

# **VIRGINIA CLEAN MARINA GUIDEBOOK**



*Commonwealth of Virginia  
Virginia Clean Marina Program*

For additional information about the following programs, please contact:

**Clean Marina Program**

Virginia Sea Grant, Marine Advisory Program  
Virginia Institute of Marine Science  
P.O. Box 1346  
Gloucester Point, Virginia 23062  
(804) 684-7768  
[www.virginiacleanmarina.com](http://www.virginiacleanmarina.com)

**Coastal Nonpoint Pollution Control Program**

Department of Conservation and Recreation  
203 Governor Street, Suite 206  
Richmond, Virginia 23219-2094  
(804) 692-0839

**Virginia Coastal Program**

Department of Environmental Quality  
629 East Main Street  
Richmond, Virginia 23219  
(804) 698-4333

This manual is intended as an educational tool for marina operators and boaters. It does not constitute a complete reference to state, federal or local laws. Relying on the information in this book will not protect you legally. This book may not be relied upon to create a right or benefit substantive or procedural, enforceable at law or in equity by any person.

The contributing agencies, organizations, and individuals cannot assume any liability for the accuracy or completeness of the information in this publication. Inclusion in this book is not an endorsement of the companies listed. Final determination of the proper handling and disposal of waste is the sole responsibility of the generator.

*This manual was funded by the Virginia Coastal Resources Management Program at the Department of Environmental Quality and the Virginia Department of Conservation and Recreation through Grant No. NA 97OZ0181-01 and NA07OZ0136 of the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management, under the Coastal Zone Management Act of 1972, as amended. Additional support was provided by the Virginia Sea Grant Marine Advisory Program at the Virginia Institute of Marine Science.*

VIMS Educational, Series #49  
VSG-01-03  
Third Edition  
May 2019



# STATEMENT OF CLEAN MARINA AWARD PROCESS

To become certified as a Virginia Clean Marina, a marina must meet all legal and regulatory standards and implement best management practices (BMPs) as outlined in the clean marina criteria checklist. These criteria are drawn directly from the best management practices described in the chapters in this guidebook.

The process is simple. First, complete the checklist provided with this Guidebook and return to the Virginia Clean Marina program coordinator. If the marina does not meet the minimum percentage of criteria on the checklist, they can join the Clean Marina Program as a pledge. Pledges will receive public recognition by the Clean Marina Program, but they need to submit a yearly notice of their intent to continue working towards Clean Marina status. This level gives the marina one year to implement BMPs before re-evaluation.

If the marina does meet the criteria, members of the Marina Technical and Environmental Advisory Committee (MTEAC) will visit and evaluate the business using your checklist as a guide. If the marina's checklist matches the true operations, the facility will be recommended for Clean Marina Status. The MTEAC will review the recommendation and, if the review is positive, the marina will be granted Clean Marina status. If the marina does not meet the minimum criteria, VCM will continue to work with them until they do meet the criteria.

To support the Clean Marina Program, the Marina Technical Advisory Program will conduct annual reviews of Clean Marinas, will hold workshops to continue providing education to marina owners, operators and staff, and will provide technical assistance on an as-needed basis.

# TABLE OF CONTENTS

Introduction .....5

## Chapters

Siting Considerations and Marina Design.....8  
Marina Management .....16  
Emergency Planning .....20  
Petroleum Control ..... 23  
Sewage and Gray Water ..... 30  
Waste Containment and Disposal ..... 35  
Vessel Maintenance and Repair ..... 44  
Stormwater ..... 52  
Habitat and Species ..... 59  
Laws and Regulations ..... 65

## Appendices

I. Information Sources.....74  
II Spill Prevention, Control and Countermeasure Plan. ....80  
III Stormwater Pollution Prevention Plan.....95  
IV Marina/Boatyard Hurricane Preparations Plan. .... 113  
V Sample Contract Language. ....123  
VI Grant Opportunities.....127  
VII Fact Sheets.....129

# INTRODUCTION

The Coastal Zone Act Reauthorization Amendments (CZARA) require all states with approved Coastal Management Programs to develop programs to address nonpoint sources of pollution from various sources. Complying with these amendments, Virginia submitted a report on their efforts to the US Environmental Protection Agency (EPA) and National Oceanic and Atmospheric Administration (NOAA).

In 1998 the EPA and NOAA review determined that Virginia needed to do more to control nonpoint sources of pollution from marinas and recreational boating. The state requested to begin a voluntary program instead of imposing additional regulations. This was supported by both EPA and NOAA and the Virginia Clean Marina Program (VCMP) was created.

The intent of VCMP is to provide technical assistance and otherwise educate marina operators and boaters on best management practices to incorporate to maintain water quality and protect living resources. Identified problems to address include nonpoint source pollution generated by unchecked stormwater runoff, drips from fuel docks, discharges from marine heads and fish waste.

The purpose of this program is not to point fingers at marinas as the sole contributors of waterway degradation. Harmful impacts come from many sources such as agriculture, forestry, sewage treatment and development. But each potential polluter needs to take a role in reducing the overall contribution of pollution. VA marina operators have been given a chance to voluntarily clean up and should take this opportunity to ensure a future of clean water which is essential to the enjoyment of boating, hunting, and fishing and therefore a thriving marine industry.

## HOW TO USE THIS GUIDEBOOK

The *Virginia Clean Marina Guidebook* provides an overview of actions that marine industry professionals can take to protect water and air quality. It is written for managers of full service marinas with boatyards. The recommendations contained within, however, are equally applicable to marinas with limited services, limited boatyards, and marine contractors.

The *Virginia Clean Marina Guidebook* is intended to be used as a reference document. Refer to selected chapters as needed. The Guidebook also contains many additional sources of information for your personal use. Six *Clean Boating Tip Sheets* are included in the *Guidebook* and are meant to be photocopied and distributed to boaters.

Each chapter of the Guidebook is divided into sections: Environmental Concerns, Goal, Legal Setting, and Best Management Practices (BMP). Marinas must comply with all mandatory BMP's (indicated by a star) and eighty percent of the remaining BMP's to receive the Virginia Clean Marina designation. Items may be marked Not Applicable and those will not be counted against the total score.

## TESTIMONIALS

*"We have found that not only our customers appreciate the designation and the work which goes into it, but our suppliers and the government agencies we deal with do as well. The local health department and a recent inspection by DEQ for the renewal of our Stormwater General Permit highlighted this when the inspector commented that ours was one of the cleanest marinas he had inspected and he had no problems signing off on the permit. In a time of reduced family budgets for recreational boating, we have been able to attract new customers simply through the overall safe and clean appearance of the Marina. That has been important in keeping our head(s) above water! Thanks, Dan and Jeanne Hickey, Smith Point Marina"*

*"We are very happy that we took the time and effort required to make Deltaville Yachting Center/Chesapeake Yacht Sales a Virginia Clean Marina. We have not only seen a change in our customer base, but also an increase in slip, boatel and boatyard rentals. Our customers love the Chesapeake Bay and the Rappahannock River and enjoy participating in projects we do to keep it clean and healthy. They often say, "This marina is like a second home to us, so we are happy to help keep it clean!" As far as Lew and I are concerned, every marina should be a Virginia Clean Marina."*

*"Our Virginia Clean Marina certification has given Deltaville Marina the credentials to reference our efforts to operate an environmentally friendly waterfront commercial business. This certification is essential in our dealings with local, state, and, federal government agencies. Our customer base is evolving, as a result of the VCM status, into a higher end, more affluent customer profile. The investment to become and maintain our facility to the Virginia Clean Marina standard has clearly been a profitable choice."*



# SITING CONSIDERATIONS AND MARINA DESIGN FOR NEW AND EXPANDING MARINAS

## ENVIRONMENTAL CONCERNS

The natural plant, communities of coastal areas and shorelines, including tidal wetlands, riparian buffers and waterways serve multiple functions including providing habitat for fish and fowl, forming a natural buffer against incoming storms, minimizing erosion, and acting as a filter to purify stormwater runoff from the land. Because of these functions, wetlands support waterside tourism, hunting, and fishing, providing ecological, economic, recreational, and aesthetic value. It is important that shoreside development not diminish these features.

Land management decisions, operating procedures, and structural improvements may all contribute to 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 re-suspend toxic compounds such as heavy metals, hydrocarbons, and synthetic chemicals. Hazardous chemicals may be leached into the water from piers and other similar structures. Broken or degraded floats may release buoyant debris 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. Sedimentation is the rain of soil particles through the water column. It may bury bottom dwelling organisms, block sunlight, reduce the feeding efficiency of visual feeders, clog fish gills, and eliminate submerged aquatic vegetation.

## GOAL

Avoid negative environmental impacts to shorelines and waterways from new or expanding marinas.

## LEGAL SETTING

### State

#### **Tidal Wetlands Permit**

Permit required for any project that affects tidal wetlands. This permit is applied for through the Joint Permit Application (JPA) process and permits issued by local wetland boards.

#### **Subaqueous or Bottomlands Permit**

This permit, issued by the VA Marine Resources Commission through the JPA, is required for any project that affects submerged lands.

#### **Coastal Primary Sand Dunes/Beaches Permit**



This permit is required for any project that affects coastal primary sand dunes or beaches. The joint permit application may be used; however, some localities use additional application procedures for dune and beach projects.

### **Water Protection Permit**

Any project that requires federal permits for discharge of dredge material or fill in a waterway or wetland, including nontidal wetlands, work or construction in a navigable waterway, or a water withdrawal will be reviewed by the Department of Environmental Quality (DEQ) for issuance of a Virginia Water Protection Permit (VWPP). Without the VWP permit (formerly called the 401 Certification) the federal permits will not be issued. Reviewed through JPA process.

### **Joint Permit Application Process (JPA)**

A Joint Permit Application (JPA) is used to seek authorization for activities (structure, dredging, clearing, filling, etc.) which obstruct, alter, or result in the discharge of fill into waterways as well as tidal and non-tidal wetlands. Contact your local wetlands board or the Virginia Marine Resources Commission (VMRC) for a copy of the application.

The VMRC acts as a clearinghouse for the applications and issues copies to many state and local agencies. The VMRC reviews the application for encroachment into state owned lands and, if encroachment is noted, issues permits accordingly. Prior to the issuance of this permit the Virginia Department of Health must approve the sanitary facilities (sewage disposal, public water system and toilets) for new or expanding marinas. VIMS, through their Wetlands Advisory Program, provides a report to all involved agencies on the marine environmental impacts of the project. Local wetlands boards use this report and other factors to make their decision on issuing a Tidal Wetlands Permit for any impacts to tidal wetlands. The DEQ is responsible for issuing the Virginia Water Protection Permit (VWPP). Finally, the Corps of Engineers coordinates the application with the Environmental Protection Agency, the US Fish and Wildlife Service (FWS), and the National Marine Fisheries Service before they issue a permit. Each agency involved with the process issues a separate permit.

In addition to these permits, local government land use offices ensure that the proposed project meets local ordinances. Local governments must be contacted separately from the JPA to secure any appropriate building permits and ensure consistency with local ordinances.

### **Chesapeake Bay Preservation Act**

The Virginia General Assembly enacted the Chesapeake Bay Preservation Act in 1988 to improve water quality in the Chesapeake Bay and its tributaries. The Act requires wise resource management practices in the use and development of environmentally sensitive land features. While the Bay Act is a state law, it is implemented by the local governments of Coastal Virginia.

In accordance with state criteria, Tidewater localities have designated environmentally sensitive lands as Chesapeake Bay Preservation Areas (CBPAs). Any development occurring in these areas must meet certain performance standards designed to reduce water quality impacts. The most sensitive lands within CBPAs

are designated as Resource Protection Areas (RPAs). RPAs include tidal wetlands and shores, certain nontidal wetlands and streams, and a 100-foot vegetated buffer adjacent to each of these features. Because these lands are so sensitive, development within RPAs is limited to water dependent uses such as marinas and piers, or the redevelopment of already developed areas. Structures associated with marinas that are not water dependent, such as parking lots, tackle shops, and dry storage areas, are not permitted in RPAs.

The Bay Act also requires Tidewater localities to adopt comprehensive plans that incorporate water quality protection measures consistent with the goals and objectives of the Bay Act. One of the policy areas to be included in local plans is public and private access to waterfront areas. Under this topic, localities typically include a discussion of the water quality issues associated with existing marinas and their criteria for evaluating proposed marinas. Anyone interested in developing or expanding a marina in Tidewater, Virginia should contact the local government to obtain information on the Bay Act provisions of that locality's comprehensive plan and land management ordinances as they apply to marinas.

## **Federal**

### **Federal Rivers and Harbors Act of 1899**

Section 9 of this Act prohibits the construction of any bridge, dam, dike or causeway over or in navigable waterways of the U.S. without authorization from the Coast Guard. Section 10 of the Act, administered by the United States Army Corps of Engineers, requires permits for encroachment into navigable waters, such as the building of wharfs, jetties, or piers.

### **The Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act provides authority for the U.S. Fish and Wildlife Service (USFWS) to review and comment on the impacts on fish and wildlife of activities proposed to be undertaken or permitted by the Corps of Engineers.

### **Federal Water Pollution Control Act**

The Federal Water Pollution Control Act, commonly known as the Clean Water Act, requires permits be issued for projects involving the discharge of dredged or fill material in Federal Waters, including tidal and nontidal wetlands. In addition, the Act provides the authority for the NPDES permit program to regulate point sources of pollution.

Furthermore, the Act prohibits the discharge of oil or hazardous substances into U.S. navigable waters and the use of chemical agents like soaps, detergents, surfactants, or emulsifying agents to disperse fuel, oil, or other chemicals without permission of the U.S. Coast Guard.

## **BEST MANAGEMENT PRACTICES**

### **Redevelop Existing Sites**

- Place new facilities in previously developed waterfront sites.
- Expand marinas into previously developed sites.



- Check with your local government for preferred redevelopment activities and locations.

### **Avoid Rare and Endangered Species**

- ★ Rare and endangered species may not be disturbed (Federal & State Endangered Species Act/Legislation).
- ★ If protected species are identified, you must implement an approved protection plan prior to project approval.
- For a preliminary screening of a project site, contact the Department of Game and Inland Fisheries, the Department of Conservation and Recreation's Natural Heritage Division, or the US Fish and Wildlife Service.

### **Avoid Submerged Aquatic Vegetation** - *Submerged aquatic vegetation (SAV) provides habitat for shellfish and finfish and food for waterfowl.*

- ★ Avoid disturbing or shading SAV.
- Avoid creating situations where secondary impacts on SAV by boat traffic (i.e. prop scarring) or wakes (i.e. erosion) can occur.

### **Minimize Disturbance to Wetlands**

- ★ Avoid disturbance to wetlands and indigenous vegetation in riparian areas.
- Build open piled docks at a height minimizing shading impacts to marshes (build docks at least 1 foot in height above substrate for every 1 foot of dock width).
- Remove foreign materials (trash) from wetlands.

### **Avoid Shellfish Waters**

- Avoid new and expanding marinas that result in the condemnation of shellfish waters. The Division of Shellfish Sanitation of the State Health Department has established a policy which requires the establishment of buffer zones around boat mooring facilities within which shellfish cannot be harvested for direct marketing during the months of April through October.
- Do not site a marina near active shellfish harvesting or culturing areas.

### **Avoid Critical Migration, Nesting, and Spawning Areas for Location and Construction** - *Regional waterfowl populations converge in certain areas to breed and feed during specific times of year. The preservation of historic nesting and staging areas is vital to the continued existence of many water-bird species.*

- Disturbance of waterfowl staging areas by marinas and increased boat traffic should be avoided.
- Schedule construction to avoid critical migration, nesting, and spawning periods of important finfish, shellfish, and wildlife.

### **Consider Bottom Configuration**

- Locate marinas on well flushed, natural waterways.
- A continuous, gradual downward slope from the berthing area into deeper water is ideal.
- Avoid locating in canals, irregular pockets, and sumps that are deeper than adjacent channels.
- Avoid dead-end canals to the greatest extent possible.
- Build docks in areas with water depths greater than 3 feet at mean low water.

### Minimize Impervious Areas to Reduce Runoff

- Impervious areas such as concrete pads and asphalt roads funnel water to specific areas. By maintaining areas with grass or gravel or other areas that let water percolate, water and the pollutants (fertilizer, etc.) it picks up are filtered naturally before reaching the waters of your marina.
- Keep paved areas to an absolute minimum, i.e., just designate work areas and roadways for heavy equipment.

### Use Upland and Inland Areas

- Diminish disturbance to sensitive shorelines
- Upland and inland areas should be far enough away from the water to allow for the natural filtering of pollutants.
- Locate buildings, workshops, and waste storage facilities in upland areas, away from fragile shoreside ecosystems, to the greatest extent possible. Upland areas also provide a measure of protection against floods.
- Locate parking and vessel storage areas away from the water, where feasible.
- Consider inland areas for boat repair activities and winter storage. Use hydraulic trailers to quickly and easily move boats to inland storage locations.

