container Placement:** Place covered trash receptacles in lighted areas and in locations that are convenient for marina customers. Avoid placing trash containers

on docks where trash can be inadvertently blown into the water. Tie down trash containers to stationary fixtures and empty them frequently before they can overflow.

- **Trash Covers:** Provide covered trash receptacles at boat haul-out and launch sites. Use lids that cannot be blown or fall off and that keep animals out.
- **Dumpster Signs:** Post a sign at the dumpster listing items that can be disposed of in the dumpster.
- **Locate Dumpster Away from the Water:** Place the dumpster as far away from the water as is feasible yet still convenient for use. Erect a fence or plant vegetation as a windscreen between the dumpster and the prevailing wind.
- **Smoking Signs:** If smoking is allowed, provide signs that direct smoking customers to always use ashtrays. Note that discarded cigarette butts are the most common litter found on coastal waters and shores.
- **Litter Bag Distribution:** Distribute free litter bags to customers to encourage them to bring back all trash.

Staff Responsibilities

To keep the marina grounds clean everyday, your employees should consider the following tips:

- **Trash Clean Up:** Make picking up stray trash at the marina a daily practice required of all staff.
- **Pool Skimmers:** Use a pool skimmer or some other net for collecting floating trash around the docks.
- **Trash Awareness:** Post signs to remind customers where they can dispose of different trash.

Recycling

Recycling provides society with broad environmental benefits, from decreasing demand for natural raw materials to minimizing waste disposal space at landfills. Recycle items that can be collected by your waste hauler and encourage your customers to recycle.

- **Recycle as Much as Possible:** Maximize recycling capabilities. Materials for recycling will depend on the service company's capabilities and market demand for different materials. Items that should be considered include scrap metal, aluminum, glass, wood pallets, batteries, paper, plastic, and cardboard. Used oil, oil filters, and other liquids should also be recycled and reused. Contact a waste hauler or your local solid waste recycling coordinator to set up a service to take recyclables away from the marina. A partial list of haulers is provided in Appendix C.

Consider using recyclable shrink wrap.

▷ **Community Recycling Participation:** If your community has a recycling program, participate fully by providing a marina recycling center with separate marked containers.

▷ **Mark Recycling Containers:** Clearly mark each recycling receptacle to prevent mixing of recyclable materials. Containers should be provided for plastics, paper, bottles, cans, and other recyclables. Establish a marked place for used battery recycling.

▷ **Recycling Signs:** Post signs to direct customers to the recycling area and to inform them how to separate their waste.

▷ **Recycle Shrink Wrap:** If you use shrink-wrap for protecting boats during the winter, consider using recyclable shrink wrap. See Appendix C for a list of vendors.

LOCAL EXAMPLE

Dions Yacht Yard in Salem believes shrink wrap recycling is a cost effective method for disposing of the large volume of shrink wrap that is produced every year. It has developed a successful method of heating the shrink wrap to compact it into UPS bags to be sent to the recycler. Call Fred Atkins at (978) 744-0844 for more information.

Useful Contacts

1. DEP Solid Waste Program — **(617) 292-5500** or **www.state.ma.us/dep/bwp/dswm/dswmpubs.htm.** Call for more information on solid waste management in Massachusetts.
2. The 1999 Massachusetts Private Hauler Directory is available from the DEP website at **www.state.ma.us/dep/recycle/files/haulers.pdf.**

SOLID WASTE MANAGEMENT

All marinas generate solid waste, and therefore, all should complete this checklist.

Activities that occur at the facility: ☐ Customer Trash Disposal ☐ Recycling

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Recycling Strategies			4-47	
*Used Battery Storage and Disposal			4-47	
Trash Container Placement			4-47	
Trash Covers			4-48	
Dumpster Signs			4-48	
Locate Dumpster Away from the Water			4-48	
Smoking Signs			4-48	
Litter Bag Distribution			4-48	
Trash Clean Up			4-48	
Pool Skimmers			4-48	
Trash Awareness			4-48	
*Recycle As Much As Possible			4-48	
Community Recycling Participation			4-49	
Mark Recycling Containers			4-49	
Recycling Signs			4-49	
Recycle Shrink-wrap			4-49	

***BMP will assist with regulatory compliance.**

4.10 Hazardous Materials and Hazardous Waste Management

Hazardous materials — gasoline, oil, paints, and solvents — are used in a variety of marina activities and services, and must be managed carefully. This section discusses the requirements for hazardous materials management and hazardous waste disposal, and describes BMPs available to help the marina meet those requirements and reduce impacts on coastal waters.

LEGAL REQUIREMENTS

The following laws apply to hazardous materials and waste management. Please read the summary of these regulatory programs in Chapter 6.

- Massachusetts Hazardous Waste Regulations
- Massachusetts Waterways Regulations

Best Management Practices

Planning, Training, and Spill Coordination

Gasoline, solvents, and paints can be dangerous substances if mishandled. Marina owners and their employees should understand the risks associated with handling hazardous materials, and know who to contact in case there is a spill.

- **Provide Employee Training:** Train employees on proper handling, storage, transfer, and disposal practices for hazardous materials and hazardous waste. Arrange a training session with your hazardous waste hauler.

- **Coordinate with Town Safety Departments:** Ensure that local response officials, particularly the fire department, are familiar with the location and character of hazardous materials stored on site (required by law). Call the municipal fire department and arrange to have them visit the facility to inspect storage areas. Provide them with a list of chemicals stored at the facility and a plan of the site showing storage locations.

- **Establish a Facility Hazardous Waste Plan:** Develop a plan that includes information about hazardous materials used and waste generated at the marina. The plan should include the following information: type of waste accepted; details about the storage area and design requirements (for example containment and security); who is responsible for the area; who should be contacted when waste needs to be disposed; contact information for the waste hauler; training procedures for staff; schedules for staff training and storage area inspections, and other relevant information.

▷ **Understand Chemical Type and Hazard Degree:** For each hazardous material used, be aware of the chemical type (toxic, ignitable, reactive, and/or corrosive) and hazard posed (high or low hazard on a relative scale). Seek out less hazardous alternatives to any product or practice that generates significant amounts or highly hazardous wastes. Contact the Massachusetts Office of Technical Assistance at (617) 626-1060 for more information.

▷ **Use Signs:** Post signs that locate hazardous waste disposal, recycling, and reuse areas. Also post a list of products that must be disposed of as hazardous waste. The sign should have customers direct all questions to the marina office.

LOCAL EXAMPLE

Hawthorne Cove Marina in Salem has made a special effort to collect and recycle hazardous waste including used oil and batteries. It has a waste center available to all marina users to dispose of hazardous waste, which is contained in 35-gallon drums within a secondary containment system. The waste is then removed and recycled by a certified company. Call Russ Vickers at (978) 740-9890 for more information.

Handling

Employees regularly handle hazardous materials and hazardous waste at the marina when providing services to boaters. Appropriate handling procedures are described for specific activities that use hazardous materials, such as paints (Section 4.1) and fueling (Section 4.5). Additional precautions must be taken when handling hazardous wastes while preparing them for off-site disposal.

▶ **Limit Hazardous Liquid Transportation:** If you are a Very Small Quantity Generator and transport waste off-site, you can move no more than a total of 55 gallons at one time. This precaution will limit the size of an unexpected spill.

▷ **Use Material Safety Data Sheets (MSDSs):** Make certain that all materials are used strictly according to manufacturers' instructions. Consult the MSDSs for proper handling of the products and disposal of the hazardous waste.

▷ **Proper Handling of Liquids:** Use funnels when transferring liquids to prevent spills. Check with your waste hauler or recycling contractor to see what liquids can or cannot be mixed. Inappropriately mixing liquids will greatly increase your disposal costs and can be dangerous.

Storage and Disposal

Hazardous materials and hazardous waste must be temporarily stored at the marina either prior to use or off-site disposal. Set up a system whereby all hazardous waste generated at the facility is controlled and stored in a secure central location, then contact a waste hauler or hazardous waste collection company to arrange a pickup service.

Hazard Alert

If your facility collects more than half of a 55-gallon drum of hazardous waste in any month, you are considered a "Small Quantity Generator." Refer to Chapter 6 to learn more about the regulatory requirements for storing hazardous waste.

For More Info

Hazardous Waste Collection Companies are listed on Massachusetts Department of Environmental Protection's website at www.state.ma.us/dep/bwp/dhm/files/trnsalph.pdf. Some local companies are listed in Appendix C.

- **Proper Hazardous Materials and Waste Storage:** Hazardous materials and waste should be stored in closed containers inside a building and on impervious surfaces (such as asphalt or concrete), as far from the water as possible. If storage cannot be provided inside, then secondary containment, such as a berm or large container, must be used around all containers to prevent spills from spreading in case the container leaks. Secondary containment should be designed with sufficient volume to hold 110 percent of the maximum volume of the container. Storage areas should be close to maintenance areas to decrease the distance necessary for transfer, but away from any potential fire source.

- **Container Labeling:** All containers must be labeled with information that includes what is inside the container and when the waste was generated.

- **Regularly Inspect and Maintain Storage Areas:** Regularly inspect storage areas to check for leaky containers. Have appropriate spill containment and clean-up equipment, such as absorbent materials and booms, available and easily accessible. Staff should always inspect the contents of the waste before accepting it for recycling. After verifying the liquid received, they should double check the receiving tank before emptying the accepted container.

- **Secure the Hazardous Waste Storage Area:** Ensure that your hazardous waste storage areas are secure. Prevent access to these areas by untrained employees or customers. If possible, have trained staff transfer hazardous wastes from generation sites (boats, repair shop, etc.) to storage areas. Secure the liquid recycling area (perhaps inside a locked shed) to prevent inadvertent mixing. Create a well-marked drop-off point where boaters can leave waste containers so that they can be later dumped into the proper drum by facility staff.

- **Minimize On-Site Hazardous Material and Waste Storage:** Keep the total volume of hazardous material and waste stored to a minimum. Keep a record of material and waste on-site and dates of storage. Employ a "first-in, first-out" system. Since hazardous material and waste can degrade over time, this will help you get rid of the substances that can become long-term problems.

Hazard Alert

All on-site recycling by small and large quantity generators of used oil and/or hazardous waste must receive a permit from the Massachusetts Department of Environmental Protection. See the discussion of the Massachusetts Hazardous Waste Regulations in Chapter 6 for more information.

Reuse and Recycling

Reusing and recycling hazardous waste reduces disposal costs and purchasing costs of new products. The following steps will help you establish a successful hazardous waste recycling program.

- **Properly Collect Wastes:** Collect the following waste products from customers for reuse and recycling: engine oil, antifreeze, paints and solvents, varnishes, pesticides, and transmission fluid. Waste should always be transferred through a funnel to reduce spills. The funnel should be attached so that it is stable and should be large enough to hold oil cans and filters so that they can sit on the funnel and drain. Ask your waste hauler about recycling options or call a recycling company (see DEP website address listed under information sources).

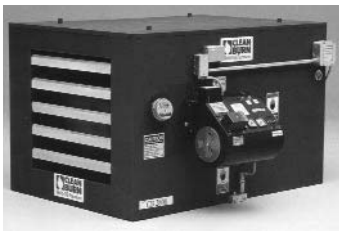
- **Maintain a Product Exchange Area:** Establish a hazardous material exchange area where customers can drop-off unused paint, varnish, oil, and other materials for other customers to use. Used solvents and paint thinners can be contained and reused after the solids have settled out (the solids must be disposed of as hazardous waste). Allow the solvents to stand for several days to induce the solids to settle.
- **Require Recycling in Contracts:** Make recycling a requirement under customer and outside contractor contracts. See Chapter 3 for more information on customer contracts.
- **Drain Fluids:** Fluids must be completely drained from engine parts that are to be disposed. For example, oil filters should be left to drip dry for 12 hours to ensure that no liquid oil is disposed of as solid waste. Drained oil filters can then go in with regular trash or to a filter recycler off-site.
- **Used Oil Burner:** Consider purchasing a waste oil burner as a winter heating source. Containers for collecting used oil must be marked "Regulated Recyclable Material — Used Oil — Toxic." There is one limitation about the oil source: all waste oil for heating shall only be collected from the marina's own customers and engine repairs, with none coming from off-site non-business sources. Burning used oil at your marina in the winter can save you money on winter heating costs and used oil disposal, particularly for marinas and boat shops that are active year-round. You will need to receive approval from your local fire department and there may be other regulatory implications for small marinas. Call the DEP Waste Oil Compliance Hotline at (617) 556-1022.

LOCAL EXAMPLE

Hyannis Marine has one waste oil heater and the owners are considering purchasing a second one because it has worked so well for them. In order to comply with the necessary regulations for the waste oil heater, Hyannis Marine installed double walled underground tanks. Hyannis Marine filters the oil using a Racor™ filter before it is burned and is able to store 4 to 5 thousand gallons of oil in compliance with all regulations. Call Dan Carlin at Hyannis Marine to find out more details (508) 775-5662.

Useful Contacts

1. The 1999 Massachusetts Private Hauler Directory is available from the DEP website at **www.state.ma.us/dep/recycle/files/haulers.pdf.**
2. Massachusetts Office of Technical Assistance can provide information and technical assistance to marinas looking to reduce their hazardous waste generation. Call **(617) 626-1060** for more information.
3. Massachusetts Department of Environmental Protection, Recycling Services — Call DEP at **(617) 556-1021** for information about starting and managing a recycling program.



Waste oil burner manufactured by Clean Burn, Inc.

Harzard Alert

Under the Massachusetts Hazardous Waste Regulations, waste oil that is burned on-site is classified as a Regulated Recyclable Material. When waste oil is placed in a drum to be shipped for off-site disposal, it is classified as hazardous waste. Read about the Massachusetts Hazardous Waste Regulations in Chapter 6.

HAZARDOUS MATERIALS AND WASTE MANAGEMENT

Complete this checklist if your facility generates hazardous waste.

Activities that occur at the facility: ☐ Hazardous Material/Waste Storage
☐ Hazardous Material/Waste Generation ☐ Hazardous Waste Recycling

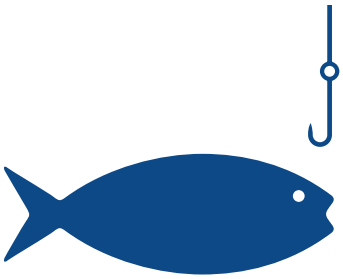
Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Provide Employee Training			4-53	
*Coordinate with Town Safety Departments			4-53	
Establish Facility Hazardous Waste Plan			4-53	
Understand Chemical Type and Hazard Degree			4-54	
Use Signs			4-54	
*Limit Hazardous Liquid Transportation			4-54	
Use MSDSs			4-54	
Proper Handling of Liquids			4-54	
*Proper Hazardous Materials and Waste Storage			4-55	
*Container Labeling			4-55	
*Regularly Inspect and Maintain Storage Areas			4-55	
Secure the Hazardous Waste Storage Area			4-55	
Minimize On-Site Hazardous Material Storage			4-55	
Properly Collect Waste			4-55	
Maintain a Product Exchange Area			4-56	

BMP	YES/NA	NO	Refer to Page	Action
Require Recycling in Contracts			4-56	
Drain Fluids			4-56	
Used Oil Burner			4-56	

***BMP will assist with regulatory compliance.**

NOTES:



4.11 Fish Waste Management

Sport fishing is one of the most popular uses of boats. However, fish cleaning waste produced by recreational fishermen can become a major nuisance if not properly handled. If recreational fishermen are regularly cleaning their fish at your marina, review the following BMPs to see if any new practices can help improve the situation.

LEGAL REQUIREMENTS

The following laws apply to fish waste disposal. If fish waste is regularly generated at your marina, please read the summary of these regulatory programs in Chapter 6.

- Massachusetts Solid Waste Regulations

Best Management Practices

If fish waste disposal is a potential problem at your facility, the following tips may help you.

- **Offshore Cleaning and Disposal:** Encourage fishermen to clean fish off-shore and discard fish waste at sea.
- **Fish Cleaning Area and Rules:** The best way to prevent a problem is by developing and clearly marking a fish cleaning area and posting rules for disposal of fish waste on the marina property. This will prevent fishermen from cleaning and disposing of fish at improper locations.
- **Fish Cleaning Staff:** Provide a staff person who can clean fish for fishermen for a per pound service charge.
- **Covered Containers:** Treat fish waste like any other solid waste that requires covered containers.
- **Fish Cleaning Provisions in Customer Contracts:** Include requirements for cleaning fish in the customer's environmental contract.
- **Fish Composting:** Compost fish waste where appropriate by mixing it with peat moss or wood chips to make garden mulch. This quickly produces an excellent compost for use in the marina gardens without any odor problem. For more ideas about composting fish waste, refer to The Leaf and Yard Waste Composting Guide found on the Massachusetts Department of Environmental Protection's website at www.state.ma.us/dep/recycle/files/leafguid.doc.
- **Fish Cleaning Stations:** Towns should also consider installing fish cleaning stations at public boat launch ramps and fishing piers.

Useful Contacts

Call Massachusetts Division of Marine Fisheries (DMF) at **(617) 626-1520** to locate your nearest DMF regional office for assistance.

FISH WASTE MANAGEMENT

Complete this checklist if your customers clean fish at the marina.

Activities that occur at the facility: ☐ Fish Brought to the Dock ☐ Fish are Cleaned

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
Offshore Cleaning and Disposal			4-59	
Fish Cleaning Area and Rules			4-59	
Fish Cleaning Staff			4-59	
Covered Containers			4-59	
Fish Cleaning Provisions in Customer Contracts			4-59	
Fish Composting			4-59	
Fish Cleaning Stations			4-59	

NOTES:

4.12 Stormwater Management

Stormwater runoff is the water from rain and melting snow that flows across the land to local water bodies. As this water runs off the land, it has the potential to pick up pesticides, silt, oil, and other contaminants along the way. Stormwater management aims to reduce the impacts of stormwater runoff pollution on coastal and inland waters. Stormwater management strategies can include regular operations, maintenance, and future improvements to the structural drainage system.

Many stormwater improvements are inexpensive, some can be costly, while others cost nothing more than the time it takes to let people know what they need to do. One of the most important things a marina can do to prevent stormwater pollution is to inventory its drainage system, identify potential sources of pollutants that may be washed into the system, and make simple improvements.

BMPs for reducing stormwater pollution can include either:

- practices that prevent pollution from coming into contact with rain water, or
- practices that clean polluted stormwater before it enters coastal waters.

Many of the practices discussed in previous chapters, such as hull maintenance and fueling, prevent pollution from coming into contact with rain water. The practices discussed below more generally focus on operations and maintenance, and future improvements to the site's drainage system. See *Stormwater Management Volume Two: Technical Handbook* available at www.state.ma.us/dep/brp/ww/wwpubs.htm#storm for more information on BMPs.

Hazard Alert

Planning for control of stormwater pollution from boat repair, maintenance work, and fueling is required by federal law under EPA's Nonpoint Pollution Discharge Elimination System (NPDES) Program.

LEGAL REQUIREMENTS

The following laws apply to stormwater pollution. All marinas should refer to the summaries of these programs provided in Chapter 6.

- National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP) for Industrial Activities
- Massachusetts Wetlands Protection Act, Stormwater Management Policy
- Massachusetts Clean Waters Act

Refer to Stormwater Management Volumes One and Two *for more detailed information on the Massachusetts Stormwater Management Program. This document can be downloaded from the DEP website at www.state.ma.us/dep/brp/ww/wwpubs.htm#storm.*

Best Management Practices

Proper Operations and Maintenance

A marina can act to prevent stormwater pollution by reducing pollutant loading in surface runoff. The following BMPs will help accomplish this goal.

- **Catch Basin Maintenance:** If your marina parking lot contains a traditional drainage system with catch basins, manholes, and subsurface drainage pipes, have them inspected twice annually and clean them out when needed. If the sump is half full, the sediment should be removed.

- **Street Sweeping:** Frequently sweep streets, parking areas, boat maintenance areas, and other paved surfaces, including walkways, to maintain a clean marina. Some marinas employ small mobile vacuum sweepers to daily drive around their paved areas. However, regular sweeping with a dust pan and broom, particularly near catch basins, can be just as effective.

- **"Don't Dump" Stenciling:** Stencil "Don't Dump" signs next to catch basins. This will help inform the general public that catch basins are directly connected to coastal waters. Call a local environmental group to find out more about storm drain stenciling.

