Green Marina Guidebook

A Product of the Green Marina Initiative

A public-private partnership between
the National Park Service and the District of Columbia
designed to help marina and boatyard owners, operators, and concessionaires

The National Park Service cares for special Places saved by the American people so that all may experience our heritage

Experience Your America

Prepared for:

NATIONAL PARK SERVICE
National Capital Region
1100 Ohio Drive, S.W.
Washington, DC 20242

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Green Marina Effort Launched on District Waterways

Over the past decade the National Park Service-National Capital Region (NPS-NCR) has worked with the District of Columbia, public interest groups, and local communities and businesses to restore the Potomac and Anacostia Rivers. Due to agricultural, urban, and suburban development, the Potomac River has become highly vulnerable to pollutant loading. In 1998, the Potomac River was designated an American Heritage River, after which community organizations and the National Park Service joined together to restore the Potomac River to more healthful state. The Anacostia River also became highly degraded due to increased nonpoint source pollution, discharge from sewers and poor land use. In 1999, the Anacostia River Restoration Strategy was created to outline specific ways to restore the Anacostia to its original beauty. Pollution releases to the Anacostia have resulted in water quality problems such as low dissolved oxygen levels, high bacteria levels, high biological oxygen demand, sediment load, and sediment and fish tissue contaminated with toxic chemicals.

Part of the Potomac American Heritage River Initiative is to restore historic Potomac fisheries by promoting appreciation and development of recreational assets, which include marinas and boatyards. A primary goal of the Anacostia River Restoration Strategy is to help restore the river by establishing clean boating on the Anacostia River. We can significantly improve the health and recreational vitality of both Rivers by preventing stormwater runoff from boatyards, drips from fuel docks, discharges from marine sanitation devices, and fish waste from recreational anglers entering the Anacostia River.

As part of the restoration strategy, the National Park Service and the D.C. government have established a program of environmental stewardship and waste minimization at the marinas and boatyards on the Anacostia River. The Green Marina Initiative is a public-private partnership coordinated by the National Park Service-National Capital Region designed to help marina and boatyard operators, like yourself, manage profitable businesses while also protecting the quality of waterways in the District of Columbia.

Nationwide, the Environmental Protection Agency (EPA) and the National Oceanographic and Atmospheric Administration (NOAA) have encouraged local governments to do more to control non-point source pollution associated with marinas and boating. In light of this effort, the District of Columbia, with the help of the National Park Service, has requested that the District be allowed to pursue a voluntary approach, in lieu of imposing new regulations on marinas.

Some marinas on National Park Service property in the District of Columbia have received Notices of Violation over the past year for pollution of waterways. Now you have the opportunity to come into compliance with help from the Green Marina Program, and take the steps to go beyond compliance. By becoming a Green Marina, you will not only reduce the need for additional regulations by voluntarily adopting pollution prevention practices, you will also receive regulatory assistance and free publicity. Take the challenge!

Terry R. Carlstrom
Regional Director
National Capital Region
National Park Service

A Message from the Mayor

Dear Friends:

Clean up and protection of the District's waterways is one of my strongest commitments. It gives me great pleasure to share with you this Green Marina Guidebook.

In partnership with the National Park Service, the Green Marina Initiative establishes a program of environmental stewardship for all of our waterways. It provides an opportunity for each of our marinas, boatyards, live-aboards, recreational and commercial boaters, and related service providers to adopt environmentally sound practices that will contribute to clean boating.

This Green Marina Guidebook contains practical, common sense tips for controlling pollutants associated with vessel operation, repair, maintenance, and storage, as well as a review of relevant environmental laws and regulations. It is designed to help commercial operators manage profitable businesses while also protecting the quality of our waterways.

All across the country, clean rivers provide the engine of economic development. The Potomac River, the Washington Channel, and especially the Anacostia River are no different. In addition, the vitality of the boating industry in the District relies on the sustained health of our rivers. There is clear value in clean boating.

Please take the time to read through this guide and see how you, your marina or boatyard could make changes to help clean up and preserve the rivers that we depend on. Through the Green Marina Initiative, you have an opportunity to be rewarded for your voluntary stewardship of clean water and fresh air.

Summed up best by the theme of the National Clean Boating Campaign, "Boating is good clean fun. Let's keep it that way."

Honorable Anthony A. Williams,
Mayor,
District of Columbia.

Acknowledgements

The Green Marina Guidebook has been developed as a joint initiative of the National Park Service-National Capital Region and the District of Columbia. The *Guidebook* draws extensively upon the model provided by the Maryland Clean Marina Initiative. Together these organizations are making it possible to extend voluntary clean marina programs to the marinas along the Anacostia and Potomac Rivers in the District of Columbia.

The Maryland Clean Marina Initiative is coordinated by the Maryland Department of Natural Resources in partnership with industry and government representatives. Together, the partners developed the Maryland Clean Marina Guidebook (written by Elizabeth Fuller Valentine) and established an awards program to recognize environmentally responsible marinas. Using the exceptional collection of well-researched best management practices and federal regulations from the Maryland Clean Marina Guidebook, as well as additional DC and federal information sources, the National Park Service and District of Columbia have created a guidebook that fits the experiences and needs of marinas and boating facilities on NPS land and within the District.
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The Green Marina Guidebook has also been made possible by the input of all of the stakeholders who advised in developing the final version of the Guidebook.

The Stakeholders include, at a minimum, those groups and individuals who have an economic, political, or other vested interest in this project. Typical Stakeholders would be:

NPS representatives from National Capital Parks – East and George Washington Memorial Parkway as the local parks hosting marinas, boatyards and boat clubs & the marina owners/operators for Anacostia Marina, Buzzards Point Marina, James Creek Marina, District Yacht Club, Eastern Power Boat Club, Seafarers Boat Club, Washington Yacht Club, Columbia Island Marina, Washington Sailing Marina, Belle Haven Marina.

DC regulators, marina, boat club, and boatyard owners and operators, floating restaurants, liveaboards, waterfront and pier franchises, and associated services.

Why Should I be a Green Marina?

Green signifies **support or protection of the environment.** "Green Marinas" are marinas and boatyards that have gone beyond mere compliance with regulations. By adopting a significant proportion of the Best Management Practices described in this *Guidebook*, you have become actual protectors of the environment.

Reduce Costs

By reducing pollution, you also reduce your costs. Keeping work areas and other areas clean, for example, reduces costly maintenance. Reusing solvents saves you money on hazardous waste disposal.

Realize a Competitive Advantage

Studies show that when prospective slipholders shop for a marina, cleanliness is the Number 1 item they look for.

Attract Responsible Customers

Reduce your liability from careless boaters and your waste disposal hassles by attracting responsible customers who will respect and follow clean boating practices.

Enjoy Free Publicity

Those marinas that adopt a significant proportion of the Best Management Practices suggested in this *Guidebook* will be recognized as Green Marinas. They will receive a certificate acknowledging their environmentally responsible actions. The Green Marina Initiative will, moreover, actively promote certified Green Marinas by preparing news releases and incorporating the names of Green Marinas into publications and exhibits.

Protect the Resource that Supports the Marina Industry

Pleasant boating depends on clean water. Do your part to support the resource that supports you!

Work Toward Being Self-Regulating

For years, the marina industry has sought the opportunity to regulate itself. Toward this end, the Green Marina Initiative provides the marina industry with a chance to demonstrate its responsibility and commitment.

2001 Green Marina Pledge

The Green Marina Initiative promotes and celebrates voluntary adoption of measures to reduce waste and prevent pollution from marinas, boatyards, and recreational boats. Designated "Green Marinas" are recognized as environmentally-responsible businesses.

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

_____ (name of marina or boatyard),
we pledge to do our part to keep the District of Columbia's waterways free of harmful chemicals, excess nutrients, and debris.

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

Vessel maintenance and repair

Petroleum storage and transfer

Sewage disposal

Hazardous and non-hazardous wastes

Stormwater runoff

Facilities management

We commit to actively pursuing full standing as a Green Marina. Within one year of the date below, we will implement appropriate pollution prevention practices and will apply to the National Park Service or District of Columbia for recognition as a Green Marina.

_____ _____
Name of Marina Owner Date

_____ _____
Name of Marina Manager Date

Green Marina Award Checklist

Marina Name: _____
Owner/Manager: _____
Address: _____
_____
Phone _____

Marina Type
_____ Marina, no boatyard
_____ Marina w/boatyard
_____ Boatyard/boatbuilder, no slips
_____ Other _____

This form is intended to be used by marina operators to conduct a self assessment of their facilities. Ultimately, it will also be used by representatives of the Green Marina Initiative to verify these self-assessments. The page numbers refer the reader to the *Green Marina Guidebook.* Additional copies are available from the Green Marina Initiative by calling the Green Marina Advisory Group National Park Service Environmental Specialist at 202-619-7083 or the DC contact at 202-535-2305 . A diamond (◆) after an entry indicates that the reader should refer to the *Guidebook* for specific legal requirements.

Green Marina Awards will be presented to those marinas that score a minimum score per subject area. Scoring is based on applicable items only. Please note: it is not necessary to implement all of the recommended practices to be recognized as a Green Marina. Some items are repeated under different areas, because they serve multiple functions. **It is necessary, however, to be in compliance with all applicable laws and regulations. When applicable, these are marked in bold with a (◆) at the top of the area checklists.**

The "not applicable" (N/A) option is offered so that items that are beyond your control or that simply do not apply to your operations, will not be counted against you in the scoring process. For example, if you do not have a septic system, check N/A for Area 7 number 4. There is space at the end of this form to clarify any of your answers or to tell us about other items you would like the reviewers to take into consideration.

Area 1: OVERALL COMPLIANCE	**YES**	**NO**	**N/A**
(100% compliance is required with this area) DO YOU:			
1. correct known violations, such as unreported oil spills? p.3-11 (◆)	___	___	___
2. have a Stormwater Pollution Prevention Plan (SWPPP)? p.3-3, 6-2 (◆)	___	___	___
3. train your employees twice annually about the components of your SWPPP? p. 3-2 (◆)	___	___	___
4. have a Multi-Sector General Permit for Discharges (MSGP)? p 3-3, 6-3 (◆)	___	___	___
5. have a spill prevention and cleanup plan for stored pollutants? p. 3-6 (◆)	___	___	___
6. have a Spill Prevention, Control and Countermeasure (SPCC) Plan for oil/fuel storage above EPA limits? p 3-7, 8-2 (◆)	___	___	___
7. properly store, use, and dispose of hazardous materials/wastes? p. 3-10, 10-3 (◆)	___	___	___
8. provide adequate trash and recycling receptacles? p. 3-11, 10-2 (◆)	___	___	___
9. provide health and safety training to employees? p. 3-11 (◆)	___	___	___

AREA 1 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____%

Area 2: MARINA MANAGEMENT	**YES**	**NO**	**N/A**
(70% compliance is required with this area) DO YOU:			
1. regularly review emergency response procedures with staff? p. 2-4	___	___	___
2. maintain training records? p. 2-5	___	___	___
3. train employees to watch for inappropriate discharges? p. 2-5	___	___	___
4. have a predetermined procedure for approaching polluters? p. 2-5	___	___	___
5. incorporate best management practices into all contracts? p. 2-6	___	___	___
6. post signs detailing best management practices? p. 2-7	___	___	___
7. distribute environmental education materials to patrons? p.2-7	___	___	___

8.	host workshops to highlight and demonstrate best management practices? p. 2-8	___	___	___
9.	recognize boaters who try to prevent pollution? p. 2-8	___	___	___
10.	publicize your environmentally responsible actions? p. 2-11	___	___	___

AREA 2 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____%

Area 3: MARINA DESIGN AND MAINTENANCE		**YES**	**NO**	**N/A**
Note: Items 1-5 below apply to new construction only. *(75% compliance is required with this area)* DO YOU:				
1.	have all the necessary permits and agency approvals for marina construction or expansion? p. 5-2 (◆)	___	___	___
2.	minimize impervious areas and site buildings, workshops, and storage areas away from the shoreline? p. 5-8	___	___	___
3.	minimize need for and impact of dredging? p. 5-10	___	___	___
4.	use environmentally preferred materials? p. 5-11	___	___	___
5.	employ nonstructural shore erosion control measures? p. 5-11	___	___	___
6.	maintain your property using best management practices similar to those for vessels? p. 5-12	___	___	___
7.	practice water conservation? p. 5-12	___	___	___
8.	avoid toxic lawn and garden chemicals to the greatest extent possible? p. 5-12	___	___	___
9.	maintain vegetated areas? 5-15	___	___	___

AREA 3 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____ %

Area 4: STORMWATER MANAGEMENT		**YES**	**NO**	**N/A**
(85% compliance is required with this area) DO YOU:				
1.	prevent discharge of wash or process water or oil laden bilge water? p. 6-2 (◆)	___	___	___
2.	capture and treat stormwater onsite? p. 6-4	___	___	___
3.	cultivate vegetated areas? p. 6-4	___	___	___
4.	minimize paved areas? p. 6-5	___	___	___
5.	stencil warnings on storm drains? p. 6-7	___	___	___

AREA 4 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____ %

Area 5: VESSEL MAINTENANCE AND REPAIR		**YES**	**NO**	**N/A**
As a condition of the Multi-Sector General Permit for Discharges from Marinas, Marinas must minimize and contain vessel maintenance debris. p. 7-3				
(80% compliance is required with this area) DO YOU:				
1.	prevent discharge of oil, gasoline, anti-freeze, acid, or other hazardous material to any public space? p. 7-2 (◆)	___	___	___
2.	prevent discharge of wash or process water or oil laden bilge to water? p. 7-2 (◆)	___	___	___
3.	prevent air emissions from solvents by containing rags and covering solvent containers when not in use? p. 7-4	___	___	___
4.	restrict maintenance activities to designated work area? p. 7-4	___	___	___
5.	contain dust from standing? p. 7-6	___	___	___
6.	contain debris from blasting? p. 7-7	___	___	___
7.	minimize impacts for pressure washing? p. 7-8 (◆)	___	___	___
8.	recommend bottom coatings w/minimal environmental impact? p. 7-8	___	___	___
9.	minimize impacts of painting operations? p. 7-10	___	___	___
10.	handle solvents carefully? p. 7-11	___	___	___
11.	repair and maintain engines with care? p. 7-11	___	___	___
12.	winterize safely? p. 7-12	___	___	___
13.	conduct in-water maintenance wisely? p. 7-13	___	___	___

AREA 5 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____ %

Area 6: PETROLEUM CONTROL Both Commercial and non-public use	**YES**	**NO**	**N/A**
Are you in compliance with petroleum storage requirements? p. 3-7, 8-2 to 8-6 (◆)	___	___	___
(80% compliance is required with this area) DO YOU:			
1. regularly inspect/repair fuel transfer equipment? p. 8-6	___	___	___
2. have environmental controls at the pumps? p. 8-6	___	___	___
3. train staff to promote environmental and safety precautions while fueling? p. 8-7	___	___	___
4. routinely use oil absorbent materials at your fuel dock? p. 8-11	___	___	___
5. take precautions to minimize spills and leaks from machinery? p. 8-10	___	___	___
6. have accessible, current, written emergency response plans for likely threats? p. 8-13 (◆ if you are required to have a SPCC Plan)	___	___	___
7. have regular emergency training and drills for staff? p. 8-13 (◆ under SPCC Plan)	___	___	___
8. store oil spill response equipment in a convenient, readily accessible location? p. 8-13	___	___	___

AREA 6 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____ %

Area 7: SEWAGE HANDLING	**YES**	**NO**	**N/A**
(80% compliance is required with this area) DO YOU			
1. have a well-maintained pumpout system? p. 9-5	___	___	___
2. prohibit discharge from Type I and Type II MSDs? p. 9-5	___	___	___
3. have clean, functional restrooms available 24 hours a day? p. 9-6	___	___	___
4. regularly maintain septic system in functioning order? p. 9-6	___	___	___
5. address the special sewage handling needs of live-aboards? P. 9-7	___	___	___
6. encourage compliance with DC Clean Water Act and MSD requirements? p. 9-8	___	___	___

AREA 7 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____ %

Area 8: WASTE CONTAINMENT AND DISPOSAL	**YES**	**NO**	**N/A**
(85% compliance is required with this area) DO YOU			
1. provide a sufficient number of recycling bins and trash cans, dumpsters, etc. that are clean, covered, well-marked and convenient? p. 3-12, 10-2, 10-8 (◆)	___	___	___
2. properly store, use, and dispose of hazardous materials/wastes? p. 3-11, 10-3 (◆)	___	___	___
3. maintain files of Material Safety Data Sheet Data Sheets as required by OSHA? p. 10-6 (◆)	___	___	___
4. reduce waste in your daily operations? p . 10-7	___	___	___
5. prohibit the disposal of fish scraps? p. 10-7	___	___	___
6. recycle whenever possible? p. 10-9	___	___	___
7. minimize your use of hazardous materials? p. 10-11	___	___	___
8. store solvents and hazardous materials with care? p. 10-12	___	___	___

AREA 8 SCORE: [_____ "Yes" responses) _____ Number of applicable items] x 100 = _____ %

SCORING

1. Enter your scores for each section on the lines below and compare your score to the minimum Required scores.

Your scores			Minimum required scores	
Area 1	Overall Compliance	_____ %	Area 1	80 %
Area 2	Marina Management	_____ %	Area 2	70 %
Area 3	Marina Design & Maintenance	_____ %	Area 3	75 %
Area 4	Stormwater Management	_____ %	Area 4	85 %
Area 5	Vessel Maintenance & Repair	_____ %	Area 5	80 %
Area 6	Petroleum Control	_____ %	Area 6	80 %
Area 7	Sewage Handling	_____ %	Area 7	80 %
Area 8	Waste Containment & Disposal	_____ %	Area 8	85 %

2. If your score for each area is equal to or greater than the minimum required for each applicable section, call the Environmental Specialist at the National Park Service at 202-619-7083 or the Green Marina Advisory Group DC contact at 202-535-2305 to schedule a confirmation visit.

Please use this space for any additional comments or explanations you would like us to consider.

Verified by Green Marina Initiative Representatives:

_____ _____
(signature) (signature)

on _____ on_____
(date) (date)

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List of Abbreviations and Acronyms

API	American Petroleum Institute
AST	Aboveground Storage Tank
BT	*Bacillus thuringiensis*
CAA	Clean Air Act
CEMS	Continuous Emissions Monitoring System
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund)
CFC	Chlorofluorocarbon
CFR	Code of Federal Regulations
COE	United States Army Corp of Engineers
CVA	Clean Vessel Act
CWA	Clean Water Act (i.e., Federal Water Pollution Control Act)
DC	District of Columbia
DCMR	District of Columbia Municipal Regulations
DCWPCA	District of Columbia Water Pollution Control Act
DOI	Department of the Interior
DOT	Department of Transportation
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FWPCA	Federal Water Pollution Control Act (aka Clean Water Act)
HAZMAT	Hazardous Materials
HR	House of Representatives
HVLP	High-Volume, Low-Pressure spray guns
MARPOL	International Convention for the Prevention of Pollution from Ships
MDE	Maryland Department of the Environment
MPPRCA	Marine Plastic Pollution Research and Control Act
MSD	Marine Sanitation Device
MSDS	Material Safety Data Sheet
MSGP	Multi-Sector General Permit
NCP	National Contingency Plan
NCR	National Capital Region
NDA	No Discharge Area or Zone
NEJAC	National Environmental Justice Advisory Council
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NOI	Notice of Intent
NOV	Notice of Violation
NPDES	National Pollution Elimination Discharge System
NPS	National Park Service
NPS-NCR	National Park Service-National Capital Region
NRC	National Response Center
OAPC	Organotin Antifoulant Paint Control Act
OPA	Oil Pollution Act
OSHA	Occupational Safety and Health Administration
PL	Public Law
PMB	Plastic-Medium Blast
PVC	Polyvinyl Chloride
PWC	Personal Water Craft
RCRA	Resource Conservation and Recovery Act
RHA	Rivers and Harbors Act
RQ	Reportable Quantity
SARA	Superfund Amendments and Reauthorization Act
SAV	Submerged Aquatic Vegetation
SIC	Standard Industrial Classification
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasure
SWPPP	Stormwater Pollution Prevention Plan
TBT	Tributyltin
TC	Two-cycle (engine)
TCLP	Toxicity Characteristic Leaching Procedure
TSD	Treatment, Storage, Disposal
USC	United States Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WASO	Washington Office, National Park Service, Department of Interior

1

Introduction

Throughout the Guidebook*, owners, operators, managers, and marina owners operating as concessionaires on NPS property will be referred to as* **operators** *or* **managers**.

The Green Marina Program is a joint effort of the National Park Service, National Capital Region (NPS-NCR) and the District of Columbia Department of Health (Environmental Health Administration) . Its purpose is (1) to establish a voluntary program that serves and supports marinas and boatyards along the navigable waters of the District of Columbia, and (2) to encourage marina and boatyard owners/operators/managers/concessionaires ("operators") to take further steps to protect the District's environment.

This *Green Marina Guidebook*, written and produced by the partnership, is intended to serve not only as a means of making it easier for marina and boatyard operators to comply with existing regulations, but also as a source of ideas on how to go beyond compliance and to take actions that actually improve the environment. Program participants are rewarded for such efforts by the granting of "Green Marina" status.

The Maryland Department of Natural Resources has already put this concept to work in an effort that has involved collaboration among regulatory agencies, marina owners, and industry. The resulting *Maryland Clean Marina Guidebook*—an exceptional collection of Best Management Practices (BMPs) and relevant state and federal regulations—has served as the model for this *Guidebook*.

Since it is intended to be a dynamic document, subject to frequent update and revision on the basis of give-and-take among program participants, the *Guidebook* is not bound as a permanent book, but rather has been issued as a loose-leaf document. Written specifically for the use of operators of marinas and boatyards sited along District of Columbia waterways (whether on NPS property, private land, or District property), the *Guidebook* is an integral part of an ongoing effort to assist operators not only in complying with environmental regulations, but in going beyond such compliance to conserve and improve the resources that provide them with pleas-

ure, good health, and livelihood, namely, the water and air of the District of Columbia.

The *Green Marina Guidebook*, drafted by the NPS and the District of Columbia , was finalized through the input of the stakeholders themselves—those who use and make their living from the marinas and boatyards within the District of Columbia.

***Green** signifies **supporting or promoting the protection of the environment**.*

A "green" business is one that considers the environmental aspects of business decisions.

1.1 Why do We Need this *Guidebook*?

Increasing concern about the quality and safety of the water in the District of Columbia's waterways has led to a variety of initiatives to protect them. Marinas and boatyards, situated as they are along these navigable waterways, are in a unique position to help or impede this effort. It is felt that the participation of such marina and boatyard operators will be fuller and more enthusiastic with the advice, assistance, and encouragement of the Green Marina Program and associated *Guidebook*.

***Maintenance, operation, and storage of recreational vessels** can pollute adjacent waters and impair air quality. Dust, solvents, petroleum, sewage, paint residue—without proper handling, any of these can find their way directly to the water, or be carried in via stormwater runoff.*

In part because the maintenance, operation, and storage of recreational vessels can pollute adjacent waters and impair air quality, marinas and boatyards have increasingly become the targets of governmental regulation. Contaminants associated with recreational boating include dust from hull maintenance operations, solvents from engine repair shops, petroleum products from careless fueling practices, sewage discharges, and metals from anti-fouling paints. These pollutants may be deposited directly into the water or may be carried in from shore by stormwater runoff. Marina design and location may also contribute to environmental degradation by disturbance of sensitive habitat.

***Environmental degradation** is not caused by any particular industry or user group.*

It is caused by all of us.

Marinas and boatyards account for only a small subset of users who contribute to the environmental degradation of waterways. Water quality is also impacted by runoff of fertilizers and pesticides (residential, commercial, and agricultural) from shore, by industrial discharges, and by careless use of home cleaning and maintenance products. Waterways are clouded by sediment washed from land and are degraded by vehicle-related oils and metals swept in with runoff from streets and highways. Environmental degradation is not the result of any particular industry or user group, but is caused by all of us.

***Achieving compliance** means meeting all legal requirements for environmentally sound operation.*

The objective of this Guidebook is to encourage informed decision-making in marinas and boatyards interested in achieving an actual reduction in boating related-pollution. The first goal of the *Guidebook* is to clearly establish what is required of all marina and boatyard operators to achieve compliance with environmental laws and regulations. The *Guidebook* strives to lead its readers through the thicket of federal and District environmental regulations and enforceable goals, pointing out along the way what must be done to achieve compliance with environmental regulations.

The second, but equally important, goal of the *Guidebook* is to provide information, recommendations, and opportunities for participants to go beyond compliance, and to derive tangible benefits from doing so. The response to Maryland's Clean Marina Initiative has been encouraging—as of January 2001, 22 of Maryland's 600 boating facilities went beyond compliance to win certification as Clean Marinas, and 99 had taken the "Clean Marina Pledge," indicating their intent to take on more responsibility for a clean environment. These publicly recognized marinas are presented with awards, featured on a program web page, and covered in press articles. Following the Maryland lead, the NPS and the District of Columbia seek to reward District marina and boatyard operators who go beyond compliance to meet the voluntary BMPs set out in this *Guidebook.*

***Going beyond compliance** means achieving recognition in the **Green Marina** Initiative for Excellence in Operations.*

1.2 What are the Benefits of Using this *Guidebook*?

The benefits are threefold. First, marina and boatyard operators, through their participation with the NPS, the District of Columbia, and regulatory agencies such as the United States Environmental Protection Agency (EPA), will find it easy to demonstrate that they are presently, or are about to be, in compliance with applicable environmental regulations. Participation in the Green Marina Program is also equivalent to participation in EPA's, yet to be issued, Clean Marina guidance.

*Recognition as a **Green Marina** requires going beyond compliance by adopting a significant proportion of management practices suggested here.*

Due to the confusing and sometimes conflicting body of environmental regulations, many marinas and boatyards are not in compliance, and their owners do not even know what they are expected to do to meet their environmental obligations. Use of the *Guidebook*, including its directory of agency contacts, should make it easy to understand the path to compliance. With the increasing numbers of Notices of Violation (NOVs) issued by EPA

for releases to District waters, this is likely to be one of the *Guidebook's* most important benefits.

Second, by adopting the BMPs recommended in this *Guidebook*, not only will marina and boatyard operators be demonstrating a commitment to good environmental stewardship, but they will also be raising their visibility. In addition to receiving the Green Marina certification, marinas and boatyards will receive public recognition in national and local newspapers, in Green Marina publications, on the World Wide Web, and at public events.

Third, judging from the results of similar efforts, participants are likely to save money by following *Guidebook* recommendations, ultimately reducing cost of materials, waste cleanup and disposal. Opportunities for increased income may also become apparent—through rental of equipment, such as environmentally friendly vacuum sanders, or by selling recyclable materials such as batteries and scrap metal. A cleaner environment and the use of more efficient equipment can also increase staff productivity. In addition, liability associated with waste handling may also be reduced.

According to an EPA study reported in ***Clean Marinas Clear Value—Environmental and Business Success Stories,*** marina managers found that measurable bottom-line benefits can result from cleaner operations.

Visit the EPA website http://www.epa.gov/OWOW/NPS/marinas for similar success stories.

Table 1-1, adapted from EPA's 1996 *Clean Marinas Clear Value—Environmental and Business Success Stories*, documents benefits associated with changes in operating practices that are specifically geared to environmental protection. These practices are highlighted in the appropriate sections of the Green Marina *Guidebook*.

1.3 Who can Use this *Guidebook*?

The *Guidebook* is targeted principally at full-service boatyards and marinas. Its recommendations, however, are equally applicable to limited-service boatyards, independent boatyards, and marine contractors. It may also prove to be a valuable information source for the people who *use* marinas and boatyards, namely, District of Columbia boaters.

Table 1-1

Benefits from Operational Changes at Marinas and Boatyards

Operational Change	Benefits to Marina	Environmental Benefits
Hull servicing improvements (e.g., pressure wash pads, filters, recycling of washwater, tarps, filter cloths, dustless sanding)	• compliance with regulations • better service to customers • increases worker productivity • reduces cost for cleanup and disposal • possibility of rental income (e.g., from dustless sanders)	• reduces pollutants, specifically from silica or paint residues that escape into aquatic environment • reduces contaminants entering municipal sewer system • eliminates airborne dust, for worker safety and cleaner grounds
Full pumpout services	• attracts and satisfies customers who do not wish to perform pumpout themselves • brings in large yachts, whose owners are likely to make use of other marina profit centers (e.g., fuel, boating supplies, food) • makes marina eligible for state and federal pumpout grants • results in positive public image	• reduces negative impact on shellfish and other aquatic life • improves odor of water in marina • improves quality and clarity of marina water
Recycling of solid wastes (e.g., battery and scrap-metal recycling)	• adds income from battery and scrap-metal sales • reduces costs for waste disposal • results in positive public image	• reduces litter in water and on shore • increases quality and clarity of water column • less trash is sent to landfill

Table 1-1 (cont.):
Benefits from Operational Changes at Marinas and Boatyards

Operational Change	Benefits to Marina	Environmental Benefits
Recycling of petroleum products	• reduces disposal costs and long-term liability	• reduces impact on nonrenewable petroleum resources
Aquaculture	• potential profit, depending on type of aquaculture implemented • positive publicity, attracts visitors and recognition	• increases productivity in formerly unproductive waters • encourages continued vigilance to marina water quality, specifically related to fuel in water
Insistence on environmental clauses in both user and construction contracts	• combines education with control and enforcement • provides extra control over marina/boatyard construction projects • attracts environmentally-conscious clientele and contractors that are less likely to pollute	• potentially reduces all types of pollutants • increases public knowledge and awareness
Keeping land surface permeable when possible	• less costly than pavement	• reduces and slows runoff of pollutants into water
Better management of fueling operations	• avoids spills and potentially costly cleanup fines • reduces odors, making facility more attractive for users • makes water more suitable for aquaculture or fishing • reduces fire hazard	• keeps petroleum products out of water, reducing their potentially detrimental impacts on fish, shellfish, waterfowl, and shorebirds

Modified from Table in EPA Report: Clean Marinas Clear Value Environmental and Business Success Stories, August 1996.

1.4 How to Use this *Guidebook*

***Recommendations preceded by** a* solid diamond (◆) *identify a legally required action*; crossed diamonds (❖) *denote highly recommended practices; an* empty diamond (✧) *indicates a desirable activity.*

The *Guidebook* was written for easy reference, making it possible to turn quickly to a particular topic. It distinguishes between practices required by regulation and BMPs that take a marina or boatyard beyond compliance into the Green Marina Program. Compliance items are preceded by a solid diamond (◆). Beyond-compliance recommendations applicable to participants in the Green Marina Program are preceded by crossed diamonds (❖) or an empty diamond (✧). Crossed diamonds denote recommended BMPs, and an empty diamond indicates a desirable activity.

The *Guidebook* provides advice on the following topics:

⇒ Marina Management
⇒ Design and Maintenance of a Marina or Boatyard
⇒ Facility Stormwater Management
⇒ Vessel Maintenance and Repair
⇒ Petroleum-Product Control
⇒ Sewage Handling
⇒ Waste Containment and Disposal
⇒ Applicable Laws and Regulations

Illustrative "Clean Boating Tip Sheets" are included in the *Guidebook,* with space on each sheet for a marina's name and logo. These may be photocopied and distributed to boaters and staff as appropriate. The Tip Sheets cover:

⇒ Vessel Cleaning and Maintenance
⇒ Underwater Hull Cleaning
⇒ Selecting a Bottom Paint
⇒ Petroleum Control
⇒ Fuel Spill Response
⇒ Emergency Response Plan
⇒ Vessel Sewage
⇒ Waste Containment and Disposal

References to additional sources of information are made throughout the *Guidebook*. Contact information and brief descriptions of services offered by each authority listed may be found in Appendix A. Resources are cited in each section, with points of contact,

telephone numbers, mailing addresses, and e-mail addresses (when available) to facilitate further research.

Subsequent appendices contain information about laws and regulations, environmentally sensitive landscaping, recycling contacts, sample contract language, spill response companies, government publications, and local economic development contacts.

2 The Green Marina Initiative: Managing the Process

2.1 The Green Marina Program

The Green Marina Program, although spearheaded by the NPS and the District of Columbia, is managed by a Green Marina Advisory Group that is made up of partners and stakeholders in the program. Stakeholders include a combination of boat-owners, boating facilities, docked facilities, other interested parties, and regulators.

The Advisory Group is responsible for managing the program, assisting member marinas and boatyards who seek "Green Marina" status, and ensuring that the *Guidebook* is kept up to date. It may also serve as a flexible resource for marina and boatyard operators who need to obtain documentation or practical assistance on a variety of regulatory issues.

Any marina, yacht club or boatyard operating in District of Columbia waters is eligible to participate in the Green Marina Program. In general, becoming a certified Green Marina involves (*specific steps are outlined in Box 2-1*):

- ⇒ signing and submitting the Green Marina Pledge;
- ⇒ filling out the Green Marina Checklist, obtained from this book or from the NPS, District, or Advisory Group Contact (see Appendix A for contact information);
- ⇒ submitting the completed Checklist to register in the Green Marina program
- ⇒ working towards meeting the "beyond-compliance" requirements outlined on the Checklist; and
- ⇒ requesting an evaluation for Green Marina certification.

If a marina, yacht club or boatyard operator, in using the self-evaluation Checklist, discovers that his or her marina or boatyard is not in compliance with applicable regulations, the *Guidebook* may be used as a resource to help achieve compliance. Alternatively, the facility may wish to consider some type of environmental audit to evaluate all that may need to be done to achieve and go beyond regulatory compliance.

Text Box 2-1
Steps to Becoming a "Green Marina"

Step 1: Learn about the Green Marina Program
For additional information about the Green Marina Program or this *Guidebook*, or to obtain another Green Marina pledge form (see 2.2.2), Award Checklist, or other program information, call the National Park Service at (202) 619-7083 or the District of Columbia at (202) 535-2305. These contacts can also provide you with assistance and information on permits and environmental compliance requirements.

Step 2: Take the Green Marina Pledge
By signing the Green Marina Pledge, you commit to going beyond compliance and doing your part to "keep the District's waterways free of harmful chemicals, excess nutrients, and debris." Send a photocopy of the signed pledge to your point of contact (Appendix A) or directly to the Green Marina Program Advisory Group. Then display the original in a public area so that your customers will be aware of your commitment.

The Green Marina Program Advisory Group will prepare a news release acknowledging your participation in the Green Marina Program and will include your facility's name on its web page and in public displays. The pledge expires one year from the date you sign it. If you are unable to achieve Green Marina status in one year, you may renew the pledge by contacting the Green Marina office through either the NPS or DC contacts mentioned above.

Step 3: Conduct an Assessment of your Property
Assess your own facility using the Green Marina Award Checklist and the *Guidebook*. The Award Checklist outlines environmental practices required for compliance with federal and District laws, as well as BMPs, and explains the scores required to achieve Green Marina status.

Step 4: Call upon the Green Marina Advisory Group with any Questions
Don't be discouraged if you initially have difficulty meeting the minimum scores. The Green Marina Advisory Group will be happy to advise you and work with you to achieve compliance and build up the scores needed to participate in the program. All questions will be kept in strictest confidence.

Step 5: Schedule a Confirmation Visit
Once you have assessed your marina against the Green Marina Checklist, and feel satisfied that your facility meets the award standards, call upon the NPS or DC representative or a member of the Advisory Group to schedule a confirmation visit. A representative will visit your facility to verify the items checked on the Award Checklist.

Step 6: Enjoy your Rewards
As a Green Marina, you will receive a certificate and free publicity from the Green Marina Program. The Program will promote your facility through publications, public displays, and media releases.

Step 7: Maintain your Green Marina Status
The best way to establish and maintain your Green Marina status is to work as a team with your employees. Annually, you need to confirm in writing that you continue to meet the award standards described on the Green Marina Checklist. At least every third year, a Green Marina representative will contact you to set up a meeting to reaffirm Green Marina status.

2.2 Criteria for Green Marina Status

For a marina, yacht club or boatyard to attain Green Marina status, it must be demonstrated that the facility has gone beyond compliance sufficiently to obtain a passing score on the Green Marina Checklist. The score accounts for having met all compliance requirements, and awards additional points for the adoption of BMPs in routine operations, or for making them a part of marina or boatyard contracts and rules.

The easiest way to go beyond compliance is to follow the BMPs described in this *Guidebook*.

The following paragraphs deal with environmental practices required by federal and District law, and the BMPs required to attain Green Marina status. Follow the Green Marina Award Checklist closely; it will help you assess the status of your marina. Refer to corresponding sections later in this *Guidebook* for more in-depth descriptions of each area of concern, and explanations of how to implement each practice.

2.2.1 Environmental Compliance: Know what the Law Requires

The three principal federal regulations applicable to environmental protection at marinas and boatyards are those based on (1) the Resource Conservation and Recovery Act (RCRA), (2) the Clean Water Act (CWA), and (3) the Clean Air Act (CAA). Portions of the Federal Oil Pollution Act of 1990 (OPA) are also pertinent, as are various federal and local regulations on storage tanks, and regulatory requirements related to petroleum products, specifically the federal requirement for a Spill Prevention, Control and Countermeasure (SPCC) Plan.

The District of Columbia Water Pollution Control Act has very strict discharge requirements, requiring permits for the discharge of *any* pollutants into District waters. The District, moreover, is designated a "Non-attainment Area" under the Clean Air Act (meaning that air in the Metropolitan Washington Region, including the District of Columbia has not yet met federal air quality standards). Because of this, marinas within the District are subject to more stringent air quality regulations than marinas in other locations.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

In order to comply with *all* federal and local laws, marina owners and operators must comply with *all* the environmental practices designated with a filled-diamond symbol (◆) on the Green Marina Award Checklist. Some of these may have training requirements as well. Once a marina is in compliance with these regulations, a marina is in fact very close to earning Green Marina status.

2.2.2 Green Marina Status: Know about Best Management Practices

Best Management Practices (BMPs) *are site-specific practices that are tailored to a specific situation and are not the only practices to be considered to meet the intended goal.*

Use the Checklist to assess your own facility and determine what you must do to implement the Best Management Practices (BMPs) required for Green Marina status. Subject-specific sections within this *Guidebook* provide information on how to implement these practices.

Recommended BMPs will be reviewed every three years by the Green Marina Advisory Group, and updated as necessary. Updates will be based on comments received from participants in the program, on changes in legal requirements, and on availability of technologies.

The following summarizes steps to be taken to go beyond compliance and become a Green Marina.

Step 1: Encourage Teamwork among Staff

Considerable training *is required for compliance with various statutes. With some additional on-the-job training, it is possible to create the feeling of working as a team, and to avoid environmental problems through increased employee awareness and commitment to BMPs.*

Going beyond the training required for environmental compliance requires establishing Standard Operating Procedures (SOPs) for employees and training them to understand and comply with BMPs.

Emergency Response and Related Training

During a real emergency—when a delay of moments may be critical—you will want employees to know what to do and how to do it. Implementation of the following training recommendations will ensure that your staff is well prepared for any emergency.

- ❖ Train employees in the current emergency response strategy or plan.
- ❖ Review emergency plans and response procedures with staff at the beginning of each boating season.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

- ❖ Ensure that emergency responders have been fully trained.
- ❖ Run emergency response drills at least twice annually.
- ❖ Record training dates, topics, names of employees attending, names of instructors.
- ❖ Encourage enrollment in college courses related to environmental protection.
- ❖ Obtain copies of instructional material from the United States Coast Guard (USCG), EPA, and the District of Columbia. Appendix A lists contact numbers for these organizations.
- ❖ Keep copies of instructional material in an accessible location.

Keeping Informed

During training, it will be important to encourage everyone working in your facility to be watchful, and to know what to do when certain problems are encountered. A first step to achieving this is to:

- ✧ invite the USCG and the local fire department to demonstrate emergency response procedures at your marina

In addition, encourage employees and others working with you to notify you of:

- ✧ visible plumes in the water where a hull is being cleaned
- ✧ uncontained sanding, painting, varnishing, or cleaning
- ✧ maintenance debris being washed into the water
- ✧ sewage discharges within the marina
- ✧ the use of environmentally harmful cleaning products

Approaching Polluters

Employees must learn how you expect them to handle environmental problems. This involves allocating responsibilities among your team. For example:

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

If a boater is sanding without containing the debris, *offer him or her a vacuum sander. Explain that it collects most of the dust and allows one to work more quickly. Charge the boater your standard rental fee for the equipment.*

- ❖ Determine who will address boaters and contractors who are apparently releasing pollutants to the environment. This is normally a job for the manager. Let your staff know whether they should handle such cases themselves or whether the manager will handle them.

- ❖ Politely inform boaters and contractors why the actions they are performing are harmful. Describe a more environmentally sensitive method and ask the boater or contractor to stop work until it can be continued with less environmental impact. It will be easier to get cooperation if you require boaters and contractors to reduce waste and practice pollution prevention as a condition of their contracts.

- ❖ If the problem persists, take any or all of these additional steps:

  - ⇒ Talk to the boater or contractor again.

  - ⇒ Mail a written notice asking that the harmful practice be stopped. Keep a record of the mailing.

  - ⇒ Remove any residue of the action from the dock. Charge the boater or contractor for the cost of removal and cleanup.

  - ⇒ Ask the tenant or contractor to leave your marina. To make this easier, you might include language in your contract that allows the marina owner to terminate contracts if tenants or contractors refuse to comply with applicable environmental regulations.

  - ⇒ If followup action seems advisable, notify the appropriate federal authorities.

See sample **contract language** in Appendix E—and consider adding environmental BMP language to your contracts!

Step 2: Show Customers and Contractors How to do Things Better

Incorporate BMPs into Contracts

In addition to being a legal document, a contract can be an effective educational tool. Appendix E provides sample contract language.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

BMP Initiatives *are site-specific practices tailored to a specific situation. They are not the* **only** *practices to be considered to meet a specific, intended goal.*

Use the contract to inform boaters and contractors how to minimize their environmental impacts. This can be done by including in your contracts:

- ❖ language requiring use of BMPs, whether for slipholders, liveaboards, transients, charters, workers, contractors, or tenants.
- ❖ language specifying the consequences for not using BMPs, e.g., expulsion from the marina and forfeiture of rental fees.
- ❖ language requiring use of approved Marine Sanitation Devices (MSDs).