### Siting Criteria Check List

The following criteria will be considered in determining whether and upon what condition to issue any permit for a marina or boat mooring facility.

*Adopted from The Virginia Marine Resources Commission's "Criteria for the Siting of Marinas or Community Facilities for Boat Mooring", 4 VAC 20-360-10 ET SEQ*

<b>CRITERIA</b>	<b>UNDESIRABLE</b>	<b>DESIRABLE</b>
Water Depth	Less than 3 ft. mlw.	Greater than 3 ft. mlw.
Salinity	Suitable for shellfish growth	Unsuitable for shellfish growth
Water Quality	Approved, conditionally approved or seasonally approved for shellfish harvesting.	Closed for direct marketing of shellfish. Little or no potential for future productivity.
Designated Shellfish Grounds	Private leases or public oyster ground in proximity.	No private leases or public oyster ground. No potential for future productivity
Maximum Wave Height	Greater than 1 ft	Less than 1ft
Current	Greater than 1 knot	Less than 1 knot
Dredging	Requires frequent dredging. No suitable site for dredged material	Does not require frequent dredging. No maintenance. Suitable site for dredged material

Flushing Rate (tidal exchange)	Inadequate to maintain water quality	Adequate to maintain water quality
Proximity to Natural or Improved Channel	Greater than 50ft. to navigable water depths	Less than 50ft. to navigable channel
Threatened or Endangered species	Present as defined in existing regulations, or project has the potential to affect habitat	Absent: project will not affect habitat
Adjacent Wetlands	Cannot maintain suitable buffer	Suitable buffer to be maintained
Navigation and safety	Water body difficult to navigate or overcrowded conditions exist	Navigation not presently impeded
Existing Use of Site	Presently used for skiing, crabbing, fishing, swimming or other potentially conflicting uses	Not presently used for skiing, fishing, swimming or other recreational uses
Submerged Aquatic Vegetation	Present	Absent
Shoreline	Bulkheading required	Shoreline protected by natural or planted vegetation or riprap
Erosion Control Structures	Groins and/or jetties necessary	No artificial structures needed
Finfish Habitat	Important spawning and nursery area	Unimportant area for spawning or nursery for any commercially or recreationally valuable species

### Use Fixed or Floating Piers to Enhance Water Circulation

- Piers, and other structures should be placed to enhance, rather than to 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 and water within the marina area. Install wave attenuators to reduce the force of incoming water, if protection is necessary.
- Design new or expanding marinas with as few segments as possible to promote circulation within the basin. The fewer the segments, the better the circulation.
- Identify options to improve areas with poor water circulation.

### Use Environmentally Neutral Material

- 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 which

- will not degrade in less than ten years time; i.e., reinforced concrete, coated steel, recycled plastic, plastic reinforced with fiberglass may be preferable.
- Avoid using wood treated with creosote for pilings and similar structures in or above the water
  - Purchase floatable foams that have been coated or encapsulated in plastic or wood. As these floats age, degraded foam is contained by the covering.

### **Limit Shaded Areas Over the Water**

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

### **Minimize the Need for Dredging** – *A permit is required for dredging operations*

- Locate new marinas in areas where access can be obtained with a minimum of excavating, filling, and dredging.
- Existing marinas that require maintenance dredging more frequently than once every four years should investigate practicable options to increase circulation or reduce sediment accumulation.
- Extend piers and docks into naturally deep waters.
- Locate slips for deep draft boats in naturally deep waters.
- Dredge channels to follow the course of the natural channel.
- Co-locate entrance channels with natural channels.
- Avoid locating the entrance channel perpendicular to the natural channel as shoaling (and, therefore, dredging) is a potential problem.
- Where possible, establish two openings at opposite ends of the marina to promote flow-through currents.
- Provide dry storage for smaller boats.

### **Minimize the Impacts of Dredging**

- Select an appropriate disposal site and containment design. The disposal site must have minimal impact on public safety, adjacent properties, and the environment.
- ★ Do not dredge during critical migration or spawning periods of important species of finfish or shellfish.
- Avoid colonial waterbird nesting areas and historic waterfowl staging and concentration areas.
- Use dredging methods, like hydraulic dredging, that minimize environmental impacts when large dredge volumes are involved.
- Use turbidity curtains to contain suspended sediments where appropriate.

### **Employ Nonstructural Shore Erosion Control Measures**

- Nonstructural measures, such as beach nourishment, marsh creation, and other methods that encourage the preservation of the natural environment, are the preferred methods of shore erosion control.
- If nonstructural measures alone are not sufficient to control erosion, use revetments, breakwaters, or groins to stabilize and ensure the long-term viability of the nonstructural controls.

### **Maintain Structures Using Clean Marina Practices**

- Scrape, sand, and paint in-water and landside structures according to the same management principles as for vessels.



- If possible, move floating structures to shore for scraping, painting and major repairs.
- Maintain structures in good working order and remove abandoned structures.

### Conserve Water

- Equip all freshwater hoses with automatic shut-off nozzles.
- Fix leaks and drips.
- Install low-flow faucets, toilets, and shower heads.



# MARINA MANAGEMENT

## ENVIRONMENTAL CONCERNS

Marina operators expend a high level of effort to improve operations. The success of this effort is accomplished through proper management activities. Having a well trained staff may be the most important element as boaters and independent contractors will frequently look to them for information and advice.

## GOALS

1. Retain/educate a staff capable of accomplishing BMPs.
2. Keep patrons and independent contractors current on BMP guidelines at the marina.
3. Maximize publicity of the marina's efforts to be environmentally sensitive.

## LEGAL SETTING

### State

### Virginia Pollution Discharge Elimination System's (VPDES) Storm Water Permit

This is required for water transportation facilities that have point source storm water discharges from industrial activity areas (vehicle maintenance shops and/or equipment cleaning operations - specifically facilities with an SIC code Major Group 44). It includes a requirement for a storm water pollution prevention plan (SWPPP) to be developed for the facility to control the discharge of pollutants in storm water runoff to the maximum extent practicable. Among other things, the SWPPP requires employees to receive training at least annually (once per year) on the following areas if applicable to the facility: used oil management; spent solvent management; proper disposal of spent abrasives; proper disposal of vessel wastewaters; spill prevention and control; fueling procedures; general good housekeeping practices; proper painting and blasting procedures; and used battery management. (See the Stormwater Chapter for more detailed information on the SWPP. Application available at: [www.deq.state.va.us/permits/water.html](http://www.deq.state.va.us/permits/water.html)).

## BEST MANAGEMENT PRACTICES

**Staff Training** - *A well trained staff will routinely minimize pollution, answer patrons questions, and perform their duties more efficiently. The proper training will also contribute to a faster response time during emergencies.*

★ Train Staff on the following components of the Stormwater Pollution Prevention Plan:

- Used oil management
- Spent solvent management
- Proper disposal of spent abrasives
- Disposal of vessel wastewater
- Spill prevention and control
- Fueling procedures
- General good housekeeping
- Painting and blasting procedures
- Used battery management



## Emergency Response Plans

- 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 U.S. Coast Guard and local fire department to demonstrate emergency response procedures at your marina.

## Approach Polluting Customers (Conflict Resolution)

- Determine who will address boaters and contractors who are polluting. Generally speaking, this is a job for the manager. Let your staff know whether they should handle polluters themselves or report pollution incidents to the manager.
- Politely inform boaters and contractors why what they are doing is harmful. Describe a more environmentally sensitive method and ask the boater or contractor to stop work until it can be done with less environmental impact. It will be easier to get cooperation if you require boaters and contractors to practice pollution prevention as a condition of their contracts.
- If the problem persists, take these additional steps:
  - Talk to the boater or contractor again.
  - Mail a written notice asking that the harmful practice stop. Keep a record of the mailing.
  - Remove the problem from the dock. Charge the boater or contractor for the cost of removal and clean-up.
  - Ask the tenant or contractor to leave your marina.

## Maintain Records of Training

- Record training dates, topics, and names of employees and instructors.
- Keep copies of instructional material.

## Train Employees to Notice and Halt these Activities

- Colored plumes in the water where a hull is being cleaned
- Bilge water discharge with a sheen
- Uncontained sanding, painting, varnishing, or cleaning
- Maintenance debris being washed into the water
- Sewage discharges within the marina
- The use of environmentally harmful cleaning products

**Educate Patrons and Independent Contractors** - *Proper information dispersal to patrons and contractors will minimize the chances of accidental pollution which could save the business from costly cleanup and disposal expenses.*

- Include language requiring the use of BMPs in all of your contracts: slip holders, liveaboards, transients, charters, workers, contractors, and tenants.
  - Clearly outline consequences for not using BMPs.
  - Include information about BMP requirements.
- Post Signs Detailing BMPs in visible locations-*request signs from VCM Program*
  - Include: fuel docks, pumpout stations, vessel maintenance areas, dumpsters, recycling stations. Be sure signs are durable, eye catching, and large enough to read easily.

- Distribute Literature to Customers
  - Copy and distribute the Clean Boating Tip Sheets included in this guidebook
  - Send tip sheets with monthly mailings.
  - Include BMP articles in newsletters.
  - Get free copies of clean boating materials from organizations such as the Marina Technical Advisory Program at VIMS, the Chesapeake Bay Foundation, the Center for Marine Conservation, and Boat/U.S. Clean Water Trust.
  - Contact the U.S. Coast Guard for publications summarizing federal boating requirements.
- Erect and maintain a marina bulletin board.
  - Post your facility's environmental policy in a conspicuous location.

### Be Involved in Volunteer Efforts

- Become a Virginia Clean Marina
  - Apply to the Virginia Clean Marina Program for recognition as a Virginia Clean Marina. Once you have satisfied the selection criteria, you may use the Virginia Clean Marina logo in your advertising and correspondence, fly a Clean Marina flag, and enjoy promotion by the Clean Marina Program in publications, on the World Wide Web, and at public events.
- Sponsor an Oyster Restoration Effort
  - Oysters are natural water filters that improve water quality by filter-feeding on microscopic algae. A single 3-inch oyster can filter up to 50 gallons of water a day. Developing an oyster float in your marina is simple, helps filter the water, and acts as a point of interest for customers. Contact the Tidewater Oyster Gardener.s Association (see Appendix I) for more information.
- Sponsor a Beach Cleanup in Your Area
- Join the Adopt-a-Stream Program.
  - Virginia.s Adopt-A-Stream is a litter education and cleanup campaign aimed at promoting citizen stewardship of the Commonwealth.s water resources. The program is meant to reduce litter entering Virginia.s waterways, promote education and outreach, and facilitate community involvement.

### Business Practices

- Maintain Structures Using Clean Marina Practices
  - Scrape, sand, and paint in-water and landside structures according to the same management principles as for vessels.
  - Move floating structures to shore for scraping, painting, and major repairs
- Sell environmental products, especially if you require them for BMPs
- Offer Environmental Audits for Boaters
- Inspect engines, bilges, fuel systems, and marine sanitation devices (the most common cause of water pollution from boats).
- Avoid environmental surcharges by charging for tangible items such as tarps, vacuum sanders, and protective clothing.





# EMERGENCY PLANNING

## ENVIRONMENTAL CONCERN

Several situations can occur in a marina that require immediate response. Calling 911 may be appropriate in some instances, but additional staff response is imperative in nearly every emergency situation. Without preparation, important steps can be overlooked and without a quick reference guide, the best of intentions may not produce the best actions for solving the problem.

## GOAL

Emergencies can be from fire, fuel spills, storms, or medical. Plan for emergencies in advance in order to minimize any negative effects of emergency situations. Train employees about these plans.

## LEGAL SETTING

### Federal

The US Coast Guard must be notified any time a spill produces a sheen on the water. Call the National Response Center at 1-800-424-8802. Report the location, source, size, color, substance, and time of spill. Failure to report a spill may result in fines.

**Environmental Protection Agency Spill Prevention, Control, and Countermeasure Plan (SPCC):** The Environmental Protection Agency Oil Pollution Prevention Regulations require 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 storage capacity greater than 660 gallons in a single container;
- an aggregate above ground storage capacity greater than 1,320 gallons; or a total underground storage capacity greater than 42,000 gallons.

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”.

## BEST MANAGEMENT PRACTICES

**Petroleum-** Please see *Petroleum Control* chapter page 20

### Maintain Material Safety Data Sheets

- ★ Keep a file of Material Safety Data Sheets (MSDS) for all products used at your facility, as required by the Occupational Safety and Health Act of 1970 (29 USC Sec. 657). MSDS can be found online at <http://www.msdsearch.com/msdssearch.htm>. Store the file in an office away from material storage areas. Keep in mind during an emergency that this file will not tell you what quantity is on site or even whether all materials listed are present.



- ★ Inform the local Emergency Planning Committee what materials you store and what is released when they burn.

### Assess Coastal Hazards

- Designate a conscientious response person for any emergencies involving hazardous materials.
- Consider and plan for likely threats
  - Chemical or oil spill
  - Holding or water tank filled with gas
  - Fire
  - Health emergency
  - Hurricane/Nor'easter
  - Tornado
  - Flood

### Develop Emergency Response Plans-see appendix for Hurricane and Spill Prevention Plans

- Develop written procedures describing actions to be taken under given circumstances. The plans should be clear, concise, and easy to use during an emergency. Include information about what type of equipment is available on site and what its characteristics and capabilities are.
- Keep copies of all Emergency Response Plans in a readily accessible location.
- Place a second copy of the SPCC Response Plan in the oil spill response kit.
- 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 U.S. Coast Guard and local fire departments to demonstrate emergency response procedures at your marina.

### Be Prepared for a Fire

- Meet the National Fire Protection Association's standards for marinas: NFPA 303, Fire Protection Standards for Marinas and Boatyards; VFPA 302, Fire Protection Standards for Pleasure and Commercial Motor Craft; NFPA 30A, Automotive and Marine Service Station Code; NFPA 307, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves; and NFPA 33, Standard for Spray Application Using Flammable and Combustible Materials.
- Be sure hydrants are available to allow for fighting fires throughout your facility. (This can include dry hydrants.)
- Install smoke detectors.
- ★ Have an attendant or supervisor who is fully aware of the operation, mechanics and hazards inherent to fueling, present during fueling operations.
- ★ Provide and maintain adequate, readily accessible, and clearly marked fire extinguishers on each dock and one on the fuel dock within 25' of the head of the gangway to the dock
- ★ Provide metal containers with tight-fitting or self-closing metal lids for the temporary storage of combustible trash

- ★ Post warning signs at the face of each wharf, pier or float at an elevation clearly visible from the decks of boats being fueled. Letters on the signs shall be at least 3 inches in height. NFPA requires signs to include the following:

**WARNING-NO SMOKING.  
STOP ENGINE WHILE FUELING,  
SHUT OFF ELECTRICITY**

**DO NOT START ENGINE UNTIL AFTER  
BELOW DECK  
SPACES ARE VENTILATED**

- Inspect and test all fire fighting equipment and systems regularly. Test fire extinguishers annually.
- Train personnel on fire safety and response: who to call, location of hydrants, use of portable extinguishers, etc.
- Provide ready access to all piers, floats, and wharves for municipal fire fighting equipment.
- Invite the local fire marshal to visit your marina annually to train employees. These annual visits will also help the fire department to become familiar with your facility.

### **Emergency Response Equipment**

- Obtain and store emergency response equipment in an easily accessible location and where the greatest threat of an emergency exists (i.e., oil spill kit on the fuel dock).

### **Boat Maintenance**

- Provide an oil boom for boaters who are working on their boats in the water.

### **Share Your Emergency Response Plans**

- Inform your local fire department and harbor master, if applicable, about your emergency response plans and equipment.
- Let neighboring marinas know what resources are available at your marina.

# PETROLEUM CONTROL

## ENVIRONMENTAL CONCERN

Petroleum products introduced in the environment are a chronic problem. Small incremental discharges of petroleum products add up to significant impacts, especially to important commercial and sport fish and wildlife. Accidental releases may occur during fueling, bilge pumping, and maintenance. Intentional releases may occur when a boater/contractor/ employee does not know of the proper place to dispose of waste petroleum.

## GOAL

Prevent accidental or intentional release of petroleum products into the environment.

## LEGAL SETTING

### Federal

#### **Environmental Protection Agency's (EPA) Spill Prevention, Control, and Countermeasure (SPCC) Program:**

The EPA's SPCC regulations apply to facilities which have: an above ground oil storage capacity greater than 660 gallons in a single container; an aggregate above ground storage capacity greater than 1,320 gallons; or a total underground storage capacity greater than 42,000 gallons.

Oil is defined in the SPCC regulations 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.