- **Prohibit Hosing Down Hard Surfaces for Cleaning:** Prohibit the practice of hosing down pavement, sidewalks, and other hard surfaces for the purpose of cleaning them. This method will clean pollutants off the surface, but wash them into coastal waters.

Facility Improvements

Consider making improvements to the facility site to decrease drainage impacts on coastal waters. While these improvements need to be planned and funding mechanisms developed, these improvements will be investments in your business. The following BMP's include some typical design modifications that can improve your marina's appearance while reducing impacts on coastal waters.

- **Vegetated Buffers:** Plant vegetated strips between the developed area and the water. This will reduce impervious area while making your facility more attractive. You may be able to direct surface runoff to vegetated areas for treatment. A 25-foot strip is optimum for water quality control and infiltration; however, any vegetative strip is an improvement. The plants you use will depend on site-specific considerations. Consult with a nursery to select shrubs that look nice, but are hardy, low maintenance, and fit the intended purpose of the buffer. Grass is effective for trapping sediment particles. Bayberry is a good choice because it is a native shrub that survives well near the ocean and requires little maintenance. Evergreen shrubs such as holly and arborvitae are hardy, low maintenance, and provide screening. If runoff is directed to a vegetated area, water tolerant plants such as cattails or sweet pepperbush may

Vegetation between parking areas and the water provide buffers that remove pollution.

For More Info

Contact the University of Massachusetts Cooperative Extension Office at (413) 545-4743, or a local garden center or garden club for advice on selecting plants that will thrive at your marina.

be appropriate selections. These changes will likely improve the look of your marina and could enhance your business by attracting more customers.

- **Reduce Pavement Area:** Remove pavement where it is not necessary and switch to grass or gravel.
- **Move Parking Areas:** If possible, relocate parking areas away from the water. There may be opportunities to move parking off-site, which will allow you to maximize your facility space and improve its visibility.

CONTROL STORMWATER

Vegetated swales are narrow grassed areas that collect stormwater, slow its flow and collect sediments, and then allow the stormwater to discharge off-site or just to soak into the earth. They can be designed with deep sandy beds underlain by a perforated pipe, which promotes infiltration of water into the swale and then quickly drains the clean water. In most coastal sections of Massachusetts, the soil is very sandy and has excellent drainage, which may make the use of underground drain pipes unnecessary. Other designs may be used depending on the facility site. The benefit of vegetated swales is that they can be squeezed along the margins of work sites and incorporated into landscaping improvements that help make the facility more attractive to customers.

Improving the Site Drainage System

Consider retrofitting your existing site drainage system with traps or filters that will clean runoff flowing from the marina. These practices have long been incorporated into site planning and highway/roadway design to prevent flooding, erosion, and sedimentation. Civil engineering firms with experience in site development can design these types of systems into your site if you plan to make any major facility modifications. Some of these systems can be expensive (see vendor cost information), so start by creating a specific account for this improvement and develop a dedicated environmental fee to pay for the cost. For even the most dedicated Clean Marina operator, this may be a long-term improvement process. Examples of subsurface structural measures include:

- **Oil/Grit Separators:** These devices are placed in the drain line to remove oil and sediment. Water passes through several chambers, trapping oils that float on top of the water and sediments that fall out. These devices should be maintained (inspected and cleaned out, if necessary) annually.
- **Leaching Basins:** These basins generally replace or modify your existing catch basins by adding an area of crushed stone to help filter stormwater. Leaching basins need to be maintained annually or they will not function properly.
- **Filters in Catch Basins:** Filter screens can be placed under catch basin grates to collect large sediment particles. This approach is a relatively cheap fix, but the screens do need to be inspected after every storm.

▷ **Sand Filters:** Sand filters collect runoff and filter it through a sand medium, which is effective in removing sediments and oils. Numerous designs are available. Some use small check dams to slow surface flow and promote infiltration. Others are underlain by a perforated PVC drain pipe wrapped in geotextile fabric to move the treated runoff off-site. Where soils are porous, the runoff will infiltrate into the subsoils.

LOCAL EXAMPLE

A sand filter system was installed at the **Hingham Town Beach** parking lot when the town prepared the area for regrading and paving. The system employs check dams and a PVC drain to control runoff before and after the sand filter cleaning system. Call the Hingham Conservation Commission office at (781) 741-1410 for more information.

▷ **Proprietary Technologies:** Several new technologies for stormwater control have been developed by private companies and are in use in Massachusetts. Some systems have been certified by the Massachusetts Strategic Envirotechnology Partnership (STEP) and as a result are approved for meeting stormwater treatment requirements of the Massachusetts Stormwater Management Policy. Over time, other products may become available, so call the Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways at (617) 292-5695 for updates. Some vendors of stormwater technologies are listed in Appendix C.

Useful Contacts

1. The CZM Coastal Pollutant Remediation (CPR) Program provides financial assistance for remediating stormwater pollution from municipal marinas. CZM can also provide technical assistance to marinas to help solve stormwater problems. Call CZM at **(617) 626-1200,** or look on-line at **www.state.ma.us/czm/.**

2. Massachusetts Department of Environmental Protection, Division of Wetlands and Waterways can provide you with regulatory information about the stormwater management policy. Call **(617) 292-5695** or see their website at **www.state.ma.us/dep/brp/ww/rpwwhome.htm.**

3. US Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Program — Call **(617) 918-1615** for information about the NPDES Program and requirements or look on-line at **www.epa.gov/owm/sw/industry/msgp.**

4. Boston Water & Sewer has new requirements for oil & grit separators for all new and rehabilitated sewer lines. Call **(617) 330-9400** for more information.

5. Center for Watershed Protection (CWP) — a private organization that works with government and business to develop scientifically sound solutions for protecting urban watersheds. Call (410) 461-8323 to discuss your stormwater problems, or log on to CWP's web site at www.cwp.org.

For More Info

STEP is a unique collaboration of the Executive Office of Environmental Affairs and the University of Massachusetts system. STEP effectively helps develop and promote technology-based solutions to environmental challenges across the Commonwealth. For more information about STEP, call (617) 626-1000 or look on-line at www.state.ma.us/envir/step.htm.

STORMWATER MANAGEMENT

All marinas generate stormwater pollution, and therefore, all should complete this checklist.

The facility contains: ☐ Paved Areas such as Lots and Walkways ☐ Subsurface Drainage Structures

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
Catch Basin Maintenance			4-64	
Street Sweeping			4-64	
"Don't Dump" Stenciling			4-64	
Prohibit Hosing Down of Hard Surfaces for Cleaning			4-64	
Reduce Pavement Area			4-64	
Move Parking Area			4-64	
Vegetated Buffers			4-64	
Oil/Grit Separators			4-65	
Leaching Basins			4-65	
Filters in Catch Basins			4-65	
Sand Filters			4-66	
Proprietary Technologies			4-66	

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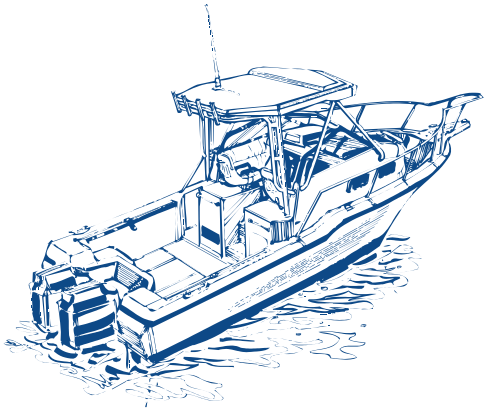


4.13 Boat Operations

Boats allow people to explore the backwaters of marshes, visit stretches of barrier beach miles from the nearest road, and reach rocky islands offshore. Many of these more remote places contain healthy marine habitats that provide feeding, breeding, and other required life functions. Improper use of boats in these areas can cause harm to these healthy habitats.

Destruction of eelgrass is an example of the damage some boats can cause. Eelgrass beds form in sandy areas of only a few feet of water at low tide. These beds are the nursing grounds for many species of fish. While the entire plant is covered completely by water for most of its life, it can only develop in clear, shallow waters where sunlight can penetrate and thereby allow for photosynthesis. The top part of the eelgrass plant floats on the water's surface at low tide and can often be seen by boaters who are cautiously navigating through shallow waters. At mid to high tide, however, the extended plant is stretched out in the water column to within a few feet of the surface, but is often not visible to boaters. Hidden just below the surface, eelgrass is at risk of being damaged by boats that travel through shallow coastal waters. Boat props can tear up eel grass beds and completely destroy the habitat by uprooting plants. This is of particular concern since potential eelgrass habitat has dramatically decreased statewide due to poor water quality and increased turbidity that has limited light penetration.

Salt marsh visibly forms the border between the land and the sea. At low tide, it is entirely exposed. At high tide, the upper parts of the salt marsh plants extend up above the water in the high marsh alerting boaters to its presence. Like eelgrass beds, salt marshes are important food and nutrient sources for fish and other marine animals. Careless driving of boats over salt marsh, particularly at mid to high tide, can cause damage to the marsh from the propeller. Additional damage is caused to salt marshes by boat wakes. Because salt marsh generally forms in low wave energy areas, such as protected bays and coves and behind barrier beaches, it has not evolved to withstand extended wave action. Regular boat traffic in a salt marsh will cause erosion, which can lead to sediment filling of boat channels and to extensive salt marsh destruction over time.

To keep your marina clean and reduce impacts to coastal waters, it is important to provide boaters with the right tools and information so they can do their part. To help boaters understand potential impacts of their boating behavior on marine habitats, distribute the boater fact sheet on this subject from the back inside pocket of this guide. The following boating tips are discussed in the fact sheet as part of the Clean Marina Philosophy.

Safety Courses

The following organizations, each certified by the U.S. Goast Guard for on-the-water training, offer state- and nationally-approved boating safety classes:

U.S. Coast Guard Auxiliary
(800) 848-3942, ex. 8309
www.uscgaux.org/~013

U.S. Power Squadrons
Locations throughout Massachusetts, including Hingham, Orleans, and Salem
(800) 336-2628
www.usps.org

New England Maritime
Hyannis, Massachusetts
(508) 790-3400
www.nemaritime.com

Boatwise
South Hampton, New Hampshire
(800) 698-7373
www.boatwiseclasses.com

Vineyard Maritime
Vineyare Haven, Massachusetts
(508) 693-7030
www.vineyardmaritime.com

LEGAL REQUIREMENTS

The following regulations apply to boating operations.

- Massachusetts Boat Operations Restrictions [MGL c. 90B, ss. 8-12 and 323 CMR 2.00 and 4.00].

Best Management Practices

Oftentimes, boaters may not know how their boat operations can degrade the marine habitats. By passing along the following tips to your customers, you can inform them about simple ways to protect the coastal environment that they enjoy.

- ▶ **Observe No Wake Zones:** In No Wake Zones, boat speed must be decreased to the point where the boat does not produce a wake (or waves). These zones are often located in boating channels where there is a significant amount of boat traffic, in areas where boats are docked and moored, and in salt marsh areas where wakes cause erosion which can lead to boat channel filling. Local enforcement officials monitor adherence to no wake laws and issue citations when the rules are not followed.
- ▷ **Promote Safe and Responsible Use of Boats:** Encourage all boat operators (including personal watercraft riders) at your marina to complete an approved boating safety course of training. Provide safety and legal handouts such as *The Massachusetts Boater's Guide* for easy reference.
- ▶ **Abide by Personal Watercraft Laws:** Make sure personal watercraft (PWC) riders know that regular operation of PWCs within 150 feet of shore is prohibited under Massachusetts State Law.
- ▷ **Avoid Boating in Shallow Waters:** Inform boaters about the environmental damage caused by boating in shallow waters, particularly to eelgrass. As described above, eelgrass is particularly at risk for damage by boat propellers because it grows in shallow waters. Local marine resource departments might consider posting signs informing boaters about sensitive areas.
- ▷ **Do Not Speed Near Salt Marsh:** Because salt marsh naturally forms in low energy environments away from wave action, it is particularly susceptible to boat waves. Regular boat waves will lead to erosion and destroy salt marsh.
- ▷ **Sell Four-Cycle Engines:** If your marina sells boat engines, sell the most advanced and cleanest four-cycle engines available. The newest engines are clean burning and fuel efficient, which saves money for fuel costs and keeps the air and water clean. These engines meet 2006 EPA standards.

Useful Contacts

1. Massachusetts Division of Environmental Law Enforcement (DFWELE)—Call DFWELE at **(617) 727-3905** for information about boating rules and regulations.

2. State Boater Safety Courses—For further information regarding the Massachusetts' recreational boating safety program contact the Safety Bureau at **(617) 727-8760.** Another source for boating safety information is BOAT/U.S. Foundation at **(800) 336-2628** or **www.state.ma.us/dfwele/dle/DLE_SAF.HTM.**

3. Recent changes in Massachusetts Boating Law are summarized at **www.state.ma.us/dfwele/dle/DLE_UPD.HTM.**

BOAT OPERATIONS

This checklist should be completed by all marinas.

Check either the "Yes" or "No" column to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "NA" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMP	YES/NA	NO	Refer to Page	Action
*Observe No Wake Zones			4-70	
Promote Safe and Responsible Use of Boats			4-70	
*Abide by Personal Watercraft Laws			4-70	
Avoid Boating in Shallow Waters			4-70	
Do Not Speed Near Salt Marsh			4-70	
Sell Four-Cycle Engines			4-70	

***BMP will assist with regulatory compliance.**

NOTES:

Chapter Five:
New and Expanding Marinas

Special considerations must be made when planning a marina construction project.

New and Expanding Marinas

New and expanding marinas present different environmental challenges than existing marinas. These marinas are constructed in coastal areas where no facilities currently exist or existing facilities are obsolete. There are both positive and negative consequences of new and expanded marina construction. On the positive side, engineers are constrained only by natural conditions and not existing uses, which provides for greater design flexibility. Additionally, now marinas can employ current techniques, such as stormwater systems built in compliance with current regulations. However, negative impacts from work in undeveloped coastal areas are often unavoidable. In either case, these new marina projects must be sited and designed to minimize environmental impacts.

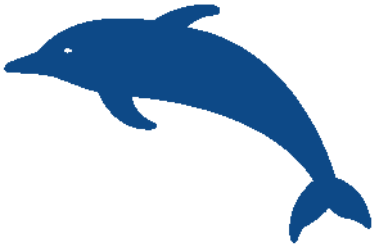
Taking on a marine construction project is a complex process. The information in this guide gives context for the issue and provides basic information. It may be necessary, however, to hire a consultant to help you design and permit a project. While new construction can result in new impacts, it can be designed to blend with natural conditions, provide environmental benefits, and avoid long-term environmental problems.

This chapter discusses the natural conditions that occur in protected coves and how marinas must be designed to protect these conditions. Environmental considerations related to new construction in marine waters are discussed, followed by an introduction to the primary federal and state laws that apply to most marina construction projects. This is followed by a discussion of best management practices (BMPs), organized under the following siting and design considerations:

- marina flushing
- water quality
- habitat
- shoreline stabilization

Many other BMPs discussed in Chapter 4 are applicable to the siting and design of new marinas. For example, proper site planning and design for new marinas must consider BMPs related to fuel station design, stormwater management infrastructure, designated maintenance areas, waste disposal, and boat sewage facilities. Project proponents of new and expanding marinas should refer back to Chapter 4 during the project's planning phases to incorporate relevant BMPs.

5.1 Environmental Considerations



Natural landforms, such as salt marsh or tidal flats, provide important biological and physical benefits to the marine environment. Salt marsh, for example, provides habitat for fish and shellfish; protects inland areas from wave energy and flooding; and acts like a sponge to capture, hold, and neutralize many pollutants. Development that impairs or destroys these functions will harm the local environment.

Marine habitats are dependent on the natural conditions typical of nearshore coastal waters. Such conditions include daily flushing by the tides; seasonal variations in salinity, temperature, and nutrients; and natural sediment transport. Activities associated with marina construction can cause temporary and permanent impacts to marine habitat. Temporary impacts can occur during construction when turbidity (cloudy water caused by sediment disturbance) and sedimentation is produced by activities such as pile driving and dredging. Turbidity can resuspend pollutants that have been trapped in the ocean bottom and expose marine life to them. Cloudy water also prevents light needed for growth by aquatic plants such as eelgrass from penetrating through the water column. When the sediment particles fall out of the water column, marine organisms including shellfish, may become buried. Permanent impacts result when shorelines are converted from natural banks to concrete bulkheads, or when bottom habitats are dredged. New structures in coastal waters can also affect currents and tidal flow, which may alter sediment transport, pollutant flushing, and the delivery of nutrients to existing habitats.

Marinas, once constructed, can support marine habitats. Scientific studies have shown that the in-water parts of marina structures do provide habitat for juvenile fish, crabs, mussels, and other species. Seaweed colonizes pilings, floating docks, riprap, chains, and other structures located below the waterline, which feeds and protects many marine organisms. Some marinas have even raised or farmed shellfish using aquaculture techniques underneath docks and piers.

Ironically, both marshes and marinas require the low energy protective environment of coves and bays to exist successfully. The challenge is for the designers of new or expanded marinas to consider the natural environment in the area of proposed work and design and site the marina facility to preserve and, where possible, enhance the natural features.

5.2 Applicable Regulations

Proper siting and design of new and expanding marinas will lessen impacts on the marine environment. The process of obtaining regulatory permits will require that your project show minimal environmental impacts. Anyone considering expanding an existing marina or building a new one should meet with state and federal regulatory staff and become familiar with the applicable regulations. It would also be advisable that you hire a consultant to design an environmentally-sensitive project and help you navigate through the regulatory process.

The following laws apply to the construction of new or expanded marinas. Please read the summary of these regulatory programs in Chapter 6 and contact the listed Agency or the Massachusetts Office of Coastal Zone Management (CZM) for more information.

1. **Clean Water Act – Section 404 Permit:** The U.S. Army Corps of Engineers (ACOE) administers the Section 404 Program. Section 404 of the Federal Water Pollution Control Act (also known as the Clean Water Act) requires that any project that proposes to place structures or fill material, or dredge material below the high tide line must apply for and obtain a Section 404 Permit from the ACOE. Since nearly all marina projects necessitate that construction activity occur below the high tide line, the new or expanding marina will likely require a Section 404 Permit. Contact the U.S. Army Corps of Engineers/New England District, Regulatory Branch at (978) 318-8000.

2. **Clean Water Act – Section 401 Water Quality Certification:** The Massachusetts Department of Environmental Protection (DEP) administers the Section 401 Water Quality Certification Program. Section 401 of the Clean Water Act requires that any project that includes a discharge of pollution to a wetland or water body, and is also required to obtain a permit from the U.S. Army Corps of Engineers or other federal agency, must receive a certification from the state that the project will not violate state water quality standards. Therefore, if the project requires a Section 404 Permit, it automatically requires a Section 401 Water Quality Certification. Contact the Massachusetts DEP at (617) 292-5500.

3. **Massachusetts Environmental Policy Act:** The Massachusetts Executive Office of Environmental Affairs administers the Massachusetts Environmental Policy Act (MEPA) through its MEPA Office. The MEPA law requires that all agencies of the Commonwealth determine the impact on the natural environment of all works, projects, or activities they conduct and use all practicable means and measures to avoid or minimize the environmental harm that has been identified. MEPA applies to projects directly undertaken by state agencies and to private projects for which state permits are sought, or for which state funding or land transfer is involved. MEPA does not apply to projects needing only local approvals. Review thresholds

are provided in 301 CMR 11.03, which identifies categories of projects of nature, size or location that have the potential to cause "Damage to the Environment." Thresholds have been established for the following categories: land; rare species; wetlands, waterways, and tidelands; water; wastewater; transportation; energy; air; solid and hazardous waste; and historical and archaeological resources; and Areas of Critical Environmental Concern. Projects that surpass any threshold must comply with MEPA. Activities related to marina construction that may trigger MEPA include dredging; filling of salt marsh, altering coastal dunes or coastal banks; or location of a construction project within an Area of Critical Environmental Concern. Contact the MEPA Office at (617) 626-1020.