Be Diligent

- ❖ Be absolutely diligent in containing pollution, even the pollution generated by marina/boatyard staff. Boaters will notice that you practice what you preach, and will follow your example.

Post Reminders of BMPs

- ❖ At fuel docks and pumpout stations, along piers, in vessel maintenance areas, and at dumpsters and recycling stations, post signs encouraging the adoption of BMPs. See examples of such signs on the following pages.
- ❖ Be sure the signs are visible.
- ❖ Be sure the signs are durable, eye-catching, and appropriately sized.
- ❖ Post your facility's environmental policy in a conspicuous location.

Distribute Literature

- ❖ Copy and distribute the Clean Boating Tip Sheets included in this *Guidebook* or create your own. Boating Tip Sheets found in this *Guidebook* cover vessel maintenance, bottom paints, underwater hull cleaning, petroleum control, boat sewage, and waste disposal.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

- ❖ Include the Tip Sheets with monthly mailings or place them in dock boxes or on vessels.
- ❖ Include regular articles about BMPs in your newsletter.
- ❖ Request free copies of Clean Boating materials from organizations such as the Chesapeake Bay Foundation, the Center for Marine Conservation, and the Boat/U.S. Clean Water Trust (Appendix A).
- ❖ Contact the USCG for publications summarizing federal boating requirements. Examples are provided in Appendix G.

Host a Workshop

- ❖ Schedule the workshop to coincide with an existing marina function that is traditionally well attended.
- ❖ Offer incentives to attendees: e.g., refreshments, 10% discount on that month's slip fees.
- ❖ Include a walking tour of the facility to demonstrate BMPs.

Use Informal Communication Mechanisms

- ❖ Post information about BMPs on the marina bulletin board.
- ❖ Pass along waste reduction and pollution prevention information in conversations with patrons and contractors.

Give Recognition to Cooperative Boaters

- ❖ Publicly recognize boaters who make an effort to control pollution.
- ❖ Provide a reward—in-kind or fee-reduction—for boaters who observe BMPs through a specified time frame.
- ❖ Include a feature in your newsletter, post a flyer with the boater's picture on a public bulletin board, send a press release to your community newspaper, etc.
- ❖ Create a provision in your lease that allows you to cancel slip leases for not controlling pollution.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

Sample Posters and Signs

Keep Fuel Out of the Water

Do Not Top Off Tank
Listen! Anticipate when Tank will be Full
Wipe up Spills Immediately

Oil Spill Response Kit Location

⇓

Include name and number of person to contact at the marina in case of a spill
Be sure that a copy of the Oil Spill Response Plan is clearly visible inside the Spill Response Kit

Do Not Discharge Sewage

Please use our clean, comfortable restrooms while you are in port

Nutrients and pathogens in sewage impair water quality

Pumpout Station

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

No Fish Scraps

Please do not discard fish scraps into the water

Use our fish cleaning station
Save scraps for chum

Notice

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

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

Report Oil Spills to
NRC/USCG at (800) 424-8802
DC at (202) 727-6161

Thank you for keeping our waterways clean and safe!

Environmental Policy

It is the policy of this marina to protect the health of our patrons, staff, and the environment by minimizing the discharge of pollutants to the water and air.

Recycle

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

Sample Posters and Signs

Marine Sanctuary

This Marina Provides Food and Shelter for Young Fish

Prevent Oil Spills!
Keep Bilge Clean!
Use Oil Sorb Pads!

Help by Recycling or Properly Disposing of Used Oil, Antifreeze, Solvents, Cleaners, Plastics, and Other Wastes

Think Before You Throw

The following items may not be placed in this dumpster:

Oil
Antifreeze
Paint or Varnish
Solvents
Pesticides
Lead Batteries
Transmission Fluid
Distress Flares
Loose Polystyrene Peanuts
Hazardous Waste

Vessel Maintenance Area

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

Recycle Antifreeze

This container is for:

Ethylene glycol antifreeze
Propylene glycol antifreeze

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

Recycle Oil

This container is for:

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

Gasoline is STRICTLY PROHIBITED

Step 3: Tell the Public What You're Doing

Marina and boatyard owners already have many avenues of publicity at their disposal. Participation in the Green Marina Program provides them with more.

Publicize your Good Environmental Deeds

❖ Seek free publicity with local press, television, and radio.

❖ Prepare news releases to call attention to your innovative practices, new equipment or services, available literature, or a workshop you are sponsoring.

❖ Plan news releases to coincide with seasonal activities, e.g., helpful tips for winterization.

❖ Start news releases with a contact person's name and phone number, the date, and a headline. The first paragraph should contain vital information: who, what, when and where. Fill in with secondary information and support data. Conclude with a "call to action" (e.g., "Come see us for a demonstration of our new plastic-media blasting system"). Double-space the text. No longer than two pages. One page is best.

❖ Learn media deadlines and send releases in time to meet them.

❖ When submitting a news release, be sure you have the name of the appropriate editor and that it is spelled correctly.

✧ Get press kits from manufacturers of environmentally-sensitive products. Use their photographs and product information.

Become a Green Marina

❖ Apply to the NPS or the District of Columbia Green Marina office for recognition as a Green Marina. Once you have met the criteria and have been certified, you will enjoy the publicity provided by the Green Marina Program in print publications, on the World Wide Web, and at public events.

❖ Use your prestigious certification as an opportunity to prepare your own press release.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

Step 4: Create an Environmentally Sensitive Fee Structure

❖ Instead of charging a flat environmental surcharge on each contract, reward tenants for the use of "environmentally friendly" items such as tarps, vacuum sanders, and protective clothing.

✧ Consider donating a portion of such equipment-rental fees to an environmental organization. Let the boater-tenant know, possibly at the time of rental, that a portion of the fee charged is going towards nature conservation. This will give the boater a feeling of participation in an environmental cause.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

3

Compliance Requirements

The purpose of the Green Marina Program is not to increase the burden of regulatory requirements already upon marinas and boatyards. Increasing public focus on the District's waterways, District commitments to ongoing programs and river initiatives, and the growing number of Notice of Violations (NOVs) being issued over the past years for pollution of waterways has increased the importance of compliance with existing legal requirements for all users of these waters. This is why the Green Marina Program is focused on "coming into compliance," and then on "going beyond compliance" to become a Green Marina.

This chapter explains permit and license requirements. More detailed summaries of applicable regulations may be found in Appendix B.

This chapter includes:

- A step-by-step guide to achieving compliance;
- Instructions for obtaining a Multi-Sector General Permit for Discharges from Marinas;
- Directions for implementing a Spill Prevention, Control, and Countermeasure Plan;
- Information pertaining to the District's No Discharge designation; and
- Instructions for proper waste handling and disposal.

3.1 Steps to Achieving Compliance

Step 1: Rectify Known Violations

A growing number of NOVs have been issued over the past years for pollution to waterways in the District of Columbia. Review the history of your facility. Has your marina or boatyard received any NOVs? Start by correcting known violations.

You should also review facility records for evidence of accidental oil spills or other environmentally harmful events. Look for patterns, and think of ways to prevent these situations from recurring. For example, if your facility has a record of oil spills, make sure you are well-stocked with specialized oil-absorbent materials and re-train your staff for responding to such events.

Box 3-1: Steps to Achieving Compliance

Step 1: Rectify Known Violations
Assess the history of your facility. Has your marina received any Notices of Violation? Start by correcting known violations, such as unreported oil spills.

Step 2. Develop a Stormwater Pollution Prevention Plan (SWPPP)
All marinas are responsible for developing a SWPPP and for training employees twice annually in the components of the plan. The SWPPP ensures that the runoff of oily waste, washwater, or process water into District waters (designated a No Discharge Area) is minimized. Refer to Box 3-2 for the contents of a Stormwater Pollution Prevention Plan.

Step 3: Obtain a Multi-Sector General Permit (MSGP) for Discharges
Any boatyard that conducts boat maintenance activities also needs to obtain a MSGP for discharges from a marina. In order to obtain a permit, you must first develop an SWPPP, and then complete and submit a Notice of Intent. The process for obtaining a MSGP is explained later in this chapter.

Step 4: Develop a Spill Prevention and Cleanup Plan or Spill Prevention Control and Countermeasures Plan
All marinas must have environmental controls at fueling pumps, and must have petroleum stored in approved aboveground or underground storage tanks. Anyone who stores pollutants (petroleum, hazardous waste, paint, etc.) at an onshore or offshore facility is required by the DC Clean Water Act to have a Spill Prevention and Cleanup Plan. If the volume of oil stored at your marina exceeds regulatory limits (see pg 3-7 for limits), you must also develop a Spill Prevention Control and Countermeasures Plan (SPCC) and Emergency Response Plan.

Step 5. Inform Your Boaters
According to the District of Columbia Water Pollution Control Act, all navigable waters in the District are a No Discharge Area. Let your boaters know that the discharge of oil, trash, fish scraps, and even treated sewage is prohibited in District waters. Boats with an installed toilet should be equipped with a Type III Marine Sanitation Device, which does not allow the discharge of sewage. Look into installing a pumpout station (with the help of grant funding) to pump waste out of recreational boat holding tanks (see Chapter 9, *Sewage*).

Step 6: Properly Store, Use, and Dispose of Hazardous Materials and Wastes
Store hazardous materials, including solvents, in approved fire-safe containers, on pallets in a protected location away from drains and sources of ignition, and separated by hazardous class. Plainly label all stored and containerized material, and maintain files of Material Safety Data Sheets for all hazardous materials on the premises. If your facility generates greater than 100 kilograms of hazardous waste per month, or accumulates 100 kg of waste at any one time, you must also apply for an EPA waste generator identification number.

Step 7: Provide Trash and Recycling Receptacles for Your Customers
Keep DC and your marina clean by providing accessible and adequate trash and recycling bins. All commercial properties are required to properly dispose of trash, and to separate newspaper, glass, and metal from solid waste for recycling.

Step 8: Provide Health and Safety Training to Employees
Inform your employees of the Standard Operating Procedures at your facility. Train your employees to follow and implement the above plans and train them to use equipment and chemicals kept on site. In addition, all employees should be properly certified for the work they do.

Step 9: Make Environmentally Friendly Marina Alterations
Make sure you obtain the right permits, and discover whether the proposed alteration requires you to conduct an Environmental Impact Statement or Environmental Assessment.

Step 10: Call the Green Marina Advisory Group if You have Questions
Feel free to call the Green Marina Advisory Group with questions regarding federal and local requirements. The Advisory Group will be happy to help you come into compliance and to assist you in becoming a Green Marina.

For further guidance, refer to: *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices*, available at the website http://www.epa.gov/owm/sw/industry/msgp/index.htm.

Step 2: Develop a Stormwater Pollution Prevention Plan (SWPPP)

All facilities are responsible for developing a SWPPP. The SWPPP helps identify potential runoff of oily waste, washwater, or process water into District waters (with its stringent discharge rules), and helps to ensure that discharge will be kept to a minimum. Refer to Box 3-2 for the contents of a SWPPP.

Step 3: Obtain a Multi-Sector General Permit for Discharges

Any boatyard where maintenance activities are conducted must obtain a Multi-Sector General Permit (MSGP) in addition to the SWPPP, to cover discharges. The information developed for a SWPPP provides much of the basic material needed to meet the requirements for an MSGP.

Note that once BMPs are incorporated in writing into the facility SWPPP, and a MSGP is then developed, these BMPs become requirements under it and are legally enforceable.

SWPPP
Stormwater Pollution Prevention Plan

BMPs
Best Management Practices

Who Must Obtain a Multi-Sector General Permit?

Any marina or boatyard where maintenance activities are conducted (including boat washing) or where wastewater is discharged must apply for an MSGP. This permit authorizes the discharge of boat and equipment washwater, stormwater runoff from boat maintenance areas, noncontact cooling water (i.e., process cooling water that has never been in contact with a process), and condensate. In order to comply with this permit, marina operators must have first developed a SWPPP and implement BMPs. This ensures that wastewater and stormwater leaving the marina property will not impair the quality of surrounding waters.

How Does One Apply for the Permit?

(1) Implement Stormwater Pollution Prevention Plan. To obtain coverage, an applicant must first develop and implement an SWPPP.

Box 3-2
Contents of a Stormwater Pollution Prevention Plan

1. Designation of pollution prevention team
2. Description of potential pollutant sources
3. Site map indicating drainage, maintenance, and storage areas
4. Inventory of materials exposed to precipitation
5. List of significant spills and leaks that have occurred in the past three years
6. Sampling data describing pollutants in stormwater discharge from the facility
7. Summary of potential pollutant sources and identification of associated risks
8. Description of stormwater management controls
   A. Washing areas
   B. Blasting and painting areas
   C. Material storage areas
   D. Engine maintenance and repair areas
   E. Material handling areas
   F. Drydocks
   G. General yard areas
9. Preventive maintenance
10. Spill prevention and response procedures
11. Inspections
12. Employee training
13. Recordkeeping and internal reporting procedures
14. Non-stormwater discharge
15. Sediment and erosion control
16. Comprehensive site compliance evaluation
17. Consistency with other plans
18. Special requirements for stormwater discharge associated with industrial activity to a municipal (separate) stormwater sewer serving a population of 100,000 or more
19. Any special requirements determined by the NPS or the District of Columbia for your particular marina.

Excerpted from: http://www.epa.gov/owm/sw/industry/msgp/index.htm.

Once the SWPPP is developed and implemented, submit the plan to EPA, the DC Division of Enforcement and Regulatory Compliance, and if on NPS land, the NPS. The EPA, District, and NPS will evaluate your plan and notify you if it does not meet one or more requirements. In such a case, you may amend the plan and submit written certification to EPA that the requested changes have been made.

Amendments should also be made to the plan whenever a change in marina/boatyard design or operation has a significant potential for causing the discharge of pollutants into District waters; or if the plan has proven ineffective in controlling stormwater discharge associated with industrial activity to District waters.

Special Permit Conditions for Federal Facilities in the District of Columbia. Boating facilities on Federal land within the District of Columbia are also required to submit a copy of all SWPPPs to the District's Department of Consumer and Regulatory Affairs (DCRA), part of the Environmental Regulation Administration, for review and approval. Note that the special permit conditions described below are specific to facilities on federal property in the District of Columbia. Your plan should include current figures on nitrogen and phosphorus loading, fertilizer usage, exterior pesticide usage, and usage of urea for deicing. In accordance with the Chesapeake Bay Restoration goals, permits must also include proposed reductions in nutrient and pesticide loading.

DCRA
Department of Consumer and Regulatory Affairs

With regard to sewers, your SWPPP should include the volume of any stormwater diverted to the *sanitary* (i.e., not the stormwater) sewer from roof leaders or other connections, as well as the volume of any groundwater diverted to such sewer. To calculate the volume of annually diverted stormwater, multiply the annual precipitation for Washington, DC, by your facility property in acres.

For example, the annual precipitation in Washington, DC, for the year 2000 was approximately 40.66 inches (National Weather Service). Because volume of stormwater is normally calculated in acre-feet, convert the annual precipitation from inches to feet. To calculate the volume of diverted stormwater in the year 2000 for a facility that covers 1.5 acres, multiply 40.66 inches by 1.5 acres and divide by 12 inches, as shown in the equation below.

To obtain the annual precipitation for the current year, visit the following website http://www.nws.noaa.gov/er/lwx/ and click on "*The Year in Review for Washington DC*." Go to the row for annual data and look under the column for PCPN (precipitation in inches).

This website also has links to Boating and Marine Forecasts.

Volume of Storm Water in acre-feet = $\frac{(40.66 \text{ inches})(1.5 \text{ acres})(1 \text{ foot})}{(12 \text{ inches})}$

(2) File a Notice of Intent with EPA

After implementing an SWPPP, you submit a Notice of Intent (NOI) to the EPA, Office of Wastewater Management, Region III. There is no fee for filing this form. For marinas in the District of Columbia that are on federal property, NOIs must be filed through the following Region III Contact for Stormwater:

NOI
Notice of Intent

Mary Letzkus
Tel: 215-814-2087
Email: letzkus.mary@epamail.epa.gov

An NOI for Industrial Activity must be submitted to EPA's NOI Processing Center (address is given on the NOI form). It is important to note that signing and submitting the NOI form obligates you to comply with the terms of your SWPPP, and if you apply for it, your MSGP. If you have questions regarding the contents of your SWPPP, feel free to contact the Green Marina Advisory Group.

Further instructions and a copy of the NOI form are available through the EPA Multi-Sector General Permit webpage: http://www.epa.gov/owm/sw/industry/msgp/index.htm.

Once your NOI has been received by EPA, the Processing Center will send you a corresponding permit number. The EPA will review the NOI for your SWPPP or MSGP submission, and you may contact the NOI Processing Center at (301) 495-4145 to determine the status of a particular NOI.

Upon notification of acceptance of the NOI by EPA, Office of Wastewater Management, the marina is authorized to discharge in accordance with its SWPP and, if submitted, its MSGP. The SWPPP must be available for review by EPA, Water Enforcement Division and the District of Columbia DCRA.

Step 4: Develop a Spill Prevention and Cleanup Plan

All marinas must have environmental controls at fueling pumps, and proper storage of petroleum in aboveground and underground storage tanks. Underground storage tanks must have corrosion protection, spill and overfill control, and a leak detection system. Anyone who stores pollutants (petroleum, hazardous waste, paint, etc.) at an onshore or offshore facility is required by the DC Clean Water Act to have spill prevention and cleanup plan (Section 11

Remember!
Any **oil release** that causes a sheen, including bilge water discharge, is considered an oil spill, and should be reported to the USCG National Response Center ***1-800-424-8802***

Petroleum-Storage Regulatory Limits
> 660 gallons of petroleum stored in single aboveground container
> 1,320 gallons in all aboveground storage tanks combined
> 42,000 gallons stored underground

SPCC Plan vs Spill Prevention and Cleanup Plan

If you exceed the petroleum storage regulatory limits, you need a SPCC Plan.

If you do not exceed those limits you need a Spill Prevention and Cleanup Plan. The District does not specify plan contents, however:

1. Formalize BMPs, as provided under Guidebook Section 8.3, into a plan to fit the needs of your marina [Spill Prevention Part], and
2. Develop an Emergency Response Plan, as detailed under Guidebook Section 8.4 [Cleanup Part].

This will ensure that you will meet the intent of District requirements.

(a)(1)). However, if your marina stores oil above regulatory limits for petroleum storage, and you must develop a Spill Prevention, Control and Countermeasure (SPCC) Plan, with an Emergency Response Plan for likely threats such as oil spills and fire hazards, you do not need a spill prevention and cleanup plan.

EPA's Oil Pollution Prevention regulation requires that marinas prepare and implement an SPCC Plan to prevent any discharge of oil into navigable waters or adjoining shorelines if the facility has:

⇒ an aboveground storage capacity greater than 660 gallons in a single container;
⇒ an aggregate aboveground storage capacity greater than 1,320 gallons; or
⇒ a total underground storage capacity greater than 42,000 gallons.

The SPCC Plan must address:

⇒ operating procedures implemented by the facility to prevent oil spills;
⇒ control measures installed to prevent a spill from entering navigable waters or adjoining shorelines; and
⇒ countermeasures to contain, clean up, and mitigate the effects of an oil spill that may impact navigable waters or adjoining shorelines.

The SPCC Plan must be certified by a professional engineer and be kept on site for EPA review. If a single spill of greater than 1,000 gallons occurs, or if two discharges of "harmful quantity" occur within one year, a copy of the SPCC Plan must be submitted to EPA Region III.

As required by the SPCC, marina managers should:

⇒ develop an Emergency Response Plan for use in the event of an oil spill or other emergency.
⇒ provide employees with a written, accessible copy of the Emergency Response Plan, and train them in the use of containment measures.
⇒ store oil-spill response equipment in a convenient, readily accessible location.
⇒ have oil-absorbent materials available at fuel docks.

⇒ regularly inspect fuel tanks and fuel transfer equipment.

Chapter 8, *Petroleum Control*, contains a sample Emergency Response Plan

If your facility is not required to have a SPCC Plan, you should develop an Emergency Response Plan following the guide in Chapter 8 to prepare your staff for accidental spills or other emergency situations. You must also have a spill prevention and cleanup plan, under the DC Clean Water Act. A Spill Response Contingency Planning Guide is available to marinas on NPS property through your park's Superintendent. The party responsible for any vessel or facility that discharges oil is liable for the costs of oil removal and for any damage to natural resources, real or personal property, subsistence uses, revenues, profits, earning capacity, and for increased public services made necessary by the discharge. It is wise to take any steps necessary to prevent spills.

Accidental Discharge of Oil or Hazardous Substances

In the event of an oil spill, the discharger must notify:

⇒ the NPS – National Capital Region – Division of Ranger Services at (202) 619-7065 (during business hours) or (202) 519-3108 (after-hours pager);
⇒ the USCG National Response Center at (800) 424-8802 or (202) 267-2675 in the Washington, DC, metro area; and
⇒ the DC Emergency Management Agency at 202-727-6161.

For more information about the District Water Pollution Control Act contact Mr. James Collier, Chief, Bureau of Environmental Quality, DC Department of Health, Environmental Health Administration Tel: (202) 535-1660.

Within 10 days of becoming aware of a release, the marina manager or SPCC permittee must submit a written description of the release.

In the aftermath of a spill, the SPCC should be reviewed and amended to prevent further pollutant discharges.

Step 5: Educate Boaters

As mentioned above, any oil release should be reported immediately to the USCG National Response Center. Tell your boaters especially not to disperse fuel, oil, or other chemicals with agents like soaps, detergents, surfactants or emulsifiers, because they worsen the effect on the environment.

Let your boaters know that, according to the District of Columbia Clean Water Act, the discharge of oil, trash, fish scraps, and even

treated sewage is prohibited in District waters. The discharge of used motor oil to any sewer, or the discharge of oil, gasoline, anti-freeze, acid, or other hazardous substance, pollutant, or nuisance material to any street, alley, sidewalk or other public space in quantities sufficient to constitute a hazard or nuisance is further prohibited. It is also illegal to dump garbage items greater than one inch in diameter outside of District waters within 12 nautical miles of shore. The disposal of plastic is prohibited in all navigable inland and ocean waters of the United States.

MSD
marine sanitation device

Because of the above, boats with an installed toilet must be equipped with a Type III Marine Sanitation Device (described below), which does not allow the discharge of sewage. If a boat entering navigable waters within the District of Columbia is equipped with a Type I or II system (described below), the marine sanitation device should be secured to prevent discharge.

Marine Sanitation Devices

The Federal Water Pollution Control Act (also referred to as the Clean Water Act) requires that vessels with an installed toilet be equipped with a certified marine sanitation device (MSD). Three systems are available—Type I, Type II, and Type III:

Remember!
It is illegal to discharge raw sewage into U.S. territorial waters *and* it is illegal to discharge treated sewage into navigable waters of the District of Columbia.

⇒ *Type I* systems mechanically cut solids, disinfect the waste with a chemical additive (or with chlorine electrolytically dissociated from salt water), and discharge the disinfected sewage overboard. The fecal coliform bacteria count ("fecal coliform count") of the effluent may not be greater than 1,000 organisms per 100 milliliters water, and may not contain floating solids.

⇒ *Type II* systems are similar to Type I systems except that Type II systems treat sewage to a higher standard. The fecal coliform count from a Type II system may not exceed 200 organisms per 100 milliliters, and total suspended solids may be no greater than 150 milligrams per liter. Type II systems also require more space and have greater energy requirements.

⇒ *Type III* systems do not necessarily disinfect sewage or otherwise treat it, but they allow no sewage to be discharged. The most common form of a Type III system is a holding tank. Other forms of Type III systems include recirculating and incinerating systems.

MSD requirements do not apply to vessels with portable toilets, which are not considered installed toilets. However, direct overboard discharge of portable-toilet wastes is a violation of water quality standards in the navigable waters of the District. Portable toilets should be properly emptied on shore. Most pumpout facilities have wand attachments to empty portable toilets. Some marinas have portable-toilet dump stations.

To find the locations of nearby pumpout stations that your boaters may be able to use until your marina has installed a pumpout station, call 1-800-ASK-FISH.

Pumpout Stations

Look into installing a pumpout station (eligible for grant funding) to pump waste out of recreational-boat holding tanks. As part of the Clean Vessel Act Pumpout Program, the District of Columbia Fisheries Division has won funds to provide pumpout stations to marinas along the Anacostia River. Two marinas in the District have already received portable pumpout units. Refer to Chapter 9, *Sewage Handling*, for more information on pumpout stations and grant funding for their installation.

For more information on the Pumpout Program, call the DC Fisheries Division at 202-535-2266 or visit the following website: http://fa.r9.fws.gov/cva/cva.html.

Step 6: Properly Store, Use, and Dispose of Hazardous Materials and Wastes

Solid wastes that are listed as hazardous by EPA, or that, if unlisted, are ignitable, corrosive, reactive, or toxic, are hazardous wastes. Hazardous waste "generators" are those individuals or companies that produce over 100 kilograms (about 220 pounds or 30 gallons) of hazardous waste during one calendar month or who store more than 100 kilograms at any one time. Hazardous waste generators must apply for an EPA identification number.

Facilities that generate less than 100 kg of hazardous waste per month and that do not accumulate more than 100 kg of waste at any one time are considered "small quantity generators."

Small quantity generators are not required to register with EPA. Small quantity generators should, however, clearly identify hazardous waste storage areas, and secure them from public access. Also, according to 20 DCMR 42, generators that treat, store, dispose of, or transport hazardous waste, or offer it for transportation, must have an EPA identification number. Otherwise, hazardous waste from small quantity generators should be sent to a disposal facility that is permitted, licensed, or registered by the District of Columbia to manage municipal or industrial solid waste.

All facilities that use, store, or dispose of hazardous wastes are required to:

⇒ store hazardous *materials* (i.e., non-waste items), including solvents, in approved fire-safe containers on pallets in a

protected location, away from drains and sources of ignition and separated by hazardous class.

⇒ plainly label all stored and containerized material, and maintain files of Material Safety Data Sheets (MSDSs) on all such materials.

⇒ provide personnel with hazardous waste training.

Step 7: Provide Trash and Recycling Receptacles for Your Customers

Keep the District and your marina clean by providing sufficient, clearly labeled, trash and recycling bins for your facility. As required by the Illegal Dumping Enforcement Act [1994, as modified in 1998] and the Mandatory Source Separation Program, authorized by District of Columbia Code 6-3407, all commercial properties must properly dispose of trash and separate newspaper, glass, and metal from solid waste for recycling. MARPOL, the international Act to Prevent Pollution from Ships (1973) also requires marinas to provide adequate trash receptacles to visiting boaters.

Step 8: Provide Health and Safety Training to Employees

As required by the Clean Water Act and the Occupational Safety and Health Administration (OSHA), marina managers must regularly train employees to use the equipment and chemicals kept on site. You are also responsible for ensuring that employees are properly certified for the work they do.

Staff should also be trained in the facility's SWPPP at least twice a year. SWPPP training should include the following topics as applicable:

⇒ management and disposal of used oil
⇒ management and disposal of spent solvents
⇒ proper disposal of spent abrasives
⇒ disposal of vessel wastewater
⇒ spill prevention and control
⇒ proper fueling procedures
⇒ good housekeeping procedures
⇒ painting and blasting procedures
⇒ management of used batteries

In addition to the SWPPP, marina employees should be trained to follow SPCC or Contingency Plan procedures in the event of an oil spill or similar event.

Employees handling hazardous materials should receive instruction on how to properly use, store, and dispose of hazardous materials and hazardous waste.

Marina Alterations
Marina owners interested in expanding their marina or in constructing a new one must first seek approval from the US Army Corps of Engineers, the District of Columbia, and (if the marina is on NPS property) the NPS.

Step 9: Make Environmentally Friendly Marina Alterations

If you plan to expand your marina or construct a new one, you are required to first seek approval from the US Army Corps of Engineers (COE) and the District of Columbia. If your marina is on National Park Service property, you must also seek NPS approval before beginning construction.

According to the District of Columbia Environmental Policy Act (Title 6 D.C. Code Chapter 9, subchapter VI), an Environmental Assessment or an Environmental Impact Statement (EIS) is required for any "major action," namely, an action usually costing over $1,000,000 that may have a significant negative impact on the environment. Actions under $1,000,000 may require an EIS if the action imminently and substantially affects public health, safety, or welfare.

Step 10: Call Upon the Green Marina Advisory Group with Questions

Feel free to call the Green Marina Advisory Group with questions regarding federal and local requirements. The Advisory Group will be happy to assist you in understanding the steps needed for compliance—and to set you on your way to becoming a Green Marina!

3.2 Information Sources

Please refer to Appendix B for summaries of applicable federal and local regulations. Table B-1 also provides lists of permits and licenses required for marina construction, operation, and maintenance.

4

River Restoration Programs Affecting District Waters

Increasing public focus on the District's waterways and the Chesapeake Bay has lead to various environmental programs and river initiatives, including the Chesapeake Bay Program, the Potomac American Heritage River Initiative, and the Anacostia Ecosystem Initiative. Both public and private organizations have made commitments to these programs, seeking to reduce nutrient runoff and other pollution and to restore the health and natural resources of the rivers within and around our nation's capital.

4.1 Chesapeake Bay Program

*For more information on the **Chesapeake Bay Program**, visit:*
http://www.chesapeakebay.net/index.htm *and*
http://www.epa.gov/r3chespk/index.htm

4.1.1 Chesapeake Bay Agreement

The Chesapeake Bay is the nation's largest and most productive estuary. The ecosystem consists of the Bay itself and all or portions of 150 tributary rivers, creeks, and streams, including the Anacostia and Potomac Rivers. In addition to providing millions of pounds of seafood per year, and ports for shipping and commerce, the Bay provides a vast natural habitat for wildlife and offers extensive recreational opportunities to residents and visitors. In the 1960s, however, people began to notice a decline in the overall health of the Chesapeake Bay.

In 1975 Congress directed EPA to undertake a comprehensive investigation into the causes of the Bay's decline. Major environmental problems identified by EPA included nutrient enrichment, dwindling underwater grasses, and toxic pollution. As a result of these findings, and with the involvement of state governments, federal agencies, and the general public, Congress signed the Chesapeake Bay Agreement in 1983. Four years later an Executive Council made up of representatives from Pennsylvania, Maryland, Virginia, the District of Columbia, EPA, and the Chesapeake Bay Commission signed the 1987 Chesapeake Bay Agreement, setting the restoration effort in motion.

On June 28, 2000, the Chesapeake Bay Program adopted a Renewed Bay Agreement called *Chesapeake 2000: A Watershed Partnership*, a program intended to guide Bay watershed restoration efforts over the next decade. The Renewed Agreement was signed by the members of the program's Executive Council: the Governors of Maryland, Pennsylvania, and Virginia, the Mayor of the District of Columbia, the Administrator of EPA, and the President of the Chesapeake Bay Commission.

The Renewed Agreement is designed to renew the historically significant1987 Chesapeake Bay Agreement and to guide the Bay Program partnership from 2000 to 2010.

4.1.2 Chesapeake Bay Program Goals

The Bay Program's highest priority has been restoration of the Bay's living resources—its shellfish, finfish, grasses, and other components of the ecosystem. Successes have included fishery and habitat restoration, recovery of Bay grasses, and reduction in nutrient and toxic loadings to the Bay. Actions taken or proposed by the Bay Program that impact recreational boating in the Anacostia and Potomac rivers include:

⇒ Nutrient Reduction: In 1987 the Executive Council of the Bay Program agreed on the goal of reducing nitrogen and phosphorus loading to the Bay by 40% by the year 2000. In the Anacostia River, a primary source of nutrient loading, implementation of effective SWPPPs by marinas and boatyards can contribute significantly to this effort.

⇒ Discharge from Boats: In the area of pollutant discharge, the 2000 Chesapeake Bay Agreement goals are directly relevant to marinas along the Bay and its tributaries. One Agreement goal is to establish more "no discharge zones" for human waste from boats by 2003. Additionally, the 2000 Agreement set 2010 as a target year for expanding by 50 percent the number of waste pumpout facilities.

⇒ Toxics Management: One of the Chesapeake Bay Program's goals is to reduce and prevent toxic problems in areas of concern, such as the Anacostia River.

⇒ Habitat Restoration: Cooperative fisheries management among Bay-watershed states has led to the widespread recovery of shellfish and finfish. An outstanding example of success has been the reversal of the decline in oyster production, achieved mainly through the creation of oyster reefs. Nutrient reduction and overall water quality improvement in navigable waters of the District of Columbia has led to the return of submerged aquatic vegetation there.

⇒ Federal Ecosystem Management: In response to the National Performance Review and Chesapeake Bay Program goals, 23 federal agencies have agreed to work together to promote restoration of the nation's ecosystems and to prevent their degradation.

Efforts to restore the Chesapeake Bay have led naturally to a focus on its two major tributaries, both of which are in the District of Columbia: the Anacostia and the Potomac Rivers.

Bay Program's Business for the Bay is a voluntary pollution prevention program that provides assistance and public recognition, and facilitates implementing pollution prevention practices. WWW.b4bay.org

In 1994 EPA Region III awarded the District of Columbia $250,000 to conduct human health and ecological risk assessments with the purpose of implementing risk reduction, pollution prevention, and public education and outreach as part of the Anacostia River Initiative. In 1995, a Chesapeake Bay Regional Action Plan for the Anacostia was developed, defining goals and strategies for prevention of toxic pollution there, and mitigation of existing pollution.

Since the mid-1990s, the Mayor of the District of Columbia, having signed the Anacostia River Restoration Strategy, has allocated funds for Anacostia River water quality improvements. Currently, the District is supporting the Green Marina Initiative, which has led to the formation of this *Green Marina Guidebook*.

In the 2000 Bay Agreement, the District of Columbia agreed to reduce pollution loads to the Anacostia River in order to eliminate public health concerns and to achieve the goals of the 1983, 1987, and 2000 Agreements.

4.2 Potomac American Heritage River Initiative

The Potomac watershed extends into four states (Virginia, West Virginia, Maryland, and Pennsylvania) and the District of Colum-

bia. Some five million people live in the basin, with more than three and one-half million of them in the Washington, D.C., metropolitan area. Due to agricultural, urban, and suburban development, the Potomac River has been highly vulnerable to pollutant loading.

*For more information on the **Friends of the Potomac**, visit* http://www.friendsofpotomac.org

In an effort to protect the quality of the Potomac River and to promote enjoyment of its natural, recreational, and heritage aspects, the Friends of the Potomac, a nonprofit corporation, submitted the Potomac for designation as an American Heritage River. Having received the designation, the Potomac River watershed and its tributaries are now the focus of the Potomac American Heritage River Initiative. Objectives of the initiative include:

*For more information on the **Potomac River American Heritage River Initiative**, visit* http://www.epa.gov/rivers/98rivers/potomac.html

- ⇒ restoring living resources and historic Potomac fisheries;
- ⇒ reducing acid mine drainage in the upper Potomac basin;
- ⇒ reducing nutrient runoff from agricultural and poultry-processing land uses;
- ⇒ reducing nitrogen and phosphorus loadings entering the Bay from the Potomac by 40% from input levels of 1987;
- ⇒ developing more effective flood-loss-reduction plans;
- ⇒ promoting appreciation and development of heritage and recreational assets;
- ⇒ encouraging community revitalization through heritage development; and
- ⇒ increasing opportunities to learn about the basin's natural features, history, and cultures.

The NPS-National Capital Region (NCR) serves as the Potomac American Heritage River's lead federal agency. As the lead federal agency, the NPS-NCR cooperates with the Friends of the Potomac to develop strategies for achieving the goals of the Potomac River Initiative.

*For more information on **your particular watershed** within the Potomac River Basin, visit* http://www.epa.gov/surf2/ahr/43/

In addition, Friends of the Potomac, the Council on Environmental Quality, and the Chesapeake Bay Program Office of EPA are developing a mechanism to implement wet-weather pollution prevention at federal facilities in the Anacostia River and Rock Creek (tributary to the Potomac) watersheds, and to transfer these technologies to other federal facilities.

The Potomac Conservancy, another nonprofit organization dedicated to the protection of the Potomac River, focuses on riparian habitat along the Potomac and its tributaries. Watershed programs include the Potomac Conservancy's Riparian Restoration Project—an effort to restore degraded land along the Potomac and its tributaries by planting native trees, shrubs, and grasses. Volunteers map the restoration sites, plant trees, install erosion control devices, monitor plant growth, and carry out water quality monitoring projects, both short-term and long-term. Restoration partners include the Chesapeake Bay Trust, NPS, Montgomery County Department of Parks and Planning, and Maryland Department of Natural Resource and Forestry Service.

*To find out more about the **Potomac Conservancy** or to volunteer for one of their restoration programs, visit* http://www.potomac.org/index.html

Friends of the Potomac and the Potomac Conservancy are just two of the many community-based organizations that have become part of the city-wide effort to restore the health of District waterways.

4.3 Anacostia River: Focus of Concern

While the larger Potomac River has received most of the water quality attention over the years, the Anacostia, which does not meet many federal and District clean water goals even today, has been largely ignored.

The Anacostia River is now a priority for several organizations. As mentioned above, the Chesapeake Bay Program has set the Anacostia River as one of its areas of concern; both the White House Task Force on Ecosystem Management and EPA have made the Anacostia ecosystem a priority for funding and study. American Rivers has also made the Anacostia River one of its top priorities.

*The **Anacostia Watershed Society** was formed to advance public and private actions to remove trash from the Anacostia River and to keep it out of the river in the future. For more information, visit* http://www.anacostiaws.org/

As a result of increased nonpoint source pollution, discharge from sewers (including combined sanitary/storm sewers), and poor land use both within the District and upstream in Maryland, the Anacostia River has become highly degraded. Pollutant releases to the Anacostia have resulted in low dissolved oxygen, high bacterial counts, high sediment loads, and contamination of sediment and fish tissue with toxic chemicals. These water quality problems can impair growth of aquatic plants, poison wildlife, and render fish unsuitable for human consumption.

The Anacostia clearly shows the effect of urbanization. Marinas may make matters worse by discharge of raw sewage, petroleum products, solids wastes such as paint chips, and other pollutants. Poor marina management can have a significantly adverse impact on the Anacostia River.

4.3.1 Anacostia Ecosystem Initiative

As part of the Anacostia River Initiative, EPA also publishes a newsletter for the Anacostia community covering the progress of the Initiative, water monitoring, and environmental justice grants.

EPA has created the community-based Anacostia Ecosystem Initiative to reduce environmental health risks to surrounding communities. The Anacostia River Initiative involves cleanup of several sites along the river in Washington, DC, including the Anacostia Marina, Barney Circle, Bolling Air Force Base, Camp Simms, Kenilworth Park, the Navy Yard, St. Elizabeth's Hospital, the Southeast Federal Center, and Washington Gas and Light. EPA is participating in cleanup of these sites.

4.3.2 Anacostia River Restoration Strategy

In January 1999, District Mayor Anthony Williams and the Interim Director of the District's Department of Health, Marlene Kelley, published the *District of Columbia Anacostia River Restoration Strategy*, outlining five goals for the restoration of the Anacostia River. These goals include:

- ⇒ reducing pollutants and enforcing environmental regulations;
- ⇒ preventing further pollution through education and local cleanups;
- ⇒ protecting and restoring stream, riparian, and wetland habitats;
- ⇒ building coalitions between jurisdictions; and
- ⇒ supporting recreation and environmentally friendly development.

The first goal clearly affects marinas, boat stores, and boat owners. Pollution reduction will be accomplished by enforcing District of Columbia and federal environmental laws, carrying out effective regulatory programs, and encouraging the use of innovative technologies to control pollution in urban settings.

This *Guidebook*, which is part of the Anacostia Restoration Strategy Program, may be used as a tool to establish clean boating

practices and an awareness of environmental stewardship at marinas in the District of Columbia.

4.4 Environmental Justice

Problems affecting the Anacostia River ecosystem also affect local schools, neighborhoods, and businesses.

EPA

OECA

Office of Enforcement and Compliance Assurance

For more information about the ***National Environmental Justice Advisory Council***, visit http://es.epa.gov/oeca/main/ej/nejac/

In 1994, President Clinton issued an Executive Order that established "environmental justice" as a national priority. The Order, entitled *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, focuses federal attention on the environmental and human health conditions of minority populations and low-income populations with the goal of achieving environmental protection for all communities. The National Environmental Justice Advisory Council (NEJAC) involves community, industry, and state/local government groups in the formation of solutions to environmental justice problems. EPA, Office of Environmental Justice, created a Small Community Grants Program to provide financial assistance to eligible community groups that are working on or that plan to carry out projects to address environmental justice issues.

Three District of Columbia election wards (6, 7, and 8), containing some of the most economically stressed neighborhoods of the metropolitan region, are located along the Anacostia River. African-Americans account for 96%-98% of the population in these wards. According to the President's Executive Order on Environmental Justice, this area of the Anacostia River basin would be a prime target for environmental justice efforts.

As a handbook for compliance with environmental regulations and for creating a better environment, the *Green Marina Guidebook* should prove to be a useful tool for the improvement of the once-neglected Anacostia River and its communities. By using the *Guidebook*, marinas and boatyards in the Anacostia basin can help establish a safe and healthful environment for boaters and the local community. Steps taken by marina and boatyard operators to prevent pollution to the river can foster positive neighborhood relations, even to the point of gaining community involvement in marina improvements.

5

Designing and Maintaining a Marina or Boatyard

Marinas are places where boaters and children can learn about nature and environmental responsibility. However, if marinas and boatyards are not sited, designed, planned, and constructed or expanded appropriately—in a sort of "Green Construction" process—they can harm ecosystems, sometimes causing them irreversible damage.

Sedimentation *is a "rain" of soil particles through the water column. It may bury bottom-dwelling organisms, block sunlight, reduce the feeding efficiency of visual feeders, and clog fish gills.*

Land management decisions, operating procedures, and structural improvements may improve or detract from the quality of the land and water surrounding a marina. Roads and parking areas may convey polluted stormwater directly into adjacent waterways. Dredging may resuspend toxic substances such as metals and synthetic chemicals. Hazardous chemicals may be leached into the water from piers and other structures. Broken or degraded floats may release buoyant debris that birds and fish mistake for food. Finally, the location and installation of shoreside and in-water structures may lead to accelerated coastal erosion and sedimentation.