SPCC requires the preparation and implementation of a plan to prevent any discharge of oils to waters or shorelines. (See appendix II for SPCC plan template)

The 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, cleanup, and mitigate the effects of an oil spill that impacts navigable waters or adjoining shorelines. 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. The SPCC plan must be updated every three years or when there is a change.

### **Federal Water Pollution Control Act**

The Federal Water Pollution Control Act, commonly known as the Clean Water Act, addresses many facets of water quality protection. This law, particularly parts known as the Oil Protection Act of 1990 (OPA 90), prohibits the discharge of oil or hazardous substances into U.S. navigable waters. It also prohibits the use of chemical agents like soaps, detergents, surfactants, or emulsifying agents to disperse fuel, oil, or other chemicals without permission of the U.S. Coast Guard. Among the many regulations which are derived from the Act, 33 CFR parts 154 and 156 apply to waterside facilities whose storage capacity is greater than 250 bbls (10,500 gallons) or which transfer fuel to vessels which have storage capacity greater than 250 bbls (10,500 gallons). These regulations, administered by the US

Coast Guard, contain a number of equipment and operational requirements such as development of an operations manual, providing proper lighting of transfer areas, two-way communications between the vessel and the facility operator, emergency shutdowns, ability to clean up a discharge, etc.

## State

It is illegal for anyone to pollute the waterways in Virginia.

### Underground Storage Tanks:

Underground storage tanks (USTs) are regulated under Subtitle I of the 1984 amendment to the federal Resource Conservation and Recovery Act and under similar provisions contained in Virginia State Water Control Law, §§62.1-44.34:8 et seq (Article 9), and its derivative regulations, 9VAC 25-580-10 et seq. The regulations require tank owners to register their USTs with DEQ and to maintain evidence of their financial ability to conduct up to \$1 million of cleanup should the tank(s) leak. Installation, upgrades, and closure of tanks and piping must be permitted and inspected by local code officials (building/fire); DEQ requires tank owners to retain documentation to show that the necessary local building permits were obtained for those activities. DEQ does inspect UST facilities to ensure compliance with the standards for day-to-day tank operation. If a UST is found to be leaking, the owner must take immediate action to limit damage to the environment, report the leak to DEQ, and develop and carry out a plan of remediation for the site.

### Aboveground Storage Tanks:

The Code of Virginia requires an operator of a facility located within the Commonwealth with a aggregate aboveground storage capacity of more than 1,320 gallons of oil or an operator of an individual AST located within the Commonwealth with a storage capacity of more than 660 gallons of oil to register such a facility or aboveground storage tank (AST) with the DEQ and with the local director or coordinator of emergency services unless otherwise specified. In addition, for facilities with an aggregate capacity of 25,000 gallons or more, the regulations also require pollution prevention measures including inventory control procedures/equipment, secondary containment, leak detection, periodic formal integrity assessments and regular visual inspections, record keeping, and staff training. The regulations also require the preparation and maintenance of an Oil Discharge Contingency Plan.

## **BEST MANAGEMENT PRACTICES**

### **Protect Petroleum Storage Tanks**

★ Install double-walled or vaulted fuel tanks with aboveground piping. Tanks should meet the following conditions (NFPA 30):

- The capacity of the tank shall not exceed 12,000 gal (45,420 L).
- All piping connections to the tank shall be made above the normal maximum liquid level.
- Means shall be provided to prevent the release of liquid from the tank by siphon flow.
- Means shall be provided for determining the level of the liquid in the tank. This means shall be accessible to the delivery operator.
- Means shall be provided to prevent overfilling by sounding an alarm when the liquid level in the tank reaches 90 percent of capacity and by automatically stopping delivery of liquid to the tank when the liquid

level in the tank reaches 95 percent of capacity. In no case shall these provisions restrict or interfere with the proper functioning of the normal or emergency vent.

- Spacing between adjacent tanks shall be not less than 3 feet (0.9 m).
- The tank shall be capable of resisting the damage from impact of a motor vehicle or suitable collision barriers shall be provided.
- Where the interstitial space is enclosed, it shall be provided with emergency venting.
- Locate above ground fuel tanks within a dike or over an impervious storage area with containment volumes equal to 1.1 times the capacity of the storage tank (s).
- Design containment areas with spigots to drain collected materials.
- If possible, cover the tank with a roof to prevent rainwater from filling the containment area.
- Inspect tanks and piping regularly.

### **Avoid Waves and Wakes**

- Locate fuel docks in protected areas. For safety reasons, all fueling stations should be accessible by boat without entering or passing through the main berthing area.
- Provide a stable platform for fueling personal watercraft (PWC):
  - Prefabricated drive-on docks.
  - Modify an existing dock by cutting a v-shaped berth and covering it with outdoor carpeting.
  - Place the PWC fueling area at the end of the fuel pier to reduce conflict with larger boats.

### **Maintain Fuel Transfer Equipment**

- Inspect and maintain transfer equipment and hoses in good working order. Replace hoses, pipes, and tanks before they leak.
- Hard connect delivery nozzles.
- Hang nozzles vertically when not in use so that fuel remaining in hoses does not drain out.

### **Install Environmental Controls at the Pump**

- ★ Install Stage II Vapor recovery on gasoline systems (required only in non-attainment or potential non-attainment areas such as Northern Virginia and Hampton Roads).
- Do not install holding clips for gas nozzles.
- Install automatic back pressure shut-off nozzles on fuel pump discharge hoses to automatically stop the flow of fuel into a boat's fuel tank when sufficient reverse pressure is created.
- Maintain a supply of clearly marked, easily accessible oil absorbent pads and pillows at the fuel dock to mop up spills on the dock and on the water.
- Place plastic or nonferrous drip trays lined with oil absorbent material beneath fuel connections at the dock to prevent fuel leaks 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.

- Install breakaway fittings to prevent drive-offs or accidental/ violent disconnects.
- Consider installing fuel nozzles that redirect blow-back into vessels, fuel tanks or vapor control nozzles to capture fumes.
- Place small gas cans in oil-absorbent lined drip pans when filling.
- Secure oil-absorbent material at the waterline of fuel docks to quickly capture small spills. Look for oil-absorbent booms that are sturdy enough to stand up to regular contact with the dock and boats.
- Offer your services to install fuel/air separators on boats.

### **Supervise Fueling: Environmental Recommendations**

- 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”.
- Attach a container to the external vent fitting to collect overflow. There are products on the market that may be attached to the hull with suction cups. A rubber seal on the container fits over the fuel vent allowing the overflow to enter the container. Fuel captured in this manner can be added to the next boat to fuel.
- Require boaters to stay with their craft during fueling.
- Instruct fuel dock personnel and boaters to listen to filler pipes to anticipate when tanks are nearly full.
- Encourage boaters to fill their fuel tanks just before leaving on a trip to reduce spillage due to thermal expansion and rocking. If the fuel is used before it warms up, it cannot spill overboard.
- If boaters prefer to refuel upon their return to port, encourage them to fill to 90 percent of capacity.
- Instruct boaters to slow down at the beginning and end of fueling.
- Train employees to hand boaters absorbent pads with the fuel nozzles. Request that the boaters use them to capture backsplash and vent line overflow.

### **Supervise Fueling: Safety Recommendations**

- ★ Always have a trained employee at the fuel dock to oversee or assist with fueling.
- Remind boaters that gasoline vapors are heavier than air; they will settle in a boat’s lower areas.
- Require all passengers to get off gasoline powered vessels before fueling.
- Turn down the pressure on the fuel dispenser. Problems with backsplash and vent-line overflow are often due to the high pressure flow of fuel from the pump.
- Ask your fuel company representative to reduce the pressure to a delivery rate of 10 gallons per minute -especially if you cater to small boats - or use a lower pressure sub-unit to lower pressure.
- Instruct boaters to:
  - Stop all engines and auxiliaries;
  - Shut off all electricity, open flames, and heat sources and cell phones;
  - Extinguish all cigarettes, cigars, and pipes;
  - Close all doors, hatches, and ports;
  - Maintain nozzle contact with the fill pipe to prevent static spark;
  - Inspect bilge after fueling for leakage or fuel odors; and

- Ventilate all compartments after fueling until fumes are gone
- Train dock staff to carefully observe fueling practices; make sure fuel is not accidentally put in the holding tank, the water tank, or a rod holder.

### **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.

### **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.

### **Offer Spill-proof Oil Changes**

- Purchase a non-spill pump system to draw crankcase oils out through the dipstick tube. Use the system in the boat shop and rent it to boaters who perform their own oil changes.
- 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. Recycle the oil and the metal canister or dispose of it in the regular trash if recycling is not practical.

### **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 types of products are useful for capturing spurts at the fuel dock, cleansing bilge water, and wiping up spills in engine maintenance areas.*

- Have basic oil-absorbent materials. Oil-absorbent boom types:
  - Captures oil from the bilge and solidifies into a hard rubber bumper.
  - Contains microbes that digest petroleum converting it 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).
  - Constructed out of oil-absorbent polypropylene fabric and filled with dehydrated microbes that digest the petroleum. Threats associated with free-floating petroleum are thereby minimized.
- Disposal methods for used oil-absorbent material:
  - Standard absorbents that are 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 they are saturated with oil and diesel only!) and reused. Alternatively, they should be double bagged - one plastic bag sealed inside of another - and tossed in your regular trash.
  - Bioremediating bilge booms may be disposed in your regular trash as long as they are not dripping any liquid. Because microbes need oxygen to function, do not seal them in plastic bags.
- Encourage the use of spill-proof oil change equipment as a condition of your slip rental agreement.

## Minimize Spills and Leaks from Machinery

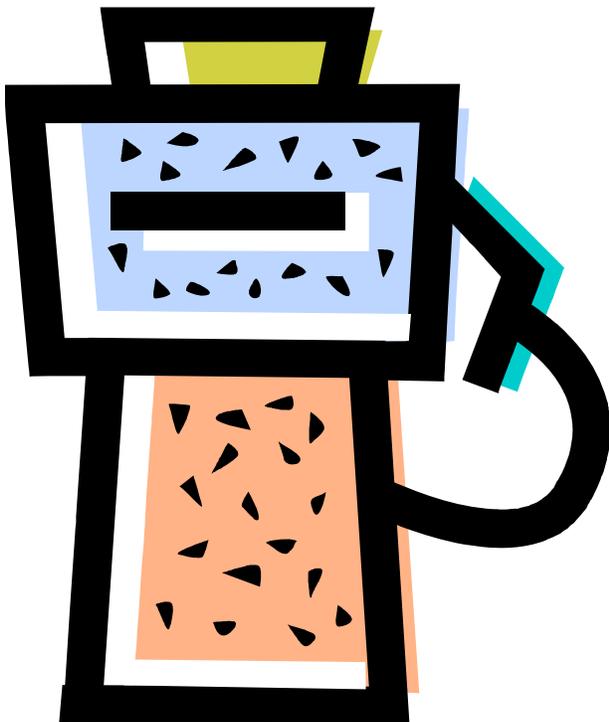
- Use non-water-soluble grease on travelifts, forklifts, cranes, and winches.
- Place containment berms with containment volumes equal to 1.1 times the capacity of the fuel tank around fixed pieces of machinery that use oil and gas.
- Design containment areas with spigots to drain collected materials and dispose of all collected material appropriately.
- Place leak-proof drip pans beneath machinery. Empty the pans regularly, being conscientious to dispose of the material properly (uncontaminated oil and antifreeze may be recycled).
- Place oil-absorbent pads under machinery.
- Place machinery on an impervious pad.
- If possible, cover the machinery with a roof to prevent rainwater from filling the containment area.

## Educate Boaters, Staff, and Contractors

- Provide accessible emergency contact numbers for spills.
- Develop a “panic file” as described in the Emergency Planning chapter.
- Distribute fact sheets.

## Bilgewater

- Minimize contaminated bilgewater discharges by offering free bilge pumpouts.
- Educate boaters about bilgewater issues.





# SEWAGE AND GRAY WATER

## ENVIRONMENTAL CONCERN

### **Sewage:**

Overboard discharges of domestic sewage from marine heads, portable toilets, and holding tanks contribute significantly to water quality degradation and introduce dangerous pathogens into the water. Poorly maintained shore facilities, pumpouts, and waste dump receptacles limit their use and discourage the proper disposal of sanitary wastes.

### **Gray water:**

Gray water is defined as waste water from sinks and showers. Direct discharges of gray water increase Biological Oxygen Demand (BOD) and nutrients in the water, lower dissolved oxygen, and contribute to undesirable algal blooms.

## GOAL

Encourage the proper use of pumpout facilities and waste dump receptacles by boaters, particularly live-a-boards and overnighters. Ensure that shore facilities, sewage pumpout facilities and waste dump receptacles are maintained in good operational and sanitary condition to encourage their use. Reduce the volume of gray water discharges and the concentrations of pollutants contained in gray water discharges at marinas.

## LEGAL SETTING

### **Federal**

#### **Federal Water Pollution Control Act of 1972/Water Quality Act of 1987**

requires the installation of marine sanitation devices (MSD) on all vessels with installed toilet systems operating on navigable waters of the United States. All MSDs must be U.S. Coast Guard approved.

### **State**

#### **Commonwealth of Virginia Sanitary Regulations for Marinas and Boat Moorings**

All marinas or other places where boats are moored shall provide the minimum number of sanitary facilities for their patrons.

Any public or private marina in Virginia is eligible to recover 75% of the cost of installing a pumpout through the Clean Vessel Act (CVA) Grant Program run by the Virginia Department of Health. (see Appendix VI)

### **No Discharge Areas**

A No Discharge Area (NDA) is an area of water that requires greater environmental protection where even treated sewage may not be discharged from a boat. When operating in a NDA, Type I and Type II systems must be secured to prevent discharge. All freshwater lakes, reservoirs, and rivers not capable of interstate vessel traffic are defined by the federal Clean Water Act as NDAs, but they require an enforceable regulation to make them effective (Smith Mountain Lake has an



enforceable regulation). States may establish NDAs in any waters with approval from the US EPA. Discharge of untreated sewage is prohibited in all Virginia freshwater areas, the Chesapeake Bay and its tributaries, and within 12 miles of any Virginia shoreline.

## **BEST MANAGEMENT PRACTICES**

### **Sewage pumpouts and waste dump receptacles**

- ★ Install a pumpout/waste dump receptacle.
  - The presence of the pumpout facility promotes a public perception that you are environmentally responsible.
  - The need for holding tanks to be pumped out regularly will draw a steady stream of customers to your dock.
- ★ Dispose of Collected Wastes
  - Direct connect to a public sewer line
  - Personal sewage treatment plant
  - Holding tank
- Select an appropriate system to operate effectively given the specific conditions at your site
  - permanently fixed to a dock
  - mobile, hand truck or boat
  - direct slipside connections
- Choose an Accessible Location
  - easily accommodate the types of boats that frequent your marina.
  - locate the pumpout system so a vessel being pumped does not prevent other boats from fueling
- Post signs
  - Provide information on location, cost, hours of operation, where to call for service, and where to get tokens (if a token system is used).
  - Post signs that are visible from the channel so passing boaters are aware of the facility.
  - VDH will provide proper signage for no charge.
  - If you do not yet have a pumpout, post signs directing boaters to the nearest facility.
- Plan Operation
  - staffed or token-(self-service) operated.
  - Attendant to operate the pumpout or not. Consider installing a buzzer or paging system so that boaters at the pumpout station can easily locate the attendant
  - Post clear instructions
- Determine fee
  - How much?
  - Will tenants and liveaboards be charged?
  - Will transients be charged?
  - If you use a CVA grant, no more than \$5 per pumpout may be charged to pump a normal size holding tank.
  - Consider providing a free pumpout with a fuel fillup.
- Apply for CVA Grant for new pumpouts or for maintenance of existing ones
- Maintain the pumpout
  - Inspect regularly and keep a log.

- Contact the pumpout manufacturer for specific maintenance and winterization recommendations.
- Test the efficiency weekly during the boating season by measuring the length of time required for the system to empty a 5-gallon bucket of water.
- Establish a maintenance agreement with a qualified contractor.
- Train staff to use the machine
- Do not allow waste to drain into receiving waters. Keep pump running until it has been re-primed with clean water.

### Shoreside Restrooms

- ★ Provide Ample Shoreside Restrooms as defined in VA Sanitary Regulations for Marinas and Boat Moorings..
- Provide clean, functional restrooms with showers to encourage people not to use their heads while in port.
- Make restrooms available 24 hours a day.
- Install a security system on restroom doors so people will feel safe using them, particularly late at night.
- Provide air conditioning and heating.