4. **Massachusetts Waterway Regulations – Chapter 91 Program:** DEP administers the Chapter 91 Waterways License Program. A Chapter 91 license is required for any new construction that proposes the placement of a structure or dredging below mean high water; or any project being constructed on land that was historically subject to tidal flow but has since been filled. These areas are known as "tidelands." All existing marinas with structures below mean high water or on "tidelands" must hold a current Chapter 91 license for those structures. Specific provisions of the Waterways Regulations apply requirements on new construction, such as documenting that fuel spill control equipment is available (see the Waterways Regulations, 310 CMR 9.39). In addition, fill and structures are categorically restricted and do not meet the statutory test for approval under Chapter 91 in certain situations (see 310 CMR 9.32). Projects are also governed by any approved Municipal Harbor Plan under 301 CMR 23.00. Specific standards are also included in the regulations that preserve water-related public rights and water-dependent uses. Contact the Massachusetts DEP, Wetlands and Waterways Program at (617) 292-5500 if an existing facility does not have a Chapter 91 license or if a proposed project requires a license.

5. **Massachusetts Wetlands Protection Act:** DEP administers the state Wetlands Protection Act through municipal "Conservation Commissions." The local Conservation Commission reviews all activities that occur within 100 feet of a wetland resource area. Coastal wetland resources including coastal banks, coastal beaches, coastal dunes, land under the ocean, and land subject to coastal storm flowage. After its review, which includes a public hearing, the commission issues a permit, known as an Order of Conditions, which allows the project to proceed in accordance with the conditions of the permit. Applicants may appeal the decision to the DEP. Many construction activities at marinas, both on land and in the water, require an Order of Conditions. Contact the Conservation Department in your local town hall or contact the Massachusetts DEP, Wetlands and Waterways Program at (617) 292-5500 for more information.

6. CZM Federal Consistency: CZM reviews certain projects to ensure that they are consistent with the Commonwealth's federally-approved Coastal Zone Management Program. Any project undertaken by a federal agency, requiring a federal permit, occurring on the Outer Continental Shelf, or receiving federal funding that is in or may affect the land or water resources or uses of the Massachusetts coastal zone is subject to a federal consistency review. The Commonwealth of Massachusetts has adopted enforceable coastal policies that are based on existing Massachusetts statutes and regulations. These policies provide the criteria for federal consistency review. Policies cover issues central to the management of the state's coastal zone including water quality, marine habitat, protected areas, coastal hazards, port and harbor infrastructure, public access, energy, ocean resources, and growth management. The project-specific federal activity cannot take place until CZM concurs that the project is consistent with state coastal policies. Any marina construction project that proposes work below the high tide line and triggers review by the Army Corps of Engineers under a Section 404 permit, or requires any other federal permit, will also be subject to CZM federal consistency review. Contact CZM's Project Review Coordinator at (617) 626-1200 for more information.

Marinas can be found in a variety of waterfront settings.

5.3 Siting and Design Considerations

For Massachusetts and federal regulators to approve projects under the law, they will expect that you have sufficiently studied the marine environment where your project is to be built, and that your proposed design is in balance with the marine environment. Other design considerations not specifically required by law will help the marina blend into the surrounding coastal environment. Specifically, marina flushing, water quality, habitat, and shoreline streambank stabilization must be considered. Many of the BMPs listed in Chapter 4 may also be required as part of the siting and design of a new or expanding marina.

The following symbols are provided to help you identify which BMPs may be required during the permitting process and which are recommended.

▶ **May Be Required by Law**

▷ **Recommended**

Specific BMPs for each of these topics are discussed below.

Marina Flushing

Water quality within the marina basin depends on how well the basin is flushed, which depends on how well water circulates within the marina. The movement of water is controlled by tides and is influenced by currents that are formed by the shape of the shoreline and underwater landforms. It is important to understand how man-made structures such as pylons and piers affect the movement of water during a typical tidal cycle, because obstructions to water circulation can affect natural processes such as sediment transport and distribution of dissolved oxygen. These impacts can,

in time, affect navigation and marine habitats. Constrictions can also decrease flushing of the cove, and prevent pollutants or excess nutrients from being carried out to sea.

Marinas should be designed so that their structures do not significantly restrict the natural circulation of water caused by tidal action. BMPs include:

- **Marina Bottom and Entrance Channel Placement:** Try to avoid having bottoms of the marina and their entrance channels that are deeper than adjacent navigable harbor channels. If the marina bottom is significantly below that of the main channel, bottom water exchange might be reduced. This can restrict the flow of dissolved oxygen to waters around the marina and lead to fouling and odor problems.
- **Minimize Dead Water in Marina Designs:** Dead water develops when bacteria consume all the dissolved oxygen in the bottom waters and the movement of oxygen rich water for replenishment is restricted. Dead water can form in isolated areas under the marina and where marina structures block water flow. Design new marina areas without structures that will lead to the development of dead water areas, thereby ensuring water movement and exchange throughout the entire marina basin and avoiding traps for floating trash and seaweed.
- **Open Marina Designs and Wave Attenuators:** Consider using open designs and wave attenuators where possible to improve flushing. Open designs avoid the use of structures in bottom waters that restrict water flow. Wave attenuators are structures that dampen wave energy, but still allow water to pass through and into the protected area. Wave attenuators may not sufficiently protect the marina in areas subject to significant wave action, and the need for wave protection may make solid breakwaters the only practical alternative for some marinas. Site specific study is required to reach the appropriate solution.
- **Promote Flow-Through Currents:** If feasible, without compromising wave protection, provide openings at opposite ends of the marina to promote flow-through currents.
- **Mechanical Aerators:** Use mechanical aerators to improve oxygenation and mixing in marina basins where and if flushing appears to be a problem, particularly during hot summer months.

Water Quality

Assess water quality at the marina during the design phase to identify any potentially significant water quality impacts that can be improved through siting and design. Possible BMPs include:

- **Water Quality Sampling:** Complete a water quality baseline for the marina site. Compile a record of basic environmental conditions of the water such as temperature, salinity, and dissolved oxygen at various locations around the marina. Both

surface waters and bottom waters could also be sampled, and the samples sent to a lab to analyze contaminants such as nutrients and bacteria. Sampling should also be done in both dry and wet weather periods. This data will help document existing water quality conditions which will be useful for developing design alternatives and evaluating the effects on water flow and water quality from each alternative.

- **Volunteer Monitoring:** Establish a volunteer monitoring program to conduct regular monitoring prior to, during, and for a short time after construction. Many local volunteer groups currently monitor local waters where they live. You could contact such groups and request that they sample near the marina. You could pay for any laboratory analysis, and the marina site could be an important part of their sampling effort to monitor water quality within a larger cove or bay.

Habitat

Natural habitats that provide a variety of important functions and values to the local coastal environment may be located near the marina. During new and significantly expanded marina siting and design, negative impacts on existing habitat should be minimized. Consider the following practices:

- **Select Degraded Habitats for Marina Development:** Redevelop sites degraded by development in the past, such as in old urban areas, industrial brownfields, declining fishing ports, or surplus naval base waterfronts, rather than developing in undisturbed areas. Brownfields are a term for abandoned lots of land that were once developed by heavy industry.

- **Inventory Existing Habitats:** Conduct an inventory of existing marine habitats near the proposed work. Habitats may include salt marsh, eelgrass, rocky intertidal habitat, mudflats, clam beds, and oyster beds. Some of this information can be collected through a visual analysis. Information on local shellfish populations may also be available from the local shellfish warden or by calling the Massachusetts Division of Marine Fisheries at (617) 626-1520. The inventory will be useful for developing an environmentally-protective marina design. For permitting purposes, a more detailed inventory may be required.

- **Enhance Surrounding Natural Habitats:** Establish new habitat or expand existing habitat where feasible, such as using dredged bottom soils for beach nourishment or to expand adjacent marshes. This work will require a permit and should be included in your permit applications.

- **Proper Boat Storage:** Use dry stack storage to decrease pressure for in-water docking for small boats. Any time components of the marina can be moved away from the water, potential impacts on nearby marine habitats can be decreased. Some marinas store boats off-site at a location away from the water. Such land is usually cheaper than waterfront land, making this option more cost-effective to the marina.

Please Note

The Commonwealth of Massachusetts, through its Brownfields Initiative, is encouraging the redevelopment of Brownfields rather than development of green spaces or areas containing natural vegetation. For more information, call DEP's Brownfields Coordinator at (617) 292-5500.

- **Structures Above Habitat:** All marina structures, such as piers and docks, should be constructed away from marine habitats. Where elevated walkways must be constructed over habitats such as salt marsh and eelgrass, design considerations should maximize the amount of sunlight that reaches the plants. This can be achieved by minimizing the breadth of the walkway and the shadow it creates, or by providing slots in the walkway.

Shoreline Streambank Stabilization

Unstable sections of the shoreline subject to wave action can erode and lead to sedimentation, which may cover nearby eelgrass beds, or fill in natural channels requiring more frequent maintenance dredging. Where feasible, new or expanding marina projects should help stabilize the shore as part of their development plans. Specific BMPs include:

- **Vegetative Planting and Natural Buffers:** Use vegetative plantings, wetlands, beaches, and natural shorelines to keep streambanks from eroding. Natural solutions to bank erosion rather than hard structures improve the view of the marina and provide benefits to wildlife.

- **Riprap Structures:** Where stabilization of a streambank with a hard structure is necessary, choose riprap in preference to a vertical wall, where practical. Riprap is composed of varying sized stones selected by an engineer and sized to site specific conditions. It is used where a bank has a potential for erosion due to its proximity to wave action and/or instability caused by the bank's soil composition. Riprap is preferable because the spaces in between the rocks of riprap provide more suitable habitat for marine organisms than flat surfaces like concrete. Riprap also generally absorbs and decreases wave energy better than "smooth" walls.

Riprap is commonly used to secure the shoreline where erosion is a problem.

- **Assess Effects of Marina Structures:** Consider the effects inside the marina basin of reflected waves from vertical bulkheads and their consequences when reviewing options for stabilization.

- **Minimize Boat Ramp Impacts:** At boat ramps, retain natural shoreline features and design to avoid erosion. Work with, rather than against, prevailing winds, currents, and sunlight. Narrow channels with cross currents can be treacherous, as can narrow channels with currents that run directly into typically heavy winds. In Massachusetts, the southwest wind is the prevailing wind, while the northeast wind is the dominant or strongest wind direction.

5.4 More Information

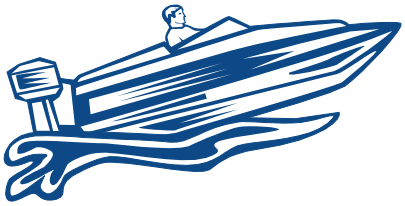
A significant amount of information will be required to design and permit a new marina construction project. Contact the agencies listed in Section 5.2 above for more information about the regulatory process. Contact a marine engineering and consulting firm to find out how their services will help in developing the project. Contact your local shellfish warden or state resource agencies such as CZM and the Massachusetts Division of Marine Fisheries to collect information about the marine resources around your marina. A short list of potential contacts is provided here.

1. **Society of Naval Architects and Marine Engineers** — This professional organization can help you locate a marine engineering consultant. Call (800) 798-2188 or log-on at www.sname.org/.

2. **Massachusetts Division of Marine Fisheries (DMF)** — for information about fisheries and fish habitat near the project, call DMF at (617) 626-1520 or log-on at www.state.ma.us/dfwele/dmf/dmf_toc.htm to find the location of the nearest DMF field office.

3. **Massachusetts Geographic Information Systems (MassGIS)** — to collect digital information about marine resources, such as eelgrass, near your marina, call MassGIS at (617) 626-1000 or log-on at www.state.ma.us/mgis/massgis.htm.

Chapter Six:
Major Regulatory Programs



Major Regulatory Programs

The many statutes, regulations, permits, and legal requirements that apply to marinas are referred to throughout this guide. This chapter discusses how these regulatory programs work together to protect coastal resources and water quality and outlines the specific requirements for your business. It is intended to give you the basics so you can work with your environmental consultant and state and federal regulators to ensure that your facility complies with the law.

This chapter is organized into two sections. Section 6.1 provides the overall regulatory framework, and is divided into four categories of marina activity: siting, construction or expansion, maintenance, and operations. For each of these categories, an overview of the types of regulatory issues that face marinas is provided, along with a brief summary of the major regulatory programs. The names of the various regulations and permits are shown in bold, followed by a number in parentheses, which corresponds to the description of the regulatory program in Section 6.2.

Section 6.2 provides technical descriptions of each of the statutes and regulations referenced in the first section, including regulatory citations, jurisdictions, summaries, and contact information.

It is unlikely that marina owners will want to actually obtain all the applicable permits themselves. The environmental consultant that is or has designed your marina will generally obtain the permits as part of the package of services that you purchase from them. The information in this chapter will help you to work effectively with your environmental consultants to ensure your facility's on-going compliance with the regulations.

6.1 Regulatory Overview

Before delving into the details of the regulations in Section 6.2, the discussion below provides an overview of the regulatory programs that apply to marina siting, construction or expansion, maintenance, and operations.

Siting

When siting a marina, you think, of course, of the best place to attract a customer base, to protect your investment, and so on. Because of their potential impact on critical resources, however, certain sites have greater requirements, making construction difficult or impossible to permit. There are several regulatory programs that apply to marina siting.

The state's Department of Environmental Management (DEM) administers the **Areas of Critical Environmental Concern (ACEC) (1)** program. ACECs are complexes of natural resources that have been judged to be of state-wide significance, and therefore any project proposed in an ACEC is subject to a heightened regulatory review. New docks and piers and improvement dredging are particularly difficult to permit in ACECs.

The state had a **Coastal Wetland Restriction (2)** program under which many activities in wetlands were curtailed. These restrictions were recorded with the property deed at the County's Registry of Deeds. Though the program is no longer active, there are still some recorded restrictions in effect, so it's best to check.

Construction on a **flood plain (3)** may make it necessary for you to get flood insurance in order to obtain your construction financing and to protect your investment. Use of state funds to construct infrastructure, such as roads, and construction of coastal engineering structures is prohibited on **barrier beaches (4).** Locating your facility near a barrier beach may invoke some of these prohibitions, affect both the marina's design and possibly limit the availability of state-funded services to your facility.

The presence of state or federally listed threatened and **endangered species (5,6)** at or near a proposed marina site will make obtaining the necessary environmental permits difficult or impossible. The state's Natural Heritage Program staff can help to identify any mapped habitat for endangered species.

Marina proponents should also consider the presence of archeological artifacts, historic structures, shellfish, and federally designated essential fish habitat, any one of which can increase the difficulty of obtaining permits. The state's Board of **Underwater Archeological Resources (7),** the **Massachusetts Historical Commission (8),** the **Massachusetts Division of Marine Fisheries (DMF) (9),** and the **National Marine Fisheries Service (NMFS) (10)** respectively can provide additional information about the presence of these resources. The state's **Ocean Sanctuaries Act (11),** administered by the DEM, also places some limits on siting new marinas.

In urbanized ports, recreational marinas are not permitted in **Designated Port Areas (DPAs) (12).** Some cities and towns have chosen to develop state-approved **Municipal Harbor Plans (13).** These plans may include siting and design criteria for marinas, or may have prohibitions against in-water construction or mooring placement.

Construction or Expansion

A number of permits must be obtained before a marina construction or expansion project can begin. These permits are listed below in the order in which they are issued by the permitting agency.

A proposal to construct a marina of 50 or more slips or to expand a marina by 50 slips must undergo review under the **Massachusetts Environmental Policy Act (MEPA) (14),** and must file an Environmental Notification Form (ENF). This review gives state permitting agencies and the public an opportunity to comment on a proposal while it is still in the planning stages so that environmental concerns and permitting problems can be brought to the applicant's attention and remedied before significant investment is made into a specific proposal that will not work. If significant environmental problems are identified at the ENF stage, an Environmental Impact Report (EIR) may be required.

During or right after the MEPA review, a Notice of Intent (NOI) should be filed with the town or city's Conservation Commission, which administers the **Massachusetts Wetlands Protection Act (15).** Land under the water, coastal banks, dunes, and land subject to coastal storm flowage are all considered wetlands under the Act, and any construction on a wetland must meet its performance standards. The Conservation Commission will issue an Order of Conditions, which specifies construction methods and operational constraints that will avoid or minimize and mitigate damage to wetland areas.

If your construction project requires dredging more than 100 cubic yards of material, you must obtain a **401 Water Quality Certification (16)** from the Department of Environmental Protection (DEP), which indicates that dredging will not adversely affect water quality. Conditions of the Certification may include requirements to use silt curtains, "environmental buckets" for certain sediment types, dewatering methodologies, and time-of-year restrictions to protect fish spawning.

To place structures in the water and on adjacent land, and to allow dredging to take place, a **Chapter 91 license (17)** must be obtained. The Chapter 91 or Waterways Program regulates activities on filled and flowed tidelands of the Commonwealth. An engineer will have to prepare stamped drawings of the marina layout, which will eventually be filed at the Registry of Deeds along with the deed to your marina property. Because tidelands are "public trust" lands, that is, they are owned in common by the citizens of the state, public benefits must be offered in exchange for private use of this land. The license itself will include conditions that ensure that public benefits, such as public walkways, are constructed.

If you are proposing to have a fuel dock at your facility, you must obtain the necessary permits from the **State Fire Marshall (18).** Considerations will include storage, handling, and engineering of the facility.

The **Massachusetts Office of Coastal Zone Management (CZM) (19)** conducts a final review of coastal projects, known as federal consistency review. Any project that requires a federal permit must be consistent with state coastal policies, as administered by CZM. CZM has worked with both the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency (EPA) to develop general permits for projects of minimal environmental impact. If your project is eligible for one of these general permits, it does not generally have to undergo a separate CZM federal consistency review.

Required federal permits may include the Army Corps of Engineers **Section 10/404 and 103 permits (20,21,22).** Section 10 of the Rivers and Harbors Act governs placement of structures in navigable waters. Issues such as location of federal navigation channels, access of adjacent users to their waterfront, and safe navigation are considered. Section 404 of the federal Clean Water Act ensures that any fill placed in the waters of the U.S. (wetlands are also considered waters of the U.S.) will not harm the quality of the water or the plants and animals in it. Federal resource agencies will consider impacts to wetlands, eelgrass, shellfish, sediment transport, and water quality

when placing conditions on this permit. A Section 103 permit is required if you are proposing to dispose of dredged material in the ocean. Again the issues of concern are water quality and the impact of sediment on animal and plant life. All of these permits have been wrapped into the **Massachusetts Programmatic General Permit (PGP) (23)** and, for projects of little or no environmental impact, the permitting process is minimal.

If your project will alter five or more acres of land, the U.S. Environmental Protection Agency's (EPA) **Storm Water Construction General Permit (24)** applies. [New rules, recently promulgated by the EPA, known as Stormwater Phase II, have decreased the applicable threshold from five acres to one acre, however, the new program will not go into effect until late 2002.] Like the PGP, this general permit contains a number of construction provisions and the application is simply a one-page notification to the EPA.

The state and federal regulatory agencies have made a significant effort in recent years to develop permits that have similar review thresholds and resource definitions. This effort has resulted in a more streamlined review process. For example, federal agencies now usually require minimal review of impacts that have already been conditioned and mitigated by the state permitting process.

Marina Maintenance

Both your **Order of Conditions (25)** and your **Chapter 91 license (26)** probably have conditions that either require or allow certain kinds maintenance.

The Order may include restrictions on dragging dinghys or equipment across salt marsh. It probably requires that you perform regular maintenance on any stormwater control structures that you have on your property. Regular maintenance of shoreline erosion control structures (bulkheads, revetments, etc.) may also be included in the Order. The town's conservation officer may want to visit the marina to ensure that these conditions have been carried out.

A Chapter 91 license is usually issued so that a property owner can construct and maintain the project as originally proposed. This means that you can replace structures such as bulkheads and piers in the original footprint without getting a new license. If you are proposing to expand this type of structure, you may need a new license.

Dredging is also permitted under the Chapter 91 license. Maintenance of your existing dredged footprint may be allowed for five to ten years under a single permit. Improvement dredging will require a new Chapter 91 license.

Operations

The services offered by marinas may generate a variety of pollutants that are regulated by state and federal law. The idea behind the permits that you will need to operate your facility, and the regulations governing them, is to minimize the impacts of these pollutants on the marine environment. Permits may be required for stormwater, sewage, hazardous wastes, air quality and boat operations.

Stormwater

One of the biggest sources of pollutants from the on-going operations of a marina is stormwater runoff from your facility into the surrounding waters. Stormwater can pick up contaminants from marine paints, solvents, and fuels that are toxic to marine plants and animals. EPA has developed the **Storm Water Multi-Sector General Permit (27)** to regulate industrial runoff. The permit is a general permit. By submitting a one page Notice of Intent to the EPA and developing and following a stormwater management plan for your facility, EPA considers your facility permitted. If you follow the applicable Best Management Practices described in Chapter 4 of this document, you will already have all the tools that you will need to develop and comply with your stormwater management plan. An outline of the requirements for a stormwater management plan is included in Appendix E.