The ***overall intent*** *of* ***"Green Construction"*** *is to minimize adverse impacts on water quality and to conserve fish, wildlife, and plant habitat.*

This ecological system balance is of special concern in District waterways because of the cumulative effect of years of neglect and lack of planning. The plant and animal communities along the rivers, for example, serve multiple functions. Riparian (i.e., shoreline) wetlands provide habitat for fish and waterfowl, and nursery space for the young of many aquatic species. They form a natural buffer against the effects of storms and act as a filter to purify runoff from the land. Wetlands also minimize erosion and support tourism and fishing. Because of the ecological, economic, recreational, and aesthetic values inherent in riparian resources, it is important that they not be diminished by development.

BMP Initiatives *are site specific practices tailored to a specific situation. They are not the* **only** *practices to be considered to meet a specific, intended goal.*

5.1 Siting Considerations

If you plan to build or expand a marina or boatyard, or even if you are going to carry out routine maintenance, there are legal require-

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

ments to be met and BMP initiatives—which can be built into planning and design activities—to be taken. Siting and design considerations in any case typically include review of the physical environment, and issues of air, noise, and visual pollution, waste management, and interaction with physical features. The following sections look first at the requirements for basic compliance, and then at recommendations for attaining Green Marina status.

5.2 Coming into Compliance

The **Baltimore District COE** oversees activities in the District of Columbia.

To contact the Baltimore COE call (410) 962-7608

Step 1: Getting Started on the Permitting Process

It is important to note at the outset that all construction in or over the District waterways, no matter how minor, must be cleared through the US Army Corps of Engineers (COE), Baltimore District.

Before any construction may begin, the marina/boatyard owner must contact the COE to arrange for a pre-application meeting. This meeting will bring together the marina/boatyard owner, District officials, and the COE in a formal kickoff of the permitting process.

If the COE requires no permit for a specific project, however, the District of Columbia will nonetheless require written notification of the project.

At the pre-application meeting, the permitting requirements specific to the marina owner's proposed project are outlined by the COE and the owner is referred to the appropriate permitting agencies within the District of Columbia. In some cases, the COE will inform the owner that no COE permits are required to carry out a particular project.

US Army Corps of Engineers

The COE requires a permit for most types of marina development and expansion projects. According to the Rivers and Harbors Act, the COE has the authority to regulate and approve construction in or over the nation's waterways. Section 10 of the Rivers and Harbors Act prohibits the creation of any obstruction to a waterway, in-water construction, or in-water excavating/filling without the approval of COE. Section 9 requires approval of the COE for construction of bridges, dams, dikes, causeways, et al., over waterways. The COE is also responsible for issuing a Section 404 permit under the Clean Water Act as noted on page 5-5.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

District of Columbia

The District, in cooperation with the COE, provides permits for all expansion of marinas under the Federal Clean Water Act (Sections 401 and 404) and the District of Columbia's Water Pollution Control Act of 1985 (DC WPCA).

Marina's or boat clubs reside on NPS property as the result of either a permit or a concession contract.

National Park Service

Any marinas or boatyards located on NPS land require NPS approval. In such case, an NPS representative will take part in the pre-application meeting.

Step 2: Environmental Review

The COE and the District will review all proposals to evaluate whether they are likely to have an impact on the following, and how that impact will be minimized:

- ⇒ Submerged aquatic vegetation (SAV)
- ⇒ Tidal and non-tidal wetlands
- ⇒ Rare, threatened, or endangered species
- ⇒ Spawning, nursery, or propagation areas for anadromous fish (i.e., fish that swim upriver to spawn)
- ⇒ Shallow-water habitat
- ⇒ Waterfowl nesting sites
- ⇒ Existing riparian forests
- ⇒ Forests with interior-dwelling bird species
- ⇒ Natural heritage areas
- ⇒ Tributary streams
- ⇒ Waterfowl staging areas
- ⇒ Stream buffers
- ⇒ Wildlife corridors
- ⇒ Wild and scenic rivers
- ⇒ Navigational safety
- ⇒ Fisheries habitat and barriers to migration.

Guidelines for BMPs (necessary for consideration as a Green Marina) are presented at the end of this chapter.

Step 3: Environmental Requirements

Certain legal requirements that devolve from the subjects covered in Step 2 must be met when planning marina construction. These are part of the basic regulatory requirements to be met by any marina/boatyard construction project.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Identify Rare and Endangered Species.
Rare and endangered species may not be disturbed (Federal Endangered Species Act). The U.S. Fish and Wildlife Service (USFWS) and the District of Columbia Fisheries and Wildlife Division must assess all proposed development sites for endangered and threatened species and habitat protection areas.

- ◆ If protected species are identified, an approved protection plan must be implemented prior to project approval.

Avoid Submerged Aquatic Vegetation.
Submerged aquatic vegetation (SAV) provides habitat for finfish and food for waterfowl. It is also an indicator of good water quality.

- ◆ District regulations (Water Pollution Control Act, Section 7(a)(3)) prohibit dredging activities that interfere with fish migration. The Water Pollution Control Act also requires the preservation of underwater habitat, or mitigation of any inadvertent destruction of underwater habitat.
- ◆ Permits generally are not granted for any construction that might impact SAV beds.
- ◆ No dredging should be carried out in water three feet or less deep at mean low water. This is prime depth for SAV growth.
- ◆ All water-dependent facilities should be sited so as to minimize disturbance to SAV.

Minimize Disturbance to Wetlands.
Wetlands serve an important role in the reduction of pollution, acting as a natural filter for water.

- ◆ Disturbance to wetlands in riparian areas should be minimized.
- ◆ Any construction that does extend into tidal wetlands requires authorizations, licenses, or permits from the COE, the District Environmental Health Administration (EHA), and the District Public Works Department.

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Avoid Scheduling Construction for Critical Migration, Nesting, or Spawning Periods.

Permitting agencies often require construction to be scheduled during "windows," or intervals when critical migration, nesting, and spawning periods of important species of finfish and wildlife can be avoided.

Contact the **DC Fisheries Division** at 202-535-2260

- ◆ Consult with the District's Fisheries and Wildlife Division for site-specific determinations of the potential effects of construction activities on wildlife populations.

Avoid Waterfowl Nesting and Staging Areas.

Regional waterfowl populations converge in certain areas during specific times of year to breed and feed. The preservation of historic nesting and staging areas is vital to the continued existence of many waterfowl species.

- ◆ Site facilities so that the increased activity associated with new or expanded marinas/boatyards is unlikely to deter waterfowl from using historic staging and concentration areas.

Step 4: Other Permits and Requirements

All proposals will be evaluated for the need for additional permits. These are typically identified in the pre-application meeting, and might consist of:

Section 401 of the Clean Water Act *notes that water quality certification is a state function.*

Section 404 Permit

If a Section 404 permit (issued by the COE) is required, the District EHA must investigate the site prior to construction. The EHA will initiate a Water Quality Certification process in which an evaluation is made of water quality and the potential for adverse effects upon living resources caused by marina siting and construction.

Section 404 of the Clean Water Act *regulates discharges of dredged or fill materials into navigable waters, including wetlands.*

The purpose of this process is to certify that federally permitted activities will not violate the District's water quality standards. The Water Quality Certification issued by the District EHA is then incorporated into the federal permit.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

- A Waterway Construction permit and a Section 404 permit are required for all dredging projects. First, contact the Potomac River Basin Permit Section, US Army Corps of Engineers, Baltimore, Maryland, at (410) 962-7608. If the marina, yacht club or boatyard is sited on NPS property, also contact the National Capital Parks East Superintendent at (202) 690-5185 to obtain NPS approval before beginning the permitting process.

- Do not dredge during critical migration or spawning periods of important species of finfish (DC WPCA Sec. 7 (a) (3)). Contact the District of Columbia's Fisheries and Wildlife Division to learn when these periods are.

- Avoid waterfowl nesting areas and historic waterfowl staging and concentration areas.

- Be certain that your dredging contractor selects an appropriate disposal site and containment design. The disposal site must have minimal impact on public safety, adjacent properties, and the environment.

NEPA Compliance

The National Environmental Policy Act (NEPA) regulates major construction actions that have a potentially serious negative impact on the environment.

***EIS** – an* Environmental Impact Statement *is required under NEPA and by the District for projects that meet a size threshold or that could have a substantial impact on the environment, or on public health, safety, or welfare.*

According to the D.C. Environmental Policy Act (Title 6 D.C. Code Chapter 9, subchapter VI), an Environmental Impact Statement (EIS) is required for any "major action." A major action is defined in this case as any action proposed by or requiring approval of the District, or by a board, commission, or other authority, with a cost of over $1,000,000 that may have a significant negative impact on the environment.

Actions under $1,000,000 may require an EIS, if the action imminently and substantially affects public health, safety, or welfare.

There are exemptions to the EIS requirements. For example, if the "functional equivalent" of an EIS has been prepared and is accepted

by the District, or if the project is located in the Central Employment Area, or if it is exempted by rule, no EIS will be required.

If an adverse effect from a proposed major action is identified in the EIS, with a finding that public health, safety, or welfare in the District is "imminently and substantially" endangered, the District will not approve the action. If suitable mitigating measures or alternatives are proposed to avoid the danger, or to reduce it to an acceptable level, then the action may be approved.

Various Planning Requirements

◆ Minimize the adverse effects of erosion control projects such as breakwaters on adjacent properties, navigation, threatened or endangered species, and significant historic or archaeological resources.

5.3 Going Beyond Compliance: The Basics

In addition to the actions discussed above for meeting basic regulatory requirements, a marina or boatyard operator can go beyond compliance and consider implementing the following BMPs. By documenting them, it is possible to benefit from the Green Marina program. BMPs recommended for attainment of Green Marina status are as follows:

5.3.1 Redevelop Existing Sites

Development of brownfields (potentially contaminated former industrial sites) often allows negotiation of advantageous permitting conditions and may enable the facility to apply for and benefit from brownfield assistance grants where available.

❖ Rather than disturbing pristine areas, place new facilities on previously developed waterfront sites.

5.3.2 Characterize Project Site

It makes good sense to have a site assessment for the facility completed professionally. It can then serve as a solid reference document when construction activities are being considered, or if information is needed to fill out permit applications.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

❖ A site assessment should identify:
  - ❖ habitat types and seasonal use of the site by fish, waterfowl, and other organisms.
  - ❖ rare and endangered species.
  - ❖ SAV, and site new or expanded marinas so that navigation over SAV beds is not necessary.
  - ❖ location of onsite wetlands and minimize disturbance to them. Mitigation may be required in cases where loss of wetlands is unavoidable.

If you chose to prepare your own site assessment, and seek assistance, look to the following resources:

⇒ For a preliminary screening of a project site, contact the local DC Fisheries Division.

⇒ For more precise information concerning sensitive habitat, submit a project description and a photocopy of a United States Geological Survey topographic quadrangle map—with the site identified—to the USFWS.

5.3.3 Minimize Impervious Areas

❖ Keep pavement to an absolute minimum, e.g., restrict its use to designated work areas and to roadways for heavy equipment only.

5.3.4 Use Upland Areas

❖ Site buildings, workshops, and waste storage facilities to the greatest extent possible in upland areas, away from fragile riparian ecosystems. Location of such facilities in an upland area also provides a measure of protection against floods.

❖ Site parking and vessel storage areas away from the water where feasible.

✧ Consider inland areas for boat repair activities and winter storage.

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5.3.5 Expand Upward

✧ Rather than adding wet slips, consider expanding storage capacity by adding dry-stack storage. "Boatels" may provide the following environmental benefits:

⇒ Dry-stacked boats do not accumulate marine growth. Consequently, toxic anti-fouling paints are not necessary and the associated need to wash, scrape, and paint is eliminated.

⇒ Dry-stacked boats are less likely to accumulate water in their bilges. They are therefore less likely to discharge oily bilge water.

5.3.6 Conserve Sensitive Land

✧ If your marina is on private land, provide a serene setting for it by placing at least 5 acres of unimproved, adjacent land in a conservation trust. Income, estate, and property tax benefits are possible.

✧ Sell or donate the land (or the development rights to the land) to a local land trust or a non-profit organization such as The Nature Conservancy.

5.3.7 Avoid Geographic and Hydrographic Impediments

Flushing is impeded at the head of tide and in areas where salinity or temperature differences produce variations in water density. Variations in density cause the water column to separate into distinct layers that do not readily mix. Debris and silt tend to collect in poorly flushed areas and will eventually settle to the bottom. As bacteria decompose the debris, oxygen is removed from the water. Water quality may suffer if oxygen is not replaced as quickly as it is removed.

❖ Try to locate marinas in well-flushed reaches of waterways.
⇒ Consider bottom configuration; a gradual downward slope from the berthing area into deeper water is ideal.
⇒ Avoid canals, irregular pockets, and sumps that are deeper than adjacent channels.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

⇒ Avoid square corners in marina basins and dead-end channels to the greatest extent possible.

❖ Follow natural channels and align entrance channels with them to increase flushing.

❖ Boat lanes should progressively widen toward the seaward end and narrow toward the inland end to allow water to flow freely and maintain its velocity within the marina.

❖ Avoid locating the entrance channel perpendicular to the natural channel, since shoaling (with consequent need for dredging) is a potential problem.

❖ Avoid long, winding channels to connect marinas to open water.

❖ Where possible, establish openings at opposite ends of the marina to promote flow-through.

❖ Use fixed or floating piers to enhance water circulation.
⇒ Being mindful of the need for pier/dock systems to provide access during routine operations and under emergency circumstances, piers and other structures should nevertheless be placed to enhance, rather than obstruct, water circulation.
⇒ Select an open design for new or expanding marinas. Open marina designs have no fabricated or natural barriers to restrict the exchange of ambient water with water within the marina.
⇒ Design new marinas or marina expansions with as few segments as possible to promote circulation within the basin.
⇒ Use a deicing system to aerate areas with poor circulation.

5.3.8 Dredging: Minimize the Need and Impact

New marinas must be located in areas where deep waters can be accessed with a minimum of excavation, filling, and dredging. Operators of existing marinas that require maintenance dredging (see

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Section 5.2 on permitting information), more frequently than once every four years should investigate practicable options to increase circulation or reduce sediment accumulation. Among the possibilities:

❖ Extend piers and docks into naturally deep waters.

❖ Locate slips for deep-draft boats in naturally deep water.

❖ Dredge channels to follow the course of the natural channel.

✧ Provide dry storage for smaller boats.

❖ If dredging becomes necessary, use hydraulic dredging if possible, to reduce environmental impacts

❖ If standard bucket dredging becomes necessary, use turbidity curtains to contain suspended sediments

5.3.9 Employ Nonstructural Shore Erosion Control Measures

❖ Nonstructural measures, such as soil bioengineering, beach nourishment, marsh creation, and other methods that encourage the preservation of the natural environment are preferred for shore erosion control.

✧ If non-structural measures alone are not sufficient to control erosion, use (in this order of preference) shoreline revetments, breakwaters, groins, or bulkheads.

5.4 Going Beyond Compliance: Best Management Practices for Protecting Sensitive Areas

5.4.1 Use Environmentally Preferred Materials

❖ For new pilings and other structures that are in or above the water, use materials that will not leach hazardous chemicals into the water and that will not degrade in less than ten years,

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e.g., reinforced concrete, coated steel, recycled plastic, fiberglass-reinforced plastic.

❖ Be sure to contain shavings when field-cutting plastic pilings and timbers.

✧ Avoid using wood treated with creosote for pilings or similar structures that are in or above the water. Better options include wood that is pressure-treated with chromated copper arsenate (CCA), ammoniacal copper zinc arsenate (ACZA), or ammoniacal copper arsenate (ACA).

✧ Use naturally durable timbers when possible, but use them conservatively. Black locust, cedar, chestnut, and white oak are naturally durable but expensive, and may be hard to find.

❖ Avoid exotic timbers. Some tropical trees, such as greenheart and bongossi, are also naturally durable, but their harvest is harmful to tropical forests.

❖ Use flotation foams that are coated or encapsulated in plastic or wood. As these floats age, the covering contains the degraded foam.

5.4.2 Maintain Structures Using Green Marina Practices

❖ Scrape, sand, and paint in-water and landside structures according to the same management principles as for vessels (refer to Chapter 7, *Vessel Maintenance and Repair*).

✧ If feasible, move floating structures to shore for scraping, painting, and major repairs.

5.4.3 Conserve Water

❖ Equip all freshwater hoses with automatic shutoff nozzles.

❖ Fix leaks and drips.

✧ Install “low-flow” faucets, toilets, and showerheads.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

5.4.4 Practice Water-Wise Landscaping

Save on water bills, reduce your maintenance activities, and protect water quality by minimizing your water use.

❖ Water only when plants indicate that they are thirsty: shrubs will wilt and grass will lie flat and show footprints. Water in the early morning or early evening, when temperatures are lower. Plants will not be shocked, and water loss to evaporation will be minimized.

❖ Select plants that are suited to existing conditions of soil, moisture, and sunlight so that they will require little care in terms of water, fertilizer, and pesticides. Refer to Appendix C for a sampling of suitable plants.

❖ Water deeply and infrequently rather than lightly and often. Deep watering promotes a stronger root system, which enables plants to draw on subsurface water during hot spells and droughts.

For best results, water grass to a depth of one inch. Refer to Appendix C to learn how to calculate the time needed for proper water application.

❖ Select equipment that delivers water prudently. Sprinklers work well for lawns. Soaker hoses or drip irrigation systems deliver water directly to the roots of shrubs and flowers with minimal loss to evaporation.

❖ Place mulch (wood chips, bark, grass clippings, nut shells, etc.) to a depth of 3-4 inches around plants to reduce evaporation of water in soil, prevent weed growth, and reduce the amount of sediment picked up by stormwater. Planting ground cover at the base of trees serves the same function.

❖ Group plants with similar water needs together. This practice will ease your maintenance burden, conserve water, and benefit the plants.

✧ Replace some lawn areas with wildflowers, groundcover, shrubs, and trees.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

5.4.5 Adopt Integrated Pest Management Practices

Integrated Pest Management employs preventive, cultural, biological, and chemical methods to control pests, minimizing impacts to non-target species, wildlife, and nearby water bodies.

Because of your proximity to the water, it is important to avoid toxic lawn and garden chemicals to the greatest extent possible. Instead, deter unwanted plants or animals with Integrated Pest Management practices.

- ❖ Select plants that are disease- and insect-resistant, that will out-compete common weeds, and that can thrive on your property. Refer to the BayScapes list of beneficial plants (Appendix C) and consider sun exposure, slope, drainage, amount of shade, wind, volume of foot traffic, soil type, temperature variations, and other environmental factors.

- ❖ Mow lawns properly to suppress weeds. Varieties of grass that grow better in cooler weather should be mowed to no less than 2.5 inches in height. Grasses that grow better in warm weather should be mowed to no less than 1.5 inches.

BMPs to deter Canada Geese *are discussed in several fora. A good general resource can be accessed on the internet at:* http://hsus.org/whatnew/geese_solutions.html *in a discussion paper with recommendations and re--sources, entitled "Resolving Conflicts With Canada Geese" prepared by the Humane Socitey of the United States.*

- ❖ Pull weeds by hand to reduce reliance on herbicides.

- ❖ Become more tolerant of weeds and pests. If it is not actually harming anything, leave it alone.

- ❖ Leave natural predators alone. This might include spiders, praying mantises, dragonflies, lacewings, soldier beetles, birds, bats, frogs, lizards, and certain snakes and toads.

- ❖ Use natural agents such as milky spore disease to get rid of grubs and Japanese beetles, *Bacillus thuringiensis* (BT) to control mosquito and small moth larvae.

- ❖ Use pesticides only after all other options have been exhausted. Prefer organic alternatives to chemical pesticides. If you must apply pesticides, apply them directly to problem areas rather than broadcasting them. Note that if your property is on NPS land, you must have NPS approval prior to pesticide application.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

- ❖ Treat only serious pest infestations, or those that threaten to become intolerable.

- ❖ Purchase the least toxic chemical, in the smallest amount practicable.

- ❖ Do not use pesticides just before a rainfall or on a windy day.

- ❖ Apply insecticides during the evening when honeybees and other beneficial insects are less active.
- ❖ Do not apply pesticides near water, e.g., along the shore, near wells, streams, or ponds, or around bird baths or swimming pools.

5.5 Going Beyond Compliance: BMPs for Creating Habitat

5.5.1 Limit Shaded Areas Over Water

- ✧ Nearshore bottom-dwelling organisms require sunlight. In order to provide them with as much sunlight as possible, limit the number of covered slips.

5.5.2 Maintain or Develop Vegetated Areas

Trees, shrubs, and grasses act as filters, slowing the flow of surface water runoff, stabilizing shoreline, and providing wildlife habitat, flood protection, and visual appeal.

- ❖ Maintain grassy or wooded buffers between all impervious areas (e.g., parking lots and boat storage areas) and the water.

- ❖ Get "beneficial" plants into these areas—plants that require minimal trimming, watering, or fertilizer/pesticide application. Native plants demand little care since they are adapted to the local climate and soil types. Many imported plants may be considered beneficial if they have few maintenance requirements and do not displace naturally occurring vegetation (that is, if they are not invasive). Refer to Appendix C.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

- ❖ Select perennials instead of annuals. Perennials need be planted only once, and tend to shade out most weeds. Few of them require watering or maintenance.

Soil pH may be adjusted upward (i.e., made more alkaline) by adding lime. It may be adjusted down (i.e., made more acidic) by adding gypsum.

- ❖ Choose plants that bear flowers, fruit, nuts, and seeds to attract birds, small mammals, and other wildlife. Consider installing bird feeders to attract birds.

- ❖ Maintain proper soil pH and fertility levels. Fertility is a measure of the nutrient and mineral content of soil, while pH is a measure of its acidity. These two factors provide a good indication of which plants your soil can support. Organic matter such as compost, leaf mold, manure, grass clippings, bark, or peat moss will improve fertility. Lime or gypsum can be used to adjust alkalinity.

- ❖ Protect beneficial organisms, such as earthworms, which, during feeding, aerate the soil, improving the flow of water and air to plant roots.

- ❖ Compost leaves, branches, grass trimmings, and other organic matter. Use the mature compost to nourish your soil. Alternatively, chip branches and leaves and use the mixture as mulch to discourage weeds and to conserve soil moisture.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

6 Stormwater Management

6.1 Environmental Concerns

Stormwater runoff is precipitation that has not been absorbed by the ground. Rather, it runs over the surface of the land, picking up pollutants as it travels. Stormwater runoff may collect soil particles, petroleum products, residue from industrial activities, litter, and pet waste. All these pollutants (generally known as non-point source pollutants) are eventually carried with the overland flow (i.e., runoff) into surface waters, where they adversely impact water quality.

The volume of stormwater runoff increases as the proportion of impermeable, or hard, ground surface increases—as natural forests and fields, for example, are replaced with buildings, parking lots, driveways, and roads. Moreover, with fewer plants to disrupt or absorb the flow, stormwater moves across developed land more quickly than over undisturbed land. This greater, faster flow of stormwater can severely degrade receiving water bodies by accelerating erosion (which can lead to flooding), by destroying plant and animal life, and by causing loss of habitat. Stormwater carries nutrients such as nitrogen and phosphorus into streams, increasing stream production, creating a biological and chemical oxygen demand, and ultimately decreasing oxygen levels. Heavy loads of suspended solids can also be carried in by the ton. Temperature sometimes increases, especially if stream banks have been denuded of overhanging trees by development, or if waters have been warmed by flowing over heat-retaining pavement. Levels of toxic metals and hydrocarbons tend to increase, and the pH (a measure of acidity) of the waters may change. Over time, this influx of polluted runoff changes the conditions for survival, eventually altering the composition of aquatic plant and animal populations in the stream. And, also over time, humans may find the stream less attractive as a recreational resource.

***When regulatory requirements are met, and BMPs**, recommended to achieve Green Marina status are in place, we can better protect our water resources from additional and often unnecessary pollution loads.*

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed dia *Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) are highly recommended practices; and an empty diamond (✧) indicates desirable activities*

A watershed approach is used in stormwater management, so that water runoff can be managed at the watershed scale. This means the community-at-large must recognize responsibility in managing run-off waters before these become a problem for down river land uses. Marinas, located as they are on the down stream end of drainage systems can be the recipients of runoff waters and pollutants from up-stream land uses. However, the protective laws in the District of Columbia require all runoff to be managed, and not just at the entry point to the river, therefore implicitly protecting marinas from having to handle runoff waters from above the property boundary.

Regulatory compliance requirements are discussed below. BMPs are discussed at the end of the chapter. Observance of both can help limit and control stormwater runoff.

6.2 Coming into Compliance

*The **discharge of any pollutant** into the waters of the District of Columbia without a discharge permit is strictly prohibited.*

6.2.1 District of Columbia Water Pollution Control Act

According to the DC Water Pollution Control Act, the discharge of any pollutant to waters within the District of Columbia is strictly prohibited. According to this law:

- ◆ No person is to discharge a pollutant to the waters of the District without a permit (Section 3). Pollutants (defined in Section 2(19)) include any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemicals, chemical wastes, hazardous wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, oil, gasoline and related petroleum products, and industrial, municipal, and agricultural wastes.

- ◆ According to Section 7(m), the discharge of sanitary sewage, washwater or process water, oil-laden bilge water, refuse, or litter from a watercraft is prohibited.

6.2.2 Stormwater Pollution Prevention Plans (SWPPP)

All marinas are responsible for developing a SWPPP and training their employees in the SWPPP twice annually. The SWPPP ensures that the runoff of oily waste, washwater, or process water into District Waters will be kept to a minimum.

- Control stormwater runoff from dry-stack areas as well as from any expanded parking areas.
- Maintain forklifts to prevent grease or oil from dripping onto staging areas or into the water.
- Plan roads so they do not cross sensitive areas such as tidal wetlands (Section 404, Clean Water Act).

Note that once BMPs are incorporated in writing into the facility SWPPP, these BMPs become requirements under the MSGP and are legally enforceable.

*The **control of pollutants** that may be carried by stormwater runoff from vessel maintenance areas is addressed in Chapter 7,* Vessel Maintenance.

6.2.3 Multi-Sector General Permit for Discharges from Marinas

All marinas and other facilities that conduct boat repair, painting, or maintenance (including pressure-washing) are required to obtain an MSGP from EPA, Office of Waste Water Management, Region III. The permit covers stormwater and non-storm wastewater discharges from:

Refer to Chapter 3, Compliance Requirements, *for more information on the **Multi-Sector General Permit** covering discharges from marinas.*

- areas involved in boat maintenance (rehabilitation, mechanical repairs, painting, and fueling) and cleaning operations,
- wastewater discharges to surface or groundwater from boat or equipment washing areas, and
- noncontact cooling water and condensate discharges to surface waters from ice machines, refrigeration units, and other machinery.

The purpose of the National Pollutant Discharge Elimination System (NPDES) Program is to protect human health and the environment. The Clean Water Act requires that all point sources discharging pollutants into waters of the United States must obtain an NPDES permit. By point sources, EPA means discrete conveyances such as pipes or man made ditches.

6.2.4 Sediment Control and Stormwater Management

- Marinas are required by the Clean Water Act to obtain a National Pollutant Discharge Elimination System (NPDES) General Permit for Construction Activities for projects that disturb one or more acres.
- All stormwater management structures must be maintained for continued effectiveness.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) are highly recommended practices; and an empty diamond (✧) indicates desirable activities

◆ Hay bales, silt fences, storm drain filters, sediment traps, and earth dikes may be used to prevent sediments from leaving construction areas.

6.3 Best Management Practices to Control Stormwater Runoff

6.3.1 Practice Low-Impact Development

The goal of low-impact development is to develop a site without altering the hydrologic cycle, namely the natural water "budget" of the area, or the relationship between input (through precipitation) and output (through evaporation, transpiration from leaves, overland runoff, etc.). The approach takes advantage of a site's natural features—including vegetation—to reduce the need for expensive stormwater control devices. Low-impact development runs counter to traditional development, which presumes the need for structures like curbs, gutters, and storm drains to move water off site. Such structures serve the purpose well, but they cause unnatural volumes of runoff to move into receiving waters, sometimes at high velocity. For low-impact development:

❖ Capture and treat stormwater on site. For example, direct the runoff from your parking lot to a retention area, where it can soak into the ground or evaporate, rather that toward a storm receiver. It might be a *bio*-retention area, such as a "rain garden," an area planted with native vegetation and sited so as to collect stormwater. Nutrients, pollutants, and the water itself are taken up by soil and plants 24 to 48 hours after a storm. Rain gardens have the added advantages of being attractive, providing shade and wildlife habitat, acting as wind breaks, and muffling street noise.

✧ Contact EHA for additional information about low-impact development and rain gardens.

Refer to Appendix C for information about the BayScapes Program.

6.3.2 Cultivate Vegetated Area

Healthy soil and vegetation capture, treat, and slowly release stormwater. The water is treated through microbial action in the soil, vegetative uptake, evaporation, and transpiration.

❖ Plant environmentally-sensitive landscapes at the edge of parking lots and within parking-lot islands.

❖ Plant living buffers between your upland property and the water's edge.

❖ Position downspouts so that they drain to vegetated areas. Avoid directing roof runoff to concrete or asphalt.

✧ Construct wetlands to remove pollutants, buffer the shoreline from erosive forces, and provide habitat for aquatic species and birds.

✧ Use grassed swales instead of pipes to direct stormwater. Grassed swales are low-gradient shallow channels seeded with erosion-resistant grasses. They improve water quality by filtering out particulates, taking up nutrients, and promoting infiltration. Moreover, water generally moves more slowly over a grassed surface than through a pipe or concrete conduit.

Grassed swales are not practical on steep slopes, or in poorly drained soils.

6.3.3 Minimize Impervious Area

The less impervious, or hard, surface there is on site, the less runoff you will have to manage.

❖ Minimize paved areas.

❖ Minimize the length of new roadway required to serve newly opened areas of your marina.

❖ Consider alternatives to asphalt for parking lots and vessel storage areas, e.g., gravel, crushed seashells, engineered porous pavement. See Figure 6-1 for a depiction of porous pavement.

✧ Investigate a non-toxic, organic soil binder derived from the Plantagenaceae (plantain family). When this binder is combined with crushed aggregate (e.g., gravel, shells) and soil, it creates a somewhat permeable surface that will not erode. Costing the same as or less than asphalt, it is a resilient material that will not crack during winter freeze/thaw cycles, can be

repaired by adding more material and tilling the surface, and can be dug up with a shovel to plant trees and shrubs.

6.3.4 Use Structural Controls as Necessary

Because of space limitations or other constraints, it may be necessary to adopt more traditional practices such as pond, wetland, infiltration, or filter systems.

⇒ Stormwater pond systems capture and slowly release storm flows. Ponds may be permanent (retention ponds) or may hold water only temporarily (detention ponds). A Dry Extended Detention pond is an example of a stormwater pond system (see Figure 6-2). Dry Extended Detention ponds hold runoff for up to 24 hours after a storm. Water is slowly released through a fixed opening. The pond is normally dry between storms. This type of structure is effective for sites that are 10 acres or greater in size.

⇒ Stormwater wetland systems are designed to mimic the ability of natural wetlands to cleanse and absorb storm flows. A Pocket Wetland (see Figure 6-3) is created by excavating to the high-water-table elevation.

⇒ Infiltration systems are designed to take advantage of the soil's natural infiltration capacities and pollutant removal characteristics. A Dry Well (see Figure 6-4) is an infiltration system designed to treat rooftop runoff. Water is collected from downspouts and directed into a filter composed of crushed stone and fabric. Rain gardens and porous pavement are other examples of infiltration systems.

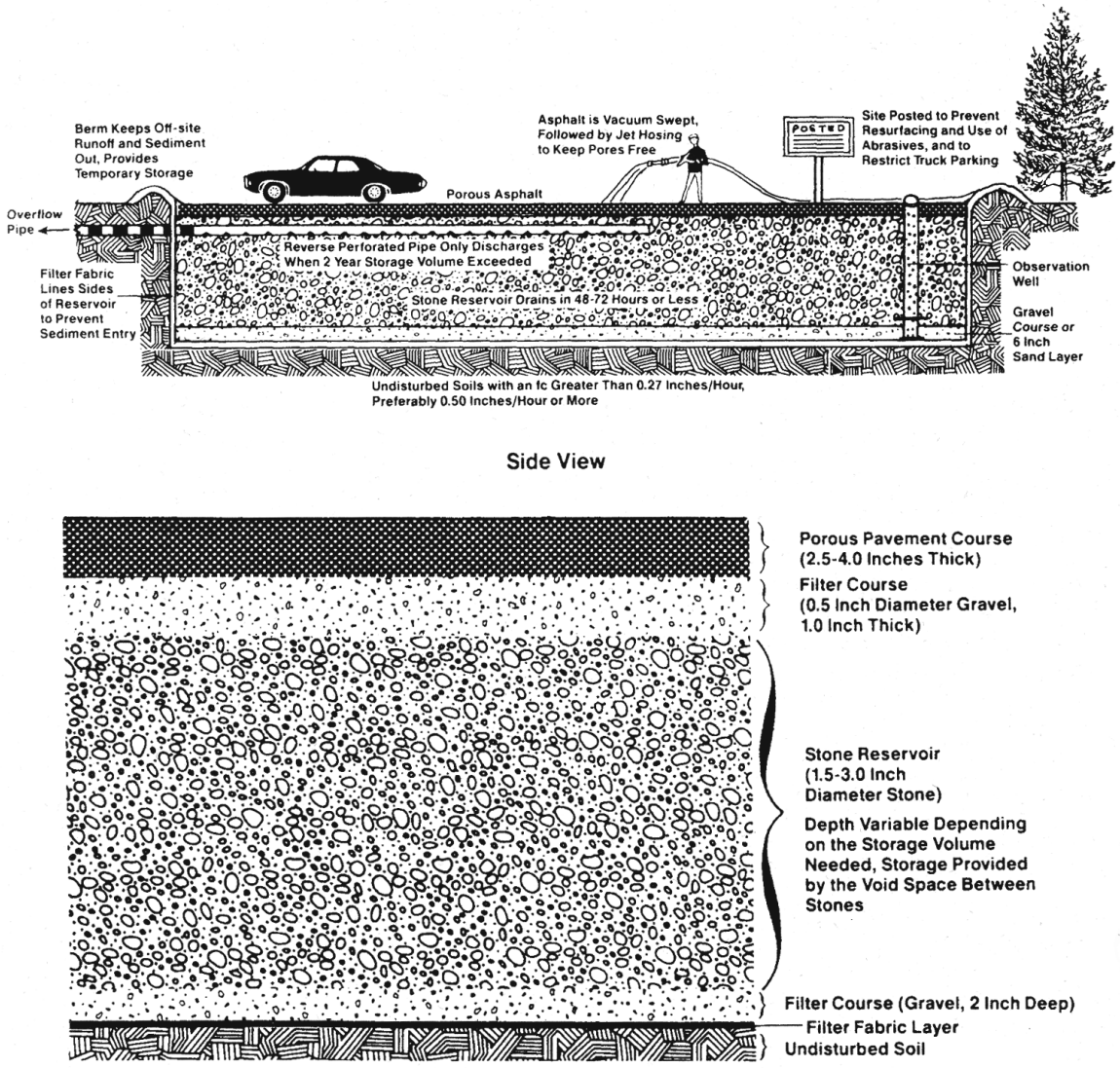
⇒ Filter systems "strain" runoff to remove pollutants. Conventional sand filter systems (see Figure 6-5) are constructed of layers of sand, from coarse on top to fine below. The sand overlies either a gravel bed (for infiltration) or perforated underdrains (for discharge of treated water). Oil grit separators (see Figure 6-6) are another form of filter system. Water from parking lots and other areas likely to have hydrocarbons should be directed through oil grit separators (or oil-absorbent fabric) before entering any other management structure.

✧ Refer to Table 6-1 for assistance in selecting a structure that is appropriate for your property.

6.3.5 Stencil Warnings on Storm Drains

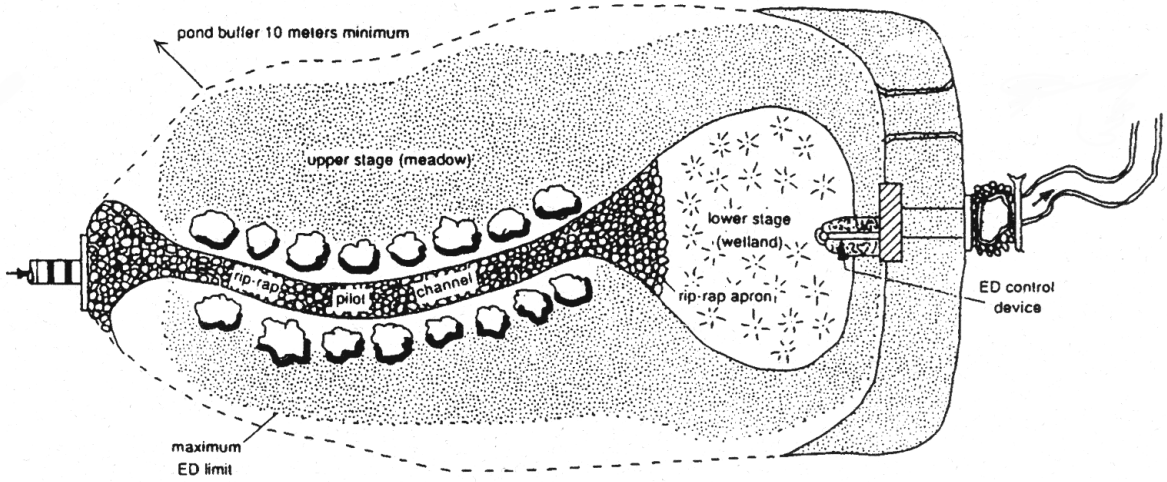
❖ Stencil the words "Don't Dump" or "Chesapeake Bay Drainage" on storm drains. Stencils and instructions are available from the Chesapeake Bay Foundation and the Center for Marine Conservation (see Appendix A for contact information). Be sure to get permission from the District Department of Public Works before stenciling warnings on storm drains.

Figure 6-1 Porous Pavement



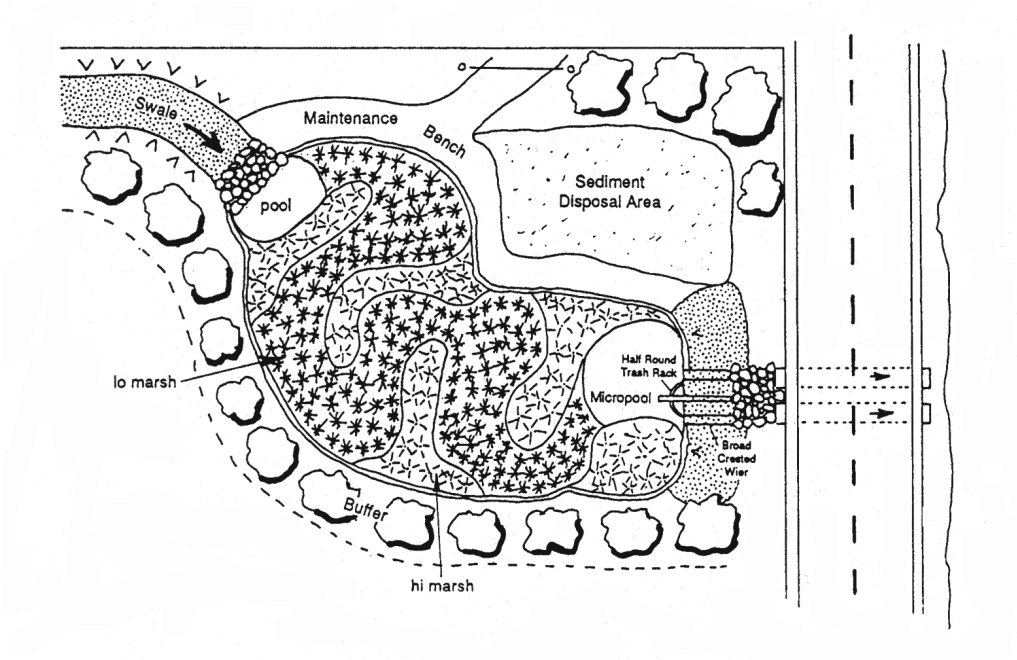
Source: Schueler, T.R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices.* Washington, DC: Metropolitan Washington Council of Governments.

Figure 6-2 Dry Extended Detention Pond



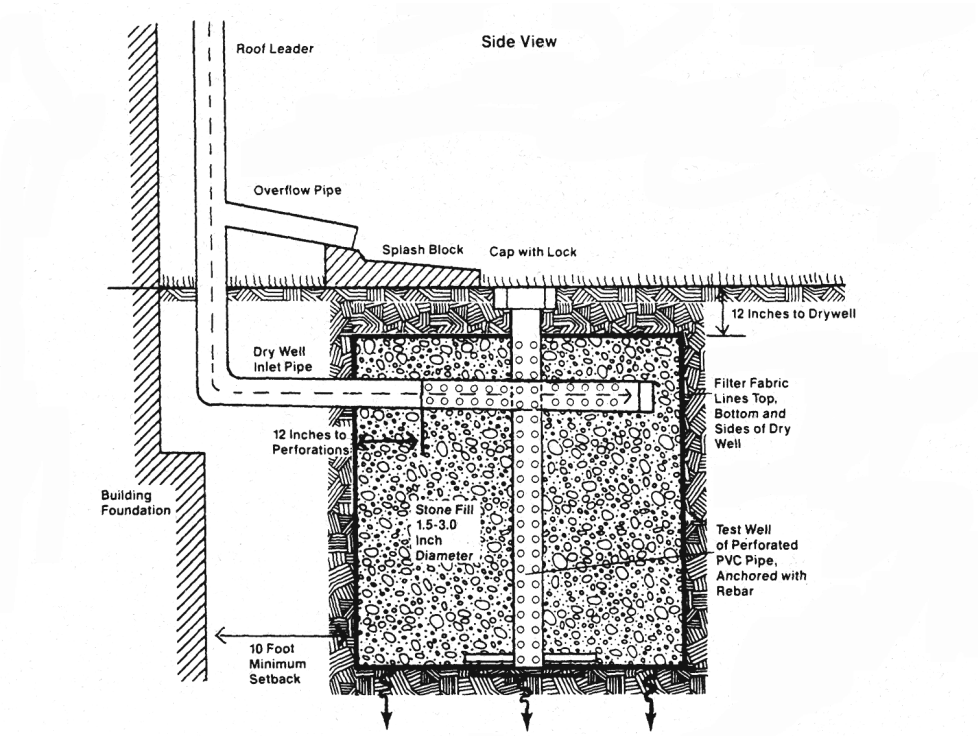
Source: Schueler, T.R. 1991. "Mitigating the Adverse Impacts of Urbanization on Streams: A Comprehensive Strategy for Local Governments," *Proceedings of the National Conference Integration of Stormwater and Local Nonpoint Source Issues.* Northern Illinois Planning Commission.