**Prohibit Discharge of Waste Water from Vessels** – *Effluent from legal Type I and Type II systems can contain nutrients, toxic chemicals, and pathogens. The standard for Type I systems is a fecal coliform count of 1,000/100 ml. Bathing beaches may be closed at levels of 200/1,000 ml. Thus, discharges from Type I and Type II systems in crowded, protected areas - such as marinas - pose a threat to human health and water quality.*

- Prohibit discharge of head waste in your marina as a condition of your lease agreements.
- Discourage the discharge of gray water waste in your marina as a condition of your lease agreements.
- Post signs prohibiting the discharge of head and gray water waste and directing people to use shoreside restrooms.
- Input ways to ensure valves on holding tanks are closed.

**Design and Maintain Septic Systems to Protect Water Quality and Public Health** (Refer to Siting chapter for more information.) - *If you have a septic system, be alert for signs of trouble: wet areas or standing water above the absorption field, toilets that run slowly or back up, and odor. Septic failures can contaminate drinking water and shellfish.*

- Post signs in the restrooms informing patrons not to place paper towels, tissues, cigarette butts, disposable diapers, sanitary napkins or tampons in the toilets. These items can clog the sewer lines.
- Provide adequate covered disposal for the above items.
- 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 the same.
- Do not pour fats or solvents down drains.
- Use small amounts of drain cleaners, household cleaners, and other similar products.
- 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.
- Do not use a garbage disposal. This increases the amount of solids entering the system. Capacity is reached more quickly. As a result, more frequent pumping is necessary.
- Direct downspouts and runoff away from the septic field in order to avoid saturating the area. For stormwater management reasons, do not direct the flow toward paved areas.

**Provide Facilities for Live-a-boards** - *Boaters who make their homes aboard vessels cannot be expected to regularly untie in order to use a fixed pumpout facility, nor to always use shoreside restrooms. However it is undesirable to permit the discharge of Type I or II systems.*

- Provide a convenient sewage disposal system for liveaboards while maintaining good water quality (most liveaboards expect and are willing to pay a premium for extra service and more convenient slips).
- Provide a portable pumpout system.
- Consider a lease in which vessels used as homes may not discharge any sewage.
- Reserve slips closest to shoreside restrooms for liveaboards. Provide adequate lighting to and from and in the restrooms.
- Offer to demonstrate the proper way to secure the Y- valve.
- Install direct sewer hookups for liveaboards.

### **Offer MSD Inspections**

- Ensure patrons' Type 1 or Type II MSD systems are functioning properly.
- Ensure each boat's y- valve is locked closed while in port.
- Encourage boaters to use the Type III systems when berthed.

**Educate Boaters** – *on the impacts of sewage and its proper disposal.*

- Encourage boaters to properly maintain their MSDs and to purchase environmentally friendly treatment products for their heads and holding tanks.
- Include information about MSD requirements and sewage laws in contracts
- Let boaters know that discharge of raw sewage is illegal and will be reported to the proper authorities. (Find out who the proper authority is in your area.)
- Provide copies of the Clean Boating Tip Sheet at the end of this chapter to your boaters
- Use the following ways of educating boaters:
  - Pamphlets and Flyers
  - Newsletters
  - Inserts
  - Inspections
  - Slip Leasing Agreement

### **Gray water**

- Reduce the Volume of Gray Water.
  - Encourage the use of shoreside showers and laundry.
  - Encourage boaters to conserve water
  - use water saving devices such as low volume showerheads.
- Provide Gray Water Pumpouts.



# WASTE CONTAINMENT AND DISPOSAL

## ENVIRONMENTAL CONCERN

All marinas generate some non-hazardous and hazardous waste categorized as solid waste and liquid waste. Hazardous waste is defined as waste that is ignitable, corrosive, reactive, or toxic, and can cause severe environmental damage if disposed of improperly.

Liquid waste includes bilge water, certain cleaners, and gray water. Solid waste includes fish waste and garbage. Plastics are of particular concern as there are many well-documented instances of marine mammals, fish, turtles, and seabirds becoming entangled in or choking on plastic debris. Plastics also represent a hazard to navigation, as they can snare propellers and clog engine intake systems. Fish waste degrades the water quality of poorly flushed marina waters.

## GOAL

Ensure that all wastes generated at the marina are managed and disposed of properly.

## LEGAL SETTING

### Federal

#### **The Marine Plastic Pollution Research and Control Act of 1987 (MPPRCA):**

MPPRCA, 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 waterbody. The disposal of other types of garbage is restricted according to how far a vessel is out to sea. The important thing to remember is that within the Chesapeake and coastal bays, along rivers, and on inland lakes, the discharge of any garbage into the water is illegal. Fish parts from cleaning are an exception. However, the discharge of fish waste into poorly flushed Virginia waters is not desirable. The law also requires that marinas be able to accept garbage from vessels that normally do business with them.

#### **The Federal Resource Conservation and Recovery Act (RCRA) of 1976:**

RCRA was established to improve the collection, transportation, separation, recovery, and disposal of solid and hazardous waste.

Title 40 Code of Federal Regulation Parts 260-268 (Hazardous Waste)

Title 40 Code of Federal Regulations Section 262.11 and Chapter 62-730, F.A.C. (Antifreeze)

Title 40 Code of Federal Regulations 279

#### **International Convention for the Prevention of Pollution of Ships at Sea (MARPOL):**

Annex I: Oil

Annex II: Hazardous Liquids

Annex III: Hazardous Substances

Annex IV: Sewage

Annex V: Plastics

## State

### Virginia Waste Management Act

DEQ's solid waste management program is authorized under the Virginia Waste Management Act, Sections 10.1-1400 through 10.1- 1457 of the Code of Virginia. The Virginia Waste Management Board develops and enforces regulations that it deems necessary to protect public health and safety and enhance the environment. It is illegal for anyone to pollute the waterways of Virginia.

## BEST MANAGEMENT PRACTICES

### Reduce Waste

- 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 an excess of substance.
- 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 companies that will reuse them, i.e., small scale packing and shipping companies.
- Request alternative packing material from vendors, i.e., paper, potato starch peanuts, popcorn, etc.
- Discourage the use of plastic and styrofoam cups, food containers, utensils, and other non-biodegradable products.
- Post the names of local schools, churches, volunteer home renovation groups, theater groups, and others, that are willing to accept excess, non-toxic paints.

### Non-Hazardous Waste

#### Solid Waste

- ★ Accept garbage from vessels that normally do business with you.
- ★ Putrescible waste - food that rots - can be stored for a maximum of 7 days before a permit is required.
- Provide accessible, well-marked, well-lit and lidded trash receptacles. Empty and clean the receptacles at least weekly.
- Select containers that are large enough to hold the expected volume of trash. On average, 4 to 6 gallons of reception capacity is needed per person per vessel per day. A cubic yard of dumpster space holds 216 gallons of trash.
- Provide accessible, well-marked, well-lit and lidded recycling containers. Make the containers look different than the trash receptacles.
- Contact a waste hauler or your local solid waste recycling coordinator (refer to Appendix VI) to learn what materials are collected in your area.
- Post information about local recycling services if you are not able to provide all of the desired services at your facility.
- Do not place trashcans or recycling containers on docks, as waste may inadvertently blow into the water. Also, training boaters to bring their own trash to a central garbage area means less work for you and your staff.

- Require all employees to be involved in policing the facility for trash and vessel maintenance wastes. Do not allow litter to collect on the ground or near shore
- Use flip-top containers; people cannot forget to close them.
- Use a pool skimmer or crab net to collect floating debris that collects along bulkheads or elsewhere within your marina.
- Plant or construct a windscreen around the dumpster to make the area more attractive and to prevent trash from blowing away. Use native shrubs.

**Liquid Waste** - *See Recycle Liquid Wastes (next page) for information on hazardous liquid wastes.*

- ★ Provide pumpouts for bilge water, gray water, and sewage. (See Sewage chapter.)
- ★ Bulk containers of free liquids (as opposed to solid wastes) cannot be disposed of in a landfill.
- Provide onshore disposal sites for liquid cleaners and their containers.
- Post signs educating boaters on gray water discharges and boat cleaners.

**Fish Waste** - *Large amounts of fish guts deposited in an enclosed area can produce foul odors and impair water quality through decreased dissolved oxygen and increased bacteria levels.*

- Provide facilities for fish cleaning and carcass disposal.
  - Provide a stainless steel sink equipped with a garbage disposal that is connected to a sanitary sewer. (Note: fish heads, large carcasses, and fish skin will clog up the disposal.)
  - Provide garbage containers for fish carcasses.
  - Empty garbage containers regularly (especially on hot days).
  - Prohibit fish cleaning outside of designated areas.
- Implement fish composting where appropriate. Contact VCMP for more information.
- Use a grinder to make chum out of fish carcasses. Sell the chum at your marina store.
- Arrange for crabbers to take fish carcasses.
- Prohibit fish cleaning at your marina.
- Educate people on the water quality problems associated with excess fish waste in marina waters.

**Hazardous Waste** - *Hazardous Waste Generators are those 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. Conditionally Exempt Small Quantity Generators are facilities that generate less than 100 kilograms of hazardous waste per month and do not accumulate more than 100 kilograms of waste at any one time. Conditionally Exempt Small Quantity Generators are not required to register with the EPA.*

- All hazardous waste should be sent to a disposal facility that is permitted, licensed, or registered by the state to dispose of hazardous waste.

### How Do You Know if a Substance is Hazardous? ★

All waste generators must determine whether or not their refuse is hazardous. The waste is hazardous if it exhibits one or more of the characteristics of hazardous materials: ignitability, corrosivity, reactivity, or toxicity. A generator may either have the waste tested to determine if it exhibits a hazardous characteristic or use knowledge of the waste, i.e., first hand experience or information gathering from a Material Safety Data Sheet. The test for toxicity is called the Toxicity Characteristic Leaching Procedure (TCLP) and is performed by industrial laboratories.

### Recycle Liquid Wastes

- ★ Do not allow patrons to pour gasoline, solvents, paints, varnishes, or pesticides into the oil or antifreeze recycling containers. The introduction of these materials creates a hazardous waste, where the whole tank must be disposed of as hazardous waste: a very expensive undertaking.
- Provide separate 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 percent of the volume of each tank.
- Try to 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. Use funnels with locking lids that screw into the bungs of 55-gallon drums.
- Post signs indicating what may and may not be placed in each tank.
- 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. As a precaution though, CHECK WITH YOUR RECYCLER BEFORE MIXING ANY MATERIALS.
- Consider locking all 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.
- Investigate waste haulers to insure that they actually recycle the collected material.
- Maintain shipping manifests for solvents and other hazardous wastes for a minimum of 3 years (manifests are not required for used oil and antifreeze that is being recycled).

### Management-marinas

- ★ Dispose of hazardous wastes properly.
- Minimize the use of hazardous products to reduce health and safety risks to your staff, tenants and contractors; lower disposal costs; decrease liability; and limit chances that you will be liable for costly clean-up of inappropriately disposed material.

- Do not store large amounts of hazardous materials. Purchase these 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.
- Label wastes properly, especially when different types of wastes are stored in the same area.
- Avoid using, to the greatest extent possible, products that are corrosive, reactive, toxic, or ignitable.
- Adopt an inventory control plan to minimize the amount of hazardous material you purchase, store, and dispose.

**Management-patrons** - *Waste from private boaters doing work on their own boats is considered household waste under RCRA, and therefore is exempted from regulation as hazardous waste. However, it is in the best interest of the marina to manage chemical wastes from patrons to ensure the wastes do not end up causing the marina a regulatory/environmental issue in the future.*

- Provide convenient, well marked disposal sites.
- Put language in contract requiring proper disposal.
- Post signs by solid waste receptacles that prohibit disposal of hazardous waste.
- Stencil storm drains to indicate where the drain discharges (i.e., Chesapeake Bay). Patrons might be less likely to dump if they realize that their favorite fishing water may become contaminated.
- If your marina does not collect and dispose of hazardous waste on site, direct marina patrons about proper disposal of hazardous waste.
- Use signs, mailings, postings on bulletin boards, etc. Post collection center locations near the waste receptacles.

## Storage

- ★ Store solvents and other hazardous materials in closed, fire safe containers that are UL listed or Factory Mutual approved and meet U.S. Department of Transportation standards. Approved containers will carry specification markings (i.e., DOT 4B240ET). Refer to 49 CFR 178 for additional packaging specifications.
- ★ Plainly label all stored and containerized material.
  - Mark the date accumulation begins and ends.
  - UNLESS YOU ARE A CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR, THE REQUIREMENTS ARE MORE STRICT. You will need to designate Satellite Accumulation Areas and/or Accumulation Areas; containers must be labeled as Hazardous Waste and only the container full date needs to be on the drum.
- ★ Store containers on pallets in a protected, secure location away from drains and sources of ignition.
- Routinely inspect the storage area for leaks. Generators must inspect their containers weekly and document the inspections.
- ★ If you are a Conditionally Exempt Small Quantity Generator, your waste is STILL hazardous waste and may not be disposed of on the ground, in the water, or through a landfill or other solid waste disposal method (i.e., trash can).

- Assign control of hazardous supplies to a limited number of people who have been trained to handle hazardous materials and understand the first-in, first-out policy.
- Routinely check the date of the materials to prevent them from outliving their shelf life.

**Follow Recommended Disposal Methods** - The following table contains information about recommendations for the proper disposal of wastes typically found at marinas.

### WASTE DISPOSAL OPTIONS FOR COMMERCIAL OPERATORS

WASTE	DISPOSAL OPTIONS
Antifreeze: propylene glycol or ethylene glycol	Recycle: Hire a waste hauler to collect and dispose Confirm your waste hauler will accept mixed antifreeze Purchase on-site recovery unit. Distillation systems are more expensive than filtration, but are more efficient
Waste Oil: engine oil, transmission fluid, hydraulic oil, gear oil, #2 diesel, kerosene	Recycle with a licensed waste management contractor Confirm your waste hauler will accept mixed oil Use waste oil for space heating
Quart oil cans	Drain completely and dispose in regular trash. They cannot be recycled
Non-terne plated oil filters	Puncture and completely hot drain for at least 24 hours. Recycle the oil and the metal canister, or double-bag it in plastic and place it in your regular trash
Terne plated oil filter (used in heavy equipment and heavy duty trucks)	Dispose of as hazardous waste (contains lead)
Stale Gasoline	Add stabilizer in winter to prevent gasoline from becoming stale or add octane booster in the spring to rejuvenate. Use the fuel. Mix with fresh fuel and use Hire a hazardous waste hauler to collect and dispose of it.
Kerosene	Filter and reuse for as long as possible, then recycle
Mineral Spirits	Filter and reuse. DO NOT add to used oil to be burned in heaters
Solvents: paint and engine cleaners such as acetone and methylene chloride	Reuse as long as possible and then recycle. Use less toxic alternatives to avoid disposal issues. Dispose of as hazardous waste. DO NOT add to used oil to be burned in heaters.
Sludge recovered from hazardous solvent	Dispose of as hazardous waste
Sludge recovered from non-hazardous solvent	Let sludge dry in a well-ventilated area, wrap in newspaper, and dispose in garbage

Paints and varnishes: latex, water-based, oil-based	Water based: Allow to dry completely. Dispose of in regular trash. Oil/Solvent based: Dispose of as hazardous waste Water based and Oil based: Use leftover material for other projects and Encourage tenants to swap unused material
Paint Brushes	Allow to dry completely prior to disposal. Treat as hazardous waste if paint contains heavy metals above regulatory levels.
Rags soaked with hazardous substances	Keep in covered container until ready to discard. Dispose of the solvent that collects in the bottom of the container as hazardous waste. Wring rags out over a waste solvent collection container and have laundered by an industrial laundry. If rags fail TCLP test, dispose of as hazardous waste.
Used oil-absorbent material	If oil and diesel is adequately absorbed, double bag it in plastic and discard in trash (no petroleum can be leaking). If it is saturated with gasoline and is a small amount, allow it to air dry and reuse or double bag and dispose of in trash
Used bioremediating bilge booms	Discard in regular trash as long as no liquid is dripping. Because the microbes need oxygen to function, do not seal in plastic
Epoxy and polyester resins	Catalyze and dispose of as a solid waste as long as it dries hard and has no free liquids
Glue and liquid adhesives	Catalyze and dispose of as a solid waste
Containers: paint cans, buckets, spent caulking tubes, aerosol cans	Aerosol cans: if there is residue they are hazardous wastes. If they are empty they can be recycled under the scrap metal exemption (if the scrap metal recycler takes them) All other containers: All material that can be removed has been. Containers that held compressed gas are at atmospheric pressure. Containers that held acute hazardous waste have been triple rinsed with the appropriate solvent. Properly dispose of solvent
Residue from sanding, scraping, and blasting	Document that the residue is not hazardous (no metals). Dispose of as a solid waste. If it contains metals, it is a hazardous waste and must be disposed of properly.
Pressure washing residue	Dispose of as solid waste
Lead Batteries	Recycle or sell to scrap dealers. Store on an impervious surface, under cover. Protect from freezing. Check frequently for leakage. Inform boaters that if they bring their old battery to a dealer, they will receive a partial refund on a new battery.
Expired distress signal flares	Encourage boaters to keep on board as extras. Store in a marked, fire safe container. Use expired flares to demonstrate to boaters how they are used. Notify the Coast Guard and fire department of a demonstration. Bring flares to a local fire department or household hazardous waste collection program.
Scrap metal	Recycle
Light bulbs: fluorescent, mercury vapor, high & low	Recycle if you have more than a few. Treat as a solid waste if you have less than two and they're mixed with other solid waste.