Sewage

Under the federal Clean Water Act, recreational and commercial vessels are required to have some on-board means of controlling the discharge of raw sewage. Options include a bucket, Porta-Potties, and Coast Guard-approved **Marine Sanitation Devices (MSDs) (28).** Buckets and Porta-Potties must be emptied ashore. MSDs either treat the wastes before discharge or hold them in a tank until the tank can be pumped out. Requirements vary, depending on the size and use of the boat, and are enforced by the Coast Guard.

The Clean Water Act also has a process for designating **"No Discharge Areas" (NDAs) (29)** in which, as the name implies, no boat sewage discharges are allowed into marine waters. No sewage from any of the MSDs mentioned above can be released in a No Discharge Area. As of this writing, NDAs in Massachusetts include Nantucket Harbor, Wellfleet Harbor, Waquoit Bay in Mashpee, Stage Harbor in Chatham, coastal waters of Harwich, Falmouth Harbor, and all of Buzzards Bay. In addition, all marine waters of Rhode Island are in an NDA.

Marina owners should know about the **Clean Vessel Act (30)** program, funded by the federal government and administered by the state's Division of Marine Fisheries (DMF). Under this program, funding is available for the purchase of pumpout facilities to serve vessels with holding tanks. Both public agencies, such as a town's harbormaster, and private marina owners are eligible for funding.

Hazardous Wastes

Marina operations may generate **hazardous wastes (31,32),** such as waste oil, solvents and paints. Marina owners are responsible for proper storage and disposal of these hazardous materials. Different materials require different storage containers. Licensed haulers or an industrial supply company can provide the appropriate containers. Disposal must be by a licensed hauler. Marinas do not require a permit to dispose of this material (the hauler has the permits), but you are required to identify the wastes that are to be transported so that the hauler can file proper freight manifests with DEP.

It is also important that marina operators and their customers know that tin-based **anti-fouling paints (33)** have been banned because of the toxic effects of tin on marine life. It is also illegal to dispose of **plastics (34)** anywhere in the waters of the United States, which extends out to 200 miles offshore.

Air Quality

Marinas are not likely to use the volumes of paints and solvents that would subject them to the requirements of the **federal or state Clean Air Acts (35).** These substances, however, damage marine life if they get into the water. It would be a good practice to require that any of your do-it-yourself customers use water-based paints, if available, and that they use practices, such as drip clothes, to prevent spills into the water.

Boat exhausts (36) also fall under the jurisdiction of Massachusetts air quality regulations. Any noticeable black engine soot is a violation of the state's regulations. Though you are not responsible for your customer's engine maintenance, encouraging them to keep their engines well-tuned would help them comply with clean air requirements.

Boat Operations

Again, marina owners are not directly responsible for customers boating practices. However, reminding boaters of their legal obligations (e.g., not operating while drinking, speeding, operating near public swimming areas, etc.) and respect and courtesy for others helps everyone. **Boating safety (37)** laws are the jurisdiction of the Massachusetts Environmental Police.

6.2 Statutes and Regulations

This section contains technical descriptions of the statutes and regulations. For each statute or program, the following information is provided: statutory and regulatory citations, the area or activities under jurisdiction, a brief description of the intent of the statute or program, and a list of phone and Web contacts for further information.

List of Acronyms and Symbols Used in the Statutes and Regulations

M.G.L.	Massachusetts General Laws
CMR	Code of Massachusetts Regulations
c.	chapter
§	Section
§§	Sections
CFR	Code of Federal Regulations
U.S.C.	United States Code
et seq.	and subsequent sections

1. Areas of Critical Environmental Concern

Authorities: M.G.L. c. 21A, § 2(7): Areas of Critical Environmental Concern; 301 CMR 12.00: Areas of Critical Environmental Concern

Jurisdiction: Designated coastal and inland Areas of Critical Environmental Concern

Regulatory Summary: The purpose of the ACEC Program is to preserve, restore, and enhance environmental resources and resource areas of statewide significance. To accomplish this purpose, the Program 1) identifies and designates critical resources and resource areas; 2) increases the level of resource protection in designated ACECs; and 3) engages municipalities, state agencies, non-governmental organizations, and individuals in planning and carrying out resource management planning in ACECs. Generally, proposed ACECs are nominated by municipalities and citizen organizations. Once designated by the Massachusetts Secretary of Environmental Affairs, resource protection is enhanced by the elimination of MEPA thresholds for projects proposed in ACECs, thus ensuring a closer regulatory scrutiny by state agencies. Certain activities, such as improvement dredging and new pier construction, are prohibited until the specific activity is incorporated into a Resource Management Plan approved by participating municipalities and the Secretary of Environmental Affairs.

Web Site: www.state.ma.us/dem/programs/acec

Contact: DEM ACEC Coordinator (617) 626-1394 or (413) 586-8706
CZM Coastal ACEC Stewardship Coordinator: (508) 767-2882

2. Coastal Wetlands Restriction Act

Authorities: M.G.L. c. 130, § 105: Protection of Coastal Wetlands; 310 CMR 12.00: Adopting Coastal Wetlands Orders.

Jurisdiction: Coastal wetlands for which Orders imposing restrictions have been adopted in the Commonwealth of Massachusetts

Regulatory Summary: The purpose of the Coastal Wetlands Restriction Act is to preserve the public health, safety and welfare, private property, wildlife and marine fisheries by the adoption, after suitable public comment, of Orders imposing restrictions on coastal wetlands. Regulated activities in restricted wetlands include dredging, filling, removing, and otherwise altering or polluting these resources. Coastal wetlands restriction orders are recorded at the Registry or Deeds. While this program is not currently active, a number of Orders have been recorded and are still in effect.

Web Site: no web site

Contact: DEP Wetlands restrictions (617) 292-5695

3. Executive Order 149: Federal Emergency Management Agency and Floodplain Use

Authority: Executive Order No. 149

Jurisdiction: Floodplains in the Commonwealth of Massachusetts

Regulatory Summary: Designates DEM's Water Resources Commission as the state coordinating agency to implement the National Flood Insurance Program (NFIP). Requires all state agencies, to the extent possible, to avoid construction, provision of loans or grants, conveying, or permitting projects in floodplains. Provides for Massachusetts participation in the NFIP.

Web Site: www.state.ma.us/dem/programs/mitigate/index.htm

Contact: DEM's NFIP Manager, (617) 626-1406

4. Executive Order 181: Barrier Beaches

Authority: Executive Order 181

Jurisdiction: Barrier Beaches in the Commonwealth of Massachusetts

Regulatory Summary: Protects the state's barrier beach system, orders state and federal funding to be used to acquire barrier beaches and to relocate willing sellers; prohibits use of state and federal funding of growth and development in hazard prone areas; requires the preparation of barrier beach management plans for state-owned beaches; prohibits development in velocity zones or on primary dunes; limits the use of coastal engineering structures on barrier beaches; and encourages use of appropriate dredged material for nourishment of barrier beaches.

Web Sites: www.state.ma.us/czm
www.state.ma.us/dem/programs/mitigate/hazguide.pdf

Contact: CZM Coastal Geologist (617) 626-1228

5. Massachusetts Endangered Species Act

Authorities: M.G.L. c. 131A: Massachusetts Endangered Species Act; 321 CMR 8:00: List of Endangered and Threatened Species; 321 CMR 10:00: Massachusetts Endangered Species Regulations

Jurisdiction: Plants and animals in Massachusetts that are endangered, threatened, or species of concern, and their habitats

Regulatory Summary: The states Endangered Species Act provides for listing of endangered or threatened species or species of concern, and of their habitat. The Act prohibits the taking, possession, transport, export, processing, sale or purchase of such listed species and other species listed under the federal Endangered Species Act. The Act prohibits any alteration of significant habitat of any protected species that may reduce the viability of the habitat. Priority Habitat maps for listed species can be viewed in the Natural Heritage Atlas.

Web Site: www.state.ma.us/dfwele/dfw/nhesp/heritage.htm

Contact: Massachusetts Natural Heritage and Endangered Species Program (508) 792-7270, x200

6. Federal Endangered Species Act

Authorities: 16 U.S.C. § 1531 *et seq.*: Endangered Species Act of 1973; 50 CFR 17.00: Endangered Species and Threatened Wildlife and Plants

Jurisdiction: Plants and wildlife of the United States that are endangered or threatened, and their habitats

Regulatory Summary: The federal Endangered Species Act conserves the ecosystems on which endangered and threatened species depend. Species are protected under the Act as either endangered or threatened. Endangered means a species is in danger of extinction throughout all or a significant portion of its range. Threatened means a species is likely to become endangered within the foreseeable future. The law is jointly administered by the National Marine Fisheries Service, which is responsible for marine species, and the U.S. Fish and Wildlife Service, which is responsible for terrestrial and freshwater species.

Web sites: www.endangered.fws.gov/
www.nero.nmfs.gov/

Contact: U.S. Fish and Wildlife Service Regional Office (413) 253-8615; National Marine Fisheries Service (978) 281-9102

7. Underwater Archeological Resources

Authorities: M.G.L. c. 6, §§ 179 & 180: Board of Underwater Archeological Resources; 312 CMR 2.00: Massachusetts Underwater Archeological Resources

Jurisdiction: Underwater archeological resources within the coastal and inland waters of Massachusetts

Regulatory Summary: The Board is responsible for managing underwater historical and archeological resources. It does so by encouraging discovery, reporting, protection and preservation of resources such as abandoned properties, artifacts, treasure trove, and sunken ships that have remained unclaimed for 100 years or more, or which are valued at $5,000 or more. Anyone wishing to excavate an underwater archeological site must obtain a permit from the Board. The exact location of archeological sites is not made public, in order to protect the resources from unauthorized excavation. Proponents of projects in jurisdictional waters must contact the Board to find out if the proposed activity will disturb underwater archeological resources.

Web Site: www.state.ma.us/czm/buar.htm

Contact: Board of Underwater Archeology (617) 626-1141

8. Massachusetts Historical Commission (MHC)

Authorities: M.G.L. c. 9, §§ 26-27D: Massachusetts Historic Commission; M.G.L. c. 40C: Historic District Act; 950 CMR 71.00: Protection of Properties Included on the State Register of Historic Places

Jurisdiction: Properties on or eligible for listing on the National Register of Historic Places

Regulatory Summary: The National Historic Preservation Act is administered in this state by the Massachusetts Historic Commission (MHC). The Commission inventories historic properties and places in Massachusetts; promotes historic preservation in a variety of ways; and implements state and federal preservation laws. The primary regulatory vehicle is Section 106 of the federal Act, which requires federal agencies to "take into account" the effects of federal projects on properties listed or eligible for listing on the National Register. The Section 106 consultation process is a negotiation designed to resolve conflicts between proposed uses and historic places. It does not guarantee the preservation of the property, but rather guards against inadvertent destruction of historic resources. A similar process protects properties included on the State Register of Historic Places, however, under state law, project proponents have a responsibility to avoid, minimize and mitigate any adverse impacts to historic resources. In addition to federal and state preservation programs, many communities have established local historic districts and local preservation by-laws.

Web Site: www.state.ma.us/sec/mhc

Contact: Massachusetts Historical Commission (617) 727-8470

9. Massachusetts Division of Marine Fisheries (DMF)

Authorities: M.G.L. c. 21, § 5, and c. 130, §§ 1-104: Marine Fisheries; 322 CMR 2.00 *et seq.*: Marine Fisheries Regulations

Jurisdiction: Commercial and sport finfisheries and shellfisheries within the Massachusetts territorial sea and in Nantucket Sound

Regulatory Summary: The Division of Marine Fisheries (DMF) licenses and oversees finfisheries and shellfisheries in Massachusetts waters, both for resident species and those that spend a portion of their lifecycle in the state's tidal waters. Responsibilities include 1) administration of marine fisheries laws; 2) assessment and enhancement of the biological integrity of marine fish and fisheries important to the Commonwealth; and cooperation with state, federal and international agencies to accomplish these goals. Regulatory activities are conducted in coordination with the National Marine Fisheries Service.

Web Site: www.state.ma.us/dfwele/dmf

Contact: Division of Marine Fisheries (617) 626-1520

10. National Marine Fisheries Service (NMFS)

Authorities:16 U.S.C. §1801 *et seq.*: Magnuson-Stevens Fishery Conservation and Management Act; 50 CFR 600.00: Essential Fish Habitat

Jurisdiction: Habitat of marine, estuarine, and anadromous finfish, mollusks, and crustaceans

Regulatory Summary: The 1996 amendments to the Magnuson Stevens Act strengthened the ability of NMFS and the Fisheries Councils to protect essential fish habitat (EFH), including the waters and substrates necessary for fish to spawn, breed, feed, or grow to maturity. Habitat for managed species must be identified and adverse effects to EFH minimized. NMFS and other federal agencies must coordinate with each other on efforts to preserve and enhance EFH. EFH has been identified for 59 species in New England.

Web Site: www.nero.nmfs.gov

Contact: National Marine Fisheries Service, Habitat Conservation Division (978) 881-9102

11. Ocean Sanctuaries Act

Authorities: M.G.L. c. 132A, §§ 12A-16F, 18: Ocean Sanctuaries Act; 302 CMR 5.00: Ocean Sanctuaries

Jurisdiction: There are five Ocean Sanctuaries in Massachusetts waters including the Cape Cod, Cape Cod Bay, Cape and Islands, North Shore, and South Essex Ocean Sanctuaries. These include most state waters with the major exception of an area east of Boston Harbor. The landward boundary of the sanctuaries is the mean low water mark and the seaward boundary is the limit of state waters, generally three miles offshore. The boundaries are statutory and are described at M.G.L. c. 132A, § 13. Jurisdiction is limited to the seabed in designated sanctuaries.

Regulatory Summary: The Ocean Sanctuaries Act prohibits activities that may significantly alter or endanger the ecology or appearance of the ocean, seabed, or subsoil of sanctuaries or the Cape Cod National Seashore. To accomplish this goal the Act prohibits 1) building structures on or under the seabed; 2) construction or operation of offshore or floating electrical generating stations, and drilling or removal of sand, gravel, other minerals, gases, or oils; 3) dumping or discharge of commercial, municipal, domestic or industrial wastes; 4) commercial advertising; and 5) incineration of solid waste or refuse on vessels within sanctuary boundaries. These prohibitions may be waived if a finding of "public necessity and convenience" can be made for the proposed project or activity. Under the Ocean Sanctuaries Act, DEM does not issue any licenses or permits but acts through the regulatory process of other agencies, particularly the Chapter 91 Waterways Program.

Web Site: www.state.ma.us/dem/programs.htm

Contact: DEM Ocean Sanctuaries Coordinator (617) 626-1371

12. Designated Port Areas (DPAs)

Authorities: M.G.L. c. 91: Public Waterfront Act; 301 CMR 25.00: Designation of Port Areas; 310 CMR 9.00: Waterways Regulations

Jurisdiction: State-designated areas of concentrated maritime industrial activities

Regulatory Summary: Under the provisions of Chapter 91, the state may designate areas in developed ports for the purposes of promoting and protecting marine industrial activities and certain supporting uses. Recreational marinas are not allowed in designated DPAs. DPAs have been set aside in Gloucester Inner Harbor, Beverly Harbor, Salem Harbor, Lynn, Mystic River, East Boston, Chelsea Creek, South Boston, Weymouth Fore River, New Bedford-Fairhaven, and Mount Hope Bay.

Web Sites: www.state.ma.us/czm/phpp2.htm
www.state.ma.us/dep/brp/ww/rpwwhome.htm

Contacts: CZM Tidelands Coordinator (508) 767-2882;
CZM Regional Coordinators (617) 626-1200;
DEP Waterways Program (617) 292-5695

13. Municipal Harbor Plans

Authorities: M.G.L. c. 91: Public Waterfront Act; 301 CMR 23.00: Municipal Harbor Plans, 310 CMR 9.00: Waterways Regulations

Jurisdiction: Filled and flowed tidelands of the Commonwealth

Regulatory Summary: Municipal harbor plans establish a community's objectives, standards, and policies for guiding public and private utilization of land and water within Chapter 91 jurisdiction. Plans provide for an implementation program, which specifies the legal and institutional arrangements, financial strategies, and other measures to be taken to achieve the objectives of the harbor plan. Harbor plans may establish siting and design criteria for marinas within a harbor, and they can also designate certain parts of a harbor as off-limits to in-water construction and mooring placement. Plans are developed under CZM regulations and implemented under Chapter 91 regulations.

Web Sites: www.state.ma.us/czm/phpp2.htm
www.state.ma.us/dep/brp/ww/rpwwhome.htm

Contacts: CZM Regional Coordinators (617) 626-1200; DEP Waterways Program (617) 292-5695

14. Massachusetts Environmental Policy Act (MEPA)

Authorities: M.G.L. c. 30, §§ 61-62H: Massachusetts Environmental Policy Act; 301 CMR 11.00: MEPA Regulations

Jurisdiction: Projects requiring a state environmental license or permit, or funding

Regulatory Summary: MEPA provides opportunities for public review of the potential environmental impacts of projects for which state agency action is required. MEPA also helps state agencies satisfy their obligation to avoid damage to the environment, or if damage to the environment cannot be avoided, to minimize and mitigate the damage to the maximum extent practicable. State agency action includes activities that are undertaken, permitted, and/or funded by agencies of the Commonwealth, and the transfer of lands owned or controlled by the Commonwealth. Major categories of project impacts subject to review include land; rare species; wetlands, waterways, and tidelands; water; wastewater; transportation; energy; air; solid and hazardous waste; historical and archeological resources; and state-designated Areas of Critical Environmental Concern.

The intent of the MEPA review is to inform project proponents and state agencies of potential adverse environmental impacts while a proposal is still in the planning stage. The proponent, through the preparation of one or more review documents, identifies required agency actions and describes the means by which the proposal complies with applicable regulatory standards and requirements. All relevant state agencies are required to identify any aspects of the proposal that require additional description or analysis prior to completion of the agency action, most commonly the issuance of an environmental permit.

Web Site: www.state.ma.us/mepa

Contact: MEPA Office, (617) 626-1020

15. Wetlands Protection Act (WPA)

Authorities: M.G.L. c. 131, § 40: Massachusetts Wetlands Protection Act; 310 CMR 10.00: Wetlands Regulations

Jurisdiction: Any wetland, including 1) any bank, freshwater wetland, coastal wetland, beach, dune, tidal flat, marsh or swamp bordering on the ocean, or any estuary, creek, river, stream, pond, lake, or certified vernal pool; 2) land under any of the water bodies listed; 3) land subject to tidal action, coastal storm flowage or flooding; and 4) riverfront areas in the Commonwealth of Massachusetts. In addition, a 100-foot buffer zone around any resource listed in 1) is subject to jurisdiction.

Regulatory Summary: The purpose of the Massachusetts Wetlands Protection Act is to protect wetland resources and to ensure that the beneficial functions of these resources are maintained. The resources identified are protected because they fulfill the public interest to 1) protect public and private water supply, 2) protect fisheries, 3) protect groundwater supply, 4) provide flood control, 5) protect land containing

shellfish, 6) prevent storm damage, 7) protect wildlife habitat, and 8) prevent pollution. These interests are protected by a "no net loss of wetlands" policy. Projects that affect wetlands are required to avoid impacts where possible, minimize unavoidable impacts, and mitigate for unavoidable impacts. Performance standards define the levels of environmental impacts that cannot be exceeded. The WPA is administered by local Conservation Commissions that issue Orders of Conditions. Appeals and variances are administered by the DEP Wetlands Program.

Web Site: www.state.ma.us/dep/brp/ww/rpwwhome.htm

Contact: DEP Wetlands Program (617) 292-5695

16. 401 Water Quality Certification

Authorities: 33 U.S.C. 1341 *et seq.*, § 401:Federal Water Pollution Control Act; 314 CMR 4.00: Surface Water Quality Standards, 314 CMR 9.00: 401 Water Quality Certification

Jurisdiction: Dredge and/or fill projects in waters and wetlands subject to state and federal jurisdiction, if a federal permit is required for the project

Regulatory Summary: The 401 review ensures that proposed dredge and/or fill projects that may result in the discharge of pollutants comply with Massachusetts Surface Water Quality Standards, the Wetlands Protection Act, and otherwise avoids or minimizes individual and cumulative impacts to Massachusetts waters and wetlands. As the authority to administer the 401 Water Quality Certification is derived from the Federal Water Pollution Control Act, only projects that require a federal permit are subject to 401 review.