Figure 6-3 Pocket Wetland



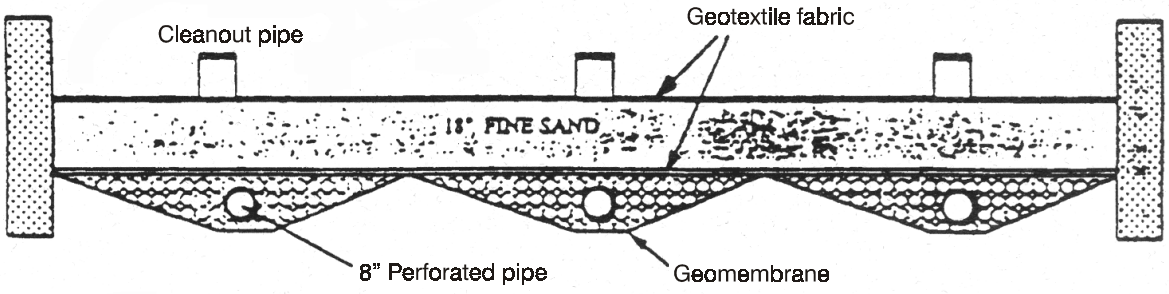
Source: Schueler, T.R. 1992. *Design of Stormwater Pond Systems.* Washington, DC: Metropolitan Washington Council of Governments.

Figure 6-4 Dry Wells



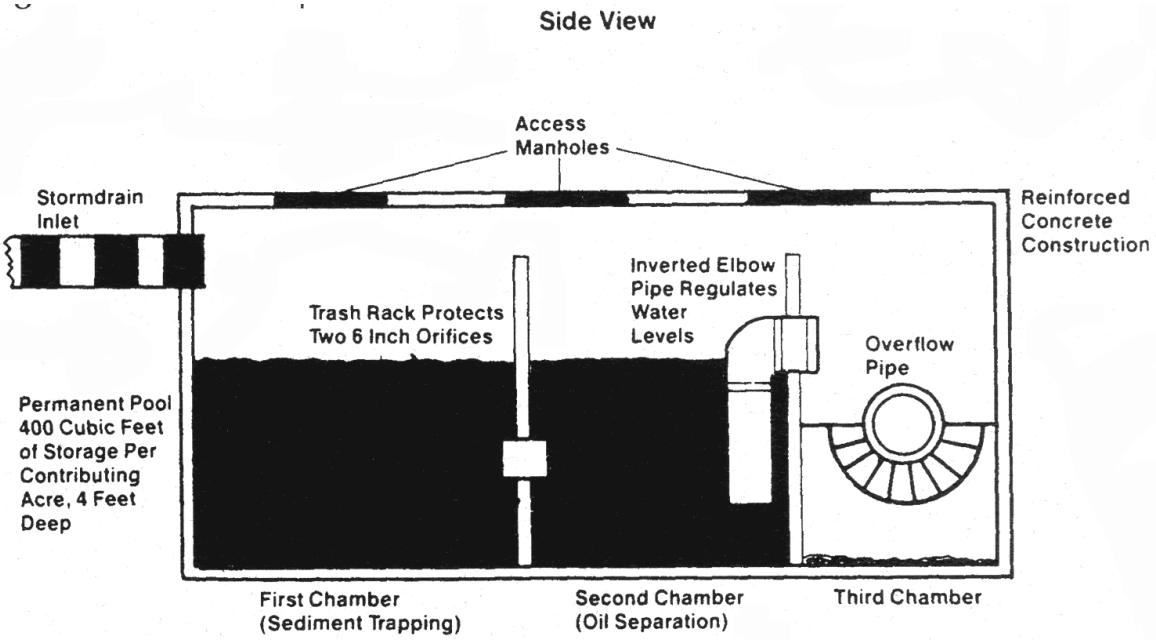
Source: Schueler, T.R. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices.* Washington, DC: Metropolitan Washington Council of Governments.

Figure 6-5 Sand Filter



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

Figure 6-6 Oil Grit Separator



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

Table 6-1 Screening Tools for Stormwater Management Best Management Practices Physical Feasibility

Factors	**Pond Systems** Wet and Dry ED Ponds	**Infiltration Systems** French Drains, Dry Wells, Porous Pvmt., Trenches	**Wetland Systems** Stormwater Wetlands	**Filter Systems** Sand and Peat/Sand Filters Grassed Swales	**Water Quality Inlets** Oil/Grit Separators
Slope	●	○	●	○	●
High Water Table	●	○	●	○	●
Close to Bedrock	◑	○	◑	◑	○
Proximity to Foundations	●	○	●	●	○
Space Consumption	○	●	○	●	●
Maximum Depth	●	○	◑	○	○
Restricted Land Uses	●	●	○	●	○
High Sediment Input	◑	○	◑	○	○
Wetlands/Forest Permits	●	●	○	●	●
Stream Warming	○	●	○	●	●

SOURCE: Kumble, Peter, Lorraine Herson-Jones, and Thomas Schueler. 1993a. Applicant's Guide for 10% Rule Compliance. Annapolis, MD: Chesapeake Bay Critical Area Commission.

7 Vessel Maintenance and Repair

7.1 Environmental Concerns

Vessels require a great deal of attention. They must be scraped, painted, and cleaned. Their engines need to be lubricated and otherwise tended. They need to be prepared for winter. Sanding, blasting, and pressure-washing removes paint and marine growth. In the process, toxic metals such as copper and tin may be released. If such heavy metals find their way into the water, they may be taken up by mussels, worms, and other bottom-dwelling organisms and passed on up the food chain to fish, birds, and humans. Metals that are not incorporated into living tissue will remain in the sediments where they substantially increase the cost of dredge-spoil disposal.

Paints, solvents, thinners, and brush cleaners generally are toxic and may cause cancer. If spilled into a water body, they may harm aquatic life and water quality. Additionally, the vapors—containing volatile organic compounds (VOCs)—released by some paints and solvents contribute to air pollution. Oil and grease from maintenance areas can threaten aquatic life.

Many of the cleaning products used in boat shops and by boaters are also toxic. They may contain chlorine, phosphates, inorganic salts, and metals. Some contain caustic or corrosive elements. Even non-toxic products can be harmful to wildlife. For example, detergents found in many boat-cleaning products will destroy the natural oils on the gill-membranes of fish, reducing their capacity to absorb dissolved oxygen from the water.

Each activity associated with vessel maintenance has the potential to introduce pollutants into the environment. Some activities are regulated, and clear guidance is available on compliance requirements. These are discussed in Section 7.2, while Section 7.3 pro-

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

vides guidance on going beyond compliance to achieve Green Marina status.

7.2 Coming into Compliance

*According to the **DC Water Pollution Control Act**, all waters within the District of Columbia are considered "No Discharge Areas."*

7.2.1 District of Columbia Water Pollution Control Act

The discharge of any pollutant into the waters of the District of Columbia without a discharge permit is strictly prohibited. According to this law:

- ◆ No person may discharge a pollutant to the waters of the District unless permitted (Section 3).
- ◆ More specific to marinas, the discharge of sanitary sewage, wash or process water, oil-laden bilge water, refuse, or litter from a watercraft is prohibited by Section 7(m).
- ◆ Additionally, the discharge of oil, gasoline, antifreeze, acid, or other hazardous substance, pollutant, or nuisance material to any street, alley, sidewalk, or other public space in quantities sufficient to constitute a hazard or nuisance is prohibited by Section 8(d).

***Pollutants include** any dredged spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemicals, chemical wastes, hazardous wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, oil, gasoline and related petroleum products, and industrial, municipal, and agricultural wastes (Section 2(19)).*

7.2.2 District of Columbia Illegal Dumping Enforcement Act

The Illegal Dumping Enforcement Act of 1994 (as amended in 1998) prohibits anyone from disposing of solid waste, hazardous waste, or medical waste in or upon any street, lot, park, public space, or any other public or private area unless the site is authorized for that disposal. This would include any wastes generated by the operation and maintenance of recreational boats.

7.2.3 Refuse Act

The Refuse Act of 1899 prohibits throwing, discharging, or depositing any refuse matter of any kind (including trash, garbage, oil, or other liquid pollutants) into waters of the United States.

*Refer to **Appendix B**, Laws and Regulations, for more information about the **Multi-Sector General Permit** for Discharge from Marinas.*

7.2.4 Multi-Sector General Permit for Discharges from Marinas

As described earlier, all marinas where vessel maintenance and repair (including pressure washing) is performed must obtain an

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

NPDES Stormwater Multi-Sector General Permit (MSGP) from the EPA, Office of Waste Water Management, Region III. This permit requires marina operators to control pollutants from vessel maintenance and wash areas. The permit requires marina operators to:

- control pollutants from vessel maintenance and wash areas.
- establish a schedule for inspecting and cleaning stormwater systems. Paint chips, dust sediment, and other debris must be removed, and oil/water separators cleaned.
- remove paint chips, dust, sediment, and other visible solids from washwater before any permitted discharge. At a minimum, large particles must be allowed to settle out. More thorough treatment involves filtration or chemical or physical techniques to treat the rinse water.
  - ⇒ *Filtration* employs devices such as screens, filter fabrics, oil/water separators, sand filters, and hay bales to remove particles;
  - ⇒ *Chemical treatment* relies upon the addition of a catalyst to cause heavy metals and paint solids to settle out of the water; and
  - ⇒ *Physical techniques* include swirl concentrators for concentration of pollutants. These are small, compact separatory devices with no moving parts. Water flowing into a concentrator creates a vortex that centralizes the pollutants. Clean water is then discharged.
- discharge treated wastewater to surface water if no detergents or other chemical cleaning agents were used. If detergents were used, the wastewater must be directed into a sewer system.

*The **Multi-Sector General Permit** for Discharges from Marinas requires an NPDES permit for discharge of sediment created by pressure-washing. The discharge is treated as a process wastewater.*

7.2.5 District of Columbia Air Pollution Control Act

The District of Columbia Air Pollution Control Act prohibits emissions into the atmosphere of odorous or other pollutants from any source in any quantity of any characteristic and duration which is, or is likely to be, injurious to the public health or welfare, or which

interferes with the reasonable enjoyment of life and property (20 DCMR 903.1).

- ◆ Encourage boaters to adjust and equip their engines to prevent the escape of visible fumes, or to purchase new low-emissions engines. DC law requires all engine, power, and exhaust mechanisms to be equipped, adjusted, and operated to prevent the escape of a trail of visible fumes or smoke for more than ten consecutive seconds (20 DCMR 901).

- ◆ Prevent air emissions from solvent cleaning by employing a control system that includes the following equipment:

  ⇒ a container for the solvent and the articles being cleaned;
  ⇒ a cover for the container, which can be easily and conveniently used whenever it is not essential that the container be open; and
  ⇒ a facility for draining cleaned parts so that the drained solvent is returned to the container (20 DCMR 708.1).

- ◆ Do not permit the discharge into the atmosphere of greater than 15 pounds of photochemically or light reactive solvents in any one day, or greater than three pounds in any one hour, unless the uncontrolled organic emissions are reduced by at least 85% (20 DCMR 700).

- ◆ Store open containers of usable solvents as well as waste solvents, rags, and paints in covered, UL-listed or Factory-Mutual approved containers.

- ◆ Hire a licensed waste hauler to recycle or dispose of used solvents.

7.3 Best Management Practices to Control Pollution from Vessel Maintenance and Repair Activities

7.3.1 Designate Work Areas

One of the easiest ways to contain waste is to restrict the area where maintenance activities may be performed. Try to limit noise and odor pollution. Encourage boaters to minimize the use of odorous

substances, and to maintain their engines in good condition, which can reduce noise pollution. The following are suggested good practices.

- ❖ Perform all major repairs—such as stripping, fiberglassing, and spray painting—in designated areas.
- ❖ Collect all maintenance debris. Clean work areas after completing each operation or at the end of the day, whichever comes first. Remove sanding debris, paint chips, fiberglass, trash, etc.
- ❖ Establish the maintenance area as far from the water as possible.
- ✧ Construct vessel maintenance areas with an impervious surface (e.g., asphalt or concrete) and, where practical, a roof. Sheltering the area from rain will prevent stormwater from carrying debris into surface waters.
- ✧ If asphalt or concrete is not practical, perform work over filter fabric or over canvas or plastic tarps. Filter fabric will retain paint chips and other debris but will allow water to pass through (unlike plastic or canvas). Tarps may potentially be reused many times.
- ❖ Surround the maintenance area with a berm or retaining wall.
- ❖ Use vegetation or the structural controls cited in Chapter 6, *Stormwater Management*, to treat stormwater runoff.
- ❖ Prohibit extensive maintenance or repair work outside of designated maintenance areas.
- ❖ Clearly mark the work area with signs, as, for example, "Maintenance Area for Stripping, Fiberglassing, and Spray Painting."
- ❖ Post signs throughout the boatyard describing BMPs that boat owners and contractors must follow, as, for example, "Use Tarps to Collect Debris."

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

- ❖ Develop procedures for managing requests to use the work-space, to move boats onto and off of the site, and to ensure the use of BMPs.

It is a good idea to integrate these BMPs into the facility SWPPP. Remember, however, that once these BMPs are written into your approved SWPPP, they become legally enforceable requirements under the MSGP.

7.3.2 Contain Dust from Sanding

Dust in the air can pose a respiratory hazard, and dust accumulation on the ground can be swept into the water by the wind or through runoff following rainfall.

- ❖ Do not let dust from sanding fall onto the ground or water or become airborne.

- ❖ Invest in vacuum sanders and grinders. These tools collect dust as soon as it is removed from the hull. Vacuum sanders allow workers to sand a hull more quickly than with conventional sanders. Additionally, because paint is collected as it is removed from the hull, health risks to workers are reduced.

- ❖ Require tenants and contractors to use vacuum sanders. Rent or loan the equipment to tenants and contractors.

- ✧ Post signs indicating the availability of vacuum sanders and grinders.

- ✧ Bring vacuum sanders to tenants if you see them working with non-vacuum equipment.

- ❖ Conduct shore-side sanding in the hull maintenance area or over a drop cloth.

- ❖ Restrict or prohibit sanding on the water.

- ❖ When sanding on the water is unavoidable, use a vacuum sander and keep dust out of the water.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

❖ Use a damp cloth to wipe off small amounts of sanding dust.

❖ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste.

7.3.3 Contain Debris from Blasting

Blasting can cause a release of contaminants to air or water.

Consider containing blasting and painting activities *to prevent abrasives, paint chips, and overspray from reaching a water body or the storm sewer system.*

❖ Prohibit uncontained blasting.

❖ Perform abrasive blasting in the vessel maintenance area within a structure or under a plastic tarp enclosure. Do not allow debris to escape from the enclosure.

✧ Investigate alternatives to traditional-media blasting. Hydroblasting and mechanical peeling essentially eliminate air quality problems. Debris must, however, still be collected. Consider using a filter cloth ground cover.

✧ Avoid dust entirely by using a stripper that allows the paint to be peeled off. These products are applied like large bandages, allowed to set, and are then stripped off. When the strips are removed, the paint is lifted from the hull. Dust and toxic fumes are eliminated.

✧ Invest in a closed, plastic-medium blast (PMB) system. These systems employ small plastic bits as a blasting medium. Once the blasting is completed, the spent material and the paint chips are vacuumed into a machine that separates the plastic from the paint dust. The plastic is cleaned and may be reused. The paint dust is collected for disposal. A 50-foot vessel will produce about a gallon of paint dust, substantially less than the many barrels of sand and paint that must be disposed of following blasting with traditional media.

❖ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

7.3.4 Minimize Impact of Pressure-Washing

The MSGP requires that the release of pollutants from wash areas be contained. Some BMPs that can not only help achieve this, but that even go beyond MSGP requirements, include:

✧ reuse of washwater. For example, recycle it through the power-washing system (a closed water-recycling operation).

❖ pressure-washing over a bermed, impermeable surface that allows the wastewater to be contained and sediment filtered out.

❖ using the least amount of pressure necessary to remove growth but leaving paint intact when pressure-washing ablative paint. Where practical, use a regular garden-type hose and a soft cloth.

❖ collection of debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste.

7.3.5 Minimize Impact of Paints

❖ Recommend to your customers anti-fouling paints that contain the minimum amount of toxin necessary for the expected conditions.

❖ Use water-based paints whenever practicable.

✧ Stay informed about anti-fouling products, like Teflon, silicone, polyurethane, and wax, all of which have limited negative impacts. Pass such information along to your customers.

✧ Store boats out of the water, where feasible, to eliminate the need for anti-fouling paints.

7.3.6 Minimize Impact of Painting Operations

❖ Use brushes and rollers whenever possible.

❖ Reduce paint overspray and solvent emissions by minimizing the use of spray equipment.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

Box 7-1
Bottom-Painting Operations

Anti-fouling bottom paints protect hulls from barnacles and other types of fouling organisms that can interfere with vessel performance. Pesticides within them also harm fish and other non-target species. Most paints work by slowly releasing a biocide, generally cuprous oxide (Cu_2O).

Since the interaction of copper and aluminum leads to corrosion, copper-based paints are not used on aluminum hulls. Instead, tin-based paints (tri-butyl tin, tributyltin, or TBT) are often used on aluminum-hulled vessels. Because tin is extremely toxic, it must be applied cautiously. Concentrations of TBT, as low as a few parts per trillion, have been shown to cause abnormal development and decreased reproductive success in oysters, clams, and snails (EPA 1993). Tin is easily absorbed by fish through their gills and accumulates to high levels in sediments. For these reasons, federal law restricts the use of tin-based paints to aluminum vessels, for boats longer than 82 feet (25 meters), and for outboard motors and lower drive units. Any boatyard operator wishing to apply TBT paints must obtain a TBT Applicators license from the DC Department of Agriculture liaison and employ an applicator certified to apply TBT.

Anti-fouling paints may be separated into three general categories:

Leaching Paints. Water-soluble portions of leaching anti-fouling paints dissolve slowly in water, releasing the pesticide. The insoluble portion of the paint film remains on the hull. The depleted paint film must be removed before the boat is repainted. Most leaching paints are solvent-based, meaning that vapors may be a concern.

Ablative Paints. Ablative anti-fouling paints also leach toxicants into the water. The major difference is that as the active ingredient is leached out, the underlying film weakens and is polished off as the boat moves through the water. As the depleted film is removed, fresh anti-fouling paint is exposed. Several water-based ablative paints on the market are up to 97% solvent-free. Levels of volatile organic compounds in these paints are therefore substantially lower than in solvent-based paints. Ease of cleanup is another advantage of water-based paints.

Non-toxic Coatings. Teflon, polyurethane, and silicone paints are nontoxic options. All deter fouling by creating hard, slick surfaces, to which fouling organisms cannot firmly attach.

- ❖ Limit in-water painting to small jobs. Any substantial painting should be done on land, in the vessel maintenance area, or over a ground cloth.

- ❖ If painting with brush or roller on the water, transfer the paint to the vessel in a small (less than one gallon), tightly covered container. Small containers mean small spills.

- ❖ Mix only as much paint as is needed for a given job.

- ✧ Mix paints, solvents, and reducers in a designated area. This area should be indoors or under a shed roof, relatively far from the water.

- ✧ Keep records of paint use to show where too much paint was mixed for a job. Use this information to prevent overmixing in the future.

7.3.7 Reduce Overspray

In some cases, spray painting is the only practical choice in terms of time and money. Minimize the impact of spray painting by adopting the following recommendations:

- ❖ Conduct all spray painting on land, in a spray booth or under a tarp.

- ❖ Use equipment with high transfer efficiency. Tools such as high-volume, low-pressure (HVLP) spray guns direct more paint onto the work surface than conventional spray guns. As a result, less paint is in the air, fewer volatile organic compounds are released, less paint is used, and cleanup costs are reduced. Other types of highly efficient spray equipment include air-atomizer spray guns and gravity-feed guns.

- ❖ Train staff to use spray-painting equipment properly, to reduce overspray, and to minimize the amount of paint per job.

7.3.8 Handle Solvents Carefully

Refer to Chapter 10, *Waste Containment and Disposal,* for further information about requirements for handling, storing, and transporting hazardous wastes. In addition to the requirements already outlined, consider:

To operate a permanent paint spray booth, you must obtain an air quality permit from the ***D.C. Air Quality Division. (202) 535-2250***

❖ directing solvent used to clean spray equipment into containers to prevent evaporation of volatile organic compounds. A closed gun-cleaning system will save you money on cleaning materials.

❖ using only one cleaning solvent to simplify reuse and disposal.

❖ using the smallest amount of solvent (stripper, thinner, etc.) adequate for a given job.

❖ for small jobs, pouring the needed solvent into a small container in order not to contaminate a large amount of solvent.

✧ using soy-based solvents and other similar products with low volatility or none at all.

✧ ordering your spray-painting jobs to minimize coating changes. Fewer changes means less frequent purging of the spray system. Order your work light to dark.

✧ allowing solids to settle out of used strippers and thinners so that you can reuse solvents.

✧ keeping records of solvent and paint usage so that you have some idea of the amount of hazardous waste generated on site. You are required to maintain these types of records if you have a permanent, District-approved spray booth.

7.3.9 Repair and Maintain Engines with Care

In addition to the general requirements noted elsewhere, it is recommended to:

❖ store engines and engine parts under cover on an impervious surface like asphalt or concrete.

❖ avoid washing engine parts over bare ground or near water.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

*The **Multi-Sector General Permit** for Discharges from Marinas requires that marinas prevent or minimize contamination of stormwater runoff from all areas used for engine maintenance and repair. It further requires that spill prevention and response procedures be developed for all areas where spills might contribute to stormwater discharge.*

- ❖ use dry pre-cleaning methods, such as wire brushing.
- ❖ avoid unnecessary parts cleaning.
- ❖ clean engine parts in a container or parts washer if you use a solvent. The container or parts washer should be equipped with a lid to prevent evaporation of volatile organic compounds. Reuse the solvent. Once the solvent is spent, recycle it.
- ✧ adopt alternatives to solvent-based parts washers, such as bioremediating systems that take advantage of microorganisms to digest petroleum. Bioremediating systems are self-contained, meaning that there is no effluent. The cleaning fluid is a mixture of detergent and water. Microorganisms are added periodically to "eat" the hydrocarbons.
- ❖ use drip pans when handling any type of liquid. Use separate drip pans for each fluid to avoid mixing of fluids. Recycle the collected fluid.
- ❖ use funnels to transfer fluids.
- ❖ drain fluids from parts prior to disposal.
- ❖ clean engine repair areas regularly using dry cleanup methods, e.g., capturing petroleum spills with oil-absorbent pads.
- ❖ prohibit the practice of hosing down the shop floor.

7.3.10 Winterize Safely

- ❖ Use propylene glycol antifreeze for all systems. It is much less toxic than ethylene glycol antifreeze.
- ❖ Use the minimum amount of antifreeze necessary for the job.
- ❖ For health reasons, ethylene glycol should never be used in potable water systems. It is highly toxic and cannot be reliably purged come springtime.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

- ❖ Add stabilizers to fuel to prevent degradation. Stabilizers are available for gasoline and diesel fuels and for crankcase oil. These products protect engines by preventing corrosion and the formation of sludge, gum, and varnish. They also eliminate the problem of disposing of stale fuel in spring.

- ❖ Be sure fuel tanks are 85-90% full to prevent flammable vapors from accumulating and to minimize the possibility of condensation, leading to tank corrosion. Do not fill the tank more than 90% full. The fuel will expand as it warms in the springtime, and fuel may spill out the vent line.

- ❖ Use the highest-octane fuel recommended by the engine manufacturer. Premium fuels are more stable than non-premium.

- ❖ Be sure the gas cap seals tightly.

- ❖ Promote reusable canvas or recyclable plastic covers. Some manufacturers will clean and store canvas covers during the boating season.

- ❖ Recycle used plastic covers.

- ❖ Remove strings and doors before recycling, save and reuse the doors.

7.3.11 Conduct In-water Maintenance Wisely

If the impacts of cleaning or maintenance activities (regardless of area involved) cannot be contained or mitigated, remove the boat from the water.

- ❖ No debris should be allowed to fall into the water.

- ❖ Keep containers of cleaning and maintenance products closed.

- ❖ Restrict or prohibit sanding on the water. When it is absolutely necessary to sand on the water, use vacuum sanders to prevent dust from falling into the water. Do not sand in a heavy breeze.

- ❖ Plug scuppers to contain dust and debris.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

❖ Do not spray-paint on the water.

❖ Prohibit underwater hull-cleaning in your facility. Given the concentration of boats on the water, underwater cleaning is dangerous to divers, who may also be expensive to insure. The metals that are released are harmful to aquatic life. If you cannot prohibit, then minimize environmental impacts from underwater hull cleaning (see Tip Sheet, same name).

✧ Offer incentives, like reduced mid-season haul-out rates, so that boaters may have their hulls cleaned on land, where contaminants are more easily contained.

7.3.12 Educate Boaters

There are many ways to encourage boaters to help you keep the marina clean and pleasing. A key method is to inform them of alternative practices that they may not be aware of:

❖ Copy the following clean boating Tip Sheets and distribute them to your tenants. There is room to add the name and logo of your marina.

❖ Find out about local hazardous waste collection days. Post notices informing your tenants when and where they can take their hazardous wastes for disposal.

VESSEL CLEANING AND MAINTENANCE

Tip Sheet for Marina Users

The Issue

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

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

Clean Carefully

✓ Wash your boat frequently with a sponge or nonabrasive pad and plain water. This approach is very effective at removing salt. Additional "elbow-grease" may be required to remove stains.
✓ When detergents are necessary, use those that are phosphate-free, biodegradable, and non-toxic. Use soaps and detergents sparingly, because even non-toxic products can be harmful to wildlife. For example, detergents destroy the natural oils on fish gills, limiting their ability to extract dissolved oxygen from the water.
✓ Wax your boat, if appropriate. A good coat of wax prevents surface dirt from becoming ingrained.
✓ Clean teak with a mild soap and abrasive pads or bronze wool. This method is safe for the environment and better for the boat than the solvents found in standard teak cleaners, which tend to damage both wood and seam compounds.
✓ Avoid detergents that contain ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye.
✓ Try some of the alternative cleaning products listed on the reverse side of this page.

Maintain Mindfully

✓ Collect all paint chips, dust, and residue. Dispose of in trash.
✓ Share leftover paint and varnish rather than storing it or throwing it out.
✓ Leave empty paint cans open to dry out before disposing of them.
✓ Use less toxic propylene glycol antifreeze instead of ethylene glycol.
✓ Select a bottom paint developed for the mid-Atlantic region and apply the proper amount. Do not overapply.

Recycle Regularly

✓ Recycle used oil, oil filters, and antifreeze.
✓ Bring used solvents and waste gasoline to collection points on local hazardous-waste collection days.
✓ Ask your marina manager for locations of recycling centers and information about hazardous waste collection days.

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

Be a Conscientious Consumer

✓ Read product labels. Labels convey information about the degree of hazard associated with a particular product. For example, DANGER equates to extremely flammable, corrosive, or toxic; WARNING indicates that the material is moderately hazardous; and CAUTION signals a less hazardous product. Select products that contain no warnings or on which only CAUTION is printed.

✓ Be wary of unqualified general claims of environmental benefit, as, for example, "ozone friendly." A more meaningful label would read, "This product is 95 percent less damaging to the ozone layer than past formulations that contained chlorofluorocarbons (CFCs)."

✓ For additional information about environmentally responsible products, contact Green Seal. Green Seal is an independent, nonprofit organization that sets environmental standards for consumer goods. Products that meet its criteria are awarded a "Green Seal of Approval." You may search Green Seal's database of certified, environmentally responsible products at **www.greenseal.org** or call (202) 872-6400.

Alternatives to Toxic Products

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

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

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

For information about the
Green Marina Initiative
Contact the NPS @ (202) 619-7083
or DC @ (202) 535-2305

UNDERWATER HULL CLEANING

Tip Sheet for Marina Users

Tips for divers, marina operators, and boaters

In order to maintain maximum performance and stretch the time between haul-outs, some boaters hire professional divers (or dive themselves) to clean their hulls while their boats are in the water. If done properly, underwater hull cleaning removes marine growth and only a small amount of anti-fouling paint. When done too vigorously, however, or when it is ablative paint that's being scrubbed, high levels of paint-related toxins may be released into the water.

The following tips for divers, boatyard and marina operators, and boaters are intended to guide decisions about hull treatment and maintenance. By working together, we can minimize the pollution problems associated with underwater hull cleaning.

Best Management Practice for Divers

- Clean gently to avoid creating a plume or cloud of paint in the water
- On boats painted with ablative paints, clean only running gear and zinc anodes.
- Refrain from hull cleaning for 90 days after a coat of anti-fouling paint has been applied.
- Always use the least abrasive material that will effectively clean the painted surfaces:
  - Use a soft sponge or piece of carpet to clean marine growth.
  - Use pads of soft nylon or similar material on rotary brush machines.
  - Use more rigorous cleaning pads only as needed to remove hard growth.
  - Use stainless-steel pads or brushes only on unpainted metal areas.
- Do not clean the entire hull if it is not dirty. Clean only the waterline, running gear, and propeller.
- Never sand, strip or chip hull paint under water.
- If you have been hired to replace zinc anodes, bring the old ones ashore for recycling. Look in the phone book under "scrap" for dealers.
- Provide customers with a copy of your standard pollution prevention procedures.

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

Best Management Practices for Boatyard and Marina Operators

- Provide an alternative to underwater hull cleaning by offering mid-season pressure-wash specials.
- Allow only divers who follow the Best Management Practices outlined above to clean hulls in your marina. Ask all subcontractors to sign in. Also, ask to see a current business license and proof of liability insurance.
- Keep a referral list of reputable divers to pass along to boaters seeking underwater hull services.
- Encourage boaters who typically hire divers to use hard bottom-paints.
- After painting a boat's hull, provide the boat owner with a simple description of the paint used and the maintenance requirements. For example, "Your boat was painted on April 27, 2000, with Barnacle B-Gone. Barnacle B-Gone is an ablative paint. It should not be scrubbed while in the water. The active ingredient is cuprous oxide, a potent biocide. A copy of the Material Safety Date Sheet is attached for your information. Barnacle B-Gone retains its anti-fouling effectiveness when hauled and can be relaunched without repainting. The hull will need to be repainted in approximately 2 years."
- Ask customers who have had their hulls coated with ablative paints to read and sign a notice that states, " I understand that my boat has been painted with an ablative paint. If the hull is scrubbed while in the water, environmentally harmful concentrations of paint and the pesticide cuprous oxide will be released."
- Earn cash by collecting and recycling used zinc anodes. Look in the phone book under "scrap" for dealers.

Best Management Practices for Boaters

- Take advantage of "quick haul-out specials" offered by your marina.
- Where practical, store your boat out of the water.
- Be aware that colored plumes should NOT be visible in the water near underwater cleaning activities. They indicate that paint, rather than just marine growth, is being rubbed off your boat.
- Let divers know you expect them to keep pollution to a minimum while working on your boat. Ask them to follow the Best Management Practices for divers, listed above.
- Never hire a diver to clean a hull painted with ablative (i.e., sloughing) paint.
- Be knowledgeable about your anti-fouling paint. Ask your yard manager to provide a written statement describing the name and type of paint used, health and safety warnings, maintenance requirements, and date applied. Keep a record of this same information if you paint your own hull.
- If you know you will want a diver to clean your hull in the future, select a hard or slick paint now.
- If you have applied fresh, hard bottom-paint, wait 90 days before having the hull cleaned under water.
- Consider low-copper hard paints or non-toxic slick paints and regular underwater hull cleaning instead of high-copper-content paints.
- Before hiring a diver, get three local references from a marina operator or other boater who know the diver's work.

For information about the
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Contact the NPS @ (202) 619-7083
or DC @ (202) 535-2305

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

SELECTING A BOTTOM PAINT

Tip Sheet for Marina Users

The Issue

Marine growth, such as barnacles and slime, impairs vessel performance. To prevent such growth and to maintain top performance, boats are often painted with anti-fouling paints. Unfortunately, the biocides found in these paints are harmful not only to the organisms that make their homes on our boat hulls, but to others as well.

Selecting a bottom paint is not an easy job. The challenge is to select the least toxic paint that will effectively prevent fouling. The effectiveness of a particular paint will depend on water temperature and salinity, how frequently the vessel is operated, and how fast it is customarily run.

The Paints

Bottom paints may be categorized as hard, anti-fouling ablative, or non-toxic.

The two most commonly used bottom paints are hard and ablative.

- When hard or "contact-leaching" paints dry, they create a porous film on the hull. Biocides are held in the pores. The toxins dissolve when they come in contact with water.
- Ablative or "sloughing" paints are partially soluble. The active ingredient is continually leached out. The underlying film then weakens and is polished off as the boat moves through the water, exposing a fresh layer of anti-fouling paint
- Non-toxic coatings are the most environmentally-friendly option. Containing Teflon or silicone, they produce a hard, slick surface to which fouling growth cannot firmly attach. Although paint companies are moving toward the introduction of non-toxic slick paints, they are not widely available at present.

Hard paints contain varying levels of biocides that are released slowly. Ablative paints generally contain lower levels of toxins, yet they are released more readily. The impact upon the aquatic environment over time is about the same between the two types.

Which bottom-paint is right for you?

There is no easy answer to this question (at least until affordable biocide-free coatings are available). Weigh the pros and cons presented in the following table. As you do so, consider the type of boat you have, and where and how you use it. Ask yourself the following questions:

- **How frequently do I use my boat?** A boat must be used regularly for ablative paint to work effectively.
- **How fast do I typically travel?** Speedboats are generally painted with hard paints.
- **Will I want the hull scrubbed while the boat is in the water?** If you anticipate underwater hull cleaning, DO NOT USE ablative paint.
- **Will I have the boat hauled annually?** Hard paint is applied annually. Some ablative paints are designed to last for more than one season.
- **What type of coating is presently on the hull?** Select a new coating that is compatible.

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

Comparison of Maintenance Requirements

Maintenance Need	Ablative Paint	Hard Paint	Environmental Issue
Frequency of repainting	Every 1 to 3 years depending on the thickness of the original application and use of boat	Every year.	AIR QUALITY: Fumes (volatile organic compounds) that are harmful to human health and air quality are released whenever solvent-based paints are used. Use water-based paints whenever practicable.
Hull preparation	Light sanding is generally all that is needed prior to application of new paint	Annual heavy sanding is suggested to improve adhesion and prevent paint buildup. If you choose light sanding instead, the resulting buildup will necessitate periodic blasting or stripping.	DEBRIS: Use the following techniques to keep debris out of the water: • Use a vacuum sander or tarps to collect dust created by sanding. • Blast or strip in an enclosed area where debris may be easily captured. • Send collected debris out with your regular trash. • Encourage your marina or boatyard to follow these pollution prevention practices.
Pressure-washing	Pressure-washing will remove some ablative paint	Pressure-washing will remove fouling growth and possibly paint chips. Very little pigment should be released	RELEASE OF BIOCIDES: Boatyards are required by law to remove visible solids from pressure-wash water before it is returned to local waterways. • Solids from pressure-washing of hulls painted with hard paints are easily collected in filter cloth, settling basins, or hay bales. • Inform your yard manager if you have ablative paint. He or she should use minimal water pressure so that, to the greatest extent possible, only slime is removed. You will be protecting both the environment and your investment in the paint. Look for boatyards with recycling pressure-wash systems that protect water quality by filtering and reusing washwater.
Underwater hull cleaning	Ablative paint should never be cleaned in the water	Hard paints may be cleaned by divers if done carefully	RELEASE OF BIOCIDES: Be aware that colored plumes should not be visible in the water when a hull is being cleaned. A colored plume indicates that paint is being removed. • Hard or slick paints may be cleaned while a vessel is in the water as long as care is taken to use the least abrasive material practicable (see the Clean Boating Tip Sheet *Underwater Hull Cleaning)*. • Ablative paints should not be cleaned in the water, as the scrubbing action will release paint and its associated biocide.

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8

Petroleum Control

8.1 Environmental Concerns

Petroleum and fuel in or on the water is harmful and, in some cases, can be fatal to aquatic or bird life. Benzene, xylene, and toluene are carcinogens found in gasoline. Oil contains zinc, sulfur, phosphorus, and a range of hydrocarbons.

Once a petroleum product is introduced into the water, it may float, evaporate, become suspended in the water column, or settle to the bottom. Floating oil or fuel is particularly noxious because it reduces light penetration and the exchange of oxygen at the water's surface. Floating oil also contaminates the *microlayer*, the uppermost portion of the water column that is home to many species of plants, animals, and microbes. Ninety-nine percent of the Chesapeake Bay's blue crab larvae feed in the microlayer, which also serves as a nursery area for rockfish (Hardy 1991). The abundance of life in the microlayer attracts predators: seabirds from above and fish from below.

Pollution in the microlayer has the potential to poison or disrupt much of the aquatic food web.

This chapter discusses ways to control petroleum pollution so as to prevent degradation of water and aquatic life.

8.2 Coming into Compliance

8.2.1 Federal Clean Water Act

Because of the harmful effects of petroleum, the discharge of oil is strictly prohibited. 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 if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of $27,000 per violation per day and up to $50,000 and 3 years imprisonment for knowing violations.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

Failure to report a spill may result in fines.

The United States Coast Guard (USCG) must be notified anytime a spill produces a sheen on the water. Call the USCG National Response Center at (800) 424-8802. Report the location, source, size, color, substance, and time of the spill.

The Clean Water Act (33 CFR 153.305) also prohibits the use of soaps or other dispersing agents to dissipate oil on water or in bilges without the permission of the USCG. Soaps, emulsifiers and dispersants cause the oil to sink in the water column and mix with sediments, where they will remain for years. These materials themselves are pollutants. You may be fined up to $25,000 per incident for the unauthorized use of soap or other dispersing agents on water or in bilge.

Develop a Spill Prevention Control and Countermeasure Plan

SPCC Plan
Spill Prevention, Control and Countermeasure Plan

If your marina stores oil in volumes above regulatory limits, you must develop an engineer-certified SPCC Plan as well as an Emergency Response Plan for threats such as oil spills and fire hazards.

- ◆ EPA's Oil Pollution Prevention regulations require that marinas prepare and implement a plan to prevent discharge of oil into navigable waters or adjoining shorelines, if the facility has:
  - ⇒ an aboveground oil storage capacity greater than 660 gallons in a single container;
  - ⇒ an aggregate aboveground storage capacity greater than 1,320 gallons; or
  - ⇒ a total underground storage capacity greater than 42,000 gallons.

For information concerning SPCC Plans, contact the DC Emergency Management Administration Emergency Response Mayor's Command Center ***202-727-6161***

Oil is defined in the SPCC regulations (40 CFR 112) as "oil of any kind or in any form, including but not limited to petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredged spoil and oily mixtures."

- ◆ The SPCC Plan must address:
  - ⇒ operating procedures implemented by the facility to prevent oil spills;
  - ⇒ control measures installed to prevent a spill from entering navigable waters or adjoining shorelines; and

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities

⇒ countermeasures to contain, clean up, and mitigate the effects of an oil spill that impacts navigable waters or adjoining shorelines.

◆ The SPCC Plan must be certified by a professional engineer, and a copy kept on site for EPA review. If a single spill of greater than 1,000 gallons occurs, or two discharges of harmful quantity occur within one year, a copy of the SPCC Plan must be submitted to EPA Region III.

*If the facility has a **discharge of 1,000 gallons or more** of oil, or has **two spill events** within a 12-month period, a report must be sent to the EPA Regional Administrator within 60 days.*

The report should include a description of the spill, corrective actions taken, preventive measures taken to prevent a recurrence of the incident, and additional pertinent information.

◆ The SPCC Plan must be revised every three years, or whenever:
- ⇒ applicable regulations are revised;
- ⇒ the Plan fails in an emergency;
- ⇒ the facility changes in a way that increases the potential for release of oil or hazardous substances, or changes the quantities processed;
- ⇒ the list of SPCC Plan Emergency Response Contacts (ERC) and/or ERC Alternates change; or
- ⇒ the list of emergency equipment changes.

◆ Copies of the SPCC Plan:
- ⇒ must be maintained at the facility and park dispatch,
- ⇒ may be submitted to the EPA; and
- ⇒ may be submitted to the local fire department and other agencies as appropriate.

***Careless engine maintenance**, refueling habits, and improper disposal of oil and contaminated bilge water release more oil into marine water each year than did the Exxon Valdez spill (Clifton et al. 1995a)*

Develop a Spill Prevention and Cleanup Plan

Even if the volume of your oil/fuel storage is below the regulatory limit for a SPCC, your marina should have a spill prevention and cleanup plan to prevent violations of the Federal Clean Water Act. According to the District of Columbia Clean Water Act, anyone who stores pollutants (petroleum, hazardous waste, paint, etc) at an onshore or offshore facility is required to have at least a spill prevention and cleanup plan.

8.2.2 Underground Storage Tank Management Act of 1990

The District of Columbia Underground Storage Tank Management Act of 1990 (DC Code 6-995.1) requires both new and existing

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underground storage tanks (USTs) to be equipped with corrosion protection, spill and overfill control, and a leak detection system.

Protect Fuel Storage Tanks

Fuel storage tanks at marinas typically hold from 1,000 to 10,000 gallons of fuel. If a tank were to rupture or develop a leak, the consequences could be devastating.

For further information on DC **Underground Storage Tank** requirements, contact the D.C. UST Division **(202) 535-2525.**

In no case will these provisions restrict or interfere with the proper functioning of the normal or emergency vent.

- ◆ Install double-walled or vaulted aboveground fuel tanks. Such tanks should meet the following conditions (NFPA 30):
  - ⇒ The capacity of the tank must not exceed 12,000 gallons (45,420 L).
  - ⇒ All piping connections to the tank must be made above the normal maximum liquid level.
  - ⇒ Means must be provided to prevent the release of liquid from the tank by siphon flow.
  - ⇒ Means must be provided for determining the level of the liquid in the tank. This means will be accessible to the delivery operator.
  - ⇒ Means must be provided to prevent overfilling by having an alarm sound when the liquid level in the tank reaches 90 percent of capacity and by having delivery of liquid stop automatically when the liquid level in the tank reaches 95 percent of capacity.
  - ⇒ Spacing between adjacent tanks must not be less than 3 feet (0.9 m).
  - ⇒ The tank must be capable of resisting damage from the impact of a motor vehicle, or suitable collision barriers must be provided.
  - ⇒ Where the space is enclosed, it must be provided with emergency venting.