pressure sodium, metal halide	If you segregate from solid waste they need to be dealt with as a hazardous or universal waste.
Refrigerants	Recycle. If you deal with AC, you must be certified and use EPA approved CFC recovery and recycling equipment. Use alternative refrigerants: HCFC-22, HCFC-123, HFH 134A <b>NOTE: do not mix refrigerant oil with used engine oil and do not mix it with engine oil to be burned in space heaters.</b>
Monofilament Fishing Line	Recycle through a manufacturer or tackle shop. Dispose in sealed trash can.
Scrap tires	Recycle—legally you can't store tires without a permit—over 500 is Class 6 felony
Pesticides	Dispose of as hazardous waste
Plastic Shrink Wrap	Recycle
Fish Waste	Prohibit disposal of fish waste into confined marina waters. Establish a fish cleaning station with one of the following disposal methods: Implement fish composting where appropriate Use a grinder to make chum at your marina store Arrange for crabbers to take fish carcasses
Abandoned and derelict vessels	Ensure holding tanks, fuel tanks and bilges are not leaking Haul out boats that are sinking/have sunk Contact the owner Obtain title to the boat before attempting to dispose of vessel





# VESSEL MAINTENANCE AND REPAIR

## ENVIRONMENTAL CONCERN

Boat cleaning, engine repair, pressure washing, painting, and regular maintenance near or on the water can release oils, greases, paint chips, paint liquids, detergents, and more. If these contaminants are allowed to flow into the water body they can pollute the water, kill marine life, and reduce the sunlight available for aquatic plants. Toxic heavy metals, such as copper, zinc, lead and tin from bottom paints, can get into the food chain through bottom-dwelling creatures or may settle into the sediments, potentially increasing the cost of dredge spoil disposal. Many of the cleaning products meant to be used in boat shops are also toxic containing caustic or corrosive elements. They may also contain chlorine, phosphates, inorganic salts, and metals. Even non-toxic products are harmful to wildlife. For example, detergents found in many boat cleaning products will destroy the natural oils on fish gills, reducing their ability to breathe.

## GOALS

1. Minimize the amount of materials from vessel maintenance and repair entering the water.
2. Use less toxic alternatives for vessel maintenance and repair.

## LEGAL SETTING

### Federal

#### **The Federal Water Pollution Control Act/Clean Water Act**

Requires permits be issued for projects involving the discharge of dredged or fill material in Federal Waters and wetlands, including nontidal wetlands.

#### **National Pollutant Discharge Elimination System (NPDES)**

The Act prohibits the discharge of oil or hazardous substances into U.S. navigable waters. It also prohibits the use of chemical agents like soaps, detergents, surfactants, or emulsifying agents to disperse fuel, oil, or other chemicals without permission of the U.S. Coast Guard.

### State

#### **Virginia Pollutant Discharge Elimination System (VPDES)**

This permit is required for marinas if there are any point source discharges of process water (collected wash water for example) or storm water. VPDES Permits can be individual permits (for one facility only) or general permits (issued to a class of similar dischargers). For storm water discharges there is a General VPDES Permit that is usually applicable to marinas. This general permit applies to storm water discharges from water transportation facilities that have vehicle (vessel) maintenance shops and/or equipment cleaning operations. The water transportation industry includes facilities engaged in foreign or domestic transport of freight or passengers in deep sea or inland waters; marine cargo handling operations; ferry operations; towing and tugboat services; and marinas (facilities commonly identified by Standard Industrial Classification (SIC) code Major Group 44). The regulation authorizing this general permit is the VPDES General Permit Regulation for Stormwater Discharges associated with Industrial Activity. It governs new and



existing storm water discharges associated with industrial activity through a conveyance to surface waters or through a municipal or non-municipal separate storm sewer system to surface waters. All VPDES permits are valid for 5 years; however, as a general permit may have been issued prior to a facility obtaining coverage, the permittee should check to see when the general permit expires. Stormwater General Permit Regulation, 9VAC 25-151-10 et seq. Refer to Stormwater Chapter for more information.

## BEST MANAGEMENT PRACTICES

**In the water** - *While working on a boat in the water is not the preferred method, it is sometimes unavoidable.*

- Educate employees/boaters/contractors about cleaning methods that prevent the release of pollutants to waters. Post signs and hand out educational materials describing boat cleaning methods.
- Prohibit pressure washing (for boats in the water).
- Avoid in-the-water hull scraping and any abrasive process that occurs underwater that may remove anti-fouling paint from the boat.
- Wash the boat hull above the waterline by hand. Detergents and cleaning compounds used for washing boats should be phosphate-free and biodegradable and amounts used should be kept to a minimum.
- Sell these environmentally sensitive products in your marina store.
- Discourage the use of traditional sudsing cleaners that must be rinsed off and discourage the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates or lye.
- Plug scuppers to contain dust and debris.
- Offer incentives, like reduced mid-season haul out rates, so that boaters can have their hulls cleaned on land where contaminants may be contained.
- Incorporate guidelines for boat maintenance into slip leasing agreements.
- Encourage the owner to remove the boat from the water for maintenance.
- Encourage the use of sponges or soft towels to clean the boat hull on a regular basis.
- Keep containers of cleaning and maintenance products closed.

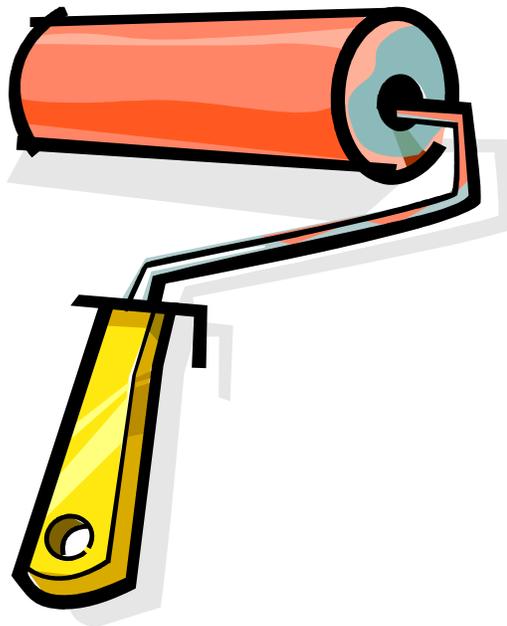
### Out of the water

- ★ Collect all maintenance debris. Clean work areas after completing each operation or at the end of the day - whichever comes first. Segregate debris if possible and dispose of properly.
- ★ Vessel maintenance areas for new marinas within the Chesapeake Bay Resource Protection Area must be located outside the 100-foot buffer. (Refer to the Sitings Chapter.)
- ★ Contain and properly dispose of rinse water/paint chips from boats washed on upland areas.
  - Designate work area so marina has a sense of order and staff can monitor the area for potential environmental problems
  - Perform all major repairs - such as stripping, fiberglassing, and spray painting - in designated areas.
  - Locate maintenance areas as far from the water as possible so stormwater runoff will have the maximum amount of time and distance to be filtered
  - Vessel maintenance areas should have an impervious surface (i.e. asphalt or cement) and, where practical, a roof. Sheltering the area from rain will prevent stormwater from carrying debris into surface waters.

- If asphalt or cement is not practical, perform work over filter fabric or over canvas or plastic tarps. Filter fabric will retain paint chips and other debris while allowing water to pass through. Tarps may be potentially re-used multiple times.
- Use vegetative or structural controls sited in the *Stormwater Management Workbook* (obtain a copy from DCR) to treat stormwater runoff, wherever practicable. (Also see Stormwater Chapter)
- Establish a schedule for inspecting and cleaning stormwater systems. Remove paint chips, dust, sediment, and other debris. Clean oil/water separators.
- Prohibit major maintenance or repair work outside the designated maintenance areas.
- Clearly mark work areas with signs, i.e., Maintenance Area for Painting
- Post signs and distribute materials describing best management practices that boat owners and contractors must follow, i.e., Use Tarps to Collect Debris.
- Develop, initiate and maintain procedures for managing requests to use the workspace, to move boats to and from the site, and to insure the use of BMPs.
- Surround the maintenance area with a berm or retaining wall.

### Minimize Impacts of Painting

- Recommend to your customers antifouling paints containing the minimum amount of toxin necessary for the expected conditions.
- Avoid soft ablative paints.
- Use water-based paints whenever practical.
- Stay informed about antifouling products, like Teflon, silicone, polyurethane, and wax that have limited negative impacts. Pass
- Store boats out of the water, where feasible, to eliminate the need for antifouling paints.



### Anti-fouling bottom paints

Antifouling bottom paints protect hulls from fouling organisms that can interfere with vessel performance, but pesticides within them harm fish and other non-target species. Most paints work by slowly releasing a biocide, generally cuprous oxide (Cu<sub>2</sub>O). These copper-based paints are not used on aluminum hulls; the interaction of copper and aluminum leads to corrosion. Instead, with the proper federal permit, tin-based paints (tributyltin or TBT) are often used on aluminum-hulled vessels. Concentrations of TBT as low as a few parts per trillion have caused abnormal development and decreased reproductive success in oysters, clams, and snails (EPA 1993). Tin is easily absorbed by fish through their gills and accumulates to high levels in sediments. For these reasons, federal law restricts the use of tin-based paints to aluminum vessels, boats larger than 82 feet (25 meters), and outboard motors and lower drive units. Any boatyard operator wishing to apply TBT paints must obtain a pesticide business license.

Antifouling paints can be separated into three general categories:

- Leaching Paints- Water soluble portions of leaching antifouling paints dissolve slowly in water, releasing the pesticide. The insoluble portion of the paint film remains on the hull. The depleted paint film must be removed before the boat is repainted. Most leaching paints are solvent based.
- Ablative Paints-Ablative antifouling paints also leach some toxicant into the water. The major difference is that as the active ingredient is leached out, the underlying film weakens and is polished off as the boat moves through the water. As the depleted film is removed, fresh antifouling paint is exposed. There are several water-based ablative paints on the market that are up to 97% solvent free. As a result, levels of volatile organic compounds are substantially reduced as compared to solvent-based paints. Ease of cleanup is another advantage of water based paints.
- Non-toxic Coatings-Teflon, polyurethane, and silicone paints are nontoxic options. All deter fouling with hard, slick surfaces.

### Pressure Washing

- ★ All pollutants must be removed from wash water before it may be discharged. At a minimum, allow large particles to settle out. More thorough treatment involves filtration or chemical or physical techniques to treat the rinse water:
  - Use filtration devices such as screens, filter fabrics, oil/water separators, sand filters, and hay bales to remove particles;
  - Chemical treatment relies upon the addition of some type of catalyst to cause the heavy metals and paint solids to settle out of the water; and
  - Swirl concentrators are examples of physical structures that can be used to concentrate pollutants. They are small, compact soil separation devices with no moving parts. Water flowing into a concentrator creates a vortex that centralizes the pollutants. Clean water is then discharged.
- ★ Discharge treated wash water to surface water if it contains no pollutants. If detergents were used, the waste water must be directed into a sewer system.

- ★ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste, provided that, if the waste is hazardous, the amount generated is less than 220 pounds per month or less than this amount is accumulated at any time.
- Pressure wash over a bermed, impermeable surface that allows the waste water to be contained and filtered to remove particulates and solids.
- When pressure washing ablative paint, use the least amount of pressure necessary to remove the growth but leave the paint intact. Where practical, use a regular garden-type hose and a soft cloth.
- Alternatively, reuse the wash water. For example, recycle it through the power washing system (a closed water recycling operation) or use it to irrigate landscaped portions of the marina. The recycled water may be treated with an ozone generator to reduce odors.

## Painting Operations

- Use brushes and rollers whenever possible.
- Reduce paint overspray and solvent emissions by minimizing the use of spray equipment.
- Prohibit spray painting on or near the water.
- Use spray equipment with a high transfer efficiency. Tools such as high-volume, low-pressure (HVLP) spray guns direct more paint onto the work surface than conventional spray guns. Air-atomizer and gravity-feed guns are other types of highly efficient spray equipment.
- Train staff to operate spray painting equipment properly in order to reduce overspray and minimize the amount of paint per job.
- Limit in-water painting jobs to small jobs. Any substantial painting should be done on land, in the vessel maintenance area, and/or over 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 needed for a job.
- Mix paints, solvents, and reducers in a designated area. It should be indoors or under a shed and should be far from the shore.
- Keep records of paint use to show where too much paint was mixed for a job.
- ★ Use the information to prevent over mixing in the future.
- ★ Handle Solvents Carefully: Store open containers of usable solvents as well as waste solvents, rags, and paints in covered, UL-listed, or Factory approved containers.
- ★ Hire a licensed waste hauler to recycle or dispose of used solvents.
- ★ Keep records of solvent and paint usage so you have a handle on the amount of hazardous waste generated on site.
- Direct solvent used to clean spray equipment into containers to prevent evaporation of volatile organic compounds. Closed gun cleaning system will save you money on cleaning materials.
- Use only one cleaning solvent to simplify disposal.
- Use only the minimal amount of solvent (stripper, thinner, etc.) needed for a given job.
- For small jobs, pour the needed solvent into a small container. This will result in not contaminating a large amount of expensive solvent.
- Use soy-based solvents and other similar products with no or low volatility.

- Order your spray painting jobs to minimize coating changes. Fewer changes mean less frequent purging of the spray system. Order your work light to dark.
- Allow solids to settle out of used strippers and thinners so you can reuse solvents.
- ★ Do not let dust from sanding fall onto the ground or water or become airborne.
- ★ Conduct shoreside sanding in the hull maintenance area or over a drop cloth (if other areas on your property will result in pollutant discharges to the water).
- ★ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste, provided that, if the waste is hazardous, the amount generated is 220 pounds per month or less.
- 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 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 them.
- Post signs indicating the availability of vacuum sanders and grinders.
- Bring vacuum sanders to tenants if you see them working with non-vacuum equipment.
- Restrict or prohibit sanding on the water to the greatest extent practical. When unavoidable, use a vacuum sander and keep the dust out of the water.
- Use a damp cloth to wipe off small amounts of sanding dust.
- ★ 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.
- ★ Collect debris. Have your waste hauler characterize the waste and bring it to a facility authorized to manage municipal or industrial solid waste, provided that, if the waste is hazardous, the amount generated is 220 pounds per month or less.
- Avoid dust entirely by using a stripper that allows the paint to be peeled off. These products are applied like large bandages, allowed to set, and are then stripped off. When the strips are removed, the paint is lifted from the hull. Dust and toxic fumes are eliminated.
- Invest in a closed, plastic medium blast (PMB) system. These systems blast with small plastic bits. Once the blasting is completed, the spent material and the paint chips are vacuumed into a machine that separates the plastic from the paint dust. The plastic is cleaned and may be reused. 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 full of sand and paint that must be disposed of with traditional media blasting methods.
- Investigate alternatives to traditional media blasting. Hydroblasting and mechanical peeling essentially eliminate air quality problems. Debris must still be collected, however. Consider using a filter cloth ground cover.

## Engine Repair/Maintenance

- ★ Do not wash engine parts over the bare ground or water.
- Perform all engine repair/maintenance in the designated work area.
- Store engines and engine parts under cover on an impervious surface like asphalt or concrete.
- If you use solvents to clean engine parts, do so in a container or parts washer with a lid to prevent evaporation of volatile organic compounds. Reuse the solvent. Once the solvent is totally spent, recycle it.
- Use drip pans when handling any type of liquid. Use separate drip pans for each fluid to avoid mixing. Recycle the collected fluid.
- Use funnels to transfer fluids prior to disposal.
- Clean engine repair areas regularly using dry cleanup methods, i.e., capture petroleum spills with oil absorbent pads.
- Use dry pre-cleaning methods, such as wire brushing.
- Avoid unnecessary parts cleaning.
- Adopt alternatives to solvent-based parts washers such as aqueous-based or bioremediating systems that take advantage of microbes to digest petroleum. Bioremediating systems are self contained; there is no effluent. The cleaning fluid is a mixture of detergent and water. Microbes are added periodically to eat the hydrocarbons.
- Prohibit the practice of hosing down the shop floor.