Web Site: www.state.ma.us/dep/brp/ww/rpwwhome.htm

Contact: DEP Water Quality Certification Program (617) 292-5695

17. Public Waterfront Act (Chapter 91)

Authorities: M.G.L. c. 91: Public Waterfront Act; 310 CMR 9.00: Waterways Regulations

Jurisdiction: Dredging, placement of structures, change in use of existing structures, placement of fill, and alteration of existing structures in any of the following coastal areas:

Flowed tidelands — projects in, on, over, or under tidal areas between the mean high water (MHW) line and the limit of state territorial waters (generally three miles from shore);

Filled tidelands outside Designated Port Areas (DPAs) — projects up to the first public way or 250 feet from MHW, whichever extends further inland;

Filled tidelands inside DPAs — projects between the present and historic MHW (i.e. all filled areas inside DPAs).

For seasonal structures (moorings, seasonal docks, etc.), an annual Section 10A permit may be obtained from the local harbormaster in lieu of a Chapter 91 license.

Regulatory Summary: Chapter 91 is the Massachusetts public trust statute and, as such, protects the public's rights to fish, fowl, and navigate below the current or historic high water line, as well as in great ponds and navigable rivers and streams in Massachusetts, the so-called public trust lands. Waterways regulations promote the preservation of tidelands for water-dependent uses that require direct access to the water. In addition, the regulations seek to ensure that areas in jurisdiction are maintained for public use and enjoyment when privately developed.

Projects are reviewed to ensure that they 1) do not unreasonably interfere with navigation, 2) are structurally sound, 3) provide a proper public purpose, 4) do not interfere with public rights of rights of adjacent property owners, 5) will not adversely affect natural resources, and 6) preserve DPAs for maritime industrial use.

Web Site: www.state.ma.us/dep/brp/ww/rpwwhome.htm

Contact: DEP Waterways Program (617) 292-5695

18. State Fire Marshall — Massachusetts Fire Code

Authorities: M.G.L. c. 148, §§ 9, 10, 38E, 38H: Fire Prevention; 527 CMR 15: Flammable Liquids in Harbors and Other Waters of the Commonwealth

Jurisdiction: Fire safety in the Commonwealth of Massachusetts

Regulatory Summary: The State Fire Marshall is responsible for coordination of fire policy and service. The Massachusetts Fire Code establishes requirements for fuel storage and delivery, including Underground Storage Tanks, and management of other flammable materials. Permits are issued through the State Fire Marshall's Office for the handling and transport of hazardous materials, including fuels. The regulations apply to volumes of less than 250,000 gallons, which includes all small and medium fuel transport and distribution facilities.

Web Site: www.state.ma.us/dfs/sfmo/sfmohome.htm

Contact: State Fire Marshall (978) 567-3300; Licensing and Permits (978) 567-3700

19. Coastal Zone Management (CZM)

Authorities: 16 U.S.C. 1451 *et seq.*: Coastal Zone Management Act of 1972, as amended, 15 CFR 930; M.G.L. c. 21A, §§ 2, 4: Massachusetts Coastal Zone Management Act, 301 CMR 20.00: Coastal Zone Management Program, 301 CMR 21.00: Federal Consistency Review Procedures

Jurisdiction: Any project undertaken by a federal agency, requiring a federal permit, outer continental shelf activities, or receiving federal funding that is in or may affect the land or water resources or uses of the Massachusetts coastal zone. The Massachusetts coastal zone is the area bounded by the seaward limit of the state's territorial

sea (generally three miles from shore) to 100 feet landward of specified major roads, railroads or other visible right-of-way (generally the first major transportation corridor inland of the shoreline). Projects outside this area but which may affect it are also subject to jurisdiction.

Regulatory Summary: The federal consistency review of CZM ensures that any federal activities in or affecting Massachusetts coastal resources is consistent with state coastal policies. These policies, the so-called enforceable program policies, are based on existing Massachusetts statutes and regulations and offer policy guidance on management of water quality, marine habitat, protected areas, coastal hazards, port and harbor infrastructure, public access, energy, ocean resources, and growth management. The project-specific federal activity cannot take place until CZM concurs that the project is consistent with state coastal policies.

Web Site: www.state.ma.us/czm/fcr.htm

Contact: CZM Project Review Coordinator (617) 626-1219

20. Rivers and Harbors Act of 1899 (Section 10)

Authorities: 33 U.S.C. §§ 401-413: Rivers and Harbors Act of 1899; 33 CFR 323: Permits for Structures or Work Affecting Navigable Waters of the United States

**see #23 below for further information*

21. Clean Water Act (Section 404)

Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act; 33 FCR 322: Permits for Discharges of Dredged or Fill Material into the Waters of the United States

**see #23 below for further information*

22. Marine Protection, Research and Sanctuaries Act, (Section 103)

Authorities: 33 U.S.C. §1401 *et seq.*: Marine Protection, Research and Sanctuaries Act; 33 CFR 324: Permits for Ocean Dumping of Dredged Material

**see #23 below for further information*

23. Massachusetts Programmatic General Permit

Authorities: 33 CFR 320-330: U.S. Army Corps of Engineers Regulations

Jurisdiction: Construction or placement of structures, dredging, and dredged material disposal in the waters of the United States

The PGP

In Massachusetts, the U.S. Army Corps of Engineers, New England District, administers the Rivers and Harbors Act of 1899 (Section 10), the Clean Water Act (Section 404) and the Marine Protection, Research and Sanctuaries Act (Section 103) under a single review process known as the Programmatic General Permit (PGP). One permit application which addresses all the applicable regulated activities of these three laws is submitted to the Corps for review under the PGP. See #23 for more information on the PGP.

Regulatory Summary: A Section 10 permit is required for all work, including structures, seaward of the mean high water line in navigable waters of the United States, defined as waters subject to the ebb and flow of the tide, as well as a few of the major rivers used to transport interstate or foreign commerce. A Section 404 permit is required for activities which involve the discharge of dredged or fill material into waters of the United States, including not only navigable waters, but also coastal waters, inland rivers, lakes, streams, and wetlands. A Section 103 permit is required to transport dredged material for the purpose of disposal in the ocean.

The U.S. Army Corps of Engineers, New England District has issued a Programmatic General Permit (PGP) for work in Massachusetts. The PGP provides for three levels of regulatory review:

Category I: Activities of minimal environmental impact that do not require Corps regulatory review and are classified as non-reporting. While no written notification to the Corps is required for these "minor" projects, they must comply with the conditions contained in the PGP.

Category II: Activities likely to be of minimal environmental impact but that have the potential to have adverse effects. A project-specific review and authorization from the Corps in writing are required. Copies of the Massachusetts Chapter 91 application and plans, or the Water Quality Certification application and plans, are usually sufficient for Category II review.

Category III: Activities that have potential to cause adverse environmental impacts. These projects must get an Individual Corps license, and therefore require project-specific review, are available for public review and comment, and may require preparation of an Environmental Impact Statement.

The following is a summary of the activities and thresholds applicable for each category of the PGP.

ACTIVITY: FILL IN NAVIGABLE WATERS
Category I: No authorization for new fill or previously unauthorized fill.
Category II: Up to 1 acre of fill in a waterway; up to one acre of temporary fill in a salt marsh.
Category III: Greater than 1 acre of fill in a waterway; or greater than 1 acre of temporary fill in a salt marsh.

ACTIVITY: DREDGING
Category I: Maintenance dredging less than 1,000 c.y, with upland disposal.
Category II: Maintenance dredging greater than 1,000 c.y., new dredging up to 25,000 c.y.
Category III: Any maintenance dredging affecting a special aquatic site, or new dredging greater than 25,000 c.y.

ACTIVITY: PILE-SUPPORTED STRUCTURES AND FLOATS

Category I: Private, bottom anchored floats up to 400 s.f. in size; Private, pile-supported piers for navigational access to the waterway up to 400 s.f. in size with attached floats up to 200 s.f. (total).

Category II: Private piers and floats that do not meet the terms of Category I. Expansions to existing boating facilities.

Category III: Any structure, pier or float that extends, or with docked or moored vessels that extends within horizontal limits of a Corps Federal Navigational Project. Structures, including piers and floats with a new or previously unauthorized boating facility.

The complete PGP is available from the web site below.

Web Site: www.nae.usace.army.mil/reg/index.htm

Contact: U.S. Army Corps of Engineers, New England District, Regulatory Branch, (978) 318-8338 and (800) 362-4367

24. NPDES Stormwater Construction General Permit

Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act; 40 CFR 122: EPA Administered Permit Programs: National Pollution Discharge Elimination System

Jurisdiction: Discharges to the navigable waters of the United States

Regulatory Summary: Under the National Pollutant Discharge Elimination System (NPDES) of the Clean Water Act, construction projects that propose the alteration of more than five acres of land must obtain coverage under the NPDES Stormwater Construction General Permit. [New rules, recently promulgated by the EPA, known as Stormwater Phase II, have decreased the applicable threshold from five acres to one acre, however, the new program will not go into effect until late 2002.] The project proponent must submit a one-page registration form known as a Notice of Intent to the U.S. EPA and must develop and implement a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP details construction activities, erosion control measures, and inspection schedules to be implemented during construction to ensure that the construction activities do not have an adverse impact on wetlands and waterways. An outline of the requirements for a SWPPP is included in Appendix E.

Web Site: www.epa.gov/owm/sw/construction

Contact: U.S. EPA Region I, NPDES Coordinator (617) 918-1615

25. Order of Conditions *see #15 above*

26. Chapter 91 license *see #17 above*

27. NPDES Storm Water Multi-Sector General Permit

Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act; 40 CFR 122: EPA Administered Permit Programs: National Pollution Discharge Elimination System

Jurisdiction: Stormwater discharges to the navigable waters of the United States. For marinas, stormwater includes water exposed to boat maintenance and/or equipment cleaning activities, including blasting and painting, materials storage areas, engine maintenance and repair areas, material handling areas, and dry-dock activities.

Regulatory Summary: The Clean Water Act regulates, among other things, the discharge of point and nonpoint pollution sources from industrial and municipal facilities, and from construction activities. Marinas are identified as waterfront facilities under Sector Q of the NPDES regulations, and have a standard industrial classification (SIC) code 44. Each regulated sector must comply with the general requirements of the NPDES Program as well as industry-specific requirements. Marina operators must complete and submit a one-page application form known as a Notice of Intent to the EPA, and develop and implement a SWPPP. The components of a SWPPP appropriate for industrial facilities are included in Appendix E.

Marinas are required to conduct benchmark monitoring for aluminum, iron, lead, and zinc. These monitoring requirements can be waived under the Alternative Certification of "Not Present or No Exposure" if the facility can show and certify that BMPs are in-place that prevent the subject materials from being exposed to stormwater.

Web Site: www.epa.gov/owm/sw/industry/msgp

Contact: U.S. Environmental Protection Agency, NPDES Permit Coordinator (617) 918-1615

Please Note

If your marina discharges pressure wash water, bilge and ballast water, sanitary wastes, or vessel cooling water, then you must obtain an individual NPDES permit.

28. Marine Sanitation Devices (MSDs)

Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act,33 U.S.C. §1322: Marine Sanitation Devices; 33 CFR 159: Marine Sanitation Devices, 40 CFR 140: Marine Sanitation Device Standards

Jurisdiction: Boat sewage discharges to the navigable waters of the United States

Regulatory Summary: The Clean Water Act regulates the discharge of raw sewage from vessels in U.S. territorial waters (within three miles of shore), the Great Lakes, and navigable rivers. Enforcement is the responsibility of the U.S. Coast Guard.

Recreational boats are not required to be equipped with a toilet, however, if a boat has an installed toilet, it must be a Coast Guard approved marine sanitation device (MSD) and must be kept in proper working condition. Boats 65 feet in length or less may install a Type I, Type II (both are treat and release systems), or Type III (holding tank) MSD. Vessels over 65 feet in length must install a Type II or Type III MSD.

Portable toilets or "porta-potties" are not considered installed toilets and are not subject to the MSD regulations. However, porta-potties are subject to regulations that prohibit the disposal of raw sewage with the three-mile limit.

Web Sites: www.epa.gov/region01/eco/nodiscrg
www.uscg.mil/

Contacts: U.S. Environmental Protection Agency, (617) 918-1538

US Coast Guard Marine Safety Offices:
Boston (Cape Cod Canal to NH border), (617) 223-3000;
Providence (RI border to Cape Cod Canal; including Cape & Islands),
(401) 435-2300 or (800) 644-0217

CZM NDA Coordinator (617) 626-1233

29. No Discharge Areas (NDAs)

Authorities: 33 U.S.C. §1251 *et seq.*: Federal Water Pollution Control Act

Jurisdiction: State/federal designated No Discharge Areas

Regulatory Summary: The Clean Water Act also allows states to designate particular bodies of water as No Discharge Areas (NDAs) with US Environmental Protection Agency (EPA) approval. In an NDA, discharge of both treated and untreated sewage of any sort, including boat sewage, is banned. In NDAs the use of Type I and Type II MSDs is prohibited and they must be secured to prevent discharge. Prevention of discharge may be accomplished by closing the seacock and padlocking it, using a non-releasable wire tie, removing the seacock handle (with seacock closed), or by locking the door of the head with a padlock or door handle key. Boats cruising through designated No Discharge Areas must discharge boat waste to a boat pumpout facility.

Web Sites: www.state.ma.us/czm/nda.htm
Map of Massachusetts NDAs can be found at www.epa.gov/region01/eco/nodiscrg

Contact: CZM NDA Coordinator (617) 626-1233; US EPA No Discharge Area Coordinator (617) 918-1538

30. Clean Vessel Act (CVA)

Authorities: 33 U.S.C. §§ 1322 *et seq.*: Clean Vessel Act; 33 CFR 159: Marine Sanitation Devices, 40 CFR 140: Marine Sanitation Device Standard

Jurisdiction: Local governments and businesses are eligible for grant funds

Regulatory Summary: The Clean Vessel Act is a federal grant program that funds viable alternatives to the overboard disposal of recreational boat sewage. The CVA is administered by the U.S. Fish and Wildlife Service and authorized from the Sport

Fish Restoration Account for use by the states. Federal funds may be used to fund up to 75 percent of approved projects, with the remaining funds provided by the states or grant recipients. Grants are available for the construction, renovation, operation, and maintenance of boat pumpout and portable toilet waste reception facilities (called dump stations), and pumpout boats at both public and private marinas.

Web Site: www. state.ma.us/dfwele/com/comcvahm.htm
A list of pumpout locations in Massachusetts is provided in Appendix D and can be viewed at www.state.ma.us/czm/potoc.htm

Contact: Massachusetts CVA Coordinator (617) 626-1531
Pumpout Stations 1-(800) ASK-FISH

31. Resource Conservation and Recovery Act (RCRA)

Authorities: 42 U.S.C. §§ 6901 *et seq.*: Resource Conservation and Recovery Act; 40 CFR 265: Solid Waste; M.G.L. c. 21C, §§ 4, 6 and M.G.L. c. 21E: Hazardous Waste Management Act; 31 CMR 30.000: Hazardous Waste Regulations

Jurisdiction: Handling, transporting, and disposing of hazardous waste in Massachusetts

Regulatory Summary: DEP administers RCRA and more stringent state hazardous material handling requirements through the Massachusetts Hazardous Waste Regulations. Massachusetts regulates the collection, transportation, separation, recovery, and disposal of solid and hazardous waste. Hazardous wastes are defined as wastes that are ignitable, corrosive, reactive, and/or toxic. Common hazardous wastes that might be found in a marina include waste oil, solvents and thinners, and toxic or flammable paint wastes. Regulatory requirements for shipping and storage differ, depending on the amount and type of hazardous material generated.

All generators of hazardous waste are responsible for its proper disposal. RCRA requires a national "cradle to grave" tracking system for hazardous waste. In Massachusetts, every shipment of hazardous waste by a large or small quantity generator must be transported by a licensed hauler and sent to a licensed treatment, storage, or disposal facility, or a permitted recycling facility, and must be accompanied by a Uniform Hazardous Waste Manifest. A list of requirements for storage, handling, and shipping is included in DEPs publication: *A Summary of Requirements for Small Quantity Generators of Hazardous Waste.*

Web Site: www.state.ma.us/dep/bwp/
Publication can be found at www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf

Contact: DEP Bureau of Waste Prevention (617) 292-5898

32. Discharge of Oil - Clean Water Act

Authorities: 33 U.S.C. §§ 1321 *et seq.*: Oil Pollution Prevention; 40 CFR 112: Oil Pollution Prevention

Jurisdiction: Any activity that releases petroleum products into marine waters

Regulatory Summary: The Clean Water 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 (out to 24 nautical miles) if the discharge causes a film or sheen on, 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 up to $27,500 per spill. Discharge of soaps or emulsifiers to dissipate oil without the permission of the US Coast Guard is also prohibited.

The US Coastal Guard must be notified any time a spill produces a sheen on the water. The caller should report the location, source, size, color, substance, and time of spill. Failure to report a spill may result in criminal penalties. Call the National Response Center at (800) 424-8802.

Web Site: www.epa.gov/oilspill

Contacts: US Coast Guard Marine Safety Offices:
Boston (Cape Cod Canal to NH border), (617) 223-3000;
Providence (RI border to Cape Cod Canal; including Cape & Islands),
(401) 435-2300 or (800) 644-0217

To report an oil spill call the National Response Center at (800) 424-8802

33. Organotin Antifoulant Paint Control Act

Authorities: 33 U.S.C. §§ 2401 *et seq.*: Organotin Antifoulant Paint Control Act of 1988; 15 U.S.C. §§ 2601 *et seq.*: Toxic Substances Control Act

Jurisdiction: Manufacture and use of tin-based antifoulant paints used on boat hulls

Regulatory Summary: The use of tributylin tin (TBT) antifoulant paints on vessels that are 25 meters or less in length, unless the vessel hull is aluminum, is forbidden. For allowed uses, application of organotin paints is restricted to professionally licensed applicators. In addition, EPA is required to certify that each antifouling paint containing organotin does not release more than 4.0 micrograms of tin per square centimeter per day.

Web Site: Organotin Environmental Program Association, http://ortepa.org/

Contact: U.S. EPA-Region I, (888) 372-7341

34. Marine Plastic Pollution Research and Control Act (MPPRCA)

Authorities: 33 U.S.C. §§ 1901 *et seq.*: Marine Plastic Pollution Research and Control Act; 33 CFR 151 *et seq.*: Vessels Carrying Oil, 46 FCR 2 *et seq.*: Vessel Inspections

Jurisdiction: Discharge of plastics and other trash at sea

Regulatory Summary: MPPRCA implements the international pollution prevention treaty known as MARPOL. Countries that are signatories to MARPOL agree to enact and enforce laws to prohibit the discharge of plastic and trash in territorial waters within 200 miles of shore. Under MPPRCA, it is illegal to discharge plastics anywhere in U.S. territorial waters. Within lakes, rivers, bays, sounds, and three nautical miles from shore, it is also illegal to discharge paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food. Between three and 12 nautical miles from shore, it is illegal to dump any garbage that is greater than one inch in size. Between 12 and 25 nautical miles from shore, it is illegal to discharge dunnage. All vessels greater than 26 feet must display a placard outlining the garbage dumping restrictions (many marinas and ship stores sell these placards to boaters). All vessels greater than 40 feet must also have a written waste management plan on board.

This law also requires that all ports and terminals, including public and private marinas, boatyards, yacht clubs, and town docks, must have adequate and convenient "reception facilities" for their regular customers. These boating facilities must have sufficient trash receptacles to receive all trash generated by their customers and visitors.

Web Site: www.cgaux.org
www.cmc-ocean.org/mdio/marpol.php3

Contacts: US Coast Guard Marine Safety Offices:
Boston (Cape Cod Canal to NH border), (617) 223-3000;
Providence (RI border to Cape Cod Canal; including Cape & Islands),
(401) 435-2300 or (800) 644-0217

35. Control of Volatile Organic Compounds (VOCs) — Clean Air Act

Authorities: 42 U.S.C. §§ 7401 *et seq.*: Clean Air Act; M.G.L. 111, §§ 142A-142J: Massachusetts Clean Air Act; 310 CMR 7.00: Air Pollution Control

Jurisdiction: Use of paints and solvents that contain VOCs

Regulatory Summary: The Massachusetts Air Program has been developed in conformance with the Federal Clean Air Act and its amendments. Among the priority pollutants that it regulates are VOCs, which are chemicals with carbon molecules that readily evaporate and form ozone. The primary materials used by marinas that contain VOCs are paints and solvents. VOCs can also cause water pollution when they are washed into local waters before evaporating. Marinas and boatyards that release more than 2,000 pounds/year of VOCs are required to use a spray booth designed in accordance with state regulations. Marinas and boatyards must utilize either electrostatic spraying or high volume/low pressure (HVLP) paint application.