- ◆ Alternatively, locate aboveground fuel tanks within a diked and impervious storage area with containment volumes equal to 1.1 times the capacity of the storage tank(s). Design containment areas with spigots to drain collected materials. If possible, cover the tank with a roof to prevent rainwater from filling the containment area. The control of any stormwater that collects in the diked area must be addressed as a condition of your MSGP.

- Install a vapor-loss control device on any containers with a capacity to store more than 40,000 gallons of any gasoline or petroleum distillate having a vapor pressure of 1.5 lb/in^2 (DC Air Pollution Control Act, 20 DCMR 701).

UST
Underground (Oil, Fuel) Storage Tank

- All existing USTs must include corrosion protection and spill and overfill prevention equipment, e.g., double-walled tanks, hoses, and piping (20 DCMR 5800.1 and 40 CFR 280.21).

- Design and construct all new USTs to include corrosion protection and spill and overfill prevention equipment (20 DCMR 5700.9 and 5705 and 40 CFR 280.20).

- Install a leak detection system on all new and existing USTs (20 DCMR 6003.1 and 40 CFR 280.41).

*A **single pint of oil** released onto the water can cover **one acre** of water surface area (Buller 1995)*

- All motor-fuel USTs must meet federal financial responsibility requirements (i.e., insurance) for environmental pollution liability.

8.2.3 District of Columbia Clean Air Act

In order to reduce air pollution in the District of Columbia, certain types of gasoline and diesel fuel are prohibited.

Gasoline and Diesel Fuel

- The sale and use of diesel fuel containing greater than one percent (1%) sulfur by weight and the sale of gasoline fuel containing greater than one gram of lead per gallon in the District is prohibited by the Air Pollution Control Act (20 DCMR 801 and 20 DCMR 902, respectively).

8.3 Best Management Practices for Preventing Spills at the Source

8.3.1 Protect Petroleum and Fuel Storage Tanks

In addition to the requirements of the District UST Division, marinas with petroleum or fuel storage tanks may implement the following BMPs:

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❖ Install a readily accessible shutoff valve on shore to halt, when necessary, the flow of fuel through a pipeline from the oil storage facility to the dock.

❖ Contact the District UST Division at (202) 535-2525 for assistance with tank installation, emergency response, or spill prevention plan review. All USTs must be registered with the District UST Division.

8.3.2 Avoid Waves and Wakes

For safety reasons, all fueling stations should be accessible by boat without entering or passing through the main berthing area.

❖ Locate fuel docks in areas protected from wave action and boat wakes when constructing new or upgrading existing facilities.

✧ Provide a stable platform for fueling personal watercraft (PWC). You may purchase prefabricated drive-on docks or modify an existing dock by cutting a V-shaped berth and covering the edges with outdoor carpeting. Consider placing the PWC fueling area at the end of the fuel pier to reduce conflict with larger boats.

8.3.3 Maintain Fuel Transfer Equipment

❖ Inspect transfer equipment regularly and fix all leaks immediately.

❖ Maintain transfer equipment and hoses in good working order. Replace hoses, pipes, and tanks before they leak.

❖ Hang nozzles delivery-end upward when not in use so that fuel remaining in hoses does not drain out.

8.3.4 Install Environmental Controls at the Pumps

❖ Install automatic back-pressure shutoff nozzles on fuel pump discharge hoses to automatically stop the flow of fuel into a boat's fuel tank when sufficient reverse pressure is created.

❖ *Do not install holding clips*.

✧ Consider installing fuel nozzles that redirect blow-back into vessels' fuel tanks, or vapor-control nozzles to capture fumes.

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- ❖ Maintain a supply of oil-absorbent pads and pillows at the fuel dock to mop up spills on the dock or in the water.

- ❖ Place plastic or nonferrous drip trays lined with oil-absorbent material beneath fuel connections at the dock to prevent fuel leakage from reaching the water.

- ❖ Post instructions at the fuel dock directing staff and patrons to immediately remove spilled fuel from the dock and water with oil-absorbent material. Indicate the location of the absorbents.

- ❖ Place small gas cans in oil-absorbent-lined drip pans when filling them.

- ✧ Secure oil-absorbent material at the waterline of fuel docks to quickly capture small spills. Use oil-absorbent booms that are sturdy enough to stand up to regular contact with dock and boats.

- ✧ Offer your services to install fuel/air separators on boats.

8.3.5 Supervise Fueling: Environmental and Safety Recommendations

*Generally, marinas require boaters to **fuel their own boats**. The person fueling the vessel is liable for all penalties associated with spilled fuel.*

- ❖ Always have a trained employee at the fuel dock to oversee or assist with fueling.

- ❖ Remind boaters that gasoline vapors are heavier than air; gas vapors will settle in a boat's lower areas.

- ❖ Require all passengers to get off gasoline-powered vessels before fueling.

- ❖ Train employees to clarify what the boater is asking for. For example, as your employee passes the fuel nozzle to the boater, have him or her say, "This is gasoline. You asked for gasoline."

- ❖ Train employees to hand boaters oil-absorbent pads with the fuel nozzle. Request that the boaters use them to capture backsplash and vent-line overflow.

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✧ Attach a container to the external vent fitting to collect overflow. A rubber seal fits over the fuel vent, allowing the overflow to enter the container, which may be attached to the hull by suction cups. Fuel captured in this manner can be added to the next boat to fuel.

❖ Instruct boaters to:
- ⇒ stop all engines and auxiliaries.
- ⇒ shut off all electricity, open flames, and heat sources.
- ⇒ extinguish all smoking materials.
- ⇒ close all doors, hatches, and ports.
- ⇒ maintain nozzle contact with the fill pipe to prevent static spark.
- ⇒ inspect bilge after fueling for leakage or fuel odors.
- ⇒ ventilate all compartments after fueling until fumes are gone.

❖ Require boaters to stay with their craft during fueling.

❖ Train dock staff to carefully observe fueling practices, making sure that fuel is not accidentally put into the holding or water tank.

❖ Instruct boaters to slow down at the beginning and end of fueling. Also, instruct fuel dock personnel and boaters to listen to the sound of filling to anticipate when tanks are nearly full.

❖ Encourage boaters to fill their fuel tanks just before leaving on a trip to reduce spillage due to thermal expansion and rocking. If the fuel is used before it expands, it is less likely to spill overboard.

❖ If boaters prefer to refuel upon their return to port, encourage them to fill their tanks to no more than 90 percent of capacity.

8.3.6 Turn Down the Pressure

Problems with backsplash and vent-line overflow are often due to the high pressure of fuel flow from the pump.

❖ Ask your fuel company representative to reduce the pumping pressure.

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8.3.7 Advocate the Use of Oil-Absorbent Materials

❖ Distribute pads, pillows or booms to your tenants.

✧ Require tenants to use oil-absorbent materials as part of your lease agreement.

8.3.8 Provide an Oil/Water Separator

✧ Invest in a portable or stationary oil/water separator to draw contaminated water from bilges, capture hydrocarbons in a filter, and discharge clean water.

8.3.9 Offer Spillproof Oil Changes

❖ Purchase a non-spill pump system to draw crankcase oils out through the dipstick tube. Use the system in the boat shop and rent it to boaters who perform their own oil changes.

Recycle the collected oil. Recycle the metal canister if your recycler permits. If not, dispose of it in your regular trash.

❖ Slip a plastic bag over used oil filters prior to their removal to capture any drips. Hot-drain the filter by punching a hole in the dome end and draining for 24 hours.

✧ Encourage the use of spillproof oil-change equipment as a condition of your slip rental agreement.

8.3.10 Minimize Spills and Leaks from Machinery

❖ Use non-water-soluble grease on Travelifts, fork lifts, cranes, and winches.

If possible, cover the machinery with a roof to prevent rainwater from filling the containment area.

✧ Place berms around fixed pieces of machinery that use oil and gas to create containment volumes equal to 1.1 times the capacity of the fuel tank. The machinery should be placed on an impervious pad. Design containment areas with spigots to drain collected materials. Dispose of all collected material appropriately. Refer to Chapter 10, *Waste Containment and Disposal*.

✧ Place leakproof drip pans beneath machinery. Empty the pans regularly, disposing of the material properly (uncontaminated oil and antifreeze may be recycled). Place oil-absorbent pads under machinery.

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8.3.11 Educate Boaters

❖ Photocopy the Clean Boating Tip Sheet included at the end of this chapter and distribute it to your tenants. There is room to add your marina's name and logo.

8.4 BMPs for Emergency Planning

8.4.1 Assess Hazards

❖ Consider and plan for:
- ⇒ fuel spill
- ⇒ holding tank or water tank filled with gas
- ⇒ spill at the storage area: used oil, antifreeze, solvents, etc.
- ⇒ fire
- ⇒ health emergency
- ⇒ hurricane
- ⇒ vandalism

8.4.2 Develop Emergency Response Plans

❖ Develop written procedures describing actions to be taken under given circumstances. The plan should be clear, concise, and easy to use during an emergency. Use a large type size.

Each Emergency Response Plan should contain the following information:

Where?

- ⇒ At the front of the plan, insert a laminated facility site plan showing valves, pipes, tanks, structures, roads, hydrants, docks, power and fuel shutoffs, hazardous material storage locations, and telephones.
- ⇒ Describe where response material is located.

Who?

- ⇒ Identify who is responsible for taking what action, e.g., deploying equipment, contacting emergency agencies, etc.
- ⇒ Designate one person on the marina staff as the official spokesperson for the facility.

Box 8-1
Use Oil-Absorbent Material

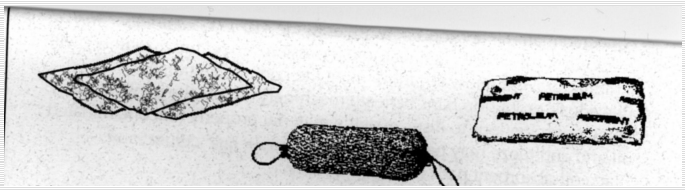
Oil-absorbent pads, booms, and pillows absorb hydrocarbons and repel water. Depending upon the type, they may hold up to 25 times their weight in oil. These products are useful for capturing spills at the fuel dock and in engine maintenance areas, and for removing oil from bilge water.

There are a number of new twists on basic oil-absorbent materials. One new variety of oil-absorbent boom captures oil from the bilge and solidifies it into a hard rubber bumper. Other types contain microbes that digest the petroleum. The oil is converted to carbon dioxide and water. Because the microbes take 2 to 3 weeks to digest a given input of oil, it is not appropriate to use these types of products for a spill of any significant size. Rather, they are designed to control the minor drips associated with routine operations. Care must still be taken that free-floating oil is not discharged overboard.

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

How you dispose of used oil-absorbent material depends on what type of product it is and how it was used:

- ⇒ Standard absorbents saturated with gasoline may be air-dried and reused.
- ⇒ Standard absorbents saturated with oil or diesel fuel may be wrung out over oil recycling bins (if they are saturated with oil or diesel only!) and reused. If not wrung out and reused, they should be double-bagged—one plastic bag sealed inside another—and deposited in your regular trash.
- ⇒ Bioremediating bilge booms may be disposed of in your regular trash as long as they are not dripping any liquid. Because the microbes need oxygen to function, do not seal them in plastic bags.



Oil absorbent materials, such as pads (left), booms (center), and pillows (right) absorb up to 25 times their weight in oil while repelling water.

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⇒ Include a list of emergency phone numbers:
⇒ USCG's National Response Center (800) 424-8802,
⇒ NPS-NCR, Division of Ranger Services (202) 619-7065 (office hours) and (202) 519-3108 (after hours pager), D.C. Emergency Response, Mayor's Command Center, 202-727-6161, local fire and police departments, the owner, neighboring marinas that have emergency response equipment, and spill response contractors (see Appendix F).
⇒ Include a brief description of each agency's jurisdiction and information about what type of equipment and services are available from neighboring marinas and spill response firms.

What?

⇒ State what action should be taken during an emergency and, based on likely threats, what equipment should be deployed. Include information about what type of equipment is available on site and what its characteristics and capabilities are.
⇒ Characterize the facility's waterfront and vessels.
⇒ Describe the type, amount, and location of materials stored on site, e.g., petroleum, hazardous materials.

How?

⇒ Explain how the equipment should be used and disposed of.

When?

⇒ Indicate when additional resources should be called upon for assistance.

❖ Update the plans annually to include any new technology or equipment and to confirm phone numbers.

8.4.3 Make Plans Accessible

❖ Keep copies of all Emergency Response Plans in a readily accessible location.

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Refer to the Marina Staff Tip Sheet, ***Emergency Response Plan,*** at the back of this chapter.

❖ Place a second copy of the SPCC Plan in the oil spill response kit.

❖ Design a laminated poster to display in your employees' break area that shows:
- ⇒ map of marina covering sources of oil, likely flow patterns, and location of spill kits and shutoff valves;
- ⇒ list of who to contact in case of spill; and
- ⇒ response team members and their stations.

8.4.4 Train Employees

❖ Review plans and response procedures with staff at the beginning of each boating season.

❖ Train employees in the use of containment measures.

❖ Run emergency response drills at least twice annually.

✧ Invite the USCG and local fire department to demonstrate emergency response procedures at your marina.

8.4.5 Share Your Emergency Response Plans

❖ Inform your local fire department and Harbormaster, if applicable, about your Emergency Response Plans and equipment.

✧ Let neighboring marinas know what resources are available at your marina.

8.4.6 Maintain Oil-Spill Response Equipment

❖ Maintain enough oil-spill response equipment to contain the greatest potential spill at your facility.

❖ Store enough boom to encircle the largest vessel in your facility. Vessel length x 3 = required length of boom.

8.4.7 Store Oil Spill Response Equipment Smartly

❖ Store the equipment where the greatest threat of an oil spill exists, namely, in fuel receiving and dispensing areas.

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❖ Store materials in an enclosed container or bin that is accessible to all staff—especially those who handle fueling operations.

❖ Mark the storage site with a sign reading "Oil Spill Response Kit." Include instructions for deploying pads and booms and notification that all spills must be reported to the USCG at (800) 424-8802 and NPS-USPP at (202) 619-7300. Spills should also be reported to the District Emergency Management Administration, Emergency Response Mayor's Command Center (202-727-6161), particularly if your marina is not on NPS property.

✧ Consider leaving the storage container unlocked so that it is available to patrons as well as staff. If you prefer not leaving the bin unlocked all the time, leave it unlocked on weekends and holidays, when both activity and risk are greatest.

✧ If the bin is left unlocked, check the inventory regularly.

Failure to report spills to the USCG may result in civil penalties.

If less than a gallon is spilled and you clean it up immediately, the USCG is not likely to send a representative to your facility.

You will not be held liable for a slick that did not originate at your facility.

8.4.8 Respond Quickly to Fuel Spills

What do you do when oil, gas, or diesel fuel is spilled?

⇒ Stop the flow.
⇒ Contain the spill.

Call the USCG National Response Center (800) 424-8802, the NPS-USPP (202) 619-7300 (after-hours pager), and the District Emergency Management Administration, Emergency Response Mayor's Command Center (202) 727-6161.

Call the USCG if a slick floats into your marina from an unknown source. The USCG will clean up the spill with their own resources. They will also investigate and try to eliminate the source of the spill.

8.4.9 Be Prepared for a Fire

❖ Meet the National Fire Protection Association's standards for marinas: NFPA 303, Fire Protection Standards for Marinas and Boatyards; NFPA 302, Fire Protection Standards for Pleasure

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and Commercial Motor Craft; NFPA 30A, Fire Protection Standards for Automotive and Marine Service Station; NFPA 307, Fire Protection Standards for Marine Terminals, Piers, and Wharves; NFPA 230 Standards for Fire Protection of Storage; and NFPA 33, Standard for Spray Application Using Flammable and Combustible Materials.

- ❖ See that hydrants are available to allow for fighting fires throughout your facility.
- ❖ Install smoke detectors.
- ❖ Provide and maintain adequate, readily accessible, and clearly marked fire extinguishers throughout the marina, especially near fueling stations.
- ❖ Inspect and test all firefighting equipment and systems regularly. Test fire extinguishers annually.
- ❖ Train personnel in fire safety and response: who to call, location of hydrants, use of portable extinguishers, etc.
- ❖ Provide ready access to all piers, floats, and wharves for municipal firefighting equipment.
- ❖ Invite the local fire marshal to visit your marina annually to train employees. These annual visits will also help the fire department to become familiar with your facility.

8.4.10 Maintain Material Safety Data Sheets

Under the OSHA Employee Right-to-Know, you are obliged to keep MSDS sheets readily available at the facility, near where the products are stored and/or used.

- ❖ Inform the Local Emergency Planning Committee what materials you store and what is released when these materials burn.

Box 8-2
IMPORTANT SPCC DEFINITIONS:

Oil is defined as "oil of any kind or in any form, including but not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredge spoil." Interpretations of this definition include non-petroleum oils such as vegetable and animal oils.

Discharge involves but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying or dumping of a material. However, some "discharges" are authorized by a permit issued under to Section 13 of the Rivers and Harbors Act of 1899, or Sections 402 or 405 of the FWPCA Amendments of 1972.

Spill Event is a discharge of oil in a harmful quantity into the navigable waters of the US or adjoining shorelines.

RQ or Reportable Quantity is established under the Superfund, Emergency Planning, and Community Right-to-Know Program (40 CFR Part 302) as the quantity of a given material, which, when released by an owner or operator, requires notification of the National Response Center.

Harmful Quantity is a quantity of oil which
(1) Violates applicable water quality standards; or
(2) Causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines; or
(3) Causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Applicable Water Quality Standards are water quality standards adopted by a state pursuant to Section 303 of the FWPCA or promulgated by the EPA pursuant to that section.

Navigable waters of the United States are defined in section 502(7) of the FWPCA, and includes:
(1) All navigable waters of the United States, as defined in judicial decisions prior to passage of the 1972 Amendments to the FWPCA, and tributarties of such waters;
(2) Interstate waters, including interstate wetlands;
(3) Intrastate lakes, rivers, and streams utilized by interstate travelers for recreational or other purposes; and
(4) Intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce.

Owner or operator means any person owning or operating an onshore or offshore facility, and, in the case of an abandoned offshore facility, the person who owned or operated the facility immediately prior to abandonment.

Non-transportation-related facility is defined in the Memorandum of Understanding between the Secretary of Transportation and the Administrator of the EPA as all fixed facilities, including support equipment, but excluding interstate pipelines, railroad tank cars en route, transport trucks en route, and terminals associated with the transfer of bulk oil to and from a water transportation vessel. The term also includes mobile or portable facilities such as onshore drilling or workover rigs, barge-mounted offshore drilling or workover rigs, and portable fueling facilities while they are in a fixed, operating mode.

Onshore facility means any facility of any kind located in, on, or under any land within the United States, other than submerged lands, which is not a transportation-related facility.

Offshore facility is defined as any facility of any kind located in, on, or under any of the navigable waters of the United States, which is not a transportation-related facility.

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PETROLEUM CONTROL

Tip Sheet for Marina Users

Petroleum in or on the water is harmful and may be fatal to aquatic life. Floating petroleum is particularly bad because it reduces light penetration and the exchange of oxygen at the water's surface. Floating oil also contaminates the *microlayer*, the uppermost portion of the water column, home to many species of plants, animals, and microorganisms. Ninety-nine percent of the Chesapeake Bay's blue crab larvae, for example, feed in the microlayer, which also serves as a nursery ground for rockfish. The abundance of life in the microlayer attracts predators: seabirds from above and fish from below. Pollution in the microlayer, therefore, has the potential to poison much of the aquatic food web.

The Law

The Federal Water Pollution Control Act (also called 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 if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes formation of a sludge or emulsion beneath the water surface. Violators are subject to a penalty of $5,000 from the U.S. Coast Guard. The District of Columbia Water Pollution Control Act also prohibits the discharge of oil into District waterways. The DC Department of the Environment may impose additional fines.

Fueling Practices

Gasoline or diesel fuel are occasionally spilled during the act of fueling. This may take the form of back-splash out the fuel intake, or overflow out the vent fitting. Spills of this sort harm aquatic life, waste money, and can result in stained hulls and damage to the gel coat and striping. To avoid such problems, follow these tips:

- Fill tanks to no more than 90 percent capacity—gas that is drawn from cool storage tanks will expand as it warms up aboard your vessel.
- To determine when the tank is 90 percent full, listen to the filler pipe, use a sounding stick, and be aware of your tank's volume.
- Rather than filling your tank upon your return to port, wait and fill it just before leaving on your next trip. This practice will reduce spills caused by thermal expansion, because the fuel will be used before it has a chance to warm up.
- Fill portable tanks on shore, where spills are less likely to occur and are easier to clean up.
- Use oil-absorbent pads to catch drips.
- Slow down at the beginning and end of fueling.

Bilge Maintenance

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

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

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

Disposal of Oil-Absorbent Materials

The disposal of used oil-absorbent material depends on what type of product it is and how it was used:

- Standard absorbents that have been saturated with gasoline may be air-dried and reused.
- Standard absorbents saturated with oil or diesel may be wrung out over oil-recycling bins (if saturated with oil or diesel only!) and reused. Alternatively, they should be double-bagged with one plastic bag sealed inside of another and tossed in your regular trash.
- Bioremediating bilge booms may be disposed of in your regular trash as long as they are not dripping any liquid. Because the microorganisms need oxygen to function, do not seal them in plastic bags.

Emissions Control

Marine engines—especially two-stroke outboard engines—produce the highest average level of hydrocarbon exhaust emissions after lawn and garden equipment. Hydrocarbon emissions contribute to ground-level ozone, a known health risk. To keep your engine operating as efficiently as possible, follow these tips:

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

Preventive Medicine

To prevent spills and reduce emissions:

- Install a fuel/air separator along your vent line. These devices allow air, but not fuel, to escape through a vent opening.
- Attach a safety nozzle to the portable gas cans used to fill outboard engines. These nozzles automatically stop the flow of fuel when the receiving tank is full.
- To prevent oily bilge water from being discharged, install a bilge pump switch that leaves an inch or two of water in the bilge. Alternatively, connect a bilge water filter to your vessel's bilge pump. Filters will remove oil, fuel, and other petroleum hydrocarbons from the water.
- When it is time to buy a new engine, select a fuel-efficient, low-emissions model.

In Case of a Spill

- Stop the flow.
- Contain the spill.
- Call the U.S. Coast Guard National Response Center at (800) 424-8802.
- Call NPS-USPP at (202) 619-7300
- Call District Emergency Management Administration, Emergency Response Mayor's Command Center at (202) 727-6161

For information about the
Green Marina Initiative
Contact the NPS @ (202) 619-7083
or DC @ (202) 535-2305

FUEL SPILL RESPONSE

Tip Sheet for Marina Staff

For Fuel Tanks, Pumps, and Oil-Recycling Tanks

1. Stop the flow
2. Contain the spill (*know where oil-absorbent material is stored*)
3. Notify marina manager/owner @ _____ or _____.
4. Call the U.S. Coast Guard National Response Center @ (800) 424-8802
5. Call NPS-United States Park Police at (202)-619-7300
6. Call District Emergency Management Administration, Emergency Response Mayor's Command Center @ (202) 727-6161
7. Contact spill response company if necessary

For information about the
Green Marina Initiative
Contact the NPS @ (202) 619-7083
or DC @ (202) 535-2305

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

EMERGENCY RESPONSE PLAN

Tip Sheet for Marina Staff

Draw up plans for likely threats, such as fuel spills, health emergencies, fire, and hurricanes. Include the following information in each:

- **Site Plan:** Show valves, pipes, tanks, structures, roads, hydrants, docks, power and fuel shutoffs, hazardous material storage locations, location of response materials, and telephones.

- **Personnel:** Identify who is responsible for taking what action, e.g., deploying equipment or contacting emergency agencies. Designate one person on the marina staff as the official spokesperson for the facility.

- **Phone Numbers:** Include the following in plans, as appropriate:

  - U.S. Coast Guard National Response Center (fuel/chemical spills) – (800) 424-8802
  - DC Emergency Response Mayor's Command Center (fuel or hazmat spill) (202) 727-6161
  - NPS-United States Park Police - (202) 619-7300
  - DC Office of Enforcement and Regulatory Compliance (202) 535-2305
  - Fire Department
  - Police Department
  - Owner
  - Spill Response Contractors
  - Neighboring marinas that have emergency response equipment

- **Action:** State what action should be taken during an emergency and, based on likely threats, what equipment should be deployed. Include information about type of equipment available on site as well as its characteristics and capabilities. Explain how the equipment should be used and what disposal methods should be followed.

- **Site Characterization:** Describe the facility's waterfront and vessels. Also, describe the type, amount, and location of materials stored on site, e.g., petroleum and hazardous materials.

For information about the
Green Marina Initiative
Contact the NPS @ (202) 619-7083
or DC @ (202) 535-2305

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

9

Sewage Handling

9.1 Environmental Concerns

Raw or poorly treated sewage is harmful to human health and water quality. Typhoid, hepatitis, cholera, gastroenteritis, *E. coli* and other waterborne diseases or disease organisms may be passed directly to people who contact contaminated waters. People may also become infected by eating shellfish contaminated with viruses or other microorganisms found in sewage discharge.

Sewage is also harmful to water quality. Because the decomposing microorganisms within sewage need oxygen to break down organic material, any effluent discharged to waterways reduces the amount of oxygen available to fish and other forms of aquatic life. Furthermore, the heavy nutrient load in sewage promotes excessive algal growth. As algae multiply, they prevent sunlight from reaching subsurface vegetation. When they die, their decomposition further reduces levels of dissolved oxygen.

9.2 Coming into Compliance

9.2.1 Marine Sanitation Devices

It is illegal to discharge raw sewage from a vessel within U.S. territorial waters, i.e., anywhere within three miles of the coast. Because permits are required to discharge any pollutants to DC waterways, boats operating in DC waterways are all prohibited from discharging sewage, whether treated or untreated.

The Federal Clean Water Act requires that vessels with an installed toilet be equipped with a Type I, II, or III certified marine sanitation device (MSD). Boats that normally operate in DC waters and that have an installed toilet should be equipped with a Type III MSD, which does not allow the discharge of sewage, when used properly. If a boat entering navigable waters within the District of

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Columbia is equipped with a Type I or II system, the marine sanitation device should be secured to prevent discharge.
See Chapter 3, *Compliance Requirements*, for a description of Type I, II, and III MSDs.

Portable toilets should be properly emptied, on shore.

MSD requirements do not apply to vessels with portable toilets, which are not considered installed toilets. However, direct overboard discharge of portable-toilet wastes (whether treated or untreated) is a violation of water quality standards in the navigable waters of the District.

For more information on the Clean Vessel Act Pumpout Program, call the DC Fisheries Division: (202) 535-2260, or visit the website: http://fa.r9.fws.gov/cva/cva.html.

9.2.2 Pumpout Stations

In 1992, a competitive grant program was authorized under the Clean Vessel Act for states to construct pumpout and dump stations for the disposal of human waste from boats in an environmentally safe manner.

*To find the **locations of nearby pumpout stations** that your boaters may be able to use until your marina has installed a pumpout station, call **1-800-ASK-FISH**.*

Under the Clean Vessel Act Pumpout Program, the District of Columbia Fisheries Division has obtained funds to provide pumpout facilities to marinas along the Anacostia River. In exchange for grant funding, marina owners agree to maintain pumpout systems in operating condition for either 10 years or for the natural life of the unit. A fee of no more than $5 per pumpout is allowed. The pumpout system must be capable of accepting waste from portable toilets as well as from holding tanks, and must be available to the general public during business hours.

9.2.3 No Discharge Areas

All freshwater lakes, reservoirs, and rivers not capable of bearing interstate vessel traffic are defined by the federal Clean Water Act as No Discharge Areas. With the approval of EPA, No Discharge Areas may be established in other state waters.

Any discharge of pollutants to navigable waters in the District must be permitted, because the District has determined its waters to require a greater level of environmental protection. Neither treated nor untreated sewage may be discharged into the waterways from a boat. The EPA has not designated the District waters as a No Discharge Zone, or Area at the federal level. According to the DC Water Pollution Control Act, with respect to all waters within the District of Columbia:

- ◆ No person shall discharge a pollutant to the waters of the District unless permitted by the District of Columbia government (Section 3); and

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Be careful how you word your signs! *Shortly after installing one of the first pumpout systems in Annapolis, a marina owner hung a large sign declaring the availability of his new facility. Over the course of the next week, he noticed a significant drop in fuel sales. One evening he watched one of his regular customers head across Spa Creek to a competitor's fuel dock. The marina manager called out to ask why the boater was bypassing his marina. The boater gestured toward the sign hung over the dock shared by the pumpout system and the fuel pumps. It read, "Pump Out." The boater thought "pump out" meant that the fuel pumps were out of order! A better choice for signs might be "Pumpout Station," "Sewage Pumpout," or simply show the national pumpout symbol.*

◆ The discharge of sanitary sewage, wash or process water, oil-laden bilge water, refuse, or litter from a watercraft is prohibited (Section 7(m)).

9.3 Best Management Practices to Control Sewage

9.3.1 Install a Pumpout System

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

Once you have decided to invest in a pumpout system, consider the following recommendations:

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

Several types of pumpout systems are available:

⇒ systems permanently fixed to a dock,

⇒ mobile systems mounted on a golf cart or hand truck,

⇒ direct slip-side connections, and

⇒ pumpout boats.

Please note that (1) grant funding is not available for direct slip-side connections, since these types of systems are generally not available for public use, and (2) grant funding for pumpout boats is available only to government agencies

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

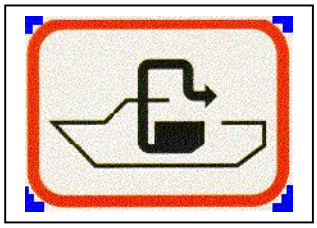
- ***Choose an Accessible Location***. Consider where the pumpout station will be placed (if you select a fixed system). It should easily accommodate the types of boats that frequent your marina. Fuel docks are often good locations. Try to locate the pumpout system in such a way that a vessel being pumped out does not interfere with fueling operations.

- ***Dispose of Collected Waste***. The best option for disposing of collected waste is a direct connection to a municipal sewer line. If sewers are not available in your area, you will need a holding tank. The contents of the tank must be pumped periodically and trucked to a treatment plant. Holding-tank size and location are generally determined by the District Environmental Health Administration.

- ***Handle Collected Waste with Care***. For health reasons, workers should take precautions to avoid coming into direct contact with sewage. Workers should wear rubber gloves and respirators when maintaining or repairing MSDs.

- ***Decide if the Pumpout will be Staffed.*** It is a good idea to have an attendant operate the pumpout. Consider installing a buzzer or page system so that boaters at the pumpout station can easily locate the attendant. If the station is unattended, be sure that clear instructions for use are posted.

- ***Decide Whether a Fee Will be Charged.*** If a fee is charged, how much will it be? Will tenants and liveaboards be charged, or just transients? Remember, the Clean Vessel Act Pumpout Grant Program requires a charge of no more than $5 per pumpout. If the pumpout system is not regularly staffed, you will have to make arrangements to collect the fee. Systems that employ tokens have been used with success in many locations.



- ***Post Signs.*** Provide information about use and cost of the pumpout station, hours of operation, and where to call for service if the system is out of order. Also, post signs that are visible from the channel so that passing boaters are aware of

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the facility. If you do not have a pumpout system, post directions to the closest public pumpout.

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

❖ ***Do Not Allow Waste to Drain into Receiving Waters.*** Do not allow rinse water or residual waste in the hoses to drain into the water body. Keep the pump running until it has been reprimed with clean water.

It is imperative that your staff exhibit this same level of care.

❖ ***Educate Staff.*** If boaters are going to use the pumpout systems, the experience must be as pleasant and convenient as possible. Train your staff accordingly.

9.3.2 Prohibit Discharge from Type I and Type II MSDs at the Slip or Mooring

As mentioned above, the DC Water Pollution Control Act prohibits the discharge of any pollutants into the waters of the District, including discharge from Type I and II MSDs.

Effluent from Type I and Type II systems contains nutrients and possibly toxic chemicals. It probably contains pathogens as well. While many pass-through systems are capable of treating sewage to much higher levels, the standard for Type I systems, as mentioned earlier, is a fecal coliform bacteria count of 1,000 organisms per 100 milliliters. The Anacostia River has coliform levels well above the limits that would permit swimming. Discharges from Type I and II systems therefore only worsen the condition of the Anacostia River. Encourage your boaters to comply with this law by posting signs or by prohibiting discharge from Type I and II systems as a condition of your standard lease.

❖ Make the prohibition of sewage discharge within the marina itself a condition of your standard lease.

❖ Post signs regarding the prohibition of sewage discharge and directing people to use shoreside restrooms.

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9.3.3 Provide Shoreside Restrooms.

❖ Provide clean, well-lit, comfortable restrooms to encourage people not to use their onboard facilities while in port. Make restrooms available 24 hours a day.

❖ Install a security system on restroom doors so that people will feel safe using them, particularly late at night.

✧ Provide air conditioning and heating.

9.3.4 Design and Maintain Septic Systems to Protect Water Quality and Public Health

Septic failures can contaminate drinking water and shellfish.

If you have a septic system, be alert for signs of trouble: wet areas or standing water above the absorption field, toilets that run slowly or back up, and odor. The following tips will help you to avoid the health risks and nuisance associated with an overburdened system (Miller & Eubanks 1992):

❖ Post signs in restrooms asking patrons not to place paper towels, tissues, cigarette butts, disposable diapers, sanitary napkins or tampons in the toilets. These items can clog the septic system.

❖ Post signs in the laundry room encouraging patrons to use minimal amounts of detergents and bleaches.

❖ Do not dump solvents such as paint thinner or pesticides down the drain, and post signs prohibiting customers from doing so.

❖ Do not pour fats or oils down drains.

❖ Do not use a garbage disposal. Disposals increase the amount of solids entering the system. Capacity is reached more quickly, resulting in the need for more frequent pumping.

❖ Use small amounts of drain cleaners, household cleaners, and other similar products.

❖ Do not use "starter enzyme" or yeast. These products can damage the system by causing the infiltration bed to become

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clogged with solids that have been flushed from the septic tank.

❖ Direct downspouts and runoff away from the septic field in order to avoid saturating the area with excess water. For better stormwater management, do not direct the flow toward paved areas.

❖ Do not compact the soil by driving or parking over the infiltration area.

❖ Hire a licensed professional to pump the tank every 2-5 years.

Sewage and gray water from bath houses and laundry facilities may be discharged to a publicly owned treatment works or to an approved septic system.

9.3.5 Provide Facilities for Liveaboards

It is not reasonable to expect that boaters who make their homes aboard vessels will regularly untie in order to use a fixed pumpout facility. It is also unwise to assume that people living on their boats will always use shoreside restrooms. Furthermore, it is undesirable to allow a resident population to discharge Type I or II systems. Consider the following options to meet this challenge. Keep in mind that most liveaboards expect and are willing to pay a premium for extra service and convenience.

Your obligation as marina owner/manager is to provide a convenient sewage disposal system for liveaboards while maintaining good water quality.

❖ Provide a portable pumpout system, or require that liveaboards contract with a mobile pumpout service.

❖ Reserve slips closest to shoreside restrooms for liveaboards. Be sure that the dock and route to the bath house are well lit at night.

❖ Stipulate in the lease agreement that vessels used as homes may not discharge any sewage.

❖ Offer to board their vessels and demonstrate the proper way to secure the "Y-shaped" valve.

✧ As a condition of the lease agreement, require that liveaboards place dye tablets in holding tanks to make any discharge clearly visible.

✧ Install direct sewer hookups for liveaboards.

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9.3.6 Encourage Compliance.

❖ Include information about MSD requirements and sewage laws in contracts for slips rentals, transients, and liveaboards.

❖ State that failure to comply with the MSD laws and marina policy will result in expulsion from the marina and forfeiture of fees.

If non-compliance with MSD laws and marina policies continues, consider evicting the boater.

❖ If a boater fails to observe the law or to honor your contract, discuss the matter with the boater. If the practice continues, mail a written notice asking that the offending practice stop immediately, keeping a copy of the notice for your records.

❖ If a tenant is discharging raw sewage, report him or her to the NPS police or to the EPA Water Program Enforcement Division. Provide as much information as possible: name of owner, vessel, location, etc. See Appendix A for contacts.

9.3.7 Educate Boaters

As the generators and conveyors of sewage, boaters must be educated about the impacts of sewage and about its proper disposal. They must also be encouraged to properly maintain their MSDs and to purchase environmentally-friendly treatment products for their heads and holding tanks.

❖ Photocopy the following Clean Boating Tip Sheet and distribute it to your tenants. There is room to add your marina's name and logo.

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VESSEL SEWAGE

Tip Sheet for Marina Users

Is Sewage a Problem?

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

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

What Does the Law Say?

According to Federal law, it is illegal to discharge raw sewage into United States territorial waters. According to District of Columbia law, it is illegal to discharge even treated sewage into any District waters.

All vessels with installed toilets must have a Marine Sanitation Device (MSD):

- **Type I** systems mechanically cut solids and disinfect waste prior to discharge. They must bear a U.S. Coast Guard certification label.

- **Type II** systems are similar to Type I systems except that they treat sewage to a higher standard and generally require more space and energy. Type II systems must also have a Coast Guard certification label.

- **Type III** systems may not discharge sewage. Holding tanks are the most common Type III system. Incinerating systems are another example of a Type III system. A Coast Guard label is not required.

Vessels 65 feet in length and under may have any of these MSD types. Vessels over 65 feet must have a Type II or III system. Remember, though, that Type 1 and II systems may not be used in District waters.

What Can You Do?

Install a Holding Tank

- Use good plumbing to control holding tank odor. Fiberglass and metal tanks are highly resistant to permeation. Specially labeled flexible "sanitation hoses" and PVC piping are also highly impermeable. Hose runs should be short and as straight as possible. Whenever practicable, use rigid pipe below the level of the holding tank and in other areas where sewage will accumulate. Keep the number of connections to a minimum and ensure that seals are tight.

- Use enzyme-based products in your holding tank to further control odor. Enzyme products use biological processes, rather than harsh chemicals, to break down sewage. Be sure to pump and rinse your holding tank prior to initial use of an enzyme product if you have used chemical-based odor control additives in the past. Chemical residues may interfere with the effectiveness of enzyme-based products.

- Avoid holding-tank products that contain quaternary ammonium compounds (QAC) and formaldehyde. These products may disrupt sewage treatment plants.

Type I and II MSDs

- These are not suited to vessels in DC waters. If you are visiting DC waters:

  - Maintain your Type I or II MSD, and turn them off so they cannot discharge.

- In general, if you have either one, and are not in DC waters:

  - Establish a regular maintenance schedule based on your owner's manual to remind yourself when chemicals should be added, when electrodes need to be cleaned, etc.

  - Do not discharge your Type I or II MSD while in a marina, in a swimming area, over an oyster bed, in a poorly flushed area, within DC waters, or when traveling outside of the District. Effluent from legal Type I and Type II systems contains nutrients and possibly toxic chemicals. It may contain pathogens as well.

- Use shoreside restrooms when in port.

For information about the
Green Marina Initiative
Contact the NPS @ 202-619-2305
or DC @ 202-535-2305

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

10 Waste Containment and Disposal

10.1 Environmental Concerns

All marinas generate some waste. Depending on quantities, methods of disposal, and types of materials used in the process that generates the waste, these wastes could threaten human health, be hazardous to wildlife, or be costly to coastal communities.

River-flow carries plastic debris to the ocean, where seabirds, turtles, fish, and marine mammals can become entangled in, choked or strangled by it.

Solid wastes, particularly plastics, must be controlled and sent for proper land-based disposal. Plastics represent a hazard to navigation as they can be caught in propellers or taken up by engine intakes. Divers are likewise susceptible to entanglement. Furthermore, solid waste that washes up on riverbanks is unattractive, can provide a home to disease vectors, and may be costly to remove.

In addition to solid waste, marina operators must be concerned about the proper collection and disposal of liquid wastes and of corrosive, reactive, toxic, or ignitable—namely, hazardous—wastes.

A number of legal requirements must to be met, depending on whether wastes are hazardous (and therefore subject to regulation under federal and District laws), or non-hazardous. As in other areas discussed in this *Guidebook*, compliance with regulations is required, but, for better environmental protection (and attainment of Green Marina status); other initiatives may be undertaken. This chapter discusses both what is required for basic compliance, and what is recommended in terms of BMPs for environmentally sound waste handling, storage, and disposal. The laws referenced here are discussed more fully in Appendix B.

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10.2 Coming into Compliance

10.2.1 Local Regulations

Discharge of any pollutants into the waters of the District is strictly prohibited, including discharge of oil, gasoline, antifreeze, acid, or other hazardous substance, pollutant, medical waste, or nuisance material to any street, lot, park, alley, sidewalk, or other public space in quantities sufficient to constitute a hazard or nuisance.

District of Columbia Water Pollution Control Act

The DC Water Pollution Control Act as amended in 1992 requires that all marinas that store pollutants or hazardous substances prepare a Spill Prevention and Cleanup Plan specific to the pollutant or hazardous substance (Section 11 (a)(1)). Pollutants (defined in Section 2(19)) include dredge spoil, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemicals, chemical wastes, hazardous wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, oil, gasoline and related petroleum products, and industrial, municipal, and agricultural wastes. The Spill Prevention and Cleanup Plan is subject to review by the District Government.

District of Columbia Illegal Dumping Enforcement Act

Signed into law in 1994, and amended in 1998, the Illegal Dumping Act prohibits anyone from disposing of solid waste, hazardous waste, or medical waste in or upon any street, lot, park, public space, or any other public or private area unless the site is authorized for that disposal.

*Along rivers, the **discharge of any garbage** into the water is illegal. The discharge of **fish** as a solid waste into DC waters is not permitted.*

District of Columbia Mandatory Source Separation Program

The Mandatory Source Separation Program, authorized by DC Code 6-3407, requires owners and occupants of commercial property to separate newspaper, glass, and metal from their solid waste and to provide for recycling of these materials at their facilities. Occupants of residential property are also required to separate and recycle yard waste, newspaper, metal, and glass under this law. Each boater and marina owner/operator is responsible for making arrangements for the proper disposal of solid waste and recyclables from their premises. Refer to Appendix D for a list of recyclers and waste haulers.