## Winterize Safely

- Use propylene glycol antifreeze for all systems. It is much less toxic than ethylene glycol antifreeze. Sell this item in your store.
- For health reasons, ethylene glycol should never be used in potable water systems; it is highly toxic and cannot be reliably purged come springtime.
- Add stabilizers to fuel to prevent degradation. Stabilizers are available for gasoline and diesel fuels and for crankcase oil. These products protect engines by preventing corrosion and the formation of sludge, gum, and varnish. Also, the problem of disposing of stale fuel in spring is eliminated.
- Be sure fuel tanks are 85-90 percent full to prevent flammable fumes from accumulating and to minimize the possibility of condensation leading to corrosion. Do not fill the tank more than 90% full if you have an external overflow vent. The fuel will expand as it warms in the springtime; fuel will spill out the vent line of a full inboard tank.
- Use the highest rated octane recommended by the engine manufacturer; premium fuels are more stable than regular.
- Be sure the gas cap seals tightly.
- Promote reusable canvas or recyclable plastic covers. Some manufacturers will clean and store canvas covers during the boating season.
- Recycle used plastic covers.
- Use the minimum amount of antifreeze necessary for the job.

## Educate Boaters

- ★ Post signs clearly marking designated hazardous waste disposal sites.
- Explain the environmental benefits of regular maintenance of boat and engines.



# STORMWATER

## ENVIRONMENTAL CONCERN

Stormwater runoff is rainfall that has not been absorbed by the ground. Normal activities occurring on the marina uplands, such as vehicular traffic, equipment operation, and lawn care and boat maintenance, are a source of pollution including, but not limited to, dust, petroleum products, soil particles, and fertilizers. These pollutants can be picked up by the runoff and discharged into the water. The highest concentration of these surface pollutants occurs in the runoff associated with the first ½ to 1 inch of rainfall depending on storm intensity. This phenomenon is generally referred to as the “first flush” effect. Many existing marinas were constructed prior to any thought of stormwater runoff pollution. As a result, many of these marina facilities discharge untreated stormwater directly to the marina basin. The result is that near shore areas are less able to support wildlife like young fish and crabs. Also, using the water for human recreation becomes less desirable.

## GOAL

Reduce the concentration of pollutants entering surface waters through use of various stormwater best management practices that cause the first flush of runoff to be slowed, detained or percolated through on-site vegetation and soils so that they are not directly discharged to the water body.

## LEGAL SETTING

### Federal

#### **Federal Water Pollution Control Act**

It requires permits be issued for projects involving the discharge of dredged or fill material in Federal Waters and wetlands, including nontidal wetlands. In addition, it provides the authority for the National Pollutant Discharge Elimination System (NPDES) permit program for point sources of pollution. The Act prohibits the discharge of oil or hazardous substances into U.S. navigable waters. It also prohibits the use of chemical agents like soaps, detergents, surfactants, or emulsifying agents to disperse fuel, oil, or other chemicals without permission of the U.S. Coast Guard.

### State

#### **Virginia Pollutant Discharge Elimination System Regulation**

Governs new and existing stormwater discharges associated with industrial activity through a conveyance (point source, not sheet-flow runoff) to surface waters or through a municipal or non-municipal separate storm sewer system to surface waters. Its requirements apply to storm water discharges from water transportation facilities that have vehicle (vessel) maintenance shops and/or equipment cleaning operations. The water transportation industry includes facilities engaged in foreign or domestic transport of freight or passengers in deep sea or inland waters; marine cargo handling operations; ferry operations; towing and tugboat services; and marinas (facilities commonly identified by Standard Industrial Classification (SIC) code Major Group 44). Marinas may apply for either a VPDES individual permit (a permit written specifically for a facility), or a VPDES Stormwater General Permit. General permits are VPDES permits issued for a class of specific dischargers. For marinas, an application for a stormwater general permit will result in, if approved,

coverage under the VPDES General Permit for Storm Water Discharges associated with Industrial Activity (VARS). All VPDES permits are valid for 5 years; however, as a general permit may have been issued prior to a facility obtaining coverage, the permittee should check to see when the general permit expires.

### **Virginia Stormwater Management Program**

Implemented locally for private development and redevelopment projects and implemented statewide by the Department of Conservation and Recreation (DCR) for state and federal projects. The Virginia SWM Handbook is referenced for best management practice (BMP) design, construction, and maintenance, in accordance with applicable stormwater laws and state and local regulations (DCR, DEQ, CBLAD).

### **Virginia Erosion and Sediment Control Program**

Implemented locally for private development projects, and by the Department of Conservation and Recreation for state and federal projects. The Virginia ESC Handbook is referenced for design, implementation, and maintenance of temporary ESC practices on construction sites in accordance with applicable ESC laws and state and local regulations (DCR, DEQ, CBLAD).

### **BMP's To Control Stormwater Runoff**

Best Management Practices (BMPs) can be categorized into two general groups: *Structural* and *Non-structural*. Structural BMPs include any constructed or maintained feature on a site with specific multiple functions of providing a water quality benefit. Examples of constructed BMPs include grassed swales, constructed wetlands, and bio-retention.

Nonstructural BMPs include any efforts to minimize the impact of the activities on, and the improvements to, the land surface on the aquatic environment, such as eliminating the use and storage of certain toxic materials, protecting existing vegetated areas, and educating the patrons of the facility on ways to minimize environmental impacts.

The most effective strategy to protect water quality will include a combination of both structural and non-structural practices.

Many development sites within the Chesapeake Bay watershed utilize a combined structural and non-structural strategy referred to as Low Impact Development (LID) or Better Site Design Techniques. These strategies include multiple structural BMPs to micro-manage the stormwater runoff from easily managed (relatively small) pockets of the developed area, as well as non-structural elements such as preserving green space and minimizing and disconnecting impervious cover. Specific guidance on these comprehensive strategies can be found in the references provided at the end of this section.

The selection of an appropriate BMP for a site depends upon several factors, such as the size of the drainage area to be served, the activity or specific land use and the associated pollutants (fuel storage, transfer, vehicle parking, plaza pedestrian area, roof top, etc.), the topography, the proximity to building foundations or water supply wells, ease of access for maintenance, etc. In some cases a site can be split up into several smaller drainage areas and served by multiple BMPs. This allows BMPs to be selected based on a specific pollutant related to the activity, or other appropriate factor. The reader is encouraged to consult a qualified professional to assist in selecting and designing a structural BMP strategy for any project.

## BEST MANAGEMENT PRACTICES

**Structural BMP's** - *The success of a structural BMP at removing pollutants from stormwater runoff is totally dependent on it being properly designed, installed, and maintained. Below is a list of the most common structural BMPs. More information including designs can be found here*

<http://www.dcr.virginia.gov/soil & water/documents/Chapter 3.pdf>

**Retention Basins:** A retention basin is a stormwater facility which includes a permanent impoundment, or pool of water, and, therefore, is normally wet, even during dry periods. Inflows from stormwater runoff may be temporarily stored above this permanent pool.

**Extended Detention Basin:** An extended-detention basin is an impoundment that temporarily stores runoff for a specified period and discharges it through a hydraulic outlet structure to a downstream conveyance system. An extended-detention basin is usually dry during non-rainfall periods. An Enhanced Extended Detention Basin includes a shallow marsh with emergent vegetation in the basin bottom which increases the potential pollutant uptake. (See Figure 1.)

**Constructed Stormwater Wetlands:** Constructed stormwater wetlands are manmade shallow pools that create growing conditions suitable for both emergent and aquatic vegetation. (See Figures 2&3.)

**Infiltration Practices:** Infiltration facilities temporarily impound stormwater runoff and discharge it via infiltration into the surrounding soil. Infiltration facilities include Infiltration Basins, Infiltration Trenches, Roof Downspout Systems, and Porous Pavement (Figure 4).

**Bioretention Practices:** Bioretention Practices are shallow pockets or depressions underlain by an engineered soil mixture to facilitate filtration and exfiltration into the underlying natural soils. When the natural soil horizon below the facility is not suitable for infiltration, an under drain system is used to de-water the facility. Also referred to as .rain gardens,. bioretention practices include a landscaping plan of specific plant species which results in an aesthetic site feature, as well as a water quality BMP. (See Figures 5-9.)

**Sand Filters:** Intermittent sand filter facilities are underground vaultlike facilities which capture, pretreat, and filter the first flush of stormwater runoff. In some cases these facilities can include an above ground storage facility to store the excess volume of runoff from larger storms. (See Figure 10.)

**Oil Grit Separators:** Oil grit separators 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. \*\*Note: this is not a preferred method due to the excessive amount of maintenance required.

**Grassed Swale:** A grassed swale is a broad and shallow earthen channel vegetated with erosion resistant and flood-tolerant grasses. Check dams are strategically placed in the swale to encourage ponding behind them. A Water Quality Swale is a broad and shallow earthen channel vegetated with erosion resistant and flood tolerant grasses, and underlain by an engineered soil mixture to facilitate filtration and exfiltration into the underlying natural soils. When the natural soil horizon below the swale is not suitable for infiltration, an under drain system is used to dewater the swale.

**Vegetated Filter Strip:** A vegetated filter strip is a densely vegetated strip of land engineered to accept runoff from upstream development as overland sheet flow. It

may adopt any naturally vegetated form, from grassy meadow to small forest. All stormwater management structures must be maintained to remain effective.

**Non-Structural BMPs** - *Non-structural BMPs include everything from public education to street sweeping efforts to remove debris and sediments from roadway and parking areas. Non-structural BMPs also include site design practices which avoid impacting environmentally sensitive areas in an effort to minimize the overall impact of the development on the hydrologic cycle.*

★ Write a Stormwater Pollution Prevention Plan (see appendix for SPPP template)

Some of the plan requirements may be:

- Used oil management
  - Spent solvent management
  - Proper disposal of spent abrasives
  - Disposal of vessel wastewater
  - Spill prevention and control
  - Safe fueling procedures
  - General good housekeeping
  - Appropriate painting and blasting procedures
  - Used battery management
- General good housekeeping can be an effective management tool for accumulated dust and dirt, litter and trash.
  - Keep cleaning and maintenance material tidy and stored in covered areas.
  - Store used oil containers, spent solvents, used engines and parts, discharged batteries, opened or punctured fertilizer bags, insecticide/herbicide containers, detergents, etc., under cover.
  - Inspect the stormwater system regularly, especially before and after large storms, to assure that it is in proper working order.
  - Limit the use of chemicals by using Integrated Pest Management (IPM) techniques and planting native plant species. IPM is an environmentally friendly alternative to the use of conventional pesticide products. Examples of safer solutions for landscape pests include insecticidal soap (2 ½ tbsp. of dish soap per gallon of water); horticultural oil (add 2 ½ tbsp of vegetable oil to the insecticidal soap); *Bacillus thuringiensis* (BT)-a bacterium which controls caterpillars (available at nurseries); coffee grounds and tea bags to prevent mosquito larvae from hatching; shallow pans of beer to help control slugs. Try using the least toxic alternative(s) before taking more drastic measures. Certain native plant species are naturally resistant or repulsive to insects.
  - Create a compost area for yard debris and fish waste. This material is a good alternative to chemical fertilizers and it is free.
  - Stencil Storm Drains Stencil storm drains with the words .Don.t Dump. And Chesapeake Bay Drainage. (if appropriate). Stencils and instructions are available from the Chesapeake Bay Foundation and the Center for Marine Conservation. Be sure to get permission from the county or city department that maintains storm drains in your community. Generally, it is the Department of Public Works. (See .information sources. at the end of the chapter for phone numbers.)

**Combined Structural and Non-Structural Site Design Practices** – *The goal of these strategies is to minimize the need for large or maintenance intensive structural BMPs. This can be accomplished by developing the site to take advantage of its natural features such as heavily vegetated areas to absorb stormwater runoff. This requires directing the site drainage to such areas, and maintaining them to hold and absorb the first flush of runoff. In the absence of natural or existing areas appropriate for stormwater runoff, multiple bioretention practices can be located to intercept the surface drainage from impervious areas. The following represent some examples of site design techniques that will improve the overall quality of the runoff leaving the site:*

- Practice Low Impact Development The goal of low impact development is to develop a site without altering the existing hydrologic cycle. The approach takes advantage of a site's natural features including, vegetation to minimize the need to build expensive stormwater control devices. It is counter to traditional stormwater management which uses structures like curbs, gutter, and storm drains to move water off-site as efficiently as possible. Traditional structures cause unnatural volumes of runoff to move into receiving waters at high velocity.
- Develop the site to take advantage of a site's natural features - including vegetation - to minimize the need to build expensive stormwater control devices.
- Cultivate Vegetated Areas Healthy soil and vegetation capture, treat, and slowly release stormwater. The water is cleaned through a combination of microbial action in the soil, vegetative uptake, evaporation, and transpiration. To cultivate vegetated areas, you should: Plant environmentally-sensitive landscapes at the edge of parking lots and within islands in parking lots. Refer to Appendix II for information on the BayScapes Program which describes these types of plantings. Plant vegetated buffers between your upland property and the water's edge.
- Position downspouts so that they drain to vegetated areas. Avoid draining to concrete or asphalt.
- Use grassed swales or water quality swales to direct stormwater on your property. (Refer to structural controls above.) Grassed swales are low gradient conveyance channels planted with erosion-resistant vegetation. They improve water quality by filtering out particulates, taking up nutrients, and promoting infiltration. Also, water generally moves more slowly over a grassed swale than it would in a pipe.
- Minimize the Amount of Impervious Area Impervious areas do not allow water to settle into the ground where natural filtration can occur. Also, these areas collect pollution during dry spells. When a rain event occurs, the pollution is captured in the runoff and funneled downhill. To minimize the amount of impervious area, you should:
  - Pave only those areas that are absolutely necessary.
  - Minimize the length of new roadway required to serve new or expanding marinas.
  - Plan roads so they do not cross sensitive areas such as tidal wetlands.
  - Consider alternatives to asphalt for parking lots and vessel storage areas such as dirt, gravel, seashells, engineered porous pavement. (See figure 4 for a depiction of porous pavement.)

- One such alternative is: A non-toxic, organic soil binder derived from the *Plantago* plant family. When this binder is combined with crushed aggregate (i.e., gravel, shells) and soil, it creates a somewhat permeable surface that will not erode. For less than or equal to the cost of 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.
- ★ Control Sediment from Construction Sites: Use devices such as hay bales, silt fences, storm drain filters, sediment traps, and earth dikes to prevent sediments from leaving construction areas. (This an Erosion and Sediment Control law.)





50

0

# HABITAT AND SPECIES

## ENVIRONMENTAL CONCERNS

Quality habitat is critical to the well-being of our wildlife. Shoreline and streambank erosion leads to a loss of upland, wetland, and submerged habitat. Boat wakes can cause the erosion of sensitive habitat. Loss of submerged aquatic vegetation inhibits the reproductive success of many organisms and contributes to the overall decline in water quality. Invasive/exotic species may become attached to vessels and trailers and can be accidentally introduced into waterways. Once introduced, exotics can be very invasive and difficult to control. When exotic plants or animals spread, they contribute to the degradation of water quality and fish and wildlife habitat by replacing native species. Protected and recreational/commercial species frequent the same areas as boaters and marinas and can be adversely affected by negligent activities. Bottlenose dolphin and sea turtles, as well as oysters, clams, sport fish, etc., are just a few of the many animals that share the waters of Virginia.

## GOALS

1. Minimize the loss of essential wildlife habitat and minimize the impact to protected lands.
2. Avoid the introduction of exotic plants and animals.
3. Minimize the injury and death of protected and commercial/ recreational species.

## LEGAL SETTING

### Federal

#### **Marine Mammal Protection Act of 1972**

The 1972 Marine Mammal Protection Act established a Federal responsibility to conserve marine mammals. The Department of Interior manages sea otter, walrus, polar bear, dugong, and manatee. The Department of Commerce is responsible for cetaceans and pinnipeds, other than the walrus. With certain specified exceptions, the Act establishes a moratorium on the taking and importation of marine mammals as well as products taken from them, and establishes procedures for waiving the moratorium and transferring management responsibility to the states. The law authorizes the establishment of a Marine Mammal Commission with specific advisory and research duties. Annual reports to Congress by the Departments of Interior and Commerce and the Marine Mammal Commission are mandated. In addition, the law stipulates conditions under which the Secretaries of Commerce and Interior can issue permits to take marine mammals for the sake of public display and scientific research.

#### **Endangered Species Act of 1973**

The 1973 act implemented the Convention on International Trade in Endangered Species of Wild Fauna and Flora (T.I.A.S. 8249) and the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (50 Stat. 1354). The 1973 Endangered Species Act provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend, both through federal action and by encouraging the establishment of state programs.

## State

### The Virginia Department of Game and Inland Fisheries.

Regulations prohibit the taking of wildlife (includes harassing and harming) unless permitted by law or regulation. As applied to threatened or endangered species, “harming” may include significant habitat modifications or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. It is illegal to harass protected and endangered animals such as marine mammals (whales, dolphins, seals), sea turtles, and migratory birds (osprey, shorebirds, ducks and geese).