Cleanup of spray guns must be completed inside using a totally enclosed gun washer system and cleanup liquids must be recirculated and disposed of or recycled to minimize evaporation to the atmosphere. Preparation and cleanup materials must contain a VOC content of 1.67 pounds per gallon or less.

Web Site: www.state.ma.us/dep/bwp/

Contact: DEP Air Quality Program (617) 292-5609

36. Boat Engine Emissions — Massachusetts Clean Air Act

Authorities: M.G.L. 111, §§ 142A-142J: Massachusetts Clean Air Act; 310 CMR 7.00: Air Pollution Control

Jurisdiction: Boat engine operation

Regulatory Summary: Any boat owner whose vessel is emitting a noticeable black smoke from its exhaust is in violation of the Massachusetts Clean Air Act. All boat owners should make sure that their engines are well tuned, operating properly, and that appropriate air filter and other exhaust control measures are regularly maintained.

Web Site: www.state.ma.us/dep/bwp/

Contacts: DEP Air Quality Program (617) 292-5609

37. Massachusetts Boat Operations Restrictions

Authorities: M.G.L. c. 90B: Motorboats and Other Vessels; 323 CMR 2.00: Motorboats and Boating, 323 CMR 4.00: Personal Water Craft

Jurisdiction: Boat operations in Massachusetts waters

Regulatory Summary: Massachusetts boating laws regulate boat operations including speeding, negligent operation, safety training, equipment, and registration/titling. These requirements are intended to promote the public safety by encouraging voluntary compliance through accident prevention measures and by deterring and penalizing non-compliance through enforcement. The Massachusetts Environmental Police is the primary boating regulatory agency with state and local police and harbormasters also having enforcement jurisdiction.

Web Site: www.state.ma.us/dfwele/dle/

Contacts: Massachusetts Environmental Police: (617) 626-1650;
Massachusetts Environmental Police Boat and RV Safety Bureau: (617) 727-8760

For More Info

For the text of the statutes and regulations cited, visit:

Federal statutes:
www4.law.cornell.edu/uscode

Federal regulations:
www.access.gpo.gov/nara/cfr

Massachusetts statutes:
www.state.ma.us/legis/laws/mgl

Massachusetts regulations:
www.lawlib.state.ma.us/cmr.html

Chapter Seven: Pulling It Together — The Marina Environmental Management Plan

Pulling It Together — The Marina Environmental Management Plan

The best way for implementing Best Management Practices (BMPs) at your marina, boatyard, or yacht club is to develop a specific working plan for your facility: a Marina Environmental Management Plan. To effectively develop such a plan you must understand the potential pollution sources at your marina, the physical characteristics of your site, and the particular needs and interests of your customers and their boats.

In reviewing the activities listed in Chapter 4 that occur at your marina, you probably have a good understanding of potential pollution sources at your facility. If you are still uncertain about pollution sources, feel free to call the Massachusetts Office of Coastal Zone Management (CZM), another marina manager, or a consultant for technical assistance.

You can integrate this information with the marina's short and long-term business goals to develop a basic plan as outlined below. While this may seem like a cumbersome exercise, the creation of a basic plan will help you effectively prioritize improvement projects that will both enhance your business and prevent negative environmental impacts.

This chapter explains the benefits of planning, helps you pull together the checklists from Chapter 4 into a plan, and offers additional planning information.

7.1 Benefits of a Marina Environmental Management Plan

The development of a Marina Environmental Management Plan has both direct and indirect benefits. As for direct benefits, a plan will help you make informed decisions about implementing BMPs by anticipating the costs and benefits of each choice. Selecting improvements that will provide for a more efficient and cleaner operation in the future, while identifying and avoiding unnecessary and more costly options, can result in future business savings. Some improvements, such as dripless oil changes or vacuum bilge water removal, can provide new or enhanced sources of revenue to the marina business (as discussed in Chapter 3).

A plan also provides ancillary benefits, such as helping to keep the marina in compliance with existing laws and regulations, and improving its standing with local and state regulators for future permit applications. Therefore, one of the first actions of a plan should be to determine whether or not the marina is currently complying with major environmental laws and, if not, what improvements need to be taken to achieve compliance. If you are unsure whether or not you are in compliance with existing environmental

laws and regulations, refer to Chapter 6. Developing an environmental plan for your marina can head off protracted environmental permit review and the resulting loss of both time and money. Most of all, a plan will provide you with a blueprint for making sound improvements and operations that can attract more customers to your facility.

7.2 How to Develop a Plan

Use the checklists in Chapter 4 as the starting point for a Marina Environmental Management Plan. These checklists will help you identify pollution sources at your marina and appropriate BMPs to protect the water quality. However, that is only the first step. You must then use the information that you have collected to prioritize the implementation of improvements based on the site specific needs of your marina. The seven steps for developing a basic plan are:

1. Identify all existing and potential pollution sources and select possible BMPs.
2. Prioritize BMPs based on legal requirements, need, cost, and ease of implementation.
3. Identify BMPs that you can put into effect immediately by changing the way you conduct business; establish new protocol for implementation.
4. Identify BMPs that require long-term planning.
5. Develop a cost strategy for paying for BMPs.
6. Develop a schedule for implementing BMPs.
7. Finalize your plan.

Identify Pollution Sources and Select BMPs

Chapter 4 of this document discusses the major marina activities that commonly cause pollution, along with the BMPs that can solve these pollution problems. To identify pollution sources and select BMPs for your marina, use Chapter 4 as your guide and follow these steps:

- Walk around the marina and identify all potential and existing pollutant generating activities present and read the appropriate section in Chapter 4.
- Complete the checklist in Chapter 4 for each activity that occurs at your marina.
- Any checks in the "no" column indicate BMPs you should consider implementing when developing your Marina Environmental Management Plan. Identify from the checklist the BMPs that might work for your marina. Review the page numbers indicated on the checklist to familiarize yourself with the BMP. Note the next steps in the "action" column.

Complete the activities checklist to help you identify problems, select BMPs, and prioritize them for implementation.

Be Creative!

The BMP lists are just suggestions and are not meant to exclude use of other solutions. If you know of a different way to achieve the same Clean Marina goal, you should add it to your list.


SOLID WASTE MANAGEMENT

All marinas generate solid waste, and therefore, all should complete this checklist.

Activities that occur at the facility: ☐ Consumer Trash Disposal ☐ Recycling

Check either the "Yes" or "No" columns to indicate if you are using each of the BMPs listed below. If the BMP does not apply (you are using a different BMP or the activity does not occur at your marina), put "N/A" in the "Yes" column. In the "Action" box, list the next steps for all BMPs where you have checked the "No" column.

BMPs	YES/No	NO	Refer to Page	Action
*Recycling Sewerages			4-47	
*Used Battery Storage and Disposal			4-47	
Trash Container Placement			4-47	
Trash Covers			4-48	
Dumpster Signs			4-48	
Locate Dumpster Away from the Water			4-48	
Smoking Signs			4-48	
Litter Bag Distribution			4-48	
Trash Clinic Up			4-48	
Pest Skirtrons			4-48	
Trash Awareness			4-48	
*Recycle As Much As Possible			4-48	
Community Recycling Participation			4-48	
Mass Recycling Containers			4-49	
Recycling Signs			4-49	
Recycle Shrink-wrap			4-49	
			4-49	

*BMP will make with regulatory compliance.

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SOLID WASTE

Prioritize BMPs

Once you have completed all the checklists that apply to your marina, review them as a group and prioritize BMPs that you plan to implement. The prioritization of BMPs will depend on several factors. Any BMP that will clearly help the marina achieve compliance with existing federal or state regulations should be considered first. These BMPs are identified on the checklists in Chapter 4 with an asterisk. It is imperative that you focus on these BMPs first. Other factors that you should consider in prioritizing BMPs include:

- Consider how you can incorporate BMPs into any projects that you have already planned.
- Pollution prevention is almost always less costly than pollution cleanup, so consider BMPs that reduce the use of toxic substances, or that contain and limit the area in which they are used.
- BMPs that will help correct the most severe pollution problems at your marina should rise to a high priority, while those BMPs that have a limited chance of success should go to the bottom of the list, or be eliminated.
- Reorder your list of selected BMPs based on other considerations such as cost, availability of equipment, ease of implementation, and benefits to the business.

Hopefully, this guidebook has provided you with adequate information on pollution sources and BMPs. Should you need additional information, however, call one of the marina owners listed in the guidebook or CZM. Because CZM is primarily a planning and technical assistance agency, its staff can help you sort through some of these issues.

To increase the broad effect of environmental improvements, you should also develop a balance between different categories of BMPs. For example, structural changes to your marina can make a great difference in reducing pollution impacts. However, their cost may be very high and the effectiveness may not be as great as another BMP, such as adding an educational component to make sure that boaters know how to reduce their impacts (e.g., signs or fact sheets). Also consider that some Clean Marina practices will bring greater improvements in the long-term and may be considered as a high priority despite initial start-up costs. To effectively make these types of improvements, however, you will need to develop a cost strategy.

Identify BMPs to Implement Immediately

Upon compiling your list of BMPs for consideration, divide them into two groups: those that can be implemented with little or no direct cost and those that require financial planning to fund and implement. The BMPs that you can reasonably start putting into place right away should be considered first.

These BMPs consist of those actions that require a change in your daily business without any direct capital investment. Most of the activities listed in Chapter 4 include some BMPs of this type. For example, establishing a written procedure for environmentally protective fueling practices is a BMP that can be put into practice right away and have a strong positive impact on the environment. Start by compiling a list of the applicable fueling procedures that are discussed in Section 4.5 and review them with your fueling attendant. Or laminate the list and post it at the fueling station; spend some time with your customers showing them the proper practices. An even simpler example is solid waste. A few immediate changes you can make include moving your dumpster away from the water and reminding your staff to pick up trash daily as part of their regular work. These actions will produce immediate positive results with little cost or time investment.

Other types of BMPs that you may consider first include those practices that do not require any up-front cost, but may require an investment of time. Examples include developing a spill response plan and conducting regular "walk-around" training sessions with your staff to review Clean Marina practices. You may also consider low cost BMPs as well. These might include reviewing the existing information signs at the marina and having new signs made for those messages that are not getting to your customers, such as notice prohibiting bilge water discharge. There are also a number of low cost items that you could purchase if you do not already have them, including a pool skimmer for collecting trash at the dock, and fuel collars to prevent drips when fueling.

Making relatively simple changes in your daily business routine will help you incorporate the Clean Marina Philosophy into your business.

Identify BMPs for Future Implementation

Other BMPs may be part of your long-term plan for facility-wide improvements. These BMPs will require funding as part of your business plan followed by the development of a long-term schedule.

Due to future uncertainty — such as economic fluctuations and technological advances — your selection of BMPs and your corresponding long-term plan will likely change over time. However, this fact does not diminish the importance of developing a long-term strategy today.

Select BMPs for future planning and implementation that fit with your current business and future goals. For example, if you already provide hull maintenance services, consider purchasing more efficient, technologically advanced equipment such as dustless sanders and HVLP spray guns. Alternatively, if you provide few services for your customers, but provide a home port for a lot of boats, you may consider service BMPs that are more generic and are needed by all boaters. Examples might include a bilge water pump system, or facility improvements to decrease stormwater pollution. Once you have selected those BMPs that make sense for you, develop a plan to fund the acquisition and payment of your new equipment.

Develop a Cost Strategy

Once you have selected the BMPs appropriate for your marina, develop cost and benefit estimates for completing the work. The easiest way to start this process is to use general cost ranges such as "high," "medium," and "low," as this will still help you understand the relative costs and benefits among options. Table 7-1 includes more information on BMP costs.

For example, costs associated with structural BMPs will include engineering and permitting costs, plus capital construction, and may be rated as "high." Costs for an educational brochure will include development, design, printing, and mailing costs, and may be rated as "medium." Costs for a fact sheet include copying and distribution costs, and may be rated as "low." Once you have prioritized your list of BMPs and applied the rough cost estimate from Section 7.3, reevaluate your list based on costs and benefits, such as new income. You may want to call manufacturers to obtain more specific costs to help you in your decision-making. If possible, identify those costs that are new, those that are added, and those that are already paid for as part of the cost of other tasks. Identify costs that would be included within work that is already planned.

Decide how you will pay for the BMPs that are at the top of your list and how long it will take you to pay for them. Determine which BMPs can be implemented given existing revenues generated by the marina. Consider the existing and future demand for marina facilities and services and determine if augmented fees can be applied to your existing fee structure. Below are some suggestions based on successful practices implemented at other marinas:

- Where can fees be increased when revenue from the services you are providing is not adequately covering your costs? For example, do your fees adequately cover your costs for disposing of used oil and hazardous waste? If not, apply a new user fee to customers that rely on the marina to dispose of these wastes.
- Determine if implementing a BMP will decrease your costs in the long-run. For example, if your marina operates year-round, would purchasing a waste oil burner save the marina money spent on heating and oil disposal over the long-term?
- Consider establishing a flat environmental fee and an account for a specific improvement. Inform your customers why the fee is needed, what it will pay for, and when the improvement will be completed.

Develop a Schedule

Develop a schedule for starting the new Clean Marina practices. This will be strongly tied to your cost strategy discussed above.

In general, start with the BMPs that are a high priority and have a relatively low cost. Try to do related BMPs together (e.g., design solid waste disposal areas, and put up appropriate signage to direct boaters to the receptacles). Also link the BMP

implementation schedule to the capital improvement plan. You should always keep in mind that implementing BMPs can be effectively incorporated into any modifications that have planned for non-environmental reasons.

BMPs that are a high priority and can be paid by user fees should be included early in your implementation schedule. Those that are more expensive and need to be paid for through a dedicated fund over time should be planned now (particularly through financing) but considered for implementation in the future.

Finalize Your Plan

Your plan will be substantially complete and can be very useful if you have followed the steps above. You may also consider doing a sketch of your facility that locates existing activity areas, and a second sketch that shows areas for proposed improvements. This will not only be useful for your planning purposes, but is also a specific requirement for a Stormwater Pollution Prevention Plan (see Chapter 6).

Combine all of your checklists together in a binder along with your prioritized list of BMPs, cost strategy, and time schedule. This will constitute a basic Marina Environmental Management Plan that you can refer to over the years as you make improvements to your marina.

Remember that your plan should be flexible so that you can adapt it to unknown factors, such as market fluctuations, changes in customer needs, and new products and BMPs that may become available in the future. Complete your plan by implementing a means for evaluating the success of the marina's efforts. One way to accomplish this is to review your checklists and plan on an annual basis as a self-audit to evaluate your progress. Keep these records to document your efforts.

A Marina Environmental Management Plan will formalize your commitment to the Clean Marina Philosophy and help you decide how this philosophy will best help your business and the marine environment around your facility.

Both the marina industry and state and federal governments believe that Clean Marinas will help sustain the boating industry well into the 21st Century because, today, boaters expect clean water. Making the improvements that you have identified, both simple and complex, can enhance your business and will protect the environment.

7.3 BMP Costs and Possible Funding Sources

The table shown below lists all of the BMPs presented in Chapter 4 along with a general cost rating and potential funding sources. Cost estimates are for capital cost and do not include labor. Therefore, inspection and training, for example, has been given a low cost when real cost may be more based on time expended for training and salary of employees being trained. Funding source will also vary among marina facilities. Therefore, suggestions or examples have been provided.

The cost rating used in the table is based on the following system:
$ = $1-$100 $$ = $100-$1,000 $$$ = >$1,000

BMP	Cost	Possible Funding
HULL MAINTENANCE		
Designated Maintenance Areas	$$	Charge for Rental Equipment
Containment	$$	Charge for Rental Equipment
Filter Pressure-Wash Water	$$	Haul-out Surcharge
Work Indoors	$$	Charge for Rental Equipment
Work Away from the Water	$	No Extra Cost
No In-Water Bottom Cleaning	$	No Extra Cost
Dustless Vacuum Sanders	$$	Charge for New Service
Tarps and Filter Cloth	$$	Charge for Rental Equipment
Clean Up Designated Work Areas	$	No Extra Cost
Designated Maintenance Areas for Painting	$$	Charge for Rental Equipment
Prohibit Spray Painting on the Water	$	No Extra Cost
Clean Up Paints and Supplies	$	No Extra Cost
Appropriate Use and Storage of Hazardous Materials and Waste	$$	Waste Disposal Surcharge
Spray Booths	$$	Charge for Rental Equipment
High Volume, Low Pressure (HVLP) Spray Guns	$$	Charge for New Service
Traditional Paint Applications	$	No Extra Cost
Water-Based Paints	$	No Extra Cost
Inform Do-It-Yourselfers	$	No Extra Cost
Train Employees	$	No Extra Cost

BOAT CLEANING

Designated Maintenance Areas	$$	Charge for Rental Equipment
Natural Cleaners	$	No Extra Cost
Biodegradable Soaps	$	Sales at Ship Store
Solvent Alternatives	$	No Extra Cost
Use Solvents Properly	$	No Extra Cost
Inform Do-It-Yourselfers	$	No Extra Cost
Train Employees	$	No Extra Cost

ENGINE MAINTENANCE

Designated Maintenance Areas	$$	Charge for Rental Equipment
Proper Waste Disposal	$$	Waste Disposal Surcharge
Clean Work Areas	$	No Extra Cost
Prohibit Hosing Down of Maintenance Areas	$	No Extra Cost
Provide Absorbent Pads	$$	Sales at Ship Store
Inform Do-It-Yourselfers	$	No Extra Cost
Oil Spill Control	$	Surcharge on Maintenance Services
Spill-Proof Oil Changes	$$$	Charge for New Service
Recycle Used Oil	$	Waste Disposal Surcharge
Pre-Cleaning Methods	$	No Extra Cost
Use Solvents Properly	$	No Extra Cost
Bioremediating Systems	$$	Surcharge on Maintenance Services
Solvent Alternatives	$	No Extra Cost
Use Environmentally-Preferable Anti-Freeze	$	Sales at Ship Store
Fuel Stabilizers	$	Surcharge on Maintenance Services
Fuel Protection	$	Surcharge on Maintenance Services
Drain Water from Fuel Systems	$	Surcharge on Maintenance Services
Use Canvas Covers and Recyclable Shrink-Wrap	$$	Charge for New Service
Train Employees	$	No Extra Cost

BILGE WATER HANDLING

Suspend Bilge Water Discharges by the Marina	$	No Extra Cost
Prohibit Discharge of Untreated Bilge Water	$	No Extra Cost
Make Oil Absorbent Pads Available	$	Sales at Ship Store
Vacuum Systems for Removing Bilge Water	$$	Revenue from New Service
Mandatory Bilge Water Removal	$	Revenue from New Service
Bilge Oil Filters	$$$	Revenue from New Service
Portable Oil/Water Separator	$$	Revenue from New Service
Installing Oil/Water Separators	$$	Revenue from New Service
Inform Boaters	$	No Extra Cost
Train Employees to Watch for Pollution	$	No Extra Cost

FUELING

Develop an SPCC Plan	$	No Extra Cost
Document All Formal Training Sessions	$	No Extra Cost
Spill Containment	$$	Surcharge on Fuel
Reduce Wakes	$	No Extra Cost
PWC Fueling Floats	$$$	Capital Expenditure
Secure the Fuel Station	$	Surcharge on Fuel
Shut-Off Nozzles	$$	Surcharge on Fuel
Nozzle Triggers	$	Surcharge on Fuel
Alternative Fuel Nozzles	$	Surcharge on Fuel
Spill Response Training	$	No Extra Cost
Fuel Delivery Staffing	$	No Extra Cost
Spill Response Locker	$	Free Cash
Disposal Procedures	$	No Extra Cost
Fuel System Inspection	$	No Extra Cost
Fueling Signs and Supervision	$	Free Cash
Spill Equipment	$$	Free Cash