Liveaboard boats may be considered residential property under the Source Separation Program.

These regulations also include the need to:

- ◆ use solid waste containers of a design and maintenance-level approved by the Mayor (21 DCMR 700.1).

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- maintain solid waste storage area in a location that is neither unsightly nor a nuisance to local residents (21DCMR 806.1).
- provide a sufficient number of solid waste containers to store rubbish and garbage that might accumulate during the usual interval between collections (21 DCMR 707.3).
- store all solid wastes in containers for collection in a manner that will not provide food, harborage, or breeding places for insects or rodents, or create a nuisance or fire hazard (21 DCMR 700.3).
- keep all containers and waste-storage equipment in safe, clean, odor-free, and properly operating condition (21 DCMR 806.1 and 21 DCMR 707.4).
- clean all trash and recycling receptacles away from the storm sewer. No debris from cleaned containers may drain into the storm sewer (21 DCMR 806.5).

*According to Title 20 DCMR Chapters 40-54, a generator is a **small quantity generator** when less than one hundred kilograms of hazardous waste or less than one kilogram of acutely hazardous waste are generated in a calendar month.*

***20 DCMR** incorporates by reference the text of RCRA **(40 CFR)**, to govern the management of hazardous waste in DC.*

District of Columbia Hazardous Waste Management Act

The Hazardous Waste Management Act is incorporated into DC Code 6-704, which is the authority for the DC Municipal Regulations to manage hazardous waste. A list of hazardous materials provided in 20 DCMR 4103 includes certain solvents, waste paint, and cleaning materials. Both RCRA and the Hazardous Waste Management Act require that small quantity generators clearly identify hazardous waste storage areas and secure them from public access. In addition, according to 20 DCMR 42, generators may not treat, store, dispose of, transport, or offer for transportation any type of hazardous waste without having obtained the appropriate EPA identification number.

All waste generators must determine whether or not their refuse is hazardous. Use the following steps to determine whether you have hazardous waste:

1. It is listed as a hazardous waste in 20 DCMR 4103; or
2. The waste exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, or toxicity, as deter-

mined by standard testing methods carried out by an approved laboratory.

If your waste is characterized as hazardous, then:

- ◆ Apply for an EPA identification number from EPA Region III for the hazardous wastes kept on site (20 DCMR 42). Use EPA Form 8700-12.

- ◆ Store solvents and other hazardous materials in fire-safe containers that are UL-listed or Factory-Mutual approved. Approved containers must carry specification markings (e.g., DOT 4B240ET) in an unobstructed area.
  - ⇒ Refer to 49 CFR 178 for additional packaging specifications.
  - ⇒ Mark on each container the date accumulation begins.
  - ⇒ To prevent corrosion, store containers on pallets in an area capable of containing leaked material.
  - ⇒ Keep containers closed unless waste is being added or removed.
  - ⇒ Inspect containers weekly.

To protect against the risks to life and property inherent in the transportation of hazardous materials, containers must be labeled and marked according to US Department of Transportation standards.

- ◆ Plainly label all stored and containerized material. For hazardous waste, mark on each container the date accumulation begins and ends.

- ◆ Store containers on pallets in a protected, secure location away from drains and sources of ignition. Routinely inspect the storage area for leaks.

- ◆ To minimize air pollution, cap solvents and paint thinners whenever not in use. Store rags or paper saturated with solvents in tightly closed, clearly labeled containers (20 DCMR 708.1).

- ◆ Separate hazardous chemicals by hazardous class. Call the DC Division of Hazardous Waste to determine the classes of chemicals on your premises.

Table 10-1, at the end of this Chapter, contains information and recommendations for the proper disposal of wastes typically found

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at marinas. Refer to Appendix D for lists of recyclers and hazardous waste haulers.

***Never dispose of any hazardous substance** by dumping it into a sink, floor drain, storm drain or onto the ground.*

10.2.2 Federal Regulations

The Refuse Act

The Refuse Act of 1899 prohibits throwing, discharging, or depositing any refuse matter of any kind (including trash, garbage, oil, or other liquid pollutants) into waters of the United States.

Marine Plastic Pollution Research and Control Act

The Marine Plastic Pollution Research and Control Act of 1987 (MPPRCA) is the US law that implements an international pollution prevention treaty known as MARPOL. The MPPRCA of 1987 (Title II of Public Law 100-220) restricts the overboard discharge of garbage. Its primary emphasis is on plastics; it is illegal to discharge plastic materials into any water body. The law also requires that marinas be able to accept garbage from vessels that normally do business with them.

Resource Conservation and Recovery Act (1976)

The federal Resource Conservation and Recovery Act (RCRA) of 1976 was established to improve the collection, transportation, separation, recovery, and disposal of hazardous waste.

*Wastes that are **ignitable, corrosive, reactive**, or **toxic** are hazardous wastes.*

The following requirements apply to all hazardous waste generators. In addition to the DC requirements noted above, you should:

***Hazardous waste "generators"** are individuals or companies that produce greater than 100 kilograms (220 pounds or 30 gallons) of hazardous waste during one calendar month or who store more than 100 kg at any one time.*

- ◆ store quantities of waste greater than 100 kg (220 lbs) but less than 500 kg (1,100 lbs) for a maximum of 180 days. Any quantity of waste greater than 500 kg may be stored for a maximum of 90 days.

- ◆ prepare a written emergency contingency plan if you produce or accumulate more than 100 kg (220 lbs) of hazardous waste. Copies must be kept on site for inspection by the NPS. If there is a complaint regarding a spill, the DC Environmental Crimes Unit will inspect the marina as well.

- ◆ document all hazardous waste training in each employee's personnel file. All personnel who handle hazardous wastes must receive training to ensure compliance with regulations.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

- ◆ prepare a manifest if you send hazardous waste off-site for treatment, storage, or disposal. Ensure that all information on the manifest is correct. The hazardous waste manifest must accompany all hazardous wastes "from cradle to grave." It is *your* responsibility to ensure that the driver and the vehicle are certified to handle hazardous waste. Each transporter of hazardous waste must receive and sign the manifest as should the owner or operator of the treatment, storage or disposal facility. A final copy must be returned to the generator once the waste has been properly treated, stored, or disposed of.

- ◆ submit a report to the DC Division of Hazardous Waste that summarizes hazardous waste activities during odd-numbered years. It is recommended, but not mandatory, to report figures for even-numbered years too.

The files must be available for inspection by the DC Division of Hazardous Waste.

- ◆ retain all records, including manifests and waste analysis and annual reports, for at least three years.

Small quantity generators are not required to register with the EPA.

Facilities that generate less than 100 kg of hazardous waste per month and that do not accumulate more than 100 kg of waste at any one time are considered "small quantity generators." Hazardous waste from small quantity generators should be sent to a disposal facility that is permitted, licensed, or registered by the state to manage municipal or industrial solid waste.

10.2.3 Occupational Safety and Health Standards

MSDS
Material Safety Data Sheet

According to OSHA standards (29 CFR 1910.1200), hazardous materials must be accompanied by Material Safety Data Sheets (MSDSs). These describe the material, what its potentially hazardous properties are, how to safely handle it, how to protect oneself and others form exposure, what actions to take in case of exposure, what it must not be stored near or mixed with, and what to do in case of an accident involving the material.

Maintain Material Safety Data Sheets

Keep a file of MSDSs for all products used at your facility. Store the file in an office away from material storage areas. Keep in

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mind during an emergency that this file will not tell you what quantity is on site or whether all the materials listed are present.

10.3 Best Management Practices to Properly Contain and Dispose of Waste

10.3.1 Reduce Waste

In addition to the suggestions offered in other sections of this *Guidebook,* consider the following recommendations to further reduce waste. Keep in mind that less waste means lower disposal costs.

❖ Avoid having leftover materials by sizing up a job, evaluating what your actual needs are, and buying just enough product for the job. Encourage boaters to do the same.

❖ Minimize office waste: make double-sided copies, use scrap paper for notes and messages, purchase recycled office paper, and reuse polystyrene peanuts or give them to others (e.g., small scale packing and shipping companies) who will reuse them.

❖ Request alternative packing material from vendors, e.g., paper, potato starch peanuts, popcorn, etc.

❖ Discourage the use of plastic and Styrofoam cups, food containers, utensils, and other non-biodegradable products.

✧ Encourage boaters to exchange excess paints, thinners, varnishes, etc. To facilitate this type of activity, provide a bulletin board where boaters can post notices that they are seeking particular materials or have excess quantities.

✧ Post the names of local schools or theater groups that are willing to accept excess, non-toxic paints.

***It is unlawful for any person** to dispose of dead animals, or putrescible matter of any sort, in or upon any public space in the District, including alleys, streets, and sidewalks, unless authorized by the Mayor (24 DCMR 1000.1).*

Control the Disposal of Fish Waste

When large amounts of fish guts are deposited in an enclosed area, the resultant unsightly mess can produce foul odors and decreased dissolved-oxygen levels.

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Contact Minnesota Sea Grant for a copy of *Composting Fish Waste* by Thomas Halbach and Dale Baker. This booklet provides instructions for composting 25 five-gallon buckets of fish waste per week using sphagnum peat moss and wood chips.

❖ Establish fish-cleaning areas. Adopt one of the following methods to dispose of the waste.
  - ⇒ Provide a stainless-steel sink equipped with a garbage disposal that is connected to a sanitary sewer.
  - ⇒ Alternatively, compost fish waste. Proper composting will control the odor and, over time, will produce an excellent soil conditioner that can be used for your landscaping needs.
  - ⇒ Instruct boaters to place fish scraps in plastic bags and dispose in dumpster or at home.

❖ Prohibit fish cleaning outside of designated areas.

❖ Post signs directing people to clean their fish at a fish-cleaning station, at home, or off shore.

Manage Trash

Ask boaters specifically what their needs are.

❖ Develop your waste management strategy based on the number of patrons, the types of waste generated, the layout of your marina, and the amount of staff time you can devote.

❖ Promote your image as a responsible business by providing adequate and reasonably attractive trash receptacles, including cans, bins, dumpsters.

❖ Locate trash receptacles in convenient locations. Select high-traffic areas such as near restrooms and showers, alongside vending machines, adjacent to the marina office or on the path to the parking lot.

❖ Do not place trash containers on docks, since waste may inadvertently be tossed into the water or be blown there.

A cubic yard (27 cubic feet) of dumpster space holds 216 gallons of trash.

❖ Select containers large enough to hold the expected volume of trash. On average, 4 to 6 gallons of reception capacity is needed per person per vessel per day.

❖ Provide lids or some other means of keeping the waste inside and preventing animals and rainwater from getting in.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

❖ Post signs indicating what may not be placed in the receptacle: engine oil, antifreeze, paints, solvents, varnishes, pesticides, lead batteries, transmission fluid, distress flares, and polystyrene peanuts (loose peanuts tend to blow away).

❖ Require all employees to be involved in policing the facility for trash and vessel maintenance wastes. Do not allow litter to mar your grounds or nearshore areas.

❖ Use a pool skimmer or crab net to collect floating debris that gathers along bulkheads or elsewhere within your marina.

✧ Post signs directing people to trash receptacles if they are not in plain view.

✧ Provide lights around trash receptacles so that they are easy to find and safe to use.

✧ Plant or construct a windscreen around dumpsters to make the area more attractive and to prevent trash from blowing away.

Use native shrubs such as red chokeberry (*Aronia arbutifolia*), spicebush (*Lindera benzoin*) or mountain laurel (*Kalmia latifolia*) as a windscreen.

10.3.2 Recycle Whenever Possible

The added cost of providing recycling facilities may be offset by income derived from the sale of high-quality recyclable items such as lead batteries, office paper, aluminum, and cardboard.

Divert reusable materials out of the waste stream. A recycling program is an easy, highly visible means to demonstrate environmental stewardship. Recycling programs are also a good way to introduce patrons to pollution prevention practices. In fact, many of your patrons or tenants are likely to already be in the habit of recycling at home and may expect to see recycling bins. Also, you may realize cost savings due to less frequent tipping of your dumpster(s) because of the reduced volume of trash.

❖ Contact a waste hauler or your local solid waste recycling coordinator (refer to Appendix D) to learn what materials may be collected in your area. The following materials may be recycled: antifreeze, oil, metal fuel filter canisters, solvents, glass, shrink-wrap, type 1 and 2 plastics, aluminum, steel, tin, lead batteries, newspaper, corrugated cardboard,

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mixed paper, scrap metal, tires, and white goods (appliances).

✧ Post information about local recycling services if you are not able to provide all the desired services at your facility.

Recycle Solid Waste

❖ Provide containers to collect, at a minimum, plastic, glass, aluminum, and newspaper.

❖ Clearly mark each container so that people know what may and may not be put into it.

❖ Provide lids or some type of restricted opening to prevent the collected material from being lifted out by the wind and to prevent rainwater from collecting inside.

❖ Place the collection bins for solid recyclables in convenient locations. High-traffic areas near trash receptacles are best.

✧ Make the recycling bins look different from the standard trash cans, e.g., use a different color or material.

Recycle Liquid Waste

❖ Provide containers to collect oil and antifreeze. Also, collect solvents from your boatyard according to hazardous waste regulations.

❖ Provide separate containers for oil, antifreeze, and solvents.

❖ Surround tanks with impervious, secondary containment that is capable of holding 110% of the volume of each tank.

✧ Shelter tanks from the elements.

❖ Attach funnels to tanks to reduce chances of spills. Funnels should be large enough to drain portable containers and oil filters.

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As a precaution though, ***CHECK WITH YOUR RECYCLER BEFORE MIXING ANY MATERIALS.***

❖ Check with your recycler to learn what materials may be mixed. Generally speaking, engine oil, transmission fluid, hydraulic fluid, and gear oil may all be placed in a waste oil container. Some haulers will also take diesel and kerosene. Ethylene glycol and propylene glycol antifreeze are often collected in the same used antifreeze tank.

❖ Post signs indicating what may and may not be placed in each tank.

❖ Do not allow patrons to pour gasoline, solvents, paint, varnishes, or pesticides into the oil or antifreeze recycling containers. The introduction of these materials creates a "hazardous waste." The whole tank must then be disposed of as hazardous waste: a very expensive undertaking.

✧ Consider locking the intake to oil and antifreeze recycling containers to prevent contamination. If you do lock the tanks, instruct your patrons to get the key from the appropriate staff person or to leave their oil or antifreeze next to the collection tank. If you select the second option, assign a member of your staff to inspect the collection site daily for any material that may have been dropped off.

Manifests are not required for used oil or antifreeze that is being recycled.

❖ Be aware that recycling liquid materials is a long-term obligation. Investigate waste haulers to ensure that they do actually recycle the collected material. Maintain shipping manifests for solvents and other hazardous wastes for a minimum of 3 years.

10.3.3 Minimize Your Use of Hazardous Materials

The use of these materials is likely to generate hazardous waste.

By minimizing your use of hazardous materials, you can reduce health and safety risks to your staff, tenants, and contractors; lower disposal costs; decrease liability; and limit chances that you will be responsible for a costly cleanup of materials inappropriately disposed of.

❖ Avoid, to the greatest extent possible, using products that are corrosive, reactive, toxic, or ignitable.

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❖ Adopt an inventory control plan to minimize the amount of hazardous material you purchase, store, and dispose of.

❖ Do not store large amounts of hazardous materials. Purchase hazardous materials in quantities that you will use up quickly.

❖ Establish a "first-in first-out" policy to reduce storage time. Dispose of excess material every 6 months.

Store Solvents and Hazardous Materials with Care

❖ Assign control over hazardous supplies to a limited number of people who have been trained to handle hazardous materials and who understand the first-in first-out policy.

❖ Routinely check the date of materials to prevent them from outlasting their shelf life.

Track Pollution Incidents

✧ Copy and use the *Pollution Report and Action Log* included at the end of this chapter to track pollution incidents and record actions taken.

✧ Post the *Log* on a clipboard in the maintenance area or in another easily accessible location.

✧ Consult the *Pollution Report and Action Log* daily.

10.3.4 Educate Boaters

1 Distribute the following Clean Boating Tip Sheet to your tenants. There is room to add your facility's name and logo.

✧ Contact the Center for Marine Conservation for marine debris educational materials at minimal charge (Appendix A).

✧ Post information about District Household Hazardous Waste Collection events and recycling centers. See Appendix D for a list of local coordinators.

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Table 10-1 Recommendations for Proper Disposal of Wastes Typically Found at Marinas

Waste	Disposal Options (Checked Options are Preferred U)
Antifreeze $ Propylene glycol $ Ethylene glycol *Contact your waste hauler to confirm that they will accept mixed antifreeze*	U Recycle $ Hire a waste hauler to collect and dispose $ Purchase an on-site recovery unit. Distillation systems are more expensive than filtration systems but are more efficient at renewing used antifreeze.
Waste Oil $ Engine oil $ Transmission fluid $ Hydraulic oil $ Gear oil $ #2 Diesel $ Kerosene *Contact your waste hauler to confirm that they will accept mixed oil*	U Recycle $ Use waste oil for space heating (subject to regulations under 20 DCMR 4504) $ Take small quantities to a household hazardous waste collection day
Quart Oil Cans	U Drain completely and dispose of in regular trash. They cannot be recycled.
Non-terneplated Fuel Filters	U Puncture and completely hot drain for at least 24 hours. Recycle the oil and the metal canister. $ If you do not recycle the canister, double-bag it in plastic and place it in your regular trash.
Terneplated Fuel Filter (used in heavy equipment & heavy-duty trucks)	U Dispose of as hazardous waste (contain lead)

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Table 10-1 Recommendations for Proper Disposal of Wastes Typically Found at Marinas

Waste	Disposal Options (Checked Options are Preferred U)
Stale Gasoline	U Add stabilizer in the winter to prevent it from becoming stale or an octane booster in the spring to rejuvenate it. Use the fuel. $ Mix with fresh fuel and use $ Hire a hazardous waste hauler to collect and dispose of. A hazardous waste manifest is required, if above the threshold quantity. $ Take small quantities to a household hazardous waste collection day
Kerosene	U Filter and reuse for as long as possible, then recycle
Mineral Spirits	U Filter and reuse
Solvents $ Paint & engine cleaners such as acetone and methylene chloride	U Reuse as long as possible and then recycle $ Dispose of as hazardous waste
Sludge Recovered from a Solvent Listed as a Hazardous Waste Under 20 DCMR 4103	U Dispose of as hazardous waste
Sludge Recovered from a Solvent Not Listed as a Hazardous Waste Under 20 DCMR 4103 and Which Does Not Exhibit Hazardous Characteristics	U Let sludge dry in a well-ventilated area, wrap in newspaper and dispose of in garbage
Paints & Varnishes: $ Latex $ Water-based $ Oil-based	U Allow to dry completely. Dispose of in regular trash. $ Use leftover material for other projects, e.g., as an undercoat for the next boat $ Encourage tenants to swap unused material
Paint Brushes	U Allow to dry completely. Discard in regular trash.
Paint Filters	U Allow to dry completely prior to disposal. Treat as hazardous waste if paint contains metals above regulatory levels.
Rags Soaked with Hazardous Substances	U Keep in covered container until ready to dispose of. Dispose of the solvent that collects in the bottom of the container as hazardous waste. U Wring rags out over a collection receptacle and have laundered by an industrial laundry. $ If rags fail TCLP test, dispose of as hazardous waste

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Table 10-1 Recommendations for Proper Disposal of Wastes Typically Found at Marinas

Waste	Disposal Options (Checked Options are Preferred U)
Used Oil Absorbent Material	U If it is saturated with oil or diesel, double bag it in plastic and discard in trash (as long as no petroleum is leaking) U If it is saturated with gasoline, allow it to air dry and reuse
Used Bioremediating Bilge Booms	U Dispose in regular trash as long as no liquid is dripping. Because the microbes need oxygen to function, do not wrap in plastic.
Epoxy and polyester resins	U Catalyze and dispose of as solid waste
Glue and Liquid Adhesives	U Catalyze and dispose of as solid waste
Containers $ Paint cans $ Buckets $ Spent caulking tubes $ Aerosol cans	U May be put in trash can as long as: $ All material that can be removed has been. Be sure no more than one inch of residue is on the bottom or inner liner $ Containers that held compressed gas are at atmospheric pressure $ Containers that held acute hazardous waste have been triple rinsed with solvent. Properly dispose of the solvent.
Residue from Sanding, Scraping & Blasting	U Dispose of as solid waste
Residue from Pressure Washing	U Dispose of as solid waste
Lead Batteries	U Recycle or sell to scrap dealers. Store on an impervious surface, under cover. Protect from freezing. Check frequently for leakage. $ Suggest that boaters find dealers willing to give them refunds on returned, old batteries.
Expired Distress Signal Flares	U Encourage boaters to keep onboard as extras U Store in well-marked, fire-safe container. Use expired flares to demonstrate to boaters how they are used. Be sure to notify the fire department and Coast Guard ahead of time—especially if using aerial flares. Conduct the demonstration over water. $ Encourage boaters to bring to local fire department or household hazardous waste collection day
Scrap Metal	U Recycle

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Table 10-1 Recommendations for Proper Disposal of Wastes Typically Found at Marinas

Waste	Disposal Options (Checked Options are Preferred U)
Light Bulbs $ Fluorescent bulbs $ Mercury vapor lamps $ High-pressure sodium vapor lamps $ Low-pressure sodium vapor lamps $ Metal halide lamps	U Recycle if have more than 10 to dispose of. See Appendix D for a list of recyclers. $ If fewer than 10, treat as solid waste
Refrigerants	U Recycle. If you deal with AC, you must be certified and use EPA-approved CFC recovery and recycling equipment. $ Use alternative refrigerants: HCFC-22 (for ACS & electric chillers), HCFC-123 (replaces CFC-11), HFH-134A (replaces CFC-12)
Monofilament Fishing Line	U Recycle through a manufacturer or tackle shop
Scrap Tires	U Recycle. Store according to National Fire Protection Association Standards.
Pesticides	U Dispose of as hazardous waste
Plastic Shrink-Wrap	U Recycle
Fish Waste	U Prohibit disposal of fish waste into DC waters. Select from among the following options: $ Encourage tenants to clean fish as they return to dock. Discard waste over deep water or at home. $ Install a fish cleaning station with garbage disposal connected to municipal sewer $ Compost $ Instruct boaters to bag fish offal in plastic and place in dumpster

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

Figure 10-1

Pollution Report and Action Log

Report Due	Staff Reporting	Problem Description	Action Taken	Action Date	Staff Handling

Recommendations preceded by a solid diamond (◆) identify legal requirements; crossed diamonds (❖) denote highly recommended practices; and an empty diamond (✧) indicates desirable activities.

WASTE CONTAINMENT AND DISPOSAL

Tip Sheet for Marina Users

Trash is unsightly and may be dangerous—dangerous both to humans and to wildlife. For example, plastic may get caught up in propellers or choke sea turtles. Congress passed a law in 1987 to protect our waterways from garbage: the Marine Plastic Pollution Research and Control Act (Title II of Public Law 100-220). This law regulates the disposal of garbage at sea according to how far a vessel is from shore:

- Within U.S. lakes, rivers, bays, and sounds, and within 3 nautical miles of the ocean shore, it is illegal to dump trash, plastic, or other refuse. In District waters, it is also illegal to dump fish waste.
- Between 3 and 12 nautical miles from shore, it is illegal to dump plastic or any other garbage items greater than one inch in diameter.
- Between 12 and 25 nautical miles from shore, it is illegal to dump plastic or dunnage, namely, lining and packing material, nets, lines, etc.
- Beyond 25 nautical miles from shore, it is illegal to dump plastic.

Complying with the law is easy. Just follow these tips!

Contain Trash

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

Recycle

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

Fish Waste

Remember that it is illegal to dump fish waste in District of Columbia waters. Fish waste is smelly and unsightly. Moreover, its decomposition removes dissolved oxygen from the water column. Avoid problems by following these tips:

- Clean fish where you caught it.
- Save waste in a sealed container and use as chum or bait while fishing.
- Discard waste at home.

Maintenance Waste

Dispose of the following items according to the recommendations listed below. Ask Marina Management for the names and numbers of local recycling and hazardous waste coordinators.

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

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Waste Product	Disposal Method
Oil	Recycle
Antifreeze	Recycle
Paint and Varnish	Allow to dry completely (i.e., solidify). Dispose in regular trash.
Solvents	Reuse as long as possible and then recycle
Pesticides	Bring to a household hazardous waste collection day
Expired Emergency Flares	Keep onboard as extras Store in well-marked, fire-safe container. Bring to local fire department or a household hazardous waste collection day

For information about the
Green Marina Initiative
Contact the NPS @ (202) 619-7083
or DC @ (202) 535-2305

Modified from *Maryland Clean Marina Guidebook* Tip Sheets

11 Enforcement and Compliance

11.1 Introduction

This *Guidebook* was developed to encourage and assist owners, operators, and concessionaires at marinas, yacht clubs, and boatyards to go beyond mere compliance with environmental regulations, and to take concrete steps toward environmental protection, achieving Green Marina status in the process. However, as has been explained earlier, to reach Green Marina status, basic compliance with regulations is presupposed.

This chapter provides a look at some of the environmental regulatory authorities and their enforcement mechanisms.

It is important to note that, since the Green Marina Initiative is voluntary, no enforcement mechanisms are associated with it. Facilities that meet the requirements for Green Marina certification will remain Green Marinas until they (1) cease to follow the BMPs that helped them attain Green Marina status, (2) no longer meet the requirements of the Checklist, or (3) ask for release from the program. Members of the Green Marina Advisory Group will visit a facility periodically to confirm that the checklist score is being maintained, but loss of Green Marina status leads to no enforcement or compliance action.

EPA has already initiated enforcement activities *against a number of marinas within the District for the violation of environmental laws and regulations.*

As a result of this federal action, ***many marinas within the District have begun to take steps*** *not only to meet regulatory requirements, but to move beyond compliance, toward recognition as a Green Marina.*

11.2 Regulatory Authorities

11.2.1 District of Columbia Regulations

The primary enforcement agency for District environmental laws is the Environmental Health Administration (EHA), part of the District of Columbia Department of Health. The Metropolitan Police Department, Environmental Crimes Unit, also has enforcement authority.

In addition to federal agencies*, the DC Mayor's Office, the Metropolitan Police and the Environmental Health Administration enforce laws related to environmental quality, including laws on litter control, dumping, and recycling.*

Illegal Dumping Enforcement Act

"It shall be unlawful for any person to dispose or cause or permit the disposal of solid waste, hazardous waste, or medical waste in or upon any street, lot, park, public place, or any other public or private area, whether or not for a commercial purpose, unless the site is authorized for the disposal of solid waste, hazardous waste or medical waste by the Mayor." *[D.C. Act 12-263, Section 6-2912, (1) Subsection (a)]*

The Illegal Dumping Enforcement Act of 1994, as amended by D.C. Act 12-263 (January 26,1998), makes the unlawful disposal of solid waste for commercial purposes, and the unlawful disposal of medical wastes a felony. It increases the penalty for the unlawful disposal of hazardous wastes. Disposal in or upon any street, lot, park, or public place, or in any other public or private area is illegal unless the site is authorized for that type of disposal.

- ⇒ Any person who disposes of solid waste without a permit will be subject to a $1,000 fine for each offense and 90 days imprisonment. Commercial violators are subject to $ 25,000 and 5 years.
- ⇒ Persons who knowingly dispose of hazardous or medical waste are subject to penalties of up to $25,000 and 5 years in a federal prison.
- ⇒ Motor vehicles used in illegal dumping may be seized or forfeited to the District of Columbia.

*The **DC Environmental Crimes Unit** is the primary enforcement authority for the District of Columbia Illegal Dumping Act.*

Violators of the Illegal Dumping Act are liable for three times the cost incurred by the District government for cleaning and clearing the results of the illegal dumping, and for properly disposing of solid waste. Both the NPS police and the District Department of Public Works have the authority to conduct inspections, enforce laws, and impose restrictions on violators.

Refer to Table B.1 in **Appendix B**, *Laws and Regulations*, for a summary of laws pertaining to solid waste storage and disposal.

The Mandatory Source Separation Program (DC Code 6-3407), also pertains to litter control and recycling. It requires commercial facilities to provide an adequate number of clean and functioning solid waste and recycling receptacles to ensure maintenance of their property and immediate surroundings.

Air Pollution Control Act

The District of Columbia Air Pollution Control Act has specific requirements for permits, and, under its authority, inspections, which are conducted for:

- ⇒ construction, modification, and operation of stationary emissions sources;
- ⇒ pollutants in ambient air and at sources (particulates, volatile organic compounds, asbestos, incinerators);
- ⇒ motor vehicular pollutants; and

⇒ odors and nuisance pollution.

The Mayor's office has delegated enforcement authority for the Air Pollution Control Act to the Director of the EHA. The Environmental Crimes Unit also has the authority to inspect facilities and to enforce the Air Pollution Control Act. The EHA Director or the Mayor's office may issue a Notice of Violation or a compliance order.

Civil fines of up to $2,500 may be imposed. Refusal to permit inspection, interference with the inspection, keeping false records, or making false reports or certificates may result in fines of up to $10,000 and 90-day imprisonment.

Hazardous waste characteristics and Industry/EPA hazardous waste numbers are listed in 40 CFR Parts 261.21 – 261.33 and can be found at the following website: http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr261_00.html

Hazardous Waste Management Act

The Hazardous Waste Management Act has been incorporated into DC Code 6-704, which is the authority governing District Municipal Regulations for managing hazardous waste. According to Title 20 DCMR Chapters 40-54, a generator is a small quantity generator if he or she generates less than 100 kilograms of hazardous waste or less than one kilogram of acutely hazardous waste in a calendar month. This is the same definition found in the federal Resource Conservation and Recovery Act (RCRA). A list of hazardous materials given in 20 DCMR 4103 includes certain solvents, waste paint, and cleaning materials.

The Hazardous Waste Management Act, like RCRA, requires that small quantity generators clearly identify hazardous waste storage areas and secure them from public access. Moreover, according to 20 DCMR 42, generators are not to treat, store, dispose of, transport, or offer for transportation hazardous waste without having received an EPA identification number.

If the District of Columbia Hazardous Waste Management Act is violated, the Mayor or his designee may suspend or revoke a small quantity generator permit. They may also issue a Notice of Violation (NOV) and order the offending party to take corrective measures.

If corrective measures are not taken within the time stated in the NOV, the Mayor or his designee may take action to put an end to the violation. The Mayor may also request the Corporation Counsel to institute a civil action for a temporary restraining order, preliminary injunction, permanent injunction, or other appropriate relief.

The Mayor may also impose civil penalties in an amount not to exceed $25,000 for each violation. A civil-infraction summons may be issued as an alternative for violations of the Act or associated regulations. A knowing violation is punishable by a fine of up to $25,000 or imprisonment up to one year.

*The **Environmental Health Administration,** under the DC Department of Health, regulates pools, spas, and health clubs, and oversees vermin and rat control, lead monitoring, and other areas related to environmental health. Refer to Table B.1 for laws in this area that apply to marinas.*

Inspectors from the EHA have the authority to review marinas for general sanitation (to prevent vermin and rat infestation) and for general environmental health.

Water Pollution Control Act Amendments of 1992

The District of Columbia Water Pollution Control Act as amended in 1992 prohibits the discharge of any pollutant into District waters without a discharge permit.

Penalties for willful or negligent violations of this Act or the regulations promulgated pursuant to the Act may reach $25,000 for each day of violation and up to one year imprisonment. Repeat offenders are subject to $50,000 for each day of the violation, and up to two years imprisonment.

The Mayor may issue an order directing the violator to comply with the Act and to eliminate the violation. The violator has the right to an administrative hearing. A civil penalty may be assessed after the person charged with the violation has had an opportunity for such a hearing. The Mayor may institute a civil action for a temporary restraining order, or preliminary or permanent injunction.

*The **Underground Storage Tank Management Act** is also discussed in **Chapter 8**,* Petroleum Control.

Underground Storage Tank Management Act

The Underground Storage Tank Management Act of 1990 establishes environmental regulations for tank performance standards, upgrades, testing, release detection, release reporting, and corrective action.

Enforcement of this law has been delegated to the EHA by the Office of the Mayor. The District may issue:

- ⇒ an NOV or Notice of Threatened Violation with reasonable time to comply;
- ⇒ a compliance order or a cease-and-desist order after the opportunity for a hearing;
- ⇒ an immediate compliance order or a cease-and-desist order (with the right to request a hearing after the order is in force) to correct a situation that presents an immediate threat to public health or the environment; or
- ⇒ a temporary restraining order, where there is an immediate threat to public health or the environment.

Persons not meeting the terms of a final compliance order or a final cease-and-desist order may be required to pay civil penalties of up to $25,000 per day for each day of noncompliance. A person who knowingly fails to notify or who submits false information is subject to a civil penalty of $10,000 for each violation. A person who fails to comply with the rules will be subject to a civil penalty of up to $10,000 per tank per day.

For violators who are party to an NPS contract or who hold a special-use permit, noncompliance with District UST standards also merits review of contract or permit by the NPS Superintendent.

11.2.2 Federal Regulations

EPA Region III oversees enforcement of federal regulations that are not enforced by the NPS or the District of Columbia. Refer to Appendix B, *Laws and Regulations*, for fines and penalties applying to violators of federal regulations.

Clean Water Act of 1977 - Stormwater Management

According to Section 402 of the Clean Water Act of 1977, all marinas and boating facilities at which boat repair, painting, or maintenance (including washing) is conducted are required to obtain a National Pollutant Discharge Elimination System (NPDES) General Permit for construction or discharge from marinas. This is the Multi-Sector General Permit (MSGP), described in Chapter 3.

> ***Chapter 3***, Compliance Requirements**,** *describes the process of obtaining an MSGP and the requirements for a Stormwater Pollution Prevention Plan.*

As part of this permit, marina and boat club owners and operators must have in place an approved Stormwater Pollution Prevention Plan (SWPPP) specific to their boating facility.

Noncompliance with NPDES regulations is a criminal offense, subject to $100,000 per day of violation for second-time offenders. EPA's Water Enforcement Division and its Region III counterpart inspect marinas periodically for compliance with these federal regulations.

Inspectors evaluate a marina for:

⇒ possession of and compliance with the SOPs defined in their facility-specific SWPPP.

Boating facilities that do not have a MSGP or other NPDES permit or that do not have or follow an approved SWPPP are subject to large monetary penalties. The fine for operating without an MSGP or other NPDES permit is $27,500 per day of violation. Violations committed knowingly are also subject to a penalty of up to 3 years in a federal prison.

In addition to issuing fines, EPA can require immediate improvements in equipment, or BMPs.

National Park Service

Implicit in all boating facility contracts, permits, and agreements with the NPS is an agreement to comply with all federal, state, and local regulations. As stated in 36 CFR Section 3.1, regarding Boating and Water Use Activities on National Park Service Property, marinas and boat clubs on NPS property must comply with all federal and state laws and regulations relating to boating activities for the area in which the facility is located. The NPS has the authority to revoke operating permits and contracts if the marina or boating facility is found to violate contract agreements or federal laws.

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A

Information Sources

Alliance for the Chesapeake Bay
6600 York Road, Suite 100
Baltimore, MD 21212
Tel: (410) 377-6270
(800) 662-CRIS
Fax (410) 377-7144
< http://www.acb-online.org/ >

BayScapes information
Tel (410) 573-4593
- Information including a list of beneficial plants

<http://www.acb-online.org/bayscapes.htm>

American Boat and Yacht Council
3069 Solomons Island Road
Edgewater, MD 21037
Tel (410) 956-1050
Fax (410) 956-2737
- Information about holding tank retrofits and vessel standards

< http://www.abycinc.org/index.cfm >

Anacostia Watershed Society
The George Washington House
4302 Baltimore Avenue
Bladensburg, Maryland 20710.
- Information about Anacostia River restoration projects

< http://www.anacostiaws.org/ >

Boat/U.S. Clean Water Trust
880 S. Pickett Street
Alexandria, VA 22304
Tel (703) 823-9550
Fax (703) 461-2855
- Clean boating educational materials

< http://www.boatus.com/ >

Center for Marine Conservation
1725 DeSales Street, NW, Suite 600
Washington, DC 20036
Tel (202) 429-5609
Fax (202) 872-0619
- Marine debris educational material
- Storm drain stenciling information and materials
- Information about the annual international coastal cleanup

< http://www.cmc-ocean.org/ >

Chesapeake Bay Foundation
Philip Merrill Environmental Center
6 Herndon Avenue
Annapolis, MD 21403
Tel (301) 261-2350

Northern Virginia Field Office
Tel (703) 684-5923
- Oyster Restoration Program
- Copies of *Your Boat and the Bay*
- Storm drain stenciling information and supplies

< http://www.cbf.org/ >

Chesapeake Bay Program
Chesapeake Bay Program Office
410 Severn Avenue, Suite 109
Annapolis, MD 21403
Tel (800) YOUR BAY
Fax (410) 267-5777
Information about the Chesapeake Bay Program
< http://www.chesapeakebay.net/ >

Cooperative Extension Service
University of Maryland
Home and Garden Information Center
12005 Homewood Road
Ellicott City, MD 21042
Tel (410) 531-1757
- Soil test kits
- Information and advice about environmentally responsible landscaping, composting, and Integrated Pest Management

< http://www.agnr.umd.edu/users/hgic/ >

District of Columbia Government
Main Office
441 4th Street, NW
Washington, DC 20001
Tel (202) 727-1000
< http://www.dc.gov/ >

District of Columbia Government
Department of Health
825 North Capitol Street, NE
Washington, DC 20002
Tel (202) 442-5999
Fax (202) 442-4788
< http://www.dchealth.com/ >

District of Columbia Government
Department of Health, Environmental Health Administration
51 N Street NE,
Washington, DC 20002
Tel (202) 535-2500
< http://www.environ.state.dc.us/ >

Office of Enforcement and Regulatory Compliance
Tel (202) 535-2505
- Enforcement related questions and complaints

Bureau of Environmental Quality
Main Number (202) 535-1660

Air Quality Division
Main Number
(202) 535-2250
Air Quality Hotline
(202) 962-3299
- Permit for a permanent paint spray booth
- Information about air regulations

<http://www.environ.state.dc.us/AQD_home.htm >

Fisheries Division
Tel (202) 535-2260
- Clean Vessel Pumpout Grant Program Contact

<http://www.dchealth.com/dcfishandwildlife/welcome.htm >

Watershed Protection Division
Tel 202-535-2240
- Stormwater management issues
- Sediment and erosion control issues

<http://www.environ.state.dc.us/watershed/ >

Water Quality Division
Tel (202) 535-2190
- Responses to surface water discharge
- Assistance with NPDES permits
- Information about Anacostia and Potomac River restoration projects

<http://www.dchealth.com/eha/wqd/welcome.htm >

Bureau of Hazardous Materials & Toxic Substances
Main Number (202) 535-2270

Hazardous Materials and Pesticides
Tel 202-535-2290
- Information about hazardous pesticides

Hazardous Waste Division
202-535-2288
- Information about hazardous waste regulations

Lead Poisoning Prevention
Tel (202) 535-2290
- Information about lead paint disposal

Toxic Substance
Tel (202) 535-2299
- Information about Toxic Substances Control Act and other regulations

Underground Storage Tanks Division
Tel (202) 535-2525
Fax (202) 535-1383
- Permits for petroleum storage tanks
- Assistance with installation & plan review
- Register underground storage tanks

<http://www.environ.state.dc.us/USTD/Hazmat.htm >

Other DC Government Agencies

Emergency Management Agency
2000 14th Street, NW
Washington, DC 20009
Tel (202) 727-6161
Fax (202) 673-2290

- Oil or hazardous material spill response

< http://dcema.dc.gov/main.shtm >

Department of Consumer and Regulatory Affairs
941 N. Capitol St. N.E.
Washington, DC 20002
Tel (202) 442-4400
Fax (202) 442-9445

- Professional and business licensing
- Building, housing, and land inspections
- Questions about enforcement of business laws

Metropolitan Police Department
300 Indiana Ave., NW
Washington, DC 20020
Tel 311
Fax (202) 727-9524
< www.mpdc.org/frame.htm >

Department of Public Works
2000 14th Street, NW, 6th Floor
Washington, DC 20009
Tel (202) 673-6833
Fax (202) 671-0642
< www.dpw.washingtondc.gov >

Friends of the Potomac
1730 K Street, NW
Washington, DC 20006
Tel (202) 467-4000
Fax (202) 467-4007
Email info@potomacfriends.org
<http://www.friendsofpotomac.org >

Green Marina Advisory Group
(The group has to be formed as yet, in the interim, contact:
USEPA Liaison to DC
Nick Kauffman
Tel (202) 535-2305

- Questions regarding the Green Marina Initiative

Or :

National Park Service
Environmental Specialist
Tel (202) 619-7083

- Questions regarding the Green Marina Initiative

International Marina Institute (IMI)
P.O. Box 1202
Nokomis, FL 34274

- Copies of *Practices and Products for Clean Marinas*

< http://www.imimarina.org/ >

Interstate Commission on the Potomac River Basin
Suite 300, 6110 Executive Boulevard
Rockville, Maryland 20852-3903

- Information on water quality and living resources of the Potomac River

<http://www.potomacriver.org/index.htm >

Maryland Clean Marina Initiative
Elizabeth Fuller Valentine, Coordinator
Maryland Clean Marina Initiative
Maryland Department of Natural Resources
580 Taylor Avenue, E2
Annapolis, MD 21401
Tel (410) 260-8776
Fax (410) 260-8779
Email bvalentine@dnr.state.md.us
<http://www.dnr.state.md.us/boating/cleanmarina/ >

The Maryland Clean Marina Initiative has served as an exceptional model for the Green Marina Initiative, as well as a source of well-researched best management practices and federal regulations for the Green Marina Guidebook.