## BEST MANAGEMENT PRACTICES

### Protecting Sensitive Areas

- Minimize Impervious Areas to Reduce Runoff
- Use Upland and Inland Areas - *To minimize disturbance to sensitive shorelines and allow for the natural filtering of pollutants.*
- Locate buildings, workshops, and waste storage facilities in upland areas, away from fragile shoreside ecosystems. Upland areas also provide a measure of protection against floods.
- Locate parking and vessel storage areas away from the water
- Consider inland areas for boat repair activities and winter storage.
- Use hydraulic trailers to quickly and easily move boats to inland storage locations.
- Practice Proper Cleaning Techniques For Transporting Trailered Boats - *The proper cleaning of a boat before it is trailered to another body of water can help prevent the spread of potentially harmful exotics which can damage ecosystems by out-competing the indigenous species.*
  - Inspect areas where water can be trapped (bilges).
  - Drain these areas before each trip.
  - Empty all trash.
  - Wash and dry boat and trailer before and after each trip.
- Promote .No-wake. Zones in Areas Where Shoreline Erosion is a Potential Problem
- Expand Upward (i.e. dry stack storage)
- Locate boatels outside of the 100-foot Resource Protection Area as they are not water-dependent facilities.
  - Rather than adding wet slips, expand storage capacity by adding dry stack storage. Boatels provide the following environmental benefits:
  - Dry-stacked boats do not accumulate marine growth. Consequently, toxic antifouling paints are not necessary and the associated need to wash, scrap, and paint is eliminated.
  - Dry-stacked boats are less likely to accumulate water in their bilges. They are, consequently, less likely to discharge oily bilge water.
  - Control stormwater runoff from dry stack areas as well as from any expanded parking areas.
  - Keep forklifts well-tuned to prevent grease or oil from dripping onto staging areas or into the water.

**Practice Water-wise Landscaping** - *The use of native plants, selective landscaping and the timing of watering all reduce the amount of water needed at your marina.*



- 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 as temperatures generally are cooler. Plants will not be shocked and water loss to evaporation will be minimized.
- Select plants that are suited to the existing conditions. (i.e., soil, moisture, and sunlight) so that they will require little care in terms of water, fertilizer, and pesticides.
- Water deeply and infrequently rather than lightly and often. Deep watering promotes stronger root systems which enable plants to draw on subsurface water during hot spells and droughts.
- Select equipment that delivers water prudently. Sprinklers work well for lawns. Soaker hoses or drip irrigation systems deliver water directly to the roots of shrubs, flowers, and vegetables with minimal loss to evaporation.
- Place mulch (wood chips, bark, grass clippings, nut shells, etc.) to a depth of 3-4" around plants to keep water in the soil, prevent weeds, and reduce the amount of sediment picked up by storm water. Planting groundcovers at the base of trees serves the same function.
- Group plants with similar water needs together. This practice will ease your maintenance burden, conserve water, and benefit the plants.
- Replace lawn areas with wildflowers, groundcover, shrubs, and trees.
- Recycle gray water.
  - Gray water is water that has been used once- maybe for dishwashing or in a washing machine - but is not overly contaminated. It can be
  - Filter and use to water landscaped areas. Because regulations vary, be sure to check local ordinances for permit requirements and written approval before pursuing this option.
- Collect rainwater by directing downspouts into covered containers. Use to water your landscaped areas.

**Adopt Integrated Pest Management Practices (IPM)** - *IPM minimizes the use of conventional pesticide products. Examples of safer solutions for landscape pests include insecticidal soap (2 ½ tbsp. of dish soap per gallon of water); horticultural oil (add 2 ½tbsp of vegetable oil to the insecticidal soap); Bacillus thuringiensis (BT)-a bacterium which controls caterpillars (available at nurseries); coffee grounds and tea bags prevent mosquito larvae from hatching; shallow pans of beer help control slugs.*

- Try using the least toxic alternatives before taking more drastic measures.
- Purchase the least toxic chemical in the smallest amount practical.
- 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, i.e., shore, wells, streams, ponds, bird baths, swimming pools, etc.
- Select plants that are disease and insect resistant, that will outcompete common weeds, and that can thrive on your property. Refer to the BayScapes list of native plants (Appendix II) and consider the degree of sun exposure, slope, drainage, amount of shade, wind, volume of foot traffic, soil type, temperature variations, and other environmental factors.
- Mow lawn areas properly to suppress weeds. 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.

- Pull weeds by hand to reduce reliance on herbicides.
- Boost your own tolerance for weeds and other pests.
- Foster natural predators such as spiders, praying mantis, dragonflies, lacewings, soldier beetles, birds, bats, frogs, lizards, and certain snakes and toads.
- Use natural agents such as milky spore disease for grubs and Japanese beetles, *Bacillus thuringiensis* (BT), to control mosquito and small moth larvae, and sabadilla for chinch bugs.
- Use pesticides only after all other options have been exhausted and apply them directly to problem areas. Treat only serious or threatening intolerable pest infestations.

**Conserve Sensitive Land** – *that is usually extremely important to the welfare of wildlife. For example, submerged aquatic vegetation (or SAV) are important habitat for fish and shellfish, and are a food source for several waterfowl species. SAV also adds oxygen to the water and reduces wave energy, thereby protecting shoreline and bottoms.*

- Provide a serene setting for your marina by placing adjacent, sensitive land in a conservation trust. Income, estate, and property tax benefits are available.
- Sell or donate the land (or the development rights to the land) to a local land trust or a non-profit organization.

## Education

- Sell species identification cards in the marina store. Helping customers identify wildlife encourages them to practice responsible boating in order to minimize human impacts on wildlife.
- Post signs and distribute pamphlets to help educate the public. The boating public, visitors to your marina, and others are not always aware of the sensitivity of nearby habitat and species. By providing signs and pamphlets, people at your marina will learn about your concerns.

**Maintain vegetated buffers** *between all impervious areas and the water.*

- Plant vegetated areas with plants that require minimal care in terms of trimming, watering, and applications of fertilizer and pesticides. Native, or indigenous, plants demand little care Refer to Appendix II.
- Select perennial plants instead of annuals.
- Compost leaves, branches, grass trimmings, and other organic matter.
- Plant vegetation filters to slow the flow of surface water runoff, stabilize shorelines, and provides wildlife habitat, flood protection, and visual diversity.
- Choose plants that bear flowers, fruit, nuts, and seeds to attract birds, small mammals, and other wildlife.
- Maintain proper soil pH and fertility levels. These two measures together tell you which plants your soil can support.
- Annually, submit a soil sample to your local Agriculture Cooperative Extension Agent to determine fertility, pH, and application rates for soil amendments.
- Foster beneficial critters. For example, earthworms move through the soil feeding on microorganisms. In the process, they aerate the soil, improving the flow of water and air to plant roots.

**Consider Oyster Gardening** - Oysters are natural water filters that improve water quality by filter-feeding on microscopic algae. A single 3- inch oyster can filter up to 50 gallons of water a day. Contact the Tidewater Oyster Gardeners Association

### **Guidelines For Responsible Vessel Operation Around Wildlife**

- Steer clear of animals! Do not approach nesting or resting birds, sea turtles or dolphins closer than 50 yards.
- If you have to move close to animals because of channel markers, shallow water or traffic, maintain set speed and course.
- Never surround animals with vessels or circle animals or nests with a moving vessel.
- Avoid sensitive habitats such as the shallow water around marshes and submerged vegetation.
- If you wish to observe animals, approach them slowly from the side (not head on or from behind as if to chase them). Idle slowly or remain in neutral and choose a set course. If the animal(s) leave the area, do not chase them. Limit your observation time to 15 minutes or less.





# LAWS AND REGULATIONS

This chapter of laws, regulations, and permit information is by no means comprehensive. 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.

## SELECTED FEDERAL AGENCIES AND THEIR JURISDICTIONS

**Environmental Protection Agency (EPA)** is responsible for ensuring that environmental protections are considered in U.S. policies concerning economic growth, energy, transportation, agriculture, industry, international trade, and natural resources; ensuring national efforts to reduce environmental risk are based on the best available scientific information; and providing access to information on ways business, state and local governments, communities, and citizens can prevent pollution and protect human health and the environment. The Office of Water is responsible for implementing, among other laws, the Clean Water Act, portions of the Coastal Zone Act Reauthorization Amendments of 1990, the Resource Conservation and Recovery 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. [www.epa.gov](http://www.epa.gov)

**National Oceanographic 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 opportunities. NOAA provides a wide range of observational, assessment, research, and predictive services for estuarine and coastal ocean regions. NOAA has developed an array of programs to address national-scale estuarine issues and specific problems affecting individual estuarine and coastal ocean systems. In partnership with EPA, NOAA implements the Coastal Zone Act Reauthorization Amendments of 1990. [www.noaa.gov](http://www.noaa.gov)

**United States Army Corps of Engineers (ACOE)** 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 harbor dredging and beach renourishment projects. They also review and permit coastal development and artificial reef projects. A permit from the Corp of Engineers is required for all dredging projects through the joint permit review process. [www.usace.army.mil](http://www.usace.army.mil)

**United States Coast Guard (USCG)**, an arm of the US Department of Transportation, protects the public, the environment, and US economic interests. They promote maritime safety and marine environmental protection, enforce maritime law, tend all Federal navigation aids, and regulate and monitor recreational and commercial vessels and waterfront facilities. [www.uscg.mil](http://www.uscg.mil)

## SELECTED STATE AGENCIES AND THEIR JURISDICTIONS

**Chesapeake Bay Commission (CBC)** is a tri-state legislative commission created in 1980 to advise the members of the General Assemblies of Maryland, Virginia, and Pennsylvania on matters of Bay-wide concern. Twenty-one members from three states define the commission's identity and its work. Fifteen of the members are legislators, five each from Maryland, Virginia, and Pennsylvania. Completing the ranks are cabinet secretaries from each state who are directly responsible for managing their states' natural resources, as well as three citizen representatives who bring with them a unique perspective and expertise. The commission serves as the legislative arm of the multi-jurisdictional Chesapeake Bay Program and acts in an advisory capacity to their respective General Assemblies.

[www.chesbay.state.va.us](http://www.chesbay.state.va.us)

**Department of Environmental Quality (DEQ)** is dedicated to protecting Virginia's environment and promoting the health and well-being of the citizens of the Commonwealth. DEQ administers the requirements of the federal Clean Air Act, and enforces state law and regulations to improve Virginia's air quality. DEQ also administers the federal Clean Water Act and enforces state laws to improve the quality of Virginia's streams, rivers, bays and ground water for aquatic life, human health and other water uses. Permits are issued to businesses, industries, local governments and individuals that take into account physical, chemical and biological standards for water quality. Water programs address: pollution discharges, stormwater management, groundwater, petroleum tank vessels, petroleum storage tanks, surface water, land application of treated waste and dredged material.

- *Office of Spill Response and Remediation* oversees spill reporting and response activities, and above ground and underground *Tank programs* that regulate the handling and storage of petroleum and regulated substances. Solid wastes and hazardous wastes in Virginia are regulated by DEQ, the Virginia Waste Management Board, and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act (commonly called Superfund), and the Virginia Waste Management Act. DEQ also serves as the lead agency for *Virginia's networked Coastal Program*, which helps agencies and localities to develop and implement coordinated coastal policies.
- *VPDES Discharge Permit Program* and the *Virginia Water Protection Permit Program* are water quality programs DEQ administers under delegation to the Commonwealth of the federal Clean Water Act and as required by the State Water Control Law. The goal of these programs is to ensure the protection of the beneficial uses of state waters including nontidal wetlands, prevent degradation of valuable water resources and to work toward the restoration of waters whose quality has been degraded. The department issues permits for all activities which may result in the physical, biological or chemical alteration of state waters. Section 402 of the federal Clean Water Act established the National Pollutant Discharge Elimination System to

limit pollutant discharges into streams, rivers, and bays. DEQ administers the program in Virginia and calls it the Virginia Pollutant Discharge Elimination System. DEQ requires VPDES permits for all point source discharges (such as ditches or pipes) to surface waters by businesses, governments or individuals. EPA maintains authority to review applications and permits for .major. dischargers, a distinction based on discharge quantity and content. The federal Water Quality Act of 1987 requires permits for certain industrial stormwater discharges and larger municipal stormwater systems. DEQ regulates these storm-water discharges also through VPDES permits. If a project requires a federal permit for discharges of dredged material into waterways or wetlands, or for other instream activities, DEQ will review the project for issuance of a Virginia Water Protection Permit, formerly called 401 certification.

- *Virginia solid waste management regulations* set standards for the siting, design, construction, operation, closure, and post-closure care of solid waste management facilities. The regulations cover facilities such as: landfills, transfer stations, composting facilities, mass burn incinerators, materials recovery facilities, solid waste experimental facilities, and waste storage piles.
- *Virginia hazardous waste management regulations*, which closely follow federal standards established under RCRA, require permits for transportation, storage, treatment, and disposal of hazardous wastes. For some activities at a facility, portions of the permit are issued by EPA's Region III office in Philadelphia. Regulations also govern the issuance of: transportation permits for hazardous waste and siting of hazardous waste management facilities. Virginia currently has no permitted hazardous waste disposal sites. DEQ also offers guidance on universal waste disposal; specifically, disposal of fluorescent lights.
- *Aboveground and underground petroleum storage tanks* to ensure compliance with applicable regulations. The agency also manages all petroleum corrective action activities, including corrective action plan permits for cleanup of underground storage tank leaks, and reimbursement of eligible costs to responsible parties.
- *Virginia Water Protection Program* is responsible for the administration of the water quality programs delegated to the Commonwealth under the Clean Water Act and as required by the State Water Control Law. Under both state and federal law, the department functions as the principal water quality management agency within the Commonwealth of Virginia. The goal of the Virginia Water Protection Program is to ensure the protection of the beneficial uses of state waters including nontidal wetlands, prevent degradation of valuable water resources and to work toward the restoration of waters whose quality has been degraded. The department issues permits for all activities which may result in the physical, biological, or chemical alteration of state waters.
- *The Virginia Coastal Program*, housed at DEQ, is more formally known as the Virginia Coastal Resources Management Program and was established in

1986. The Program is a network of natural resource agencies that each have some responsibility for implementing Virginia's coastal resources management laws and policies. Virginia's Coastal Program is reauthorized every four years by Executive Order signed by Virginia's governor. This Executive Order outlines the administration of the program, and maps out the responsibilities and mission of the program in a series of goals and objectives. As stated in Executive Order Number Twenty-Three (98), signed by Governor James S. Gilmore on June 1998, the goals of Virginia's Coastal Resources Management Program include:

- the prevention of environmental pollution and protection of public health;
- the prevention of damage to the Commonwealth's natural resource base;
- the protection of public and private investment in the Coastal Zone;
- the promotion of resources development and public recreation opportunities;
- the provision of technical assistance and information.

The nine CORE PROGRAMS of the Virginia Coastal Resources Management Program are: Subaqueous Lands Management; Wetlands Management; Dunes Management; Fisheries Management; Nonpoint Source Water Pollution Control; Point Source Water Pollution Control; Shoreline Sanitation Control; Air Pollution Control; and Coastal Lands Management. [www.deq.virginia.gov](http://www.deq.virginia.gov)

**Virginia Department of Health (VDH)** administers regulations that govern the disposal of onsite sewage, drinking water, restaurants, classification of shellfish harvesting areas around your marina, and the provision of proper sanitary facilities to serve your customers. The Division of Wastewater Engineers also administers two grant programs to aid you in the operation of your facility: the Clean Vessel Act Grant and the Boating Infrastructure Grant. See appendix VI for more information. [www.vdh.state.va.us/marina](http://www.vdh.state.va.us/marina)

**Virginia Marine Resources Commission (VMRC)** serves the citizenry of the Commonwealth of Virginia by combining a public interest review process with effective management, regulation and protection of the state's marine fisheries, submerged lands (statewide) and coastal resources (tidal wetlands and coastal sand dunes/beaches). It is the goal of the commission's habitat management division to act as stewards of the Commonwealth's submerged lands and ensure the protection and wise use of these coastal lands and natural resources through the implementation of a regulatory review process and permitting program. [www.mrc.state.va.us/](http://www.mrc.state.va.us/)

**Virginia Department of Conservation and Recreation (DCR)** enhances natural and recreational resources through land management, funding, education and regulation. Nearly everyone in Virginia is touched by a DCR activity. The main program areas for DCR are State Parks, Natural Heritage, Soil and Water Conservation, Dam Safety and Recreational Planning. [www.dcr.virginia.gov/](http://www.dcr.virginia.gov/)

- *Chesapeake Bay Local Assistance (CBLA)* provides staff support to the local assistance board in carrying out the requirements of the Bay Act. The Bay Act established a cooperative program between state and local government aimed at reducing non-point source pollution. The Bay Act Program is designed to improve water quality in the Chesapeake Bay and its tributaries by requiring wise resource management practices in the use and development of environmentally sensitive land features. At the heart of the Bay Act is the idea that land can be used and developed in ways that minimize impact on water quality. Major division efforts in implementing the Bay Act include administering a competitive grants program for localities and planning districts, providing training for local government planners and engineers, and reviewing local comprehensive plans and ordinances for compliance and reviewing the implementation of local Bay Act programs.  
[http://www.dcr.virginia.gov/chesapeake\\_bay\\_local\\_assistance/](http://www.dcr.virginia.gov/chesapeake_bay_local_assistance/)

**Shoreline Erosion Advisory Service (SEAS)** program) is housed as a Soil and Water Conservation Program in the Department of Conservation and Recreation. The SEAS program provides technical advice regarding environmentally sound protective measures for shoreline erosion control. The SEAS service is available upon request to property owners throughout Virginia's tidal region.  
[www.dcr.virginia.gov/soil & water/seas.shtml](http://www.dcr.virginia.gov/soil_and_water/seas.shtml)

## SELECTED FEDERAL LAWS THAT IMPACT MARINAS

### **Clean Air Act Amendments, 1990**

As a result of the 1990 Clean Air Act Amendments, the Gasoline Marine Final Rule establishes emission standards for new spark-ignition gasoline marine engines, including those used in personal watercraft and jet boats. The regulation requires manufacturers of outboard and personal watercraft marine engines to achieve yearly emission reductions by meeting a corporate average emission standard which allows them to build some engines to emission levels lower than the standard, provided the manufacturer's overall corporate average is at or below the standard.