Fuel Collars and Absorption Pads	$$	Surcharge on Fuel
Proper Fueling Procedures	$	No Extra Cost
Reducing Fuel Overflow	$	No Extra Cost
Proper Nozzle Placement	$	No Extra Cost
Use In-Water Sausage Boom During Fueling	$	Free Cash
Proper Gas Can Placement	$	No Extra Cost
Install Fuel/Air Separator	$$	Charge for New Service

SPILL RESPONSE

Spill Response Plan	$	No Extra Cost
Spill Response Station	$$	Surcharge on Fuel
Spill Reporting	$	No Extra Cost
Spill Response Training	$	No Extra Cost
Proper Spill Clean Up	$	No Extra Cost
Spill Drills	$	No Extras Cost
Absorption Booms	$$	Surcharge on Fuel
Make Spill Equipment Accessible	$	No Extra Cost

BOAT SEWAGE AND WASTEWATER MANAGEMENT

Pumpout Maintenance	$	Pump-out Fees, State Funding
Pumpout Cleanliness	$	No Extra Cost
Convenient Service Hours	$	No Extra Cost
Pumpout Staffing and Training	$$$	Pump-out Fees, State Funding
Low Pump-out Costs	$	No Extra Cost
Pumpout Signs	$	State Funding
Holding Tank Additives	$	Sales at Ship Store
Portable Dump Stations	$$	State Funding
Prohibit Sewage Discharge	$	No Extra Cost
Fill Disinfectant Tanks	$	No Extra Cost
Shoreside Facilities	$$$	Capital Expenditure
Biodegradable Holding Tank Cleaners	$	Sales at Ship Store

Discharge Prevention Steps	$	No Extra Cost
MSD Retrofit Services	$$	Charge for New Service
Customer Education	$	Free Cash
Refrain from Using Dish Soaps On-Board	$	No Extra Cost
Low Nitrogen Detergents	$	Sales at Ship Store
Dishwashing Station/Laundry Facilities	$$	Charge for New Service
Encourage Use of Marina Facilities	$	No Extra Cost

SHORESIDE FACILITIES AND PET WASTE MANAGEMENT

Clean Restrooms	$$	Augment Operating Budget
Convenient Restrooms	$$$	Capital Expenditure
Septic System Maintenance	$$	Augment Existing Maintenance Budget
Dishwashing / Laundry Facilities	$$	Charge for New Service
Dog Walking Area	$$	Capital Expenditure
Pet Waste Disposal	$$	Docking Surcharge
Pet Regulations	$	No Extra Cost
Litter Box Use and Disposal	$	No Extra Cost
Wildlife Feeding Rules	$	No Extra Cost

SOLID WASTE

Recycling Strategies	$	No Extra Cost
Used Battery Storage and Disposal	$$	Waste Disposal Surcharge
Trash Container Placement	$	No Extra Cost
Trash Covers	$	Waste Disposal Surcharge
Dumpster Signs	$	Free Cash
Locate Dumpster Away from the Water	$	No Extra Cost
Smoking Signs	$	Free Cash
Litter Bag Distribution	$	Free Cash
Trash Clean Up	$	No Extra Cost
Pool Skimmers	$	Free Cash
Trash Awareness	$	Free Cash
Recycle As Much As Possible	$	Waste Disposal Surcharge

Community Recycling Participation	$$	Waste Disposal Surcharge
Mark Recycling Containers	$	Free Cash
Recycling Signs	$	Free Cash
Recycle Shrink Wrap	$	Waste Disposal Surcharge

HAZARDOUS WASTE MANAGEMENT

Provide Employee Training	$	No Extra Cost
Coordinate with Town Safety Departments	$	No Extra Cost
Establish a Facility Hazardous Waste Plan	$	No Extra Cost
Understand Chemical Type and Hazard Degree	$	No Extra Cost
Use Signs	$	Free Cash
Limit Hazardous Liquid Transportation	$	No Extra Cost
Use of MSDSs	$	No Extra Cost
Proper Handling of Liquids	$	No Extra Cost
Proper Hazardous Materials and Waste Storage	$$	Waste Disposal Surcharge
Container Labeling	$	No Extra Cost
Regularly Inspect and Maintain Storage Areas	$	No Extra Cost
Secure the Hazardous Material Storage Area	$$	Waste Disposal Surcharge
Minimize On-Site Hazardous Material Storage	$	No Extra Cost
Properly Collect Wastes	$$	Waste Disposal Surcharge
Maintain a Product Exchange Area	$	No Extra Cost
Require Recycling in Contracts	$	No Extra Cost
Drain Fluids	$	No Extra Cost
Used Oil Burner	$$$	Waste Disposal Surcharge

FISH WASTE MANAGEMENT

Off-Shore Cleaning and Disposal	$	No Extra Cost
Fish Cleaning Area and Rules	$	No Extra Cost
Fish Cleaning Staff	$$	Incorporate Into Existing Activities
Covered Containers	$	No Extra Cost
Fish Cleaning Provisions in Customer Contracts	$	No Extra Cost
Fish Composting	$$	Waste Disposal Surcharge
Fish Cleaning Stations	$$	Waste Disposal Surcharge

STORMWATER MANAGEMENT

Catch Basin Maintenance	$$	Capital Expenditure
Street Sweeping	$$$	Include in Existing Maintenance Budget
"Don't Dump" Stenciling:	$	No Extra Cost (if work with a local group)
Prohibit Hosing Down of Hard Surfaces for Cleaning	$	No Extra Cost
Reduce Pavement Area	$$	Capital Expenditure
Move Parking Area	$$$	Capital Expenditure
Vegetated Buffers	$$	Capital Expenditure
Oil/Grit Separators	$$$	Capital Expenditure
Leaching Basins	$$$	Capital Expenditure
Filters in Catch Basins	$$	Capital Expenditures
Sand Filters	$$$	Capital Expenditure
Proprietary Technologies	$$$	Capital Expenditure

BOAT OPERATIONS

Observe No Wake Zones	$	No Extra Cost
Promote Safe, Responsible Use of Boats	$	No Extra Cost
Abide by Personal Watercraft Laws	$	No Extra Cost
Avoid Boating in Shallow Waters	$	No Extra Cost
Do Not Speed Near Salt Marsh	$	No Extra Cost
Sell Four-Cycle Engines	$	No Extra Cost

Appendices

Appendix A:
Sample Contract from Edwards Boatyard

EDWARDS BOATYARD, INC.

1209 E. FALMOUTH HWY. (RT. 28)
EAST FALMOUTH, MA 02536-5505
508/548-2216 • FAX 508/457-9140

BOATERS WANT CLEAN WATER, EDWARDS BOATYARD INC. WANTS AND PROMOTES CLEAN WATER, ALSO FEDERAL, STATE AND LOCAL REGULATIONS HAVE REQUIRED EDWARDS BOATYARD, INC. AND BOAT OWNERS TO COMPLY WITH STRICTER ENVIRONMENTAL STANDARDS. WE HAVE HAD TO ESTABLISH THE ATTACHED RULES IN ORDER FOR ALL OF US TO MAKE EDWARDS BOATYARD, THE CHILDS RIVER AND IT'S ECOSYSTEM A CLEANER, SAFER AND MORE HARMONIOUS PLACE TO BE.

YOUR COOPERATION IS APPRECIATED.

EDWARDS BOATYARD, INC.

Charles A. Swain
President

YOUR EFFORTS IN ENVIRONMENTAL AWARENESS HAVE HELPED US RECEIVE VARIOUS FEDERAL, STATE AND LOCAL AWARDS.
WE THANK YOU FOR YOUR SUPPORT AND BUSINESS.

SHIPS STORE • HAULING & STORAGE • COMPLETE MARINE SERVICE

FACTORY AUTHORIZED SERVICE YAMAHA MERCURY MERCRUISER MERCURY OUTBOARDS Johnson OMC VOLVO PENTA PARTS - ACCESSORIES

All bills due on receipt. Invoices past due 30 days subject to 1½% finance charges per month or 18% annum. Boat bills must be paid in full before a boat can be released.

EDWARDS BOATYARD, INC.

RULES & REGULATIONS - Revised January 1999

1209 E. FALMOUTH HWY. (RT. 28)
EAST FALMOUTH, MA 02536-5505
508/548-2216 • FAX 508/540-9149
www.edwardsboatyard.com

Seaswirl BOATS · EVINRUDE · Johnson · OMC · VOLVO PENTA · VANGUARD SAILBOATS · Old Town Canoe · Waquoit Kayak Co.

1.) All facilities are used at one's own risk. Edwards Boatyard, Inc. is not responsible for lost, stolen or damaged property of it's patrons.

2.) Docks and floats are for the exclusive use of boat owners and their guests. During open hours the Public is allowed to walk along the bulkhead. This has always been our policy and is also the access law.

3.) Speed Limit (unless you are in Vineyard or Nantucket Sound in or adjacent to the water ski area) 6 mph or no wake, whichever is less.

4.) Slip space is rented to your particular boat. Any changes or transient rentals may be performed only by Marina personnel. Seasonal rentals are from May 1 to October 31. Renewal for subsequent seasons is not guaranteed to any boat owner.

5.) No permanent or seasonal full time "live-ons" are allowed.

6.) Slip space is assigned by Edwards Boatyard according to the best use of the facilities at hand and following, when possible, the wishes of the customer. It may be necessary from time to time to institute a temporary or permanent slip reassignment.

7.) When leaving your slip or mooring for extended periods advise the dockmaster or service manager so that arrangements can be made for the use of your slip.

8.) Edwards Boatyard, Waquoit Bay, and its tributaries which includes Childs River have been designated a **FEDERAL NO DISCHARGE ZONE** and as such no overboarding of septic waste or discharge is allowed, treated or untreated (Including discharge from an oily or contaminated bilge).

9.) All boats berthed in slips or moorings should be equipped with Coast Guard approved Type III Marine Sanitation devices (compatible with the Marine pump out system). All such boats must be pumped out regularly and can be done by Edwards Boatyard during regular week days or weekend hours. (NO DISCHARGE of Type I - II or III marine sanitation devices or direct discharge is allowed while in the No discharge area.)

BROKERAGE • SHIPS STORE • HAULING & STORAGE • COMPLETE MARINE SERVICE • MOBILE SERVICE • BOAT SURVEYS

ALSO FACTORY AUTHORIZED SERVICE ON EVINRUDE · Johnson · OMC · VOLVO PENTA · YAMAHA · MerCruiser · MERCURY OUTBOARDS · PARTS - ACCESSORIES

All bills due on receipt. Invoices past due 30 days subject to 1½% finance charges per month or 18% annum. Boat bills must be paid in full before a boat can be released.

EDWARDS BOATYARD, INC.
RULES & REGULATIONS - Revised Janaury 1999

Page 2

10.) Biodegradable-non Phosphate soaps should be used when cleaning your boat.

11.) While filling gasoline powered boats only one person is allowed on board to fill fuel tanks in case of fire or explosion. It is the responsibility of the boat owner to see that NO gasoline or diesel is allowed to go into the water while the boat is being fueled. This means fuel spilled from the tank vent or from the fill pipe if it "spits back". It is the responsibility of the boat owner to make sure this does not happen.

12.) Dogs are to be kept leashed at all times to prevent a nuisance to other boaters.

13.) Small children must be under strict supervision of the adult boat owner at all times and shall not be allowed to roam about the marina. For safety reasons, swimming, diving, and rowing of small boats by unqualified or unattended children is prohibited in the marina basin.

14.) Noise levels are expected to be kept at a minimum, particularly when using the marine facilities at other than normal hours.

15.) Slip space is committed for the season. No pro-rate rebate for mid-season discontinued use or late launch is available.

16.) Hazardous waste of any nature must be brought to the attention of the marina staff who will arrange for its disposal in accordance with applicable regulations.

17.) Edwards Boatyard reserves the right to cancel slip space and mooring space without refund for non-compliance with the above rules and regulations.

18.) No cleaning of fish on Boatyard Property. All cleaning of fish should be done at sea or at home. Regulation of EBY ,State of MA & Town of Falmouth law.

EDWARDS BOATYARD, INC.
RULES & REGULATIONS - Revised January 1999

19.) In the event of a Hurricane warning all boats in slips and on moorings at Edwards Boat Yard, will be secured or hauled by Edwards Boatyard at the owners expense. This will minimize damage to boatyard property and customer boats. Edwards Boatyard will not be held responsible for boats damaged by or resulting from our efforts in such a case.

20.) Overboard discharge of, marine heads, septic, oily or contaminated bilge, or any contaminated substance is cause for automatic loss of slip or mooring without reimbursement.

21.) The U.S. Coast Guard has advised us that the person polluting the water is liable for the strict fines in doing so.

22.) Public rest rooms are provided ,24 hours a day for your use.

Thank You.

BOAT NAME _____ REGISTRATION #_____
Typed or printed

CUSTOMER NAME _____
Typed or printed

I HAVE READ AND UNDERSTAND THE ABOVE.

X _____
BOAT OWNERS SIGNATURE

One signed copy must be returned to Edwards Boatyard office prior to use of slip. Please retain one copy for your file.

Appendix B: Examples of Signs for the Marina

The following list provides example language for signs that could be put around the marina to help inform your customers about protecting the marine environment. This information is provided to give you ideas about what signs might be appropriate at your marina depending on your services, your clients, and your goals. Selecting the appropriate number and types of signs for your facility will help your customers help your business remain a Clean Marina.

General Signs

MARINA SANCTUARY — No Dumping!
Recycle and Dispose of Waste Properly. Thank You!
Do Your Part to Keep Our Waters Clean!
Enjoyable Boating = Clean Water!
A Clean Boating Environment Is Worth the Effort!
YOU Can Do a Lot to Prevent WATER POLLUTION
Prevent Pollution — Please Follow Required Practices
Boating Is Good Clean Fun! Let's Keep It That Way
This Marina Protects Water Quality and Marine Life

Hull Maintenance

Designated Boat Work Area
Dustless Sanders Available for Rent
Sanding and Painting in Designated Areas ONLY
Dustless sanders are the ONLY way to go! Available for rent in the ship's store.
Boat Cleaning
Hull Cleaning Not Permitted at Marina Slips
Please Use Environmentally-Friendly Soaps

Engine Maintenance

Designated Boat Work Area
Dripless Oil Change Services Available

Bilge Water

Please Use Oil Absorbent Pads in Boat Bilges
Oil contaminated bilge water removal services provided
Prevent Oil Pollution — Keep Your Bilge Clean

Fueling

No Self-Service Gas
When Filling Up, Always Use the Spill Protection Tools Provided
Never Leave the Pump When Filling Up
Spill Response
Spill Response Equipment
In the Event of a Spill, Contact the Marina Staff Immediately

Boat Sewage

Pumpout Station (list hours open)
NO DISCHARGE ZONE! Pump-out Services Free!

Shoreside Facilities and Pets

Pet Walking Area
Dog Owners — Please Use PET WALK AREA

Solid Waste Management

Waste Disposal Area
Help Prevent Littering
Smokers, please keep cigarette butts onboard!
What must go out, MUST come back. Please be responsible about your garbage!

Hazardous Waste Management

Recycling Center available for your use!
Recycling Area — This marina recycles the following materials: (list materials)

Fish Waste

Fish Cleaning Station

Stormwater Management

Don't Dump

Appendix C: Vendors of Marine Systems and Products

The following is a partial list of vendors and products that provide pollution prevention services to the marina industry. Several buying guides have also been included that may contain a larger selection of products. Because the list is not complete, we suggest that you use it as an information guide to the types of products available and conduct additional research into product options. The list will be updated.

A more comprehensive list of pollution prevention technologies is available at VendInfo, the U.S. Environmental Protection Agency's — National Database of Pollution Prevention Products and Services. See VendoInfo at http://es.epa.gov/vendors/.

Please call (617) 626-1220 if you know specific marina vendors and products that should be added to the list below.

Buyer's Guide Websites

www.boatdealer-marina-info.com/1999bguide.htm
www.marinestore.com
www.yotting.com

Antifreeze

Camco Antifreeze
Distributed by:
Kellogg Marine
Old Seabrook, CT
T: (800) 243-9303
www.kelloggmarine.com

Sierra Antifreeze
Peak Performance Products
Northbrook, IL
T: (508) 548-7110

Cape Cod Auto,
Distributor of Environmentally-safe Antifreeze
Falmouth, MA
T: (508) 548-7110

Bilge Water Filtering and Removal

Wave International Ltd.
Wave Bilge Water Filters
www.wavestream.co.uk
Distributed by Tides Marine
Deerfield Beach, FL
T: (800) 554-8299
www.tidesmarine.com

Master Chemical Corporation
Systems Equipment Division
Perrysburg, OH
T: (419) 874-7902

Biodegradable Soaps and Cleaning Agents

Marykate Super Suds
Marykate Boat Care Products, Inc.
Bohemia, NY
T: (631) 244-8550
www.marykate.com

Kellogg Marine
Distributor of biodegradable soaps
Old Saybrook, CT
T: (800) 243-9303
www.kelloggmarine.com

Star Brite Soaps
Star Brite, Inc.
Ft. Lauderdale, FL
T: (800) 327-8583
www.tackletogo.com/wfp/marinecare.html

Dripless Oil Change Systems

Separ Distribution
Hertfordshire, England
T: 44 (0) 1923 819041
www.separ.co.uk/reverso1.htm

Shurflo Oil Change System
T: (757) 934-3300
FAX: (757) 934-0908
www.yotting.com/18/00018718.htm

Dripless Oil Change Systems (continued)

Simplicity Marine Drives
c/o Fowler Marine, Inc.
T: (941) 722-8475
www.simplicity-marine.com

Dustless Sanders

Fein Power Tools, Inc.
Pittsburgh, PA
T: (412) 922-8886
www.feinus.com

Hutchins Manufacturing Company
Pasadena, CA
T: (626) 792-8211
www.hutchinsmfg.com

Martin Walter Co., Inc.
Distributor of Dustless Sanders
Norwell, MA
T: (781) 878-1216
boatmassachusetts.com/members/martinwalter.html

Fuel Air Separators

Racor Parker Fuel Air Separators
Parker Hannifin Corporation
Lebanon, IN
T: (800) C-PARKER
www.parker.com/racor/fas.html
Distributed by:
Shuster Corporation*
New Bedford, MA
T: (800) 343-8409
and
Brookline Machine
Boston, MA
T: (800) 225-4513
and
Martin Walter Co., Inc.
Norwell, MA
T: (781) 878-1216
boatmassachusetts.com/members/martinwalter.html

Hazardous Waste Collection Companies

Clean Harbors
Braintree, MA
T: (781) 849-1800
www.cleanharbors.com

Cyn Environmental
Stoughton, MA
T: (617) 341-5108
www.cynenv.com

Safety Kleen
North Andover, MA
T: (978) 683-1002
safetykleen.com

Holding Tank Deodorizers and Cleaners

Thetford B.V.
The Netherlands
T: 31 (0) 7650 42200
FAX: 31 (0) 7650 42300
www.thetford-europe.com/en/products/sanitation_products/AquaKemBlue.htm

Odolos Holding Tank Deodorizer
Distributed by Kellogg Marine
Old Saybrook, CT
T: (800) 243-9303
www.kelloggmarine.com

Oil Absorbent and Spill Control Materials

Ben Meadows Co.
Atlanta, GA
T: (800) 241-6401
benmeadows.com

Brockton Equipment/Spilldam, Inc.
Environmental Protection Systems
Brockton, MA
T: (603) 898-0532
www.spilldam.com

Ergon Environmental Products, Inc.
Alpharetta, GA
T: (800) 228-3877

Versatech
Distributor of Ergon Environmental Products
Richmond, British Columbia, CANADA
T: (604) 271-7500
www.versatech.com/sorbents.html

Oil Dri Corporation of America
Alpharetta, GA
T: (800) OIL-DRIP

Two drum spill pallet, secondary containment
Spill 911
Carmel, IN
T: (800) 474-5911
www.spill911.com

New Pig
Tipton, PA
T: (800) 468-4647
www.newpig.com

Enviro Marina Inc.
Greenville, SC
T: (888) 242-5799

Oil Bioremediating Systems

Blue Ribbon Environmental Products, Inc.
Spokane, WA
T: (509) 326-1045
www.bre-products.com/rem3info.html

P.E.S. Engineering
Temple City, CA
T: (626) 858-9602
www.stormwaterservice.com

Paint-Related Products

Apollo Sprayers, Inc. (HVLP Sprayers)
Vista, CA
T: (800) 578-7606
www.hvlp.com

E Paint
E. Falmouth, MA
T: (800) 258-5998
www.epaint.net

FluidAir, Inc. (Electrostatic Sprayers)
St. Louis, MO
T: (800) 365-7565
www.fluidair.com/Electrostatic.htm