Minnesota Sea Grant College Program
University of Minnesota
2305 East Fifth Street
208 Washburn Hall
Duluth, Minnesota 55812
Tel (218) 726-8106
Fax (218) 726-6556
Email seagr@d.umn.edu

- Copy of *Composting Fish Waste* by Thomas Halbach and Dale Baker ($8)

< http://www.seagrant.umn.edu/ >

National Arboretum
Education Department
3501 New York Ave., NE
Washington, DC 20002
Tel (202) 245-2726
Fax (202) 245-4575
<http://www.ars-grin.gov/ars/Beltsville/na/>

National Park Service-National Capital Region
< http://www.nps.gov/ncro/ >

Concessionaires Office
Tel (202) 619-7404

- Information about concessionaire contracts

Environmental Specialist
Tel (202) 619-7083

- Questions regarding the Green Marina Initiative

Division of Ranger Services
Tel (202) 619-7065 (office hours)
After-hours Pager (202) 519-3108

- Oil or hazardous material spill response
- In case of emergency or to report violations
- Abandoned boats and general law enforcement questions
- Contingency Planning Spill Response and Reference Guide
- Designing SPCC plans

National Fire Protection Association
1 Batterymarch Park
PO Box 9101
Quincy, MA 02269-9101
Toll-free (800) 344-3555

- Copies of NFPA standards
- Copies may be available from your local fire marshal

< http://catalog.nfpa.org >

Permanent International Association of Navigation Congresses (PIANC)
Graff de Ferraris, lleme etage, Box 3
Boulevard du Roi Albert II
1000 Brussels BELGIUM
< http://www.pianc-aipcn.org/ >

Potomac Conservancy
1730 North Lynn Street, Suite 403
Arlington, VA 22209
Tel (703) 276-2777

- Information on watershed and restoration projects and volunteer opportunities

< http://www.potomac.org/index.html >

States Organization for Boating Access
P.O. Box 25655
Washington, DC 20007

- *Design Handbook for Recreational Boating and Fishing Facilities*
- *Operations and Maintenance Program Guidelines for Recreational Boating Facilities*

< http://www.soba.gen.dc.us/ >

United States Army Corps of Engineers
Headquarters ATTN: CECG
20 Massachusetts Avenue, NW
Washington, DC 20314-1000
Tel (202) 761-0660
Baltimore District
Potomac River Basin Permit Section
P.O. Box 1715
Baltimore, MD 21203-1715
Tel (410) 962-7608
Tel (410) 962-6002

United States Coast Guard Headquarters
Commandant, U.S. Coast Guard
2100 Second Street, SW
Washington, DC 20593
General Information
Tel (202) 267-2229
Toll-free (800) 368-5647

- Copies of *Federal Requirements and Safety Tips for Recreational Boats*
- Copies of *Managing Waste at Recreational Boating Facilities*

< http://www.uscg.mil/ >

United States Coast Guard
National Response Center
2100 Second Street, SW
Washington, DC 20593
(800) 424-8802

- Oil spill response

< http://www.nrc.uscg.mil/index.htm >

United States Department of Agriculture
Liaison to DC government
202-535-2242

- License for tributyl tin paints

< http://www.usda.gov/ >

United States Department of Commerce
Technology Administration
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
Tel (703) 605-6000
Toll-free (800) 553-6847

- *Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices*
- EPA-published summary document on the same subject

< http://www.ntis.gov/ >

United States Environmental Protection Agency

Region III Headquarters
1650 Arch St.
Philadelphia, PA 19103
Tel (215) 814-5000
< www.epa.gov >

- Information about federal laws and regulations and EPA programs

EPA Chesapeake Bay Program Office
Tel (410) 267-5715
<http://www.epa.gov/r3chespk/index.htm >

National Environmental Justice Advisory Council

- Information about environmental justice and Anacostia River grants

< http://es.epa.gov/oeca/main/ej/nejac/ >

EPA RCRA, Superfund & EPCRA Hotline
(703) 412-9810

Office of Wastewater Management
Region III Contact
Mary Letzkus
Tel (215) 814-2087
Email Letzkus.mary@epamail.epa.gov

- Mulit-Sector General Permit for Discharges from Marinas

< http://www.epa.gov/owm/sw/industry/ >

Office of Water Program Enforcement
Tel (202) 564-2879

- Erosion and sediment control approval
- Stormwater management approval
- NPDES General Permit for Construction
- Stormwater Pollution Prevention Plan

Oil Spill Program

- Oil control laws and regulations

< http://www.epa.gov/oilspill/ >

Potomac River American Heritage River Initiative

- Access to *Fact Sheet* and *Index of Water Indicators*

<http://www.epa.gov/rivers/98rivers/potomac.html >

United States Fish and Wildlife Service
Administrative Office
Washington, DC
Tel (202) 208-4131
Fax (202) 208-7407
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
Tel (410) 573-4500

- Endangered/Threatened Species
- Federal endangered/threatened species
- Submit a USGS topographic quad with the proposed project site marked and a brief project description

< http://www.fws.gov/ >

B

Laws and Regulations

The following section summarizes applicable sections of pertinent laws, regulations, and permit information. It is meant to provide:

- an introduction to the responsibilities of certain federal and state agencies;
- an overview of some relevant laws; and
- a synopsis of information about other pertinent permits and licenses.

B.1 What are Laws and Regulations?

A law begins as an idea for government to control a particular aspect of societal behavior. In the United States, such an idea is presented to a legislature—national, state, or even local—as a "bill," which is frequently given an identifying name (e.g., the Jones Act) and a number (e.g., H.R. 126F, S.27, indicating House of Representatives bill No.126F and Senate bill No. 27, respectively). The bill becomes a law when it is agreed to, usually after some modification, by both the executive and legislative branches of government. In the case of federal law, the bill is given a Public Law number when it is signed into law by the Executive, and a U.S. Code number when it is entered into the U.S. Code. Enforcement of federal or state laws is typically assigned to a particular federal or state agency.

While laws are general, regulations are specific. Regulations are the rules developed by the agency responsible for enforcing a particular law. They tend to identify who is required to comply, what form that compliance is to take, when the requirements take effect, and what the consequences are for non-compliance. Regulations are identified by the title and part numbers of the U.S. Code of Federal Regulations. Rules governing pollution of waterways, for example, may be found in Parts 151-159 of Title 33 (Navigation and Waterways) of the Code of Federal Regulations. This would be referred to as 33 CFR 151-59.

Standards referenced as part of a regulation may take on the force of law.

Standards referenced in regulations, especially water or air quality standards, may have the force of law. Drinking water and swimming water, for example, must be of a certain measurable quality or drinking/swimming is prohibited. Industrial wastewater or air emissions must be of a certain measurable quality, or sanctions may be entered against the polluter. Other standards may result only in recommendations, as when a state environmental agency may recommend that, because pesticides are found above a certain level in fish from a particular water body, fish from that water body not be consumed by humans.

B.2 Selected Federal Agencies and Their Jurisdictions

The following federal agencies are those most likely to have regulations and requirements that will affect you as a marina manager or operator.

B.2.1 United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for ensuring that: (1) environmental protection is considered in U.S. policies related to economic growth, energy, transportation, agriculture, industry, international trade, and natural resources; (2) national efforts made to reduce environmental risk are based on the best available scientific information; and (3) business, state and local governments, communities, and citizens have access to information on how to prevent pollution and protect human health and the environment. The Office of Enforcement and Compliance Assurance is responsible for enforcing, among other laws, the Clean Water Act, Oil Pollution Control Act, and the Marine Plastics Pollution Research and Control Act. Activities are targeted to prevent pollution wherever possible and to reduce risk to people and ecosystems in the most cost-effective manner.

B.2.2 National Ocean and Atmospheric Administration

The mission of the National Ocean and Atmospheric Administration (NOAA), an agency within the U.S. Department of Commerce, is to describe and predict changes in the earth's environment and to conserve and wisely manage the nation's coastal and marine resources to ensure sustainable economic opportunity. NOAA provides a wide range of observational, assessment, research, and predictive services for estuarine and coastal ocean regions. NOAA has developed an array of programs to address national-scale estuarine issues and specific problems affecting individual estuarine and coastal ocean systems.

B.2.3 The United States Army Corps of Engineers

COE
United States Army Corps of Engineers

The United States Army Corps of Engineers (COE) is responsible for ensuring adequate flood control, hydropower production, navigation, water supply storage, recreation, and fish and wildlife habitat. The Corps contracts and regulates coastal engineering projects, particularly with respect to harbor dredging and beach renourishment. The agency also reviews and issues permits for coastal development and artificial reef projects. A joint permit from the District of Columbia Department of Health and the COE is required for all dredging projects. The National Park Service must also approve any projects carried out on NPS property.

B.2.4 The United States Coast Guard

The United States Coast Guard (USCG), an arm of the US Department of Transportation, protects the public, the environment, and US economic interests. The USCG promotes maritime safety and marine environmental protection, enforces maritime law, tends all Federal navigation aids, and regulates and monitors recreational and commercial vessels and waterfront facilities.

B.3 Selected Local Agencies and Their Jurisdictions

B.3.1 District of Columbia

The District of Columbia, Department of Health, Environmental Health Administration is made up of two Bureaus. The Bureau of Environmental Quality, which houses the Air Quality Division, Fisheries Division, Watershed Protection Division, and Water Quality Division; and the Bureau of Hazardous Materials & Toxic Substances, which contains the Hazardous Materials and Pesticides Division, the Hazardous Waste Division, the Lead Poisoning Division, the Toxic Substances Division, and the Underground Storage Tank Division. The mission of the Department of Health, Environmental Health Administration is the prevention and control of environmentally related diseases and the protection and preservation of the ecological system of the District of Columbia.

B.3.2 National Park Service

The National Park Service, a division of the US Department of the Interior and a trustee of natural resources and land, is responsible for ensuring environmental compliance with all federal, state, and local regulations on lands entrusted to its care. Many boat clubs, boatyards, marinas, and marina concessions are located on NPS land in the District and Virginia. Such operations operate under a permit, lease, or contract with the NPS. The agency inspects them, and has the authority to terminate marina/boatyard activities if an owner or operator fails to abide by its contractual agreement.

B.4 Selected Federal Laws that Impact Marinas

The following federal laws may have implications for the operation of your marina. It is important to be aware of them, and to understand what they require.

B.4.1 Clean Air Act Amendments 1990

The Clean Air Act ensures that all sources of emissions into the air comply with air quality standards. Most pertinent to marinas is the Clean Air Act's regulation of paint spray booths. In order to

protect public health and the environment, an Air Quality Permit must be obtained from the DC Air Quality Division prior to operating a paint spray booth.

In addition, the 1990 Clean Air Act Amendment "Gasoline Marine Final Rule" establishes emission standards for new spark-ignition gasoline marine engines. Outboard engines and gasoline marine engines used in personal watercraft and jet boats are covered by the rule. Because sterndrive and inboard engines offer cleaner technologies, emission standards were not set for these types of engines.

The "Gasoline Marine Final Rule" regulates the manufacture of outboard and personal watercraft marine engines, and is included here only for your knowledge. Boat engines currently in use are not affected by this regulation, and boat owners are in no way responsible for making modifications to their current engines to meet the emission standards. Nor are boat dealers responsible for compliance with this regulation. Manufacturers of outboard and personal watercraft marine engines are responsible for achieving yearly emissions reductions.

CVA
Clean Vessel Act

NPDES
National Pollutant Discharge Elimination System

CWA
Clean Water Act

B.4.2 Clean Vessel Act

The Clean Vessel Act (CVA) provides funds to states to construct, renovate, and operate pumpout stations and to conduct boater environmental education. Contact the DC Fisheries Division at (202) 535-2266 for information about receiving grant funding to install a pumpout system. Refer to Appendix A for the DC Fisheries Division full contact information.

B.4.3 Clean Water Act

The Clean Water Act (CWA), addresses many facets of water quality protection. It provides the authority for the NPDES permit program for point-source pollution. It prohibits the discharge of oil or hazardous substances into navigable waters of the United States. It also prohibits the use of chemical agents like soaps, detergents, surfactants or emulsifying agents to disperse fuel, oil, or other chemicals without the permission of the USCG.

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

Discharge of Oil Prohibited

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

The Clean Water Act requires that the US Coast Guard be notified anytime a spill produces a sheen on the water. Failure to report a spill may result in civil penalties.

*Call the **National Response Center** at **(800) 424 8802** immediately in case of a spill.*

Report the location, source, size, color, substance, and time of the spill.

As stated in the placard, the CWA requires the spiller to notify the USCG **IMMEDIATELY** anytime a spill produces a sheen on the water. Knowing violations of the CWA are subject to penalties of $27,000 to $150,000. Failure to notify the USCG of a spill or willful discharge is a criminal violation, subject to a $10,000 penalty and a year in jail.

The Act further requires that all recreational boats with installed toilets have an operable marine sanitation device on board.

MSD
marine sanitation device

Marine Sanitation Devices

The CWA requires that vessels with an installed toilet be equipped with a certified marine sanitation device (MSD). Three systems are in use—Type I, Type II, and Type III:

Remember!
It is illegal to discharge raw sewage into U.S. territorial waters *and* it is illegal to discharge treated sewage into navigable waters of the District of Columbia.

⇒ *Type I* systems mechanically cut solids, disinfect the waste with a chemical additive (or with chlorine electrolytically dissociated from salt water), and discharge the disinfected sewage overboard. The fecal coliform bacteria count ("fecal coliform count") of the effluent may not be greater than 1,000 organisms per 100 milliliters of water, and may not contain floating solids.

⇒ *Type II* systems are similar to Type I systems except that Type II systems treat sewage to a higher standard. The fecal coliform count from a Type II system may not exceed 200 organisms per 100 milliliters, and total suspended solids may be no greater than 150 milligrams per liter. Type II systems also require more space and have greater energy requirements.

⇒ *Type III* systems do not necessarily disinfect sewage or otherwise treat it, but they allow no sewage to be discharged. The most common form of a Type III system is a holding tank. Other forms of Type III systems include recirculating and incinerating systems.

To find the locations of nearby pumpout stations that your boaters may be able to use until your marina has installed a pumpout station, call 1-800-ASK-FISH.

MSD requirements do not apply to vessels with portable toilets, which are not considered installed toilets. However, direct overboard discharge of portable-toilet wastes is a violation of water quality standards in DC navigable waters. Because of the District's No Discharge Area designation, boats with an installed toilet should be equipped with a Type III MSD, from which no discharge of untreated or treated sewage into navigable waters is permitted. If a boat entering navigable waters of the District is equipped with a Type I or II system, the device should be secured to prevent discharge.

Portable toilets should be properly emptied on shore. Most pumpout facilities have wand attachments to empty portable toilets. Some marinas have portable toilet dump stations. Refer to Section B.5.2 and Chapter 9, *Sewage Handling*, for more information about pumpout stations.

MPPRCA
Marine Plastic Pollution Research and Control Act

B.4.4 Marine Plastic Pollution Research and Control Act (MPPRCA)

The Marine Plastic Pollution Research and Control Act (MPPRCA) is the federal law that implements the international MARPOL (or Marine Pollution Act, shorthand for the Act to Prevent Pollution from Ships, enacted in 1973). The MPPRCA of 1987 (Title II of Public Law 100-220) restricts the overboard discharge of garbage. Its primary emphasis is on plastics: it is illegal to dispose of plastic materials into the water anywhere. The disposal of other garbage is restricted according to a vessel's distance from shore.

- Within United States lakes, rivers, bays, and sounds, and within 3 nautical miles of shore, it is illegal to dump plastic, paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food.

- Between 3 and 12 nautical miles from shore, it is illegal to dump plastic or any other garbage items greater than one inch in diameter.

- Between 12 and 25 nautical miles from shore, it is illegal to dump plastic and dunnage.

- Beyond 25 nautical miles, it is illegal to dump plastic.

The dumping restrictions apply to *all* vessels operating in *all* navigable waters of the United States and the 200-mile Exclusive Economic Zone. All vessels greater than 26 feet in length must display a MARPOL placard (as specified outlining the garbage dumping restrictions. All vessels over 40 feet in length must also have a written waste management plan on board.

Under federal law, ports and terminals, including recreational marinas, must have adequate and convenient "reception facilities" for their regular customers. That is, marinas must be capable of receiving garbage from vessels that normally do business with them (including transients).

Penalties for noncompliance with MARPOL regulations may reach $25,000 per violation per day. Fraudulent statements made to the USCG may result in $5,000 per statement or representation. Willful violation results in criminal penalties of up to $50,000 and/or imprisonment for up to 5 years.

OPA
Oil Pollution Act of 1990

B.4.5 Oil Pollution Act of 1990

The Oil Pollution Act of 1990 (OPA) was written in direct response to the *Exxon Valdez* oil spill. The law primarily addresses commercial oil shipping (tankers, for example, must be double-hulled, and captains may lose their licenses for operating a vessel under the influence of drugs or alcohol). Some of the requirements, however, are applicable to recreational boating and marina operators. Most notably, the responsible party for any vessel or facility from which oil is discharged is liable for the removal costs and for any damage to: natural resources; real or personal property; subsistence uses; revenues, profits, and earning capacity; and public services, such as the cost of providing increased or additional public services. Substantial civil penalties may be imposed for failure to report a spill, for discharging oil, for failure to remove oil, for failure to comply with regulations, and for gross negligence.

In addition to regulating spills, the OPA also introduced requirements for vessel and facility contingency planning, including tank trucks and pipelines that could be sources of spills into a navigable waterway. A Spill Response Contingency Planning Guide is

available to marinas operating on NPS property through the park's Superintendent.

Penalties for violations of the OPA range from $10,000 to $500,000. Administrative penalties have been increased to $10,000 per spill, with a maximum fine of $25,000. Repeat violators are subject to a cumulative amount of $125,000. Failure to comply with pollution regulations results in a penalty of $10,000 per violation, while failure to comply with an issued order results in $25,000 or three times the cost of federal removal. Willful misconduct/gross negligence is subject to a penalty of $100,000, and failure to notify the USCG of a spill incurs a criminal penalty. Individuals are subject to $250,000 in fines, and organizations may be fined up to $500,000 and face 5 years imprisonment.

OAPC
Organotin Antifoulant Paint Control Act

TBT
tributyl tin

B.4.6 Organotin Antifoulant Paint Control Act

The Organotin Antifoulant Paint Control (OAPC) Act of 1988 restricts the use of organotin anti-fouling paints, including tributyltin-based paints. Tributyltin (TBT) paints may be used only on aluminum-hulled vessels, on boats greater than 82 feet (25 meters) in length, and on outboard motors and lower drive units. It is illegal for anyone without a license to distribute, sell, use, or possess anti-foulants containing tributyltin. The only exception is for spray cans of 16 ounces or less and that do not exceed a release rate of 5.0 micrograms per square centimeter per day.

B.4.7 Refuse Act

The Refuse Act of 1899 prohibits throwing, discharging or depositing any refuse matter of any kind (including trash, garbage, oil and other liquid pollutants) into waters of the United States.

RCRA
Resource Conservation and Recovery Act

EPA
Environmental Protection Agency

B.4.8 Resource Conservation and Recovery Act

The federal Resource Conservation and Recovery Act (RCRA) of 1976 provides the legal authority to establish standards for handling, transporting, and disposing of hazardous wastes.

Hazardous wastes are ignitable, corrosive, reactive, and/or toxic. Hazardous waste "generators" are those individuals or companies that produce greater than 100 kilograms (about 220 pounds or 30 gallons) of hazardous waste during one calendar month or who store more than 100 kilograms at any one time.

Facilities that generate less than 100 kilograms of hazardous waste per month and that do not accumulate more than 100 kilograms of waste at any one time are considered "small quantity generators."

The following requirements apply to hazardous waste generators.

EPA Form 8700-12 ***Notification of Regulated Waste Activity*** and associated instructions may be found at the EPA website:

http://www.epa.gov/epaoswer/haz-waste/data/form8700/forms.htm

The instructions are designed to help you determine whether you are subject to the requirements under the Resource Conservation and Recovery Act (RCRA) for notifying EPA or authorized state of your regulated waste activities.

- All generators and transporters of hazardous waste must apply to the DC Division of Hazardous Waste for an EPA identification number. Use EPA Form 8700-12 (available from the DC Division of Hazardous Wastes). Refer to Appendix A for contacts.

- Store hazardous waste in UL-listed or Factory-Mutual approved containers that are labeled and marked according to Department of Transportation regulations (refer to 49 CFR 178). Mark on each container the date that accumulation began. Store containers on pallets to prevent corrosion, in an area capable of containing leaks. Keep containers closed unless waste is being added or removed. Inspect containers weekly.

- Store quantities of waste greater than 100 kilograms (220 lbs) but less than 500 kilograms (1,100 lbs) for a maximum of 180 days. Any quantity of waste greater than 500 kilograms may be stored for a maximum of 90 days.

- Prepare a written emergency contingency plan if you produce or accumulate more than 100 kilograms (220 lbs) of hazardous waste. Copies must be given to the DC Hazardous Waste Division.

- Document all hazardous waste training in each employee's personnel file. All personnel who handle hazardous waste must receive training to ensure compliance with District regulations.

- Prepare a manifest for any hazardous waste sent off site for treatment, storage, or disposal. Ensure that all information on the manifest is correct. The hazardous waste manifest must accompany all hazardous wastes "from cradle to grave." It is *your* responsibility to ensure that the driver and vehicle are certified to handle hazardous waste. Each transporter of hazardous waste must receive and sign the manifest, as should the owner or operator of the treatment, storage, disposal facility. A final copy must be returned to the generator once the waste has been properly treated, stored, or disposed of. Training is provided through a number of public and privately run courses.

- Submit a biannual report to the DC Department of Health (Environmental Health Administration, Division of Hazardous

Wastes) that summarizes hazardous waste activities during odd-numbered years. It is recommended, but not mandatory, to report figures for even-numbered years as well.

- Retain all records, including manifests and waste analysis and annual reports, for at least three years. The files must be available for inspection by the DC Division of Hazardous Wastes.

If you have questions about RCRA, call the *EPA RCRA, Superfund & EPCRA Hotline* (703) 412-9810
Monday - Friday
9:00 a.m. - 6:00 p.m. EST
Closed Federal Holidays
or visit their website
http://www.epa.gov/epaoswer/hotline/index.htm

Small quantity generators are not required to register with the EPA. However, hazardous waste from small quantity generators should be sent to a disposal facility that is permitted, licensed, or registered by the District of Columbia to manage municipal or industrial solid waste.

Penalties for violations of RCRA are up to $250,000 for individuals and $1 million for organizations. Civil charges are $25,000 per day. Criminal offenses are subject to $25,000 per day and one year in prison, with a double penalty for second offenses. Those that violate RCRA knowingly with imminent endangerment are subject to a $250,000 fine and 2-5 years in jail for individuals, and $1 million with 2-5 years in jail for organizations.

B.4.9 The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as Amended by the Superfund Amendments and Reauthorization Act (SARA)

Commonly referred to as the "Superfund Act," CERCLA was enacted in 1980 with the purpose of establishing a response mechanism for immediate cleanup of hazardous-substance spills and of inactive hazardous waste sites judged to pose a threat to human health or the environment. CERCLA established: (1) requirements for a National Contingency Plan for the emergency cleanup of oil and hazardous substances, (2) provisions to compel responsible parties to initiate or pay for cleanup, and (3) a public fund to finance federal and state cleanup action. SARA, enacted in 1986, provided for fund replenishment in addition to adding or amending several provisions of CERCLA. Significant among these is Title III, the "Community Right-to-Know Act."

CERCLA is primarily aimed at remedial action. Requirements include: proper notification, cleanup/containment, and restorative action for releases and potential releases of hazardous substances in excess of the reportable quantity established for the material by the EPA. SARA provides access to information that identifies types and quantities of chemicals processed, produced, spilled, or released at chemical facilities. SARA also establishes require-

ments for emergency planning at the state and local level and imposes reporting requirements on facilities processing or producing listed substances above a "threshold planning quantity."

Penalties for knowingly violating CERCLA are $25,000 per day, which is increased threefold for a second offense. Criminal (willful) violations are subject to a $20,000 fine and one year in jail.

B.4.10 Rivers and Harbors Act, as amended

The Rivers and Harbors Act (RHA) of 1899 was passed for the purpose of giving the federal government control over construction in or over the nation's waterways. The operative parts of the Act are Sections 9 and 10. Section 9 requires approval of the COE for construction of bridges, dams, dikes, causeways, et al., over waterways. Section 10, which directly affects marina operators, prohibits the creation of any obstruction to a waterway, in-water construction, or in-water excavating/filling without the approval of COE.

B.4.11 Title 36 of the Code of Federal Regulations, Chapter I—National Park Service, Department of the Interior

Title 36 CFR 1 details the general provisions of NPS operations. As stated in Section 1.6, "the superintendent may issue a permit to authorize an otherwise prohibited or restricted activity or impose a public use limit." Many marinas in the District operate on NPS land under either a special-use permit or concessionaire contract issued by the NPS. According to 36 CFR 1.6(a), "the activity authorized by a permit shall be consistent with applicable legislation, Federal regulations and administrative policies, and based upon a determination that public health and safety, environmental or scenic values, natural or cultural resources, scientific research, implementation of management responsibilities, proper allocation and use of facilities, or the avoidance of conflict among visitor use activities will not be adversely impacted." In addition to ensuring compliance with environmental regulations and protection of resources, the permit must include the terms and conditions that the superintendent deems necessary to protect park resources or public safety.

Other parts of the Chapter dealing with the NPS list regulations for boating and water-use activities, commercial and private operations, and concession contracts and permits. In 36 CFR 51, Concession Contracts and Permits, the law explains the process by which marina operators who are in compliance with regulations may receive a preferential right to an award of concession con-

tracts. Marinas that have received satisfactory ratings on their year-end evaluations throughout their contract are eligible for preferential treatment in their next bid for a contract.

B.5 Selected Local Laws and Directives that Impact Marinas

B.5.1 District of Columbia Water Pollution Control Act

The District of Columbia Water Pollution Control Act was enacted in 1984 and amended in 1992. Its purpose is to regulate the restoration of water quality in the District and the protection of the fish, other aquatic life, and habitat. The Water Pollution Control Act authorizes the Mayor of the District to protect, preserve, and restore aquatic life; review and if necessary revise District water quality standards; and regulate discharge of pollutants to waters of the District through issuance of permits.

The District Water Pollution Control Act prohibits the discharge of any pollutant into the waters of the District of Columbia without a discharge permit. According to the Act, all waters within the District are to be regarded as a No Discharge Area.

The Act provides that "no person shall discharge a pollutant to the waters of the District," except as specifically authorized by permit for point sources, consistent with the federal Clean Water Act. The definition of pollutant includes: solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemicals, et al. The District of Columbia government may also control nonpoint sources of pollutants. A person in charge of a facility must inform the District of Columbia government as soon as the discharge of a pollutant is discovered. Where a discharge or threat of a discharge into the waters of the District presents an imminent danger to the public health or welfare, the District of Columbia is authorized to remove the pollutant. A person who stores a pollutant at an onshore or offshore facility is required to have a spill prevention and cleanup plan approved by the District of Columbia Department of Health, Environmental Health Administration.

With regard to marinas and recreational boating, the District Water Pollution Control Act specifically prohibits the discharge of sanitary sewage, wash or process water, oil-laden bilge water, refuse, or litter from watercraft. The discharge of used motor oil to any sewer, or the discharge of oil, gasoline, antifreeze, acid, or other hazardous substance, pollutant, or nuisance material to any street, alley, sidewalk or other public space in quantities sufficient to constitute a hazard or nuisance is also prohibited. As mentioned

above, the person in charge of the marina is required by this law to notify District authorities immediately upon discovery of any discharge of a pollutant from a vessel or the facility.

As with the Oil Pollution Act, the District of Columbia Water Pollution Control Act requires spillers to respond immediately, pay for all cleanup costs, and compensate economically injured parties. In addition to regulating spills, the Act introduces requirements for vessel and facility contingency planning, and prohibits storage of a pollutant or hazardous substance at an onshore or offshore facility without an approved spill prevention and cleanup plan for the pollutant or hazardous substance. Facilities with underground storage tanks (USTs) containing oil, gasoline, or other pollutant must maintain the UST in conformance with the requirements of the DC UST Management Act of 1990. See Section B.5.3 for more information.

Penalties for willful or negligent violations of this Act or the regulations promulgated pursuant to it may reach $25,000 for each day of violation, and one year imprisonment. Repeat offenders are subject to $50,000 for each day of violation, and two years imprisonment.

B.5.2 District of Columbia UST Management Act

According to the District Underground Storage Tank Management Act of 1990, both new and existing USTs must be equipped with corrosion protection, spill and overfill control, and a leak detection system.

Hazardous waste characteristics and Industry/EPA hazardous waste numbers are listed in 40 CFR Parts 261.21 – 261.33 and may be found at the following website: http://www.access.gpo.gov/nara/cfr/waisidx_00/40cfr261_00.html

B.5.3 District of Columbia Hazardous Waste Management Act

The District Hazardous Waste Management Act has been incorporated into DC Code 6-704, which is the authority for the DC Municipal Regulations for managing hazardous wastes. According to Title 20 DCMR Chapters 40 through 54, a generator is a small quantity generator if he or she generates less than one hundred kilograms of hazardous waste or less than one kilogram of acutely hazardous waste in a calendar month. Hazardous wastes are listed in 20 DCMR 4103; they include certain spent solvents, waste paint, and cleaning materials.

Both RCRA and the DCMR require that small quantity generators clearly identify hazardous waste storage areas, and secure them from public access. In addition, according to RCRA and 20 DCMR 42, generators must not treat, store, dispose of, transport,

or offer for transportation hazardous waste without having received an EPA identification number.

B.5.4 Mandatory Source Separation Program

The Mandatory Source Separation Program, authorized by DC Code 6-3407, requires owners and occupants of commercial property to separate newspaper, glass, and metal from their solid waste and provide for recycling of these materials at their facilities. Occupants of residential property are also required to separate and recycle yard waste, newspaper, metal, and glass under this law. Liveaboard boats may be considered residential property under this law. Each boater and marina owner/operator is responsible for making arrangements for the proper disposal of solid waste and recyclables from their premises. Refer to Appendix D for a list of recyclers and waste haulers.

B.5.5 District of Columbia Illegal Dumping Enforcement Act

Signed into law in 1994, and amended in 1998, the Illegal Dumping Enforcement Act prohibits anyone from disposing of solid waste, hazardous waste, or medical waste in or upon any street, lot, park, public place, or any other public or private area unless the site is authorized for that disposal. Any person who disposes of solid waste without a permit is subject to a $1,000 fine for each offense and 90 days of imprisonment. Persons who knowingly dispose of hazardous waste or medical waste are subject to penalties reaching $25,000 and 5 years in a federal penitentiary. Motor vehicles used in illegal dumping may be seized or forfeited to the District of Columbia. Violators of this Act are liable to pay three times the cost and expense incurred by the government of DC for cleaning and clearing the contaminated site and for properly disposing of solid waste. Payment by the violator is to be made within 10 days of demand by the District government.

EIS
Environmental Impact Statement

B.5.6 District of Columbia Environmental Policy Act

According to the District Environmental Policy Act (Title 6 DC Code Chapter 9, subchapter VI), an Environmental Impact Statement (EIS) is required for any "major action," i.e., any action proposed by or requiring approval by the Mayor of the District or a board, commission, or authority costing over $1,000,000 that may have a significant negative impact on the environment. Actions under $1,000,000 may require an EIS if the action imminently and substantially affects public health, safety, or welfare. There are certain exemptions to the requirements for an EIS, as, for example, where the "functional equivalent" of an EIS has been prepared, where the project is to be carried out in the Central Employment

Area, or where an EIS is exempted by rule. If the EIS identifies an adverse impact from a proposed major action and finds that the public health, safety, or welfare is imminently and substantially endangered, the District may disapprove the action unless mitigating measures or alternatives are proposed to avoid the danger.

B.5.7 District of Columbia Air Pollution Control Act

The District Air Pollution Control Act, incorporated into 20 DCMR, regulates permits for construction, for modification and operation of stationary sources, for ambient air monitoring, and for source monitoring. It regulates incinerators, and concentrations of particulates, volatile organic compounds, asbestos, motor vehicle pollutants, lead, odors and nuisance pollutants. It authorizes enforcement and inspections.

Marina operators should pay particular attention to the Air Pollution Control Act's regulation of degreasing, fueling, odor and noise pollution, and petroleum storage.

According to this regulation, marinas are prohibited from:

⇒ discharging greater than 15 pounds of photochemically reactive solvents in any one day or greater than 3 pounds in any one hour, unless the uncontrolled organic emissions are reduced by at least 85%;

⇒ using solvent for cleaning without using a container and cover for the solvent and articles being cleaned, and a facility for draining cleaned parts into the original container;

⇒ selling or using diesel fuel containing greater than 1% sulfur by weight and gasoline fuel containing greater than 1% lead;

⇒ discharging emissions into the atmosphere of odorous or other pollutants that are likely to be injurious to the public health and welfare, or that interfere with the reasonable enjoyment of life and property; and

⇒ storing greater than 40,000 gallons of any gasoline or petroleum distillate having a vapor pressure of 1.5 pounds per square inch without vapor-loss control devices.

The DC Air Pollution Control Act also requires that engine, power, and exhaust mechanisms of motor vehicles be equipped, adjusted,

and operated to prevent the escape of a trail of visible fumes or smoke for more than ten consecutive seconds.

B.5.8 Anacostia River Restoration Strategy

The first goal of the Anacostia River Restoration Strategy is to reduce the release of pollutants into the Anacostia River by enforcing District of Columbia and federal environmental laws, by carrying out effective regulatory programs, and by encouraging the use of innovative technologies to control pollution in urban settings. The District of Columbia government, with the help of marina owners and operators, is establishing a program of environmental stewardship and waste minimization at the marinas and boatyards on the Anacostia River. Steps taken to attain this goal include: education; installation of pumpout station equipment at local marinas; coordination with marinas to educate boaters and provide them access to environmentally-friendly practices and products; and a rewards program for recognizing "Green Marinas."

B.5.9 National Parks Service Concessions Management Improvement Act of 1998

The NPS Concessions Management Improvement Act covers the terms of concession contracts; protection of concessionaire investment; fees; and the NPS Concessions Management Advisory Board, among other things. Under this law, marinas and other public accommodations, facilities, and services, should be provided only under carefully controlled safeguards against unregulated and indiscriminate use. The purpose of this law is to ensure that concessions such as marinas are used and sited in an environmentally conscientious manner so that marina use does not unduly impair the park's natural resources.

The NPS-National Capital Region is in the process of creating an internal document based on this public law providing guidelines for concessions management within the District of Columbia. Unlike previous documents of this kind, the newest version will include environmental guidelines for concessions management to ensure the conservation of NPS scenery, wildlife, and natural and historic objects.

B.6 Summary Table

Table B-1 summarizes the environmental laws, regulations, and permits required to operate a marina in the District of Columbia. This table was adapted from the Business Guide to Environmental Permits and Approvals (Maryland Department of the Environment 1998).

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
Major CONSTRUCTION	Environmental Impact Statement (EIS)	D.C. Environmental Policy Act; Title 6 D.C. Code Chapter 9, subchapter VI	Avoid impacts to public health, safety, or welfare.	Requires constructive actions costing over $1,000,000 that have a significant impact on the environment to provide an EIS. Actions under $1,000,000. May require an EIS if the action imminently and substantially affects the public health, safety, or welfare.	U.S. Army Corps of Engineers, Baltimore District, Potomac River Basin Permit Section (410) 962-6002 DC Water Quality Division 202-535-2190 NPS Concessionaire Office 202-691-7404
Any CONSTRUCTION activity	NPDES Stormwater Permit for Construction Activity	D.C. Water Pollution Control Act, Section 7(c)(2); and Clean Water Act, Section 402 for stormwater discharge permits and 40 CFR 122.26	Maintain after development, as nearly as possible, the pre-development runoff conditions	Prior to construction, person performing construction must obtain a permit for controlling pollution from nonpoint source.	U.S. Environmental Protection Agency Water Enforcement Division 202-564-2879
CONSTRUCTIVE ALTERATIONS: Dredging and filling activities on underwater lands		D.C. Water Pollution Control Act, Section 7(a)(3), authorizes the DC government to permit such activities when they do not interfere with fish migration and the aquatic habitat.	Prevent, wherever possible, degradation of aquatic habitat and fish migration.	Requires persons conducting dredge or fill activities to seek D.C. approval. NPS approval is also required if the marina is on NPS property.	U.S. Army Corps of Engineers, Baltimore District, Potomac River Basin Permit Section (410) 962-6002 DC Water Quality Division 202-535-2190 NPS Concessionaire Office 202-691-7404
CONSTRUCTIVE ALTERATIONS: Any of the following activities in a nontidal wetland or its buffer: grading or filling; excavating or dredging; changing existing draining patterns; disturbing the water level or water table; and destroying or removing vegetation.	Proposed Activities in Nontidal Wetlands Army Corp of Engineers Permit; if COE permit is required, DC permit required. If COE permit is not required, DC requires written notification of activities. In all cases, NPS approval must be obtained.	Rivers and Harbors Act of 1899, Section 10; Clean Water Act, Section 404 Section 10 of the Rivers and Harbors Act of 1899 gives the Army Corps of Engineers authority to regulate all work and structures in navigable waters of the U.S. Section 404 of CWA regulates discharges of dredged or fill material into navigable waters, including wetlands. If ACOE Section 404 permit is required, D.C. must investigate the site prior to construction.	Prevent, wherever possible, further degradation and losses of nontidal wetlands due to human activity; and wherever practical and feasible, offset unavoidable losses or degradation through the deliberate restoration or creation of nontidal wetlands	Wetland mitigation construction or monitoring may be required in many instances and may extend well beyond construction of an approved mitigation project.	U.S. Army Corps of Engineers, Baltimore District, Potomac River Basin Permit Section (410) 962-6002. DC Water Quality Division 202-535-2190. NPS Concessionaire Office 202-691-7404
CONSTRUCTIVE ALTERATIONS: Any alteration to wharves, breakwaters, or jetties; bank protection or stabilization projects; permanent mooring structures; vessels, or marinas; intake or outfall pipes; canals; boat ramps; aids to navigation; or other modifications affecting the course, location, condition, or capacity of navigable waters.	US Army Corps of Engineers Section 404 Permit, DC approval, and NPS approval (if on NPS property)	Rivers and Harbors Act of 1899, Section 10; Clean Water Act, Section 404 Section 10 of the Rivers and Harbors Act of 1899 gives the Army Corps of Engineers authority to regulate all work and structures in navigable waters of the U.S. Section 404 of CWA regulates discharges of dredged or fill material into navigable waters.	Protect aquatic habitat; monitor erosion and constructive activities	Prior to constructing or expanding a marina, operators must contact the Army Corps of Engineers to begin the permitting process. Following a Notice of Intent, the COE and District of Columbia conduct an environmental review preapplication process. If Section 404 permit is required, D.C. must investigate the site prior to construction. If the marina is on NPS property, the NPS must also grant approval.	U.S. Army Corps of Engineers, Baltimore District, Potomac River Basin Permit Section (410) 962-6002 DC Water Quality Division 202-535-2190 NPS Concessionaire Office 202-691-7404
DEGREASING		DC Air Pollution Control Act; 20 DCMR 700	Minimize emissions from the use of organic solvents.	Prohibits discharge into the atmosphere of >15 lbs photochemically reactive solvents in any one day or >3 lbs in any one hour, unless the uncontrolled organic emissions are reduced by at least 85%.	D.C. Air Quality Division 202-535-2250

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
DEGREASING		DC Air Pollution Control Act; 20 DCMR 708	Minimize emissions from solvent cleaning.	Any person who uses solvent cleaning shall utilize a control system which includes the following equipment: A container for the solvent and the articles being cleaned; A cover for the container which can be easily and conveniently used whenever it is not essential that the container be open; and a facility for draining cleaned parts so that the drained solvent is returned to the container (20 DCMR 708.1).	D.C. Air Quality Division 202-535-2250
DISCHARGE of boat and equipment washwater, stormwater runoff from boat maintenance areas, noncontact cooling water, & condensate discharges	Multi-Sector General Permit for Discharges from Marinas	Clean Water Act, Section 402 for stormwater discharge permits and 40 CFR 122.26	Control pollution generated from runoff associated with industrial activity	Any marina or boatyard that conducts boat maintenance activities, including washing, and has wastewater or stormwater discharges must apply for coverage under this permit unless they have a valid individual discharge permit or coverage under 97-SW(1). In order to receive coverage under this permit, applicants must develop and implement a stormwater pollution prevention plan.	U.S. Environmental Protection Agency Water Enforcement Division 202-564-2879 and D.C. Watershed Division 202-535-2240 D.C. Water Quality Division 202-535-2190
DISCHARGE of sewage and gray water from a marina's private sewage treatment plant to surface water	Surface Water Discharge Permit	Clean Water Act	Maintain water quality standards in the water receiving the discharge	Must be included in county water and sewer plan. Must meet all effluent limits, monitoring requirements, and other permit conditions	U.S. Environmental Protection Agency Water Enforcement Division 202-564-2879; and D.C. Watershed Division 202-535-2240; D.C. Water Quality Division 202-535-2190
DISCHARGE of pollutants to the District of Columbia	Multi-Sector General Permit for Discharge from Marinas	D.C. Water Pollution Control Act	Establish a No Discharge Zone for all waters of the District of Columbia	Section 3 states that "no person shall discharge a pollutant to the waters of the Distict" unless permitted under Section 7. Section 7.m prohibits the discharge of sanitary sewage, wash or process water, oil-laden bilge water, refuse, or litter from a watercraft. Section 8.d prohibits "the discharge of oil, gasoline, anti-freeze, acid, or other hazardous substance, pollutant or nuisance material to any street, alley, sidewalk, or other public space in quantities sufficient to constitute a hazard or nuisance".	Watershed Division 202-535-2240 Water Quality Division 202-535-2190
DISCHARGE of a pollutant from a vessel		D.C. Water Pollution Control Act and Federal Clean Water Act	Require immediate notification to DC Emergency Repsonse Command Center of any discharge of pollutants to waters of the District.	Section 9(a)(1) requires "a person in charge of a vessel or an onshore or offshore facility shall, as soon as a discharge of a pollutant from the vessel or the facility has been discovered" to notify the DC government about the discharge. The definition of pollutant includes: oil, solid waste, sewage, garbage, sewage sludge, chemicals, hazardous materials, petroleum products, etc.	District Emergency Management Administration Emergency Response Mayor's Command Center 202-727-6161 and USEPA, Water Enforcement Division, 202-564-2879

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
DISCHARGE of oil or oily waste		Clean Water Act	Prohibit discharge of oil or oily waste into or upon the navigable waters of the U.S.	Prohibits discharge of oil or oily waste of any quantity into or upon the navigable waters of the U.S. or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Requires spiller to notify the National Response Center at 1-800 424 8802 immediately anytime a spill produces a sheen.	National Response Center at 1-800 424 8802, EPA-Region III (215) 814-5000 http://www.epa.gov/oilspill District Emergency Management Administration Emergency Response Mayor's Command Center 202-727-6161
FUEL ENGINES: Diesel		DC Air Pollution Control Act; 20 DCMR 801	Minimize emissions from diesel engines.	Prohibits the sale or use of diesel fuel containing >1% sulfur by weight.	D.C. Air Quality Division 202-535-2250
FUEL ENGINES: Gasoline		DC Air Pollution Control Act; 20 DCMR 901	Minimize emissions from gasoline engines.	Prohibits the sale of gasoline fuel containing >1 gram lead per gallon. Also requires that engine, power, and exhaust mechanisms of each motor vehicle be equipped, adjusted, and operated to prevent the escape of a trail of visible fumes or smoke for more than ten consecutive seconds.	D.C. Air Quality Division 202-535-2250
HAZARDOUS MATERIALS: Storage	Spill Prevention and Cleanup Plan	D.C. Water Pollution Control Act	Protect against pollution to DC waters.	Section 11(a)(1), "No person shall store a pollutant or hazardous substance at an onshore or offshore facility until the Mayor has approved a spill prevention and cleanup plant for the pollutant or hazardous substance."	D.C. Hazardous Waste Division 202-535-2288
HAZARDOUS WASTE: Generate 100 kg of hazardous waste in a calendar month or accumulate this amount at any one time	Notification of Hazardous Waste; EPA Identification Number for Generators, Transporters, and Treatment/Storage/ Disposal (TSD) Facilities	D.C. Hazardous Waste Management Act (20 DCMR 4200.7); RCRA Section 3010; and 40 CFR Part 262.12, 263.11 and 264.11	Ensure proper storage and disposal of hazardous wastes	A generator may not treat, store, dispose of, transport, or offer for transportation, hazardous waste without having received an EPA Identification Number. A generator may not offer hazardous waste to transporters or to a TSD facility that has not received an EPA Identification Number.	Hazardous Waste Division 202-535-2288
HAZARDOUS WASTE: Generate less than 100 kg of hazardous waste in a calender month		D.C. Hazardous Waste Management Act and RCRA	Ensures proper storage and disposal of hazardous wastes and residues.	Requires small quantity generators to clearly identify hazardous waste storage areas, and secure them from public access.	Hazardous Waste Division 202-535-2288
ODOR AND NOISE POLLUTION		DC Air Pollution Control Act; 20 DCMR 903	Minimize emissions and therefore improve the air quality of DC.	Prohibits an emission into the atmosphere of odorous or other pollutants from any source in any quantity of any characteristic, and duration which is, or is likely to be injurious to the public health or welfare, or which interferes with the reasonable enjoyment of life and property (20 DCMR 903.1).	D.C. Air Quality Division 202-535-2250

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
PAINTING: Operate a paint spray booth	Air Quality Permit to Construct	Clean Air Act, Section 110 and Title V, 42 U.S.C. 7401 et seq.	Ensure that any new, modified, replaced, or relocated source of air pollution complies with all air quality requirements. Air quality standards have been adopted to protect public health, vegetation, and forests.	Pre-Approval: Before an air pollution source is constructed or modified, a permit must be obtained from the D.C. Air Quality Division. Post-Approval: Periodic Emission tests and /or reports may be required depending on the nature of the operation and its emissions.	D.C. Air Quality Division 202-535-2250
PAINTING: Apply antifoulant paints containing tributyltin (TBT)	TBT Applicators License	Organotin Antifoulant Paint Control Act of 1988 (33 U.S.C. 2401) EPA is required to certify that each antifouling paint containing organotin does not release more than 4.0 micrograms per square centimeter per day.	Prohibit the use of antifouling paints containing organotin (TBT) on vessels that are 25 meters or less in length, unless the vessel hull is aluminum.	It is unlawful for any person other than an owner or agent of a commercial boatyard to possess, distribute, sell, offer for sale, use, or offer for use any paint containing a TBT compound (except for spray can less than or equal to 16 ounces).	D.C. United States Department of Agriculture Liaison Leslie Burke 202-535-2242
PETROLEUM POLLUTION PREVENTION: Development of a Spill Prevention Control and Countermeasure Plan	Spill Prevention Control and Countermeasure Plan (SPCC)	EPA, Oil Pollution Prevention Regulation 40 CFR, Part 112	Develop and implement plan to prevent discharge of oil into or upon navigable waters of the U.S. or adjoining shorelines	Requires that marinas prepare and implement a plan to prevent any discharge of oil into navigable waters or adjoining shorelines if the facility: - has an above ground oil capacity storage > 660 gallons in a single container - an aggregate above ground storage capacity > 1,320 gallons or a total underground storage capacity > 42,000 gallons.	For marinas in NPS: Refer to your Contingency Planning Spill Response and Reference Guide For other marinas: District Emergency Management Administration Emergency Response Mayor's Command Center 202-727-6161
PETROLEUM SPILL RESPONSE	Development of Area Contingency Plans	Oil Pollution Act of 1990 (OPA), Public Law 101-380 (33 U.S.C. 2701 et seq; 104 Stat. 484) OPA requires USFWS consultation on developing a fish and wildlife response plan for the National Contingency Plan, input to Area Contingency Plans, review of Facility and Tank Vessel Contingency Plans, and to conduct damage assessments associated with oil spills.	Establishe new requirements and amended the Federal Water Pollution Control Act to provide enhanced capabilities for oil spill response and natural resource damage assessment by the USFWS. Addresses commercial oil shipping (e.g., tankers must be doubl-hulled, captains may lose their license if operating vessel under the influence of drugs or alcohol).	Some requirements are applicable to recreational boating. The responsible party for any vessel or facility that discharges oil is liable for the removal costs of the oil and any damages to natural resources; real or personal property; subsistence uses; revenues, profits, and earning capacity; and public services such as providing increased or additional public services.	For marinas in NPS: Refer to your Contingency Planning Spill Response and Reference Guide For other marinas: District Emergency Management Administration Emergency Response Mayor's Command Center 202-727-6161
PETROLEUM SPILL RESPONSE: Use of soap or detergents to dissipate oil		Clean Water Act, (33 CFR 153.305)	Prohibit the use of soaps or other dispensing agents	Prohibits the use of soaps or other dispensing agents to dissipate oil on the water or in the bilge without the permission of the Coast Guard, regardless of the size of the spill.	EPA-Region III (215) 814-5000 http://www.epa.gov/oilspill District Emergency Management Administration Emergency Response Mayor's Command Center 202-727-6161
PETROLEUM STORAGE		D.C. Underground Storage Tank Management Act (20 DCMR and Title 6 D.C. Code Chapter 9 Subchapter VIII); Clean Water Act (40 CFR 112)		Notification of existence of a UST, as well as size, location, and use of the tank, is required. All underground storage tanks must be equipped with corrosion protection, spill and overfill control, and a leak detection system. In the event of a release, notification is required.	D.C. Underground Storage Tanks Division (202) 535-2525
PETROLEUM STORAGE		DC Air Pollution Control Act; 20 DCMR 701		All containers with a capacity of >40,000 gallons of any gasoline or any petroleum distillate having a vapor pressure of 1.5 lbs/in2 must have vapor loss control devices.	D.C. Air Quality Division 202-535-2250

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
RARE, THREATENED AND ENDANGERED SPECIES. Any activity that has the potential to impact such species.		Federal Endangered Species Act, (16 U.S.C. 1531-1543; P.L. 93-205) National Marine Fisheries Service (NMFS) regs concerning ESA listing procedure are published at 50 CFR Parts 217-227. Joint regs (USFWS & NMFS) - 50 CFR Parts 402 and 424-453. USFWS coordinates ESA activities for terrestrial and freshwater species, while NMFS is responsible for marine species and Pacific salmon.	Provide conservation of species which are in danger of extinction throughout all or a significant portion of their range. All proposed development sites must be assessed by the U.S. FWS and DC for endangered and threatened species and habitat protection areas.	A species must be listed if it is threatened or endangered because of - present or threatened destruction, modification, or curtailment or its habitat or range - overutilization for commercial, recreational, scientific, or educational purposes - disease or predation - inadequacy of existing regulatory mechanisms - other natural or manmade factors affecting its continued existence.	U.S. Fish and Wildlife Service Chesapeake Bay Field Office (410) 573-4500 and D.C. Fisheries Division (202) 535-2260
RECYCLING		D.C. Code 6-3407	Establish a mandatory recycling and source separation program.	Rrequires owners and occupants of commercial property to separate newspaper, glass, and metal from their solid waste and provide for recycling of these materials at their facilities. Occupants of residential property are also required to separate and recycle yard waste, newspaper, metal and glass under this law.	Refer to Appendix D for recyclers and waste haulers.
RESEARCH on impacts of ocean dumping, pollution, over-fishing, etc.		Marine Protection Research and Sanctuaries Act of 1972, 33 U.S.C. 1441-1445; Title II of P.L. 92-532, as amended	Authorize research and monitoring related to ocean dumping as well as research on possible effects of pollution, overfishing, and human-induced changes of the ocean system	Provides for long-range research on the effects of human-induced changes to the marine environment and authorizes research and demonstration activities related to phasing out sewage and industrial waste dumping in marine environment.	EPA-Region III (215) 814-5000
SEWAGE HANDLING	Marine Sanitation Device Standard	Clean Water Act, Section 312, U.S.C., Title 33, Section 1322, 40 CFR, Part 140 The Water Quality Act of 1987 requires EPA to develop standards designed to prevent the discharge of untreated or inadequately treated sewage into the U.S. waters. Section 312 requires the U.S. Coast Guard (USCG) to promulgate and enforce regulations governing the design, construction, installation, and operation of MSDs.	Eliminate discharge of untreated sewage from vessels into U.S. waters, including territorial seas (within 3 miles of the coast) It is illegal to discharge raw sewage in U.S. territorial waters	Requires the installation of a U.S.-Coast-Guard-certified marine sanitation device (MSD) - Type I, Type II or Type III on all vessels with installed toilet systems operating in the navigable waters of the U.S. Portable toilets are not considered installed toilets. However, direct overboard discharge of portable toilet wastes is a violation of state water quality regulations.	D.C. Fisheries Division, Pumpout Station Grant Funding (202) 535-2260 D.C. Water Quality Division 202-535-2190

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
SEWAGE HANDLING: Design of MSDs	Marine Sanitation Devices; General, Certification Procedures, Design, Construction, and Testing	Clean Water Act, Section 312, U.S.C. Title 33, Section 1322, 40 CFR, Part 159 The DC Clean Water Act (Section 3 and Section 7(m))	Prescribe regulations governing the design and construction of marine sanitation devices and procedures for certifying that the MSDs meet the regulations and the standards of EPA promulgated under Sec. 312	Section 159.7 (a) addresses requirements for vessel operators. It states that no person may operate any vessel equipped with installed toilet facilities unless it is equipped with: - an operable Type II or III device that has a label on it under Sec. 159.12 or Sec. 159.12a; or - an operable Type I device that has a label on it under Sec. 159.16 or that is certified under Sec. 159.12, if the vessel is 65 feet or less in length. Because of DC's No Discharge Area designation, boats with an installed toilet should be equipped with a Type III Marine Sanitation Device, which does not allow the discharge of untreated or treated sewage into navigable waters. If a boat entering DC navigable waters is equipped with a Type I or II system, the marine sanitation device should be secured to prevent discharge.	United States Coast Guard (800) 424-8802
SEWAGE HANDLING: Discharge of treated or untreated sewage within waters of D.C.	Marine Sanitation Device Standard, Complete Prohibition, No Discharge within the District of Columbia	Clean Water Act, Section 312 (f) (3), U.S.C, Title 33, Section 1322, 40 CFR, Part 140.4 According to Part 140.4, the EPA may allow a State to prohibit all discharges from marine toilets, thus declaring the area a "No Discharge Zone" According to the D.C. Water Pollution Control Act, all waters within the District are within a "No Discharge Zone".	Eliminate discharge of treated or untreated sewage from vessels into U.S. waters, including territorial seas (up to 3 miles)	Prohibits the discharge of any sewage, whether treated or not, from all vessels into the waters of D.C.	Water Quality Division 202-535-2190
SEWAGE HANDLING: Receiving grant money for Pumpout Stations		Clean Vessel Act of 1992, Subtitle (V)(F) of P.L. 102-587 The Clean Vessel Act is a cost-reimbursable program, i.e., the grantees must spend their money to conduct approved activities and then request reimbursement for up to 75% of the costs. Grantee must provide at least 25% of project funding from a non-federal source.	Allow the Secretary of Interior to issue grants to DC and coastal and inland States for pumpout stations and waste reception facilities to dispose of recreational boater sewage	Directs the Secretary of Interior to provide grants to States to pay for the construction, renovation, operation, and maintenance of pumpout stations and waste reception facilities; requires each coastal state to conduct a survey to determine the number and location of all operational pumpout facilities and the number of recreational vessels with MSD Type III or portable toilets; requires each coastal State to develop and submit a plan for construction and/or renovation of an adequate number of pumpout stations and waste reception facilities within the coastal zone of the state.	D.C. Fisheries Division (202) 535-2260

Table B-1: Summary of Environmental Laws, Regulations, and Permits Pertaining to Marinas

Activity	Permit/License or Title	Authority	Purpose	Requirements	Contacts
SOLID WASTE: Garbage Dumping at Sea	Chapter 33: Prevention of Pollution from Ships	Marine Plastic Pollution Research and Control Act,1987, MPPRCA (Title II of P.L. 100-220), U.S.C., Title 33, Chapter 33 MPPRCA is the U.S. Law implementing MARPOL Annex V, an international pollution prevention treaty. The U.S. Coast Guard is primarily responsible for enforcement of the law and development of the regulations.	Restrict garbage dumping at sea. Applies to all domestic and international ships operating in the U.S. Exclusive Economic Zone (EEZ) and in U.S. navigable waters	Prohibits ocean dumping of plastics by ships and restricts the ocean dumping of other types of garbage up to 25 miles from any land. Requires ports and terminals to provide garbage reception facilities. It is prohibited to discharge garbage in inland waters or in the ocean within three nautical miles of shore. A placard which notifies the crew and passengers of the MARPOL Annex V is required on vessels 26 feet and over. A plan and logbook are required on vessels 40 feet and over.	United States Coast Guard (800) 424-8802
SOLID WASTE: Solid waste storage and Rat Harborage		D.C. Illegal Dumping Act	Establish standards for solid waste storage	Requires owners to provide sufficient solid waste containers, which should be kept in clean and operating condition, and be emptied on a regular basis. Solid wastes should also be kept in a manner that will not provide food, harborage, or breeding places for insects or rodents, or create a nuisance or fire hazard.	DC Office of Public Works 202-673-6833
SOLID WASTE: cleaning containers		D.C. Illegal Dumping Act	Establish standards for cleaning waste containers.	Requires those cleaning solid waste containers to prevent debris from draining into city storm sewers.	D.C. Watershed Division 202-535-2240 and Water Quality Division 202-535-2190
SOLID WASTE: Nuisance or Unsightly Space		D.C. Illegal Dumping Act	Authorize DC government to require good housekeeping practices	Requires solid waste containers to be kept in a location that is not unsightly and does not create a nuisance to nearby residents.	DC Office of Public Works 202-673-6833
SOLID WASTE: Failure to Maintain Abutting Public Space		D.C. Illegal Dumping Act		21 DCMR 702.1 requires owners, tenants, or those who have control over any building, lot, or land, within the District to maintain their property in a clean condition from their property line into the abutting roadway.	DC Office of Enforcement and Regulatory Compliance 202-535-2505
SOLID WASTE: Illegal Dumping		D.C. Illegal Dumping Act	Prohibit dumping of solid waste of any kind without DC permission.	24 DCMR 1000.1 prohibits dumping of any dirt, trees, garbage, coal, ashes, paper, refuse matter, dead animal or putrescible matter of any sort in or upon any public or private space in the District unless the site is authorized for that disposal.	DC Office of Public Works 202-673-6833 DC Metropolitan Police Department, Tel 311
SOLID WASTE: Illegal Burning		D.C. Code, Sec 6-501 et. seq.	Minimize unregulated air pollution; prevent uncontrolled fires.	Prohibits burning of combustible refuse except in approved incinerators.	DC Metropolitan Police Department, Tel 311

C

BayScapes Program

BayScapes is a program developed by the U.S. Fish and Wildlife Service and the Alliance for the Chesapeake Bay to promote action to reduce nutrient inputs and other threats to water quality, and encourage the development of environmentally sound landscapes that benefit people, wildlife, and the Chesapeake Bay. The program teaches homeowners and others how to practice conservation landscaping, create wildlife habitat, use native plants, conserve water, create diversity, use integrated pest management, and plan for the long term. The BayScapes Program also emphasizes and facilitates strong participation from larger scale land managers, including Federal, State and local government facilities, corporate landowners, and communities.

For more information, contact the BayScapes Program at (410) 573-4593 under the Alliance for the Chesapeake Bay.

How to Calculate the Time Needed to Properly Water Your Lawn

From: United States Fish and Wildlife Service. ABayScaping to Conserve Water@, *A Homeowner=s Guide*. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

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

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

⇒ Run your sprinkler for one hour.

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

⇒ Measure the depth of the water you have collected during the 60 minutes and divide the amount of collected water in inches by the number of cans (five) to determine the application rate on an inch(es)-per-hour basis.

Example: If a sprinkler runs for 60 minutes and the total water collected from the five cans is 7.5 inches, the application rate will be 1.5 inches per hour (7.5 inches per 60 minutes divided by five cans equals 1.5 inches per hour). Therefore, to apply 1 inch of water, divide watering time by average depth to arrive at the number of minutes needed to apply 1 inch of water (60 minutes divided by 1.5 inches per hour equals 40 minutes needed to apply 1 inch).

Native Wildflowers & Grasses of the Northeastern U.S.

The following information was compiled by the U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, 177 Admiral Cochrane Dr., Annapolis, MD 21401 (410)573-4500.

States included: KY, WV, OH, VA, DC, MD, DE, PA, NJ, NY, RI, CT, MA, VT, NH, ME

						Moisture Dry, Average, Wet			**Soil** Sand, Loam, Clay			**Sun** Full Sun, Partial Sun, Shade		
Latin Name	**Common Name**	**Type A/P**	**Color**	**Ht**	**Bloom Period**	**D**	**A**	**W**	**S**	**L**	**C**	**F**	**P**	**S**
Wildflowers														
Aquilegia canadensis	Eastern Columbine	P	Scarlet	1-2'	Mar-May	0	0			0	0	0	0	0
Asclepias incarnata	Swamp Milkweed	P	Pink	3-5'	Jun-Aug		0	0	0	0	0	0	0	
Asclepias tuberosa	Butterfly Milkweed	P	Orange	2-3'	Jun-Aug	0			0	0		0		
Aster laevis	Smooth Aster	P	Violet	2-4'	Aug-Oct	0	0		0	0		0		
Aster novae-angliae	New England Aster	P	Purple	2-6'	Aug-Oct	0	0		0	0	0	0	0	
Caltha palustris	Marsh Marigold	P	Yellow	1-2'	Apr-May		0	0	0	0			0	0
Chelone glabra	White Turtlehead	P	White	2-4'	Aug-Sep			0	0	0		0	0	
Coreopsis lanceolata	Lanceleaf Coreopsis	P	Yellow	1-2'	Jun-Aug	0	0		0	0		0		
Coreopsis tinctoria	Tickseed Sunflower	A	Yellow	1-3'	Jun-Sep	0						0	0	
Echinacea purpurea	Purple Coneflower	P	Purple	2-3'	Jul-Sep	0	0		0	0	0	0	0	
Eupatorium dubium	Joe Pye Weed	P	Purple	4-7'	Jul-Sep		0	0		0	0			
Eupatorium perfoliatum	Boneset	P	White	3-4'	Jul-Aug		0	0	0	0	0	0		
Eupatorium purpureum	Joe Pye Weed	P	Pink	2-6'	Jul-Sep		0			0				
Iris versicolor	Blue Flag Iris	P	Purple	2-3'	Jun-Jul			0	0	0				
Liatris spicata	Blazingstar	P	Purple	2-5'	Jun-Sep	0	0					0	0	
Lobelia cardinalis	Cardinal Flower	P	Red	2-5'	Jul-Sep		0	0	0	0		0	0	
Lupinus perennis	Lupine	P	Blue	1-2'	May-Jun	0	0		0			0	0	
Monarda didyma	Bee Balm	P	Scarlet	2-4'	Jun-Jul		0	0		0	0	0	0	
Monarda fistulosa	Wild Bergamot	P	Laven-der	2-5'	Jun-Jul	0	0		0	0	0	0	0	0
Oenothera biennis	Evening Primrose	A/P	Yellow	3-6'	Jun-Oct	0	0		0	0		0	0	
Oenothera perennis	Sundrops	P	Yellow	1-3'	May-Aug	0			0					
Penstemon digitalis	Smooth Penstemon	P	White	2-3'	Jun-Jul	0	0		0	0	0	0	0	
Penstemon leavigatus	Beardtongue	P	White	1-2'	May-Jun		0			0			0	0
Phlox divaricata	Blue Phlox	P	Blue	.5-1'	Apr-May		0			0			0	0

						Moisture Dry, Average, Wet			Soil Sand, Loam, Clay			Sun Full Sun, Partial Sun, Shade		
Latin Name	**Common Name**	**Type A/P**	**Color**	**Ht**	**Bloom Period**	**D**	**A**	**W**	**S**	**L**	**C**	**F**	**P**	**S**
Rudbeckia hirta	Black Eyed Susan	P	Yellow	1-3'	Jul-Sep	0	0		0	0	0	0	0	
Solidago rigida	Rigid Goldenrod	P	Yellow	3-5'	Aug-Oct	0	0		0	0		0		
Solidago rugosa	Rough Goldenrod	P	Yellow	3-5'	Aug-Oct		0	0	0	0		0	0	
Thalictrum dayscarpum	Meadowrue	P	White	3-6'	Jun-Jul		0	0	0	0	0	0	0	
Vernonia noveboracensis	New York Ironweed	P	Purple	5-8'	Aug-Sep		0	0		0	0	0	0	
Viola pedata	Birds Foot Violet	P	Purple	1'	Mar-Jun	0			0	0		0		

						Moisture Dry, Average, Wet			Soil Sand, Loam, Clay			Sun Full Sun, Partial Sun, Shade		
Latin Name	**Common Name**	**Type A/P**	**Color**	**Ht**	**Bloom Period**	**D**	**A**	**W**	**S**	**L**	**C**	**F**	**P**	**S**
GRASSES														
Andropogon gerardi	Big Bluestem	P	'	3-8'		0	0	0	0	0	0	0	0	
Andropogon virginicus	Broomsedge	P		1-3'		0	0		0	0	0	0	0	
Elymus canadensis	Canada Wild Rye	P				0	0		0	0	0	0	0	
Panicum virgatum	Switchgrass	P		3-6'			0	0	0	0	0	0		
Schizachyrium scoparium	Little Bluestem	P		4'		0	0		0	0		0	0	
Sorghastrum nutans	Indiangrass	P		5-7'		0	0		0	0		0	0	

' **Note:** The grasses are various shades of greens, blues, goldens, coppers during different times of the year.

This list was developed from several sources and represents only a partial list of species. Most species were selected because of their availability from some seed companies. Most plants are also available in pots.

Sampling of Other Native Plants

	Name	Height	Features
Evergreen Trees	American Holly, *Ilex opaca*	45'	red berry; wildlife value; needs moist, acid soil
	Eastern Red Cedar, *Juniperus virginiana*	80'	pyramidal; wildlife value; thick branches, dense foliage; tolerates poor soils
	Canadian Hemlock, *Tsuga canadensis*	90'	pyramidal; dense habitat; wildlife value; prefers rich, moist soil
Deciduous Trees	Shagbark Hickory, *Carya ovata*	60-80'	oval; narrow habitat; nuts; wildlife value; needs deep, rich soil and sun
	White Oak, *Quercus alba*	60-90'	round-headed, largest of oaks; wildlife value; tolerates range of soils
	Sourwood, Sorrel Tree, *Oxydendron arboreum*	40-60'	pyramidal; flowers in July, glossy foliage, striking fall color
Evergreen Shrubs	Inkberry, *Ilex glabra*	3-15'	globular; nectar for bees, open habit, small leaf, black berry; tolerates sandy, peaty, acid soil
	Bayberry, *Myrica pensylvanica*	4-8'	persistent leaves, aromatic; wildlife value; tolerates dry, sandy soils
	Wax Myrtle, *Myrica cerifera*	25-30'	persistent leaves; wildlife value; grayish-waxy fruit, inconspicuous flowers
Deciduous Shrubs	Red Chokeberry, *Aronia arbutifolia*	9'	flowers May-June, smooth pale leaves, red berry; wildlife value; tolerates wet acid or dry soil
	Sweet Pepperbush, *Clethra alnifolia*	6'	oval; fragrant flower July-Aug, persistent brown seed; wildlife value; tolerates acid wet or dry soil and some shade
	Flame Azalea, *Rhododendron calendulaceum*	9'	oval; May-June flower; tolerates dry, acid soil and light shade
Ground Covers	Violet Wood Sorrel, *Oxalis violacea*	4-8"	excellent for rock gardens; tolerates some shade, dry soil, and drought
	Blazing Star, *Liatrus spicata*	1-3"	rose-purple flowers, late summer bloom, hairy stem
	Bird-Foot Violet	2-6"	purple flowers; tolerates some shade, dry soil, and drought

Some Native Plant Nurseries

Note, the National Park Service neither recommends nor endorses any particular company. The following is not a complete list of native plant nurseries. Contact the U.S. Fish and Wildlife Service for a more complete list of nurseries. Contact the nurseries directly for catalogues. Most will ship or deliver plants.

DISTRICT OF COLUMBIA

Lou Aronica
Washington, D.C.
(202) 722-1081

MARYLAND

Atlantic Star Nursery
620 Pyle Road
Forest Hill, MD 21050
(410) 838-7950

Babikow Greenhouses
7838 Babikow Road
Baltimore, MD 21237
(410) 391-4200
(410) 574-7582 fax

Kurt Bluemel Inc.
2740 Greene Lane
Baldwin, MD 21013
(410) 557-7229
(410) 557-9785

Bluemount Nursery
2103 Bluemount Road
Monkton, MD 21111
(410) 329-6226
(410) 329-8120

Clear Ridge Nursery, Inc.
217 Clear Ridge Rd.
Union Bridge, MD 21791
(410) 848-4789
(410) 848-5806

Conard-Pyle
1-800-321-0922 or (410) 758-3766
also in Pennsylvania

Cone Brook Nursery
P.O. Box 177
2737 Grier Nursery Road
Forest Hill, MD 21050
(410) 838-4747

Environmental Concern, Inc.
P.O. Box P, Chew Ave.
St. Michaels, MD 21663
(410) 745-9620
(410) 745-3517 fax

Fiddler=s Green Nursery
J. Christopher Batten, Inc.
3907 Old Taneytown Road
Taneytown, MD
(410) 751-0424

Heartwood Nursery
2121 Blue Mount Road
Monkton, MD 21111
(410) 343-0390
(410) 357-8799 fax

Kemp Farm, Inc.
Joe Warfield, 4900 Kemp Road
Reisterstown, MD 21136
(410) 833-8707
(woody only)

Kollar Environmental Services
5200 West Heaps Road
Pylesville, MD 21132
(410) 836-0500
(410) 836-1931 fax

Lower Marlboro Nursery
P.O. Box 1013
Dunkirk, MD 20754
(301) 855-7654

Maryland Natives Nusery, Inc.
9120 Hines Road
Baltimore, MD 21234
(410) 357-9475 or
(410) 529-0552
Fax: (410) 529-3883

Native Seeds, Inc.
14590 Triadelphia Mill Rd.
Dayton, MD 21036
(301) 596-9818

Providence Center Inc.
370 Shore Acres Rd.
Arnold, MD 21012
(410) 757-7800
(410) 974-0121 fax

Signature Horticultural Services
19960 Gore Mill Rd.
Freeland, MD 21053
(410) 329-6466
(410) 329-2156 fax

Wildlife Landscapes
1 Montauk Ct.
Baltimore, MD 21234
(410) 296-4869

Wings and Wildflowers
P.O. Box 444
Damascus, MD 20872
(301) 253-6903

VIRGINIA

Bloomin= Natives, Natural Heritage Rescue, Inc.
7009 Vanderbilt Dr.
Alexandria, VA 22307
(703) 765-6641
Fax: (703) 765-5426

Bobtown Nursery
16212 Country Club Rd.
Melfa, VA 23410
(800) 201-4714
(757) 787-8484
(757) 787-8611

Botanique Nursery
387 Pitcher Plant Lane
Standardsville, VA 22297

Meadowview Biological Research Station
Phil Sheridan
8390 Fredericksburg Turnpike
Woodford, VA 22580

Virginia Natives
Box 18
Hume, VA 22639
(540) 364-1665

Water Ways Nursery
13015 Milltown Road
Lovettstown, VA 20180
(540) 822-5994

PENNSYLVANIA

Bowman=s Hill Wildflower Preserve/Seed Catalog
Washington Crossing Park
PO Box 103
Washington Crossing, PA 18977

Ernst Conservation Seeds
9006 Mercer Pike
Meadville, PA 16335
(800) 873-3321
(814) 336-2404
(814) 336-5191 (fax)

North Creek Nurseries
388 North Creek Rd.
Ladenburg, PA 19350
(610) 255-0100
(610) 255-4762 fax

Octoraro Wetland Nursery
6126 Street Rd.
Kirkwood, PA 17536
(717) 529-3160
(717) 529-4099 fax

Sylvia Native Nursery & Seed
1683 Sieling Farm Rd.
New Freedom, PA 17349
(717) 227-0486

WEST VIRGINIA

Sunshine Farm and Garden
Barry Glick
HC 67 Box 539 BMDN
Renick, WV 24966
(304) 497-2208

FOR MORE PLANT INFORMATION

Irvine Natural Science Ctr
8400 Greenstring Avenue
Stevenson, MD 21153
(410) 484-2413

MD Native Plant Society
P.O. Box 4877
Silver Spring, MD 20914

The National Arboretum
Education Department
3501 New York Ave., NE
Washington DC 20002
(202) 245-4521

Delaware Nature Society
(302) 239-2334

INTEGRATED PEST MANAGEMENT MAIL ORDER SUPPLIERS

Alternative Garden Supply, Inc.
615 Industrial Drive, Unit A
Cary, IL 60013
(800) 444-2837

Gardens Alive!
5100 Schenley Place
Lawrenceburg, IN 47025
(812) 537-8651 or 8650

Nature=s Touch
11150 W. Addison Street
Franklin Park, IL 60131
(847) 455-8600

Gempler=s Pest Management Supply Company
100 Countryside Drive
PO Box 270
Belleville, WI 53508
(800) 272-7672

D

Recycling Coordinators, Oil/Antifreeze Haulers, and Lightbulb Disposal Sources

These will be developed through the Green Marina Stakeholders and the Advisory Group

Recycling Contacts

Municipality	Contact Name & Address	Phone & Fax Numbers

Boat Maintenance Contacts

Municipality	Contact Name & Address	Phone & Fax Numbers
AbTech Attn; Robert Liquori 4110 N. Scottsdale Rd., Suite 235, Scottsdale AZ 85251	(480) 874 4000 (ph) (480) 970 1665 (fax) 1-800-545 8999	Absorbent Boat Products
H20 VAC Dust Attn. John Eichert Paso Rables, CA	(805) 226 8981 (Ph + Fax)	Boat Maintenance

Used Motor Oil and Antifreeze Haulers

Note, the following is not a complete list of motor oil and antifreeze haulers. The National Park Service and the District of Columbia neither recommend nor endorse any particular company. Green Marina Stakeholders may provide additional contactors.

Company	Contact Information	Services
U.S. Filter/Eastern Oil Company 5800 Farrington Ave. Alexandria, VA 22304	Phone: (800)-673-8521 Phone: (703) 370-8205	C Used oil, antifreeze, oily water C Serve MD, VA, DC, PA
International Petroleum Corporation (IPC) 6305 E. Lomard St. Baltimore, MD 21224	Phone: (800) 222-2511	C Used oil C Serve MD, DE, VA, PA, NJ, DC
Safety-Kleen Corporation 11520 Ballsford Road Manassas, VA 20109	Phone: (703) 331-0516	C Used oil, solvent recovery C Serve DC

Fluorescent Tube & PCB Ballast Disposal Sources

Note, the following is not a complete list of fluorescent tube and PCB ballast disposal sources. The National Park Service and the District of Columbia neither recommend nor endorse any particular company. Green Marina Stakeholders may provide additional contractors.

D. Recycling Coordinators, Boat Maintenance, Oil/Antifreeze Haulers, and Lightbulb Disposal Sources

Company	Contact Information	Services
Advanced Environmental Technical Services 3 Elm Drive, Suite 5 New Freedom, PA 17349	Phone: (888) 877-2387	C Metallic mercury, fluorescent tubes, mercury contaminated devices
Universal Appliance Recycling 3820 West St Landover, MD 20785	Phone: (301) 773-3400	$ All used appliances, will remove and dispose of PCB capacitators, if they are part of the appliance
USA Lights 3408 52nd Ave Hyattsville, MD 20781	Phone: (301) 699-6244	$ Fluorescent lamps and ballasts. Other hazardous wastes accepted at other facilities
Bethlehem Apparatus Co. 890 Front St. P.O. Box Y Hellertown, PA 18055	Phone: (610) 838-7034	$ Fluorescent lamps, quartz & HID lamps, mercury contaminated devices, on-site mercury distillation
ENVIROCYCLE P.O. Box 5367 High Point, NC 27262	Phone: (910) 869-8836	$ Fluorescent lamps, HID lamps, ballasts, CRTs, and computers
Full Circle Ballast Recyclers 509 Manida St. Bronx, NY 10474	Phone: (800) 775-1516 Phone: (717) 235-8710	$ Fluorescent lamps, ballasts, transformers
Green Lights Recycling Inc. 1700 B Pennsylvania Avenue Charleston, WV 25302	Phone: (800) 704-0794 Phone: (304) 347-9950 Fax: (304) 347-9948	$ Fluorescent lamps, HID and mercury lamps, and PCB/non-PCB ballasts
Inmteco 245 Portersville Rd. Ellwood City, PA 16117	Phone: (724) 758-2800	$ Nickel, cadmium, and nickel metal hydride batteries
Recyclights 401 W. 86th Street Minneapolis, MN 55420	Phone: (612) 378-9568	$ Fluorescent tubes, HID lamps, PCB/non-PCB ballasts, mercury contaminated products, on-site mercury distillation

E

Sample Contract Language

The following text is based on the Marine Trades Association of New Jersey=s *Best Management Pledge*. The language may be incorporated into lease agreements.

FOR TENANTS:

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

Signed _____ Date_____

FOR SUB-CONTRACTORS ONLY:

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

Signed _____ Date_____

POLLUTION PREVENTION PROCEDURES:

A. REPAIRS & SERVICE (to hull & engine: painting, cleaning, washing, sanding, scraping, etc.)
   1. Work on hulls and engines only in designated areas or use portable containment enclosures with approval of marina management.
   2. Use tarps and vacuums to collect solid wastes produced by cleaning and repair operations--especially boat bottom cleaning, sanding, scraping, and painting.
   3. Conduct all spray painting within an enclosed booth or under tarps.
   4. Use non-toxic, biodegradable solvents.
   5. Capture debris from boat washing and use only minimal amounts of phosphate-free, non-toxic, and biodegradable cleaners.
   6. Use drip pans for any oil transfers, grease operations, and when servicing I/Os and outboard motors.

7. Obtain management approval before commencing any repair which will open the hull. Clean and pump bilges free of contaminated materials before and after repairs which open the hull.
8. Use spill proof oil change equipment.

B. VESSEL MAINTENANCE WASTE

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

C. FUEL OPERATIONS.

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

D. WASTE OIL AND FUEL

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

E. ONBOARD PRACTICES

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

F. SEWAGE HANDLING

1. Never discharge raw or treated sewage within DC waters.
2. If you have an installed toilet, you must have an approved Marine Sanitation Device (MSD).
3. Do not discharge from Type I or Type II marine sanitation devices within the DC waters.
4. Use marina restroom facilities when at slip.
5. Do not empty port-a-pots overboard; use marina dump facility. Do not empty port-a-pots in the restrooms.
6. Do not discharge holding tanks overboard; use pump out facility.

7. If you must use a holding tank additive, use an enzyme-based product. Avoid products that contain quaternary ammonium compounds (QAC), formaldehyde, formalin, phenal derivatives, alcohol bases or chlorine bleach.
8. Liveaboards, place a dye tablet in holding tank after each pumpout out. The dye will make any illegal discharges clearly visible.

G. ORGANIC WASTE

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

H. SOLID WASTE

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

F

Spill Response Companies

Note, the following is not a complete list of spill response companies. The National Park Service and the District of Columbia neither recommend nor endorse any particular company. Green Marina Stakeholders may provide additional contractors.

Company	**Telephone**	**Capabilities**
A & A Environmental Services 5200 Raynor Avenue Linthicum, MD 21090	(410) 636-3700	Oil Limited Haz-Mat Underground Storage Tanks
A.C. & T Company, Inc. Halfway Blvd. & Hopewell Road Hagerstown, MD 21740	(800) 458-3835	Limited Oil
American Environmental Svc Corp 1305 Ritchie Road Capitol Heights, MD 20743	(301) 350-7280 (301) 774-2200 (301) 935-9585 pager	Limited Oil Limited Haz-Mat Underground Storage Tanks
C & R Industries 5555 Branchville Road College Park, MD 20740	(301) 441-4824 8:30-5:00	Antifreeze Recycler
Cardinal Compliance Corp. 4201 East Fairmont Avenue Baltimore, MD 21224	(410) 276-4444 8:00-4:30	Recycle Empty Drums
Clean America, Inc. 3300 Childs Street Baltimore, MD 21226	(410) 354-0751 (800) 932-2166	Oil Haz-Mat Underground Storage Tanks
Clean and Safe Environment, Inc. 226 Cockeysville Road Cockeysville, MD 21030	(410) 584-7791 (800) 835-0183	Oil Haz-Mat Underground Storage Tanks
Clean Harbors Company 1910 Russell Street Baltimore, MD 21230	(410) 685-3910 (800) 622-3360	Oil Haz-Mat
Clean Venture, Inc. 2031 Inverness Avenue Baltimore, MD 21230	(410) 368-9170 (410) 368-9171 fax	Oil Haz-Mat Underground Storage Tanks

Company	Telephone	Capabilities
Crestline Industries, Inc. Attn: Steve Sass 11436B Cronridge Dr. Owings Mills, MD. 21117	(410) 764 – 2444 (ph) (410) 602 8402 (fax)	
Eastern Chemical Waste Systems Remac USA, Inc. 1010 Wayne Avenue, 8th Floor Silver Spring, MD 20910	(202) 289-5490 (310) 650-2440 (800) 654-9967 (410) 625-2500	Oil Haz-Mat Underground Storage Tanks Medical/Infect.
Environmental Management Services 1688 E. Gude Drive, Suite 301 Rockville, MD 20850	(301) 309-0475	
GSM Environmental, Inc. P.O. Box 1200 Valley Forge, PA 19482-1200	(215) 495-3000 (800) 258-5585	Oil Limited Haz-Mat Underground Storage Tanks
GTS Duratek 10100 Old Columbia Rd. Columbia, MD 21046	(410) 312-5100 (800) 345-4395	Provides Temporary Environmental Professionals
Guardian Environmental Svc., Inc. 1280 Porter Road Bear, DE 19701	(302) 834-1000 (800) 345-4395	Oil Haz-Mat Underground Storage Tanks
Industrial Maint. Disposal Corp. 2113 Columbia Park Road Edgewood, MD 21040	(410) 538-6774 8:00-4:00 (410) 879-5427 nights, weekends and holi-days	Medical/Infect.
Industrial Marine Service, Inc. 1301 Marsh Street, PO Box 1779 Norfolk, VA 23501	(804) 543-5718	Oil Limited Haz-Mat Underground Storage Tanks

Company	Telephone	Capabilities
Safety-Kleen Inc. 3527 Whiskey Bottom Road Laurel, MD 20724	(301) 953-9583 (800) 638-4440	Oil Haz-Mat T.S.D. Facility
Maryland Liquid Waste, Inc. 3814 Maple Grove Road Manchester, MD 21102	(410)239-8962	Limited Oil Limited Haz-Mat
Stericycole Inc. 14374 Commerce Way Miami Lakes, FL 33016	(800) 527-0666 (305) 698-5510	Medical/Infect.
Nutshell Enterprises, Ltd. 4059 Norrisville Road Jarrettsville, MD 21084	(410) 557-7583 (410) 276-0764	Limited Oil Underground Storage Tanks
O.H. Remediation Services, Inc. Division of O.H.M. Corp. Four Research Way Princeton-Forestal Center Princeton, NJ 08540	(800) 562-2953 (800) 231-7031 (800) 537-9540	Oil Haz-Mat Underground Storage Tanks
Pro Tek, Inc. 7910 Stansbury Road Baltimore, MD 21222-7149	(410) 284- 0510	Limited Oil
Remediation, Inc. 4331 Fox Run Road Dover, PA 17315	(717) 292-4432 (717) 880-1916 (717) 292-7569	Oil Limited Haz-Mat Underground Storage Tanks
Cycoe Chem 550 Industrial Drive Lewisberry, PA 17339-9537 Or 1800 Carman Street Camden, NJ 08105	(717) 938-4700 (609) 365-5544	Limited Oil Limited Haz-Mat Underground Storage Tanks
Steam Kat Haz Mat, Inc. P.O. Box 1686 Salisbury, MD 21802	(800) 234-7745 (410) 546-6457	Oil Haz-Mat Underground Storage Tanks
Tri-County Industries, Inc. 5135 Frolich Lane Hyattsyille, MD 20781	(301) 937-8611	Oil Limited Haz-Mat Underground Storage Tanks

G

United States Coast Guard Publications – Federal Boating Requirements

H

Local Economic Development Contacts

This will be provided with input from Green Marina Stakeholders.

Area	Address	Phone, Fax, & Email