The Paint Project, Inc. (Spray Booths)
Natick, MA
T: (508) 650-0055
www.paintproject.com

SprayTech Systems, Inc. (Electrostatic Spray Guns)
Oklahoma City, OK
T: (904) 948-8696
www.spraytechsys.com

Pumpout Manufacturers

Airvac, Inc.
Oldsmar, FL
T: (813) 855-6297 Ext. 403
FAX: (813) 855-9093
www.airvac.com

Alcar Environmental
Wellfleet, MA
T: (508) 349-3840
FAX: (508) 349-7982
www.baysailsmarine.com

Edson International
New Bedford, MA
T: (508) 995-9711
www.edsonintl.com

EMP Industries, Inc.
Environmental Marine Products
St. Petersburg, FL
T: (800) 355-7867
www.empind.net

Envirovac, Inc.
Rockford, IL
T: (800) 435-6951

Exstar International Corp.
Wilmington, NC
T: (800) 500-4434

Pumpout Manufacturers (continued)

Far Products, Inc.
Fremont, OH 43420
T: (419) 332-8286
FAX: (419) 332-8296

Keco Pumps, Inc.
San Diego, CA
T: (800) 980-PUMP
www.pumpahead.com

Oberdorfer Pumps
Syracuse, NY
T: (315) 437-0361
www.oberdorfer-pumps.com

Sealand Technology, Inc.
Big Prairie, OH
T: (800) 321-9886
taylormadegroup.com/frames/fssealnd.html

Vacumax Limited
Elmira, ON CANADA
Waubaushene Machine and Welding,
Waubaushene, Ontario, Canada
T: (705) 538-1459
www.wmwpump.com/genDefault.asp

Martin Walter Co., Inc.
Norwell, MA
T: (781) 878-1216
boatmassachusetts.com/members/martinwalter.html

Shrink Wrap Recycling

Dr. Shrink
Manistee, MI
T: (616) 723-2685
http://dr-shrink.com

Stormwater Management Technologies
CSR Hydroconduit, Inc. (Stormceptor)
Houston, TX
T: (281) 872-3500
www.csra.com/csrhydroconduit/products/
Stormceptor.htm

StormTreat Systems, Inc.
Sandwich, MA
T: (508) 833-6600
www.stormtreat.com

Waste Oil Heater
Clean Burn, Inc.
Leola, PA
T: (800) 331-0183
www.cleanburn.com

Orino Waste Oil Heaters
Distributor of Clean Burn Products
Rumford, ME
T: (800) 854-6503
FAX: (207) 369-9327

Appendix D: Massachusetts Pumpout List

Massachusetts Pumpouts (as of March 30, 2001)

The following is a list of locations along the Massachusetts coast where boaters can pump-out their holding tanks. Locations are listed alphabetically by town within six regions of the Massachusetts coast: North Shore, Boston Harbor, South Shore, Southeast, Cape Cod, and the Islands. Always call ahead to schedule a pump-out. CZM also has printed copies of the pumpout list for distribution to boaters. For printed copies, call CZM at (617) 626-1200. The list is also available on the CZM website at www.state.ma.us/czm/potoc.htm.

North Shore (Salisbury to Revere)

1. Ferryway Public Landing
City/Town: Beverly
VHF Channel: 9
Telephone: (978) 921-6059
Type: pump-out boat

2. Danversport Yacht Club (River)
City/Town: Danvers
VHF Channel: 71
Telephone: (978) 774-8620
Type: dockside

3. Cape Ann Marina
City/Town: Gloucester
VHF Channel: 10
Telephone: (978) 283-2116, x5
Type: dockside and pump-out boat

4. Gloucester Harbor
City/Town: Gloucester
VHF Channel: 16
Telephone: (978) 282-3012
Type: pump-out boat

5. Plum Island Sound
City/Town: Ipswich
VHF Channel: 9
Telephone: (978) 356-4343
Type: pump-out boat

6. Seaport Landing Marina
City/Town: Lynn/Nahant
VHF Channel: 9
Telephone: (781) 592-5821
Type: dockside

7. Crocker's Boat Yard
City/Town: Manchester
VHF Channel: 78A
Telephone: (978) 526-1971
Type: dockside

8. Manchester Marine
City/Town: Manchester
VHF Channel: 72
Telephone: (978) 526-7911
Type: dockside and pumpout boat

9. Cliff St. Boatyard
City/Town: Marblehead
VHF Channel: 16
Telephone: (781) 631-2386
Type: pump-out boat

10. Riverfront Marina
City/Town: Newbury
VHF Channel: 9
Telephone: (978) 465-6090
Type: dockside

11. Cashman Park (Merrimack River)
City/Town: Newburyport
VHF Channel: 9, 12
Telephone: (978) 462-3746
Type: pump-out boat

12. Rockport Harbor
City/Town: Rockport
VHF Channel: 9
Telephone: (978) 546-7297
or 546-9589
Type: pump-out boat

13. Parker and Rowley Rivers
City/Town: Rowley
VHF Channel: 9
Telephone: NA
Type: pump-out boat

14. Perley's Marina
City/Town: Rowley
VHF Channel: 9
Telephone: (978) 948-2812
Type: dockside

15. Congress Street Bridge
City/Town: Salem
VHF Channel: 9
Telephone: (978) 741-0098
Type: dockside

16. Winter Island Dock
City/Town: Salem
VHF Channel: 9
Telephone: (978) 741-0098
Type: pump-out boat

17. Cove Marina
City/Town: Salisbury
VHF Channel: 10
Telephone: (978) 462-4998
Type: pump-out boat

18. Town Dock (Merrimack River)
City/Town: W. Newbury
VHF Channel: 9
Telephone: (978) 363-1213
Type: pump-out boat

Boston Harbor (Winthrop to Hull)

1. Boston Water Boat Marina, Long Wharf
City/Town: Boston
VHF Channel: 9
Telephone: (617) 523-1027
Type: dockside and pump-out boat

2. Captain's Cove Marina
City/Town: Boston
VHF Channel: 9
Telephone: (617) 727-3193
Type: dockside

3. Constitution Marina,
City/Town: Boston
VHF Channel: 9, 69
Telephone: (617) 241-9640
Type: pump-out boat

4. Marina at Rowes Wharf
City/Town: Boston
VHF Channel: 9
Telephone: (617) 439-3131
Type: dockside

5. Shipyard Quarters Marina
City/Town: Boston
VHF Channel: 9, 71
Telephone: (617) 242-2020
Type: pump-out boat

6. Boston Boat Yard Marina
City/Town: Boston
VHF Channel: 9
Telephone: (617) 561-1400
Type: dockside

7. Braintree Yacht Club
City/Town: Braintree
VHF Channel: 9
Telephone: (781) 910-2275
Type: pump-out boat

8. Charles River Yacht Club
City/Town: Cambridge
VHF Channel: 9
Telephone: (617) 354-8681
Type: pump-out boat

9. Dorchester Yacht Club
City/Town: Dorchester
VHF Channel: 9
Telephone: (617) 436-1002
Type: dockside

10. Thomas Marine
City/Town: Dorchester
VHF Channel: 9
Telephone: (617) 288-1000
Type: dockside

11. Hewitt's Cove Marina
City/Town: Hingham
VHF Channel: 9
Telephone: (781) 749-2223
Type: dockside

12. Hingham Harbor
City/Town: Hingham
VHF Channel: 9
Telephone: (781) 741-1450
Type: pump-out boat

13. Pemberton Pier
City/Town: Hull
VHF Channel: 9
Telephone: (781) 925-3435
Type: dockside and pump-out boat

14. Bay Pointe Marina
City/Town: Quincy
VHF Channel: 9
Telephone: (617) 471-1777
Type: dockside

15. City of Quincy (Bay Pointe)
City/Town: Quincy
VHF Channel: 9
Telephone: (617) 877-5191
Type: pump-out boat

16. Clipper Marina
City/Town: Quincy
VHF Channel: 9
Telephone: (617) 749-9455
Type: dockside

17. Marina Bay
City/Town: Quincy
VHF Channel: 10
Telephone: (617) 847-1800
Type: dockside

18. Town River Yacht Club
City/Town: Quincy
VHF Channel: 71
Telephone: (617) 471-2716
Type: dockside

19. Wessagusset Yacht Club
City/Town: Weymouth
VHF Channel: 71
Telephone: (781) 878-1544
Type: dockside

20. Atlantis Marina
City/Town: Winthrop
VHF Channel: 9
Telephone: (617) 846-5262
Type: dockside

21. Town Dock
City/Town: Winthrop
VHF Channel: 9
Telephone: (617) 846-0266
Type: pump-out boat

South Shore (Cohasset to Plymouth)

1. Cohasset Harbor
City/Town: Cohasset
VHF Channel: 9
Telephone: (781) 838-0589
Type: pump-out boat

2. Town Pier
City/Town: Duxbury
VHF Channel: 9
Telephone: (781) 934-2866
Type: pump-out boat

3. Town Pier
City/Town: Kingston
VHF Channel: 9
Telephone: (781) 585-0519
Type: pump-out boat

4. Green Harbor (Town)
City/Town: Marshfield
VHF Channel: 9
Telephone: (781) 834-5541
Type: dockside

5. Mary's Boat Livery (N. River)
City/Town: Marshfield
VHF Channel: 9
Telephone: (781) 837-8135
Type: dockside

6. Brewer's Plymouth Marine
City/Town: Plymouth
VHF Channel: 9, 72
Telephone: (781) 746-4500
Type: dockside

7. Marina Fuel Dock
City/Town: Plymouth
VHF Channel: 9, 72
Telephone: (781) 746-4500
Type: dockside

8. Cole Parkway Marina (Town)
City/Town: Scituate Harbor
VHF Channel: 9
Telephone: (781) 545-2130
Type: dockside

9. James Landing Marina (N. River)
City/Town: Scituate
VHF Channel: 9
Telephone: (781) 545-3000
Type: dockside

10. North River Marine (N. River)
City/Town: Scituate
VHF Channel: 9
Telephone: (781) 545-7811
Type: pump-out boat

11. Waterline Mooring
City/Town: Scituate
VHF Channel: 9
Telephone: (781) 545-4154
Type: pump-out boat

Cape Cod (Sandwich/Bourne to Provincetown)

1. Hyannis Marina
City/Town: Barnstable
VHF Channel: 9
Telephone: (508) 790-4000
Type: dockside

2. Ocean Street Docks (Hyannis)
City/Town: Barnstable
VHF Channel: 9, 16
Telephone: (508) 790-6327
Type: dockside

3. Oyster Harbor Marina
City/Town: Barnstable
VHF Channel: 79
Telephone: (508) 428-2017
Type: dockside

4. Three Bay/Centreville Harbor Area
City/Town: Barnstable
VHF Channel: 9, 16
Telephone: (508) 790-6273
Type: pump-out boat

5. Bourne Marina (Town)
City/Town: Bourne
VHF Channel: 9
Telephone: (508) 759-2512
Type: pump-out boat

6. Town of Bourne
City/Town: Bourne
VHF Channel: 9
Telephone: (508) 759-0623
Type: pump-out boat

7. Kingman Marine
City/Town: Bourne
VHF Channel: 9
Telephone: (508) 563-7136
Type: dockside

8. Parker's Boat Yard
City/Town: Bourne
VHF Channel: 69
Telephone: (508) 563-9366
Type: dockside

9. Old Mill Boat Yard
City/Town: Chatham
VHF Channel: 66
Telephone: (508) 945-5186
Type: dockside

10. Bass River Marina
City/Town: Dennis
VHF Channel: 9, 72
Telephone: (508) 394-8341
Type: dockside

11. Northside Marina (Sesuit Harbor)
City/Town: Dennis
VHF Channel: 9
Telephone: (508) 385-3936
Type: dockside

12. Brewer's Fiddler Cove
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 564-6327
Type: dockside

13. Edwards Boat Yard (Waquoit Bay)
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 548-2216
Type: dockside

14. Falmouth Marine
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 548-4600
Type: dockside

15. Falmouth Town Dock
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 457-2550
Type: dockside

16. Green Pond Marina
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 457-9283
Type: dockside

17. MacDougall's Marina
City/Town: Falmouth
VHF Channel: 9, 71
Telephone: (508) 548-3146
Type: pump-out boat

18. Marine and Yacht Center
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 548-4600
Type: dockside

19. Quisset Harbor Boatyard
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 548-0506
Type: pump-out boat

20. Woods Hole Marine
City/Town: Falmouth
VHF Channel: 9
Telephone: (508) 540-2402
Type: pump-out boat

21. Allen Harbor Yacht Club
City/Town: Harwich
VHF Channel: 16
Telephone: (508) 432-1410
Type: dockside

22. Harwichport Boat Works
City/Town: Harwich
VHF Channel: 8
Telephone: (508) 432-1322
Type: dockside

23. Saquatucket Marina
City/Town: Harwich
VHF Channel: 68
Telephone: (508) 430-7532
Type: pump-out boat

24. Round Cove (Pleasant Bay)
City/Town: Harwich
VHF Channel: 68
Telephone: (508) 430-7532
Type: pump-out boat

25. Half Tide Marina
(Popponesset Bay)
City/Town: Mashpee
VHF Channel: 9
Telephone: (508) 477-2681
Type: dockside

26. Little River Boat Yard
(Waquoit Bay)
City/Town: Mashpee
VHF Channel: 9
Telephone: (508) 548-3511
Type: pump-out boat

27. New Seabury Marina
City/Town: Mashpee
VHF Channel: 9
Telephone: (508) 477-9197
Type: dockside

28. Nauset Marina East
City/Town: Orleans
VHF Channel: 9
Telephone: (508) 255-3045
Type: dockside

29. Town Pier (Rock Harbor)
City/Town: Orleans
VHF Channel: 9
Telephone: (508) 240-3755
Type: pump-out boat

30. Provincetown Marina
City/Town: Orleans
VHF Channel: 9
Telephone: (508) 487-0571
Type: dockside

31. Town Pier
City/Town: Provincetown
VHF Channel: 9
Telephone: (508) 487-7030
Type: pump-out boat

32. Sandwich Marina
City/Town: Sandwich
VHF Channel: 9
Telephone: (508) 833-0808
Type: dockside

33. Town Pier
City/Town: Welfleet
VHF Channel: 16, 9
Telephone: (508) 349-0320
Type: pump-out boat

34. Ship Shop's Boat Yard
City/Town: Yarmouth
VHF Channel: 66
Telephone: (508) 790-3116
Type: dockside

35. Town Pier (Bass River)
City/Town: Yarmouth
VHF Channel: 9
Telephone: (508) 760-4800
Type: pump-out boat

Islands (Martha's Vineyard, Nantucket, and Elizabeth Islands)

1. Menemsha Pond (Town)
City/Town: Chilmark
VHF Channel: 9, 66
Telephone: (508) 645-2846
Type: dockside

2. Coalition for Buzzards Bay (Weekends Only)
City/Town: Cuttyhunk Harbor
VHF Channel: 9
Phone: (508) 999-6363 (voicemail)
Type: pump-out boat

3. Town of Edgartown
City/Town: Edgartown
VHF Channel: 9, 74
Telephone: (508) 627-4746
Type: pump-out boat

4. Oak Bluffs Harbor Marina
City/Town: Oak Bluffs
VHF Channel: 9, 71
Telephone: (508) 693-4355
Type: pump-out boat

5. Maciel Marine (Vineyard Haven)
City/Town: Tisbury
VHF Channel: 9
Telephone: (508) 693-4174
Type: dockside

6. Vineyard Haven
City/Town: Tisbury
VHF Channel: 9
Telephone: (508) 693-7792
Type: pump-out boat

7. Nantucket Boat Basin
City/Town: Nantucket
VHF Channel: 9
Telephone: (508) 228-1333
Type: dockside

8. Nantucket Town Pier
City/Town: Nantucket
VHF Channel: 9
Telephone: (508) 228-7260
Type: pump-out boat

Southeast (Wareham to Seekonk)

1. Coalition for Buzzards Bay
City/Town: Buzzards Bay
VHF Channel: 9
Phone: (508) 999-6363 (voicemail)
Type: pump-out boat

2. Davis & Tripp's Marina
City/Town: Dartmouth
VHF Channel: 9
Telephone: (508) 999-0759
Type: pump-out boat

3. North Side Bridge, Town Dock and Padanaram Harbor
City/Town: Dartmouth
VHF Channel: 9
Telephone: (508) 999-0759
Type: pump-out boat

4. Padanaram Harbor
City/Town: Dartmouth
VHF Channel: 9
Telephone: (508) 999-0759
Type: pump-out boat

5. Earl's Marina (West Island)
City/Town: Fairhaven
VHF Channel: 18
Telephone: (508) 993-8600
Type: dockside

6. Seaport Marina
City/Town: Fairhaven
VHF Channel: 9
Telephone: (508) 992-7985
Type: pump-out boat

7. Borden's Light Marina
City/Town: Fall River
VHF Channel: 68
Telephone: (508) 678-7547
Type: dockside

8. Island Wharf (Town)
City/Town: Marion
VHF Channel: 9
Telephone: (508) 748-3535
Type: pump-out boat

9. Mattapoisett Boat Yard
City/Town: Mattapoisett
VHF Channel: 68
Telephone: (508) 758-3812
Type: pump-out boat

10. Mattapoisett Town Dock
City/Town: Mattapoisett
VHF Channel: 68
Telephone: (508) 758-4191
Type: dockside

11. Pope's Island Marina
City/Town: New Bedford
VHF Channel: 9, 74
Telephone: (508) 979-1456
Type: dockside

12. Somerset Marina (Town)
City/Town: Somerset
VHF Channel: 9
Telephone: (508) 679-4223
Type: pump-out boat

13. Bevans/Continental Marina
City/Town: Wareham
VHF Channel: 9
Telephone: (508) 759-5451
Type: dockside

14. Onset Bay Marina
City/Town: Wareham
VHF Channel: 9
Telephone: (508) 295-0338
Type: pump-out boat

15. Onset Town Pier
City/Town: Wareham
VHF Channel: 9
Telephone: (508) 295-8160
Type: dockside and pump-out boat

16. Point Independence Yacht Club
City/Town: Wareham
VHF Channel: 9
Telephone: (508) 295-3972
Type: dockside

17. Stonebridge Marina
City/Town: Wareham
VHF Channel: 9
Telephone: (508) 295-8003
Type: dockside

18. Warr's Marine
City/Town: Wareham
VHF Channel: 9
Telephone: (508) 295-0022
Type: dockside

19. Tripp's Marina
City/Town: Westport
VHF Channel: 9
Telephone: (508) 636-4058
Type: dockside

20. Westport Point (Town Dock)
City/Town: Westport
VHF Channel: 9
Telephone: (508) 636-1105
Type: pump-out boat

Appendix E: Components of a Stormwater Pollution Prevention Plan

To receive a National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP), the marina owner must submit a one-page application form known as a Notice of Intent (NOI), and develop a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP discusses how the marina plans to reduce discharges associated with the regulated activity and lists best management practices to be implemented. One component of the SWPPP that also must be completed is a Spill Control and Countermeasures (SPCC) Plan (see Section 4.5 for more on SPCC Plans). By completing a Marina Environmental Management Plan, you will have developed a framework for SWPPP. (See Chapter 7 on how to develop a Marina Environmental Management Plan.)

Specific components of the SWPPP include:

- A description of the potential pollution sources
- A schematic plan of your facility that locates activities, pollution sources, storage areas, and site drainage (both surface and subsurface)
- An inventory of materials at your facility that is exposed to rain water
- A list of spills that have occurred at your facility
- Any sampling data that might be available on your discharges or waters around your marina
- Description of existing stormwater best management practices used for the following activities: pressure washing, blasting and painting, materials storage, engine maintenance, material handling, yard maintenance and cleanup
- Description of proposed best management practices and basic schedule for implementation
- Operations and maintenance program to ensure BMPs and other systems are operating properly and are well maintained
- Spill prevention and response procedures
- Inspections to ensure implementation of the SWPPP
- Quarterly water sampling
- Employee training
- Record keeping
- Inventory and discussion of non-stormwater discharges including pressure wash water, bilge water, and sanitary waste discharges. These discharges are prohibited under the General Permit
- Sediment and erosion control
- Statement of Consistency with other plans
- The Marina's Stormwater Management Team

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