This rule does not apply to stern drive and inboard engines because they offer cleaner technologies. It also does not apply to boat engines currently in use. Boat owners are NOT responsible for making modifications to their current engines to meet the standards. Likewise, boat dealers are NOT responsible for compliance with this regulation.

### **Clean Vessel Act (CVA)**

The Clean Vessel Act (CVA) provides funds to states to construct, renovate, and operate pumpout stations and to conduct boater environmental education. Contact the Virginia Department of Health for information about receiving up to 75% of the cost of installing a pumpout system.

### **Coastal Zone Act Reauthorization Amendments of 1990 (CZARA)**

The Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) provided the impetus for the Virginia Clean Marina Program. Section 6217 of the Amendments require that nonpoint source pollution from marinas be contained. Through the Clean

Marina Program, Virginia is promoting voluntary adoption of best management practices to minimize the impact of marinas on surrounding land and water.

### **Federal Water Pollution Control Act**

The Federal Water Pollution Control Act, commonly known as the Clean Water Act, provides the authority for the National Pollutant Discharge Elimination System (NPDES) permit program for point sources of pollution, prohibits the discharge of oil or hazardous substances into U.S. navigable waters, and prohibits the use of chemical agents like soaps, detergents, surfactants, or emulsifying agents to disperse fuel, oil, or other chemicals without permission of the U.S. Coast Guard. All vessels 26 feet in length and over are required to display a placard that is at least 5 by 8 inches, made of durable material, and fixed in a conspicuous place in the machinery spaces or at the bilge pump control station. The placard must read: The Act further requires that all recreational boats with installed toilets have an operable marine sanitation device on board.

### **Marine Plastic Pollution Research and Control Act (MPPRCA)**

The Marine Plastic Pollution Research and Control Act (MPPRCA) is the U.S. law that implements an international pollution prevention treaty known as MARPOL. The MPPRCA of 1987 (Title II of Public Law 100-220) restricts the overboard discharge of garbage. Its primary emphasis is on plastics; it is illegal to dispose of plastic materials into the water anywhere. The disposal of other garbage is restricted according to the vessel's distance from shore.

- Within U.S. lakes, rivers, bays, sound, and within 3 nautical miles from 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 and any other garbage that is greater than one inch in size.
- Between 12 and 25 nautical miles from shore, it is illegal to dump plastic and dunnage.
- Beyond 25 nautical miles from shore, 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 must display a MARPOL placard outlining the garbage dumping restrictions. All vessels over 40 feet must also have a written waste management plan on board.
- Under the national 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).

### **The Federal Water Pollution Control Act**

Prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of \$5,000. The Clean Water Act requires that the U.S. Coast Guard be notified anytime a spill produces a sheen on the water. Failure to report a spill may result in civil penalties.

### **National Flood Insurance Act**

The National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973 and the National Flood Insurance Program as set forth in the Code of Federal Regulations at 44 CFR.60.3 combine to form the National Flood Insurance Program. Each locality that participates in the Federal flood Insurance Program prepares a study identifying the areas prone to flooding and the associated water depths and wave heights. This study becomes the basis for their Flood Plain Ordinance which must regulate and restrict construction within the flood plain.

### **Oil Pollution Act of 1990 (OPA)**

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 however some of the requirements apply to recreational boating. Most notably, 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 like the cost of providing increased or additional public services. The financial liability for all non-tank vessels is \$600 per gross ton, or \$500,000, whichever is greater. Also, substantial civil penalties may be imposed for failing to report a spill, for discharging oil, for failure to remove oil, failure to comply with regulations, and gross negligence.

### **Organotin Antifoulant Paint Control Act (OAPC) of 1988**

The Organotin Antifoulant Paint Control Act (OAPC) restricts the use of organotin antifouling paints, including tributyltin-based paints. Tributyltin (TBT) paints may be used only on aluminum-hulled vessels, on boats larger than 82 feet (25 meters), and on outboard motors and lower drive units.

### **Refuse Act of 1899**

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

### **Resource Conservation and Recovery Act (RCRA)**

The Federal Resource Conservation and Recovery Act (RCRA) provides the legal authority to establish standards for handling, transporting, and disposing of hazardous wastes. The Virginia hazardous waste regulations are based on RCRA and the State Environmental Article. 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 kg at any time. The following requirements apply to all hazardous waste generators:

- Any person or commercial business who intends to transport hazardous waste shipments that originate or terminate in Virginia must apply for a hazardous waste transporter permit from the Department of Environmental Quality.
- 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 the date accumulation begins on each container. Store containers on pallets to prevent corrosion in an area

able to contain any leaks. Keep containers closed unless waste is being added or removed. Inspect containers weekly.

- Store quantities of waste greater than 100 kg (220 lbs) but less than 500 kg (1000 lbs) for a maximum of 180 days. Any quantity of waste greater than 500 kg can 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.
- Document all hazardous waste training in each employee's personnel file. All personnel who handle hazardous waste must receive training.
- Anybody who sends hazardous waste offsite for treatment, storage or disposal must prepare a manifest. The hazardous waste manifest must accompany all hazardous wastes "from cradle to grave". Insure that the driver and the vehicle are certified to handle hazardous waste. Each transporter of the 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.
- Retain all records, including manifests and waste analysis and annual reports, for at least three years.

Facilities that generate less than 100 kg of hazardous waste per month and which 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 the EPA. 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.

### **Rivers and Harbors Appropriation Act of 1938**

The Rivers and Harbors Act of 1938 (33 U.S.C. 540, and other U.S.C. sections; Chapter 535, June 20, 1938; 52 Stat. 802), provides for wildlife conservation to be given due regard in planning Federally authorized water resources projects. It also authorized more than 50 water projects.



# APPENDICES

I. Information Sources.....	74
II Spill Prevention, Control and Countermeasure Plan. ....	80
III Stormwater Pollution Prevention Plan.....	95
IV Marina/Boatyard Hurricane Preparations Plan. ....	113
V Sample Contract Language. ....	123
VI Grant Opportunities.....	127
VII Fact Sheets.....	129

**APPENDIX I**

**INFORMATION SOURCES**



## STATE AND LOCAL CONTACTS

### Alliance for the Chesapeake Bay

(804) 775-0951 or Fax (804) 775-0954 [www.acb-online.org/](http://www.acb-online.org/)

### Chesapeake Bay Foundation

[www.savethebay.cbf.org](http://www.savethebay.cbf.org)

Richmond Office: 804/780-1392

### Chesapeake Bay Program

<http://www.chesapeakebay.net/>

Potomac Watershed Office, Warrenton, VA (540) 347-6420

Rappahannock Watershed Office, Fredericksburg, VA (540) 899-4463

York Watershed Office, Tappahannock, VA (804) 443-6752

Albemarle, Chowan & Coastal Watersheds Office Suffolk, VA (757) 925-2468

James Watershed Office Richmond, VA (804) 371-5733

Chesapeake Bay National Estuarine Research Reserve in VA (804) 684-7135

### Department of Conservation and Recreation- [www.dcr.virginia.gov](http://www.dcr.virginia.gov)

Chesapeake Bay Local Assistance (804) 225-3440 or (800) 243-7229

[www.dcr.virginia.gov/chesapeake\\_bay\\_local\\_assistance/index.shtml](http://www.dcr.virginia.gov/chesapeake_bay_local_assistance/index.shtml)

Coastal Nonpoint Source Pollution Control Program

[www.dcr.virginia.gov/soil\\_&\\_water/nps.shtml](http://www.dcr.virginia.gov/soil_&_water/nps.shtml)

Division of Natural Heritage 804/786-7951, Fax 804/371-2674

[www.dcr.virginia.gov/natural\\_heritage/index.shtml](http://www.dcr.virginia.gov/natural_heritage/index.shtml)

Division of Dam Safety (804) 371-6095 or Fax (804) 786-0536

[www.dcr.virginia.gov/dam\\_safety\\_and\\_floodplains/index.shtml](http://www.dcr.virginia.gov/dam_safety_and_floodplains/index.shtml)

Division of Soil & Water Conservation (804) 786-2064 or Fax (804) 786-1798

[www.dcr.virginia.gov/soil\\_&\\_water/index.shtml](http://www.dcr.virginia.gov/soil_&_water/index.shtml)

Erosion & Sediment Control Program [www.dcr.virginia.gov/soil\\_&\\_water/e&s.shtml](http://www.dcr.virginia.gov/soil_&_water/e&s.shtml)

Floodplain Management Program

[www.dcr.virginia.gov/dam\\_safety\\_and\\_floodplains/index.shtml](http://www.dcr.virginia.gov/dam_safety_and_floodplains/index.shtml)

Coastal resources 804/786-2064

[www.dcr.virginia.gov/soil\\_&\\_water/documents/czmfnlrep03.pdf](http://www.dcr.virginia.gov/soil_&_water/documents/czmfnlrep03.pdf)

Shoreline Erosion Advisory Services 804/786-2064

[www.dcr.virginia.gov/waterways/tech\\_prog/t\\_shoreline\\_erosion.shtml](http://www.dcr.virginia.gov/waterways/tech_prog/t_shoreline_erosion.shtml)

Stormwater Program [www.dcr.virginia.gov/soil\\_&\\_water/stormwat.shtml](http://www.dcr.virginia.gov/soil_&_water/stormwat.shtml)

Urban Programs

[www.dcr.virginia.gov/soil\\_&\\_water/documents/UrbanStaffContacts.pdf](http://www.dcr.virginia.gov/soil_&_water/documents/UrbanStaffContacts.pdf)

## **Department of Environmental Quality**

Air Quality 800/592-5482 [www.deq.virginia.gov/air/](http://www.deq.virginia.gov/air/)

Wetlands Program (800) 592-5428 [www.deq.virginia.gov/wetlands/homepage.html](http://www.deq.virginia.gov/wetlands/homepage.html)

Coastal Program 804/698-4323 [www.deq.virginia.gov/coastal/](http://www.deq.virginia.gov/coastal/)

Pollution Prevention 804/698-4545 [www.deq.virginia.gov/p2/](http://www.deq.virginia.gov/p2/)

Fish Kills 800/592-5482 [www.deq.virginia.gov/prep/](http://www.deq.virginia.gov/prep/)

Spill Reporting 800/592-5482 [www.deq.virginia.gov/prep/](http://www.deq.virginia.gov/prep/)

**Dept of Emergency Services (Non-bus. Hours)** (800) 468-8892

**Department of Emergency Management** (804) 897-6510 [www.vdes.state.va.us/](http://www.vdes.state.va.us/)  
Spill reporting non-business hours 800/468-8892

**Department of Game and Inland Fisheries** (804) 367-1000 [www.dgif.virginia.gov](http://www.dgif.virginia.gov)

**Department of Health Wastewater Engineering- Marina Program** (804)864-7467  
[www.vdh.state.va.us/EnvironmentalHealth/Wastewater/MARINA/index.htm](http://www.vdh.state.va.us/EnvironmentalHealth/Wastewater/MARINA/index.htm)

**Department of Shellfish Sanitation** (804) 786-7937 or Fax (804) 371-2891  
[www.vdh.virginia.gov/EnvironmentalHealth/Shellfish](http://www.vdh.virginia.gov/EnvironmentalHealth/Shellfish)

**Legislative Services, Virginia General Assembly** (804) 698-1470

**Local Planning District Commissions** [www.vapdc.org/aboutpdcs.htm](http://www.vapdc.org/aboutpdcs.htm)

Accomack-Northampton (757) 787-2936

Crater (804) 861-1666

Middle Peninsula (804) 758-2311

Northern Neck (804) 333-1900

Hampton Roads (757) 420-8300

RADCO (540) 373-2890

Northern Virginia (703) 642-0700

**Marine Resources Commission** 757/247-2200 [www.mrc.virginia.gov](http://www.mrc.virginia.gov)

**Nature Conservancy, Virginia Chapter** (804) 295-6106  
[www.nature.org/wherewework/northamerica/states/virginia/](http://www.nature.org/wherewework/northamerica/states/virginia/)

**Southeastern Public Service Authority** 757/420-4700 <http://www.spsa.com/>

**U.S. Coast Guard** Spill Reports 804/441-3314 [www.uscg.mil/d5/](http://www.uscg.mil/d5/)

**Virginia Native Plant Society** (540) 837-1600 [www.vnps.org/](http://www.vnps.org/)

**Virginia Institute of Marine Science-Marina Technical Advisory Program**  
(804) 684-7768 or Fax (804) 684-7161 [www.vims.edu](http://www.vims.edu)



Wetlands Program (804) 684-7108 or Fax (804) 684-7097

**Virginia Peninsulas Public Service Authority** (757) 420-4700

**Wetlands Boards**

- Accomack County (757) 787-5721
- Town of Cape Charles (757) 331-3259
- Charles City County (804) 829-9217
- Chesapeake (757) 382-6378
- Colonial Heights (804) 520-9275
- Essex County (804) 443-4951
- Fairfax County (703) 324-1210
- Fredericksburg (540) 372-1179
- Gloucester County (804) 693-4040
- Hampton (757) 727-6142
- Hopewell (804) 541-2267
- Isle of Wight (804) 357-3191
- James City County (757) 253-6673
- King George County (804) 775-7111
- King and Queen County (804) 785-5982
- King William County (804) 769-4927
- Lancaster County (804) 462-5220
- Mathews County (804) 725-5025
- Middlesex County (804) 758-4305
- New Kent County (804) 966-9861
- Newport News (757) 247-8437
- Norfolk (757) 441-2152
- Northampton County (804) 678-5872
- Northumberland County (804) 580-8910
- Poquoson (757) 868-7151
- Portsmouth (757) 393-8836
- Prince William County (804) 335-6830
- Richmond County (804) 333-3415
- Stafford County (804) 659-8668
- Suffolk (757) 934-3111
- Surry County (804) 294-5210
- Virginia Beach (757) 426-5790
- Westmoreland County (804) 493-0121
- West Point (804) 843-3330
- Williamsburg (757) 220-6130
- York County (757) 890-3538

**FEDERAL CONTACTS**

**Army Corps of Engineers** (757) 441-7500 [www.usace.army.mil/](http://www.usace.army.mil/)

**Federal Emergency Management Agency** [www.fema.gov/](http://www.fema.gov/)

**National Sea Grant** [www.seagrant.noaa.gov/](http://www.seagrant.noaa.gov/)

**NOAA: Office of Ocean & Coastal Resources Management** (301) 713-3117  
[www.noaa.gov/coasts.html](http://www.noaa.gov/coasts.html)

**Occupational Safety and Health Administration**  
VOSH - REGION 3 U.S. Department of Labor/OSHA  
(215) 861-4900 Fax (215) 861-4904 [www.osha.gov/](http://www.osha.gov/)

**US Coast Guard Commander, US Coast Guard** District 5 (757) 398-6287  
[www.uscg.mil/](http://www.uscg.mil/)  
Copies of *Federal Requirements and Safety Tips for Recreational Boaters*  
National Response Center: To report oil spills 1-800-424-8802

**US Environmental Protection Agency** Region III (215) 597-9076 [www.epa.gov/](http://www.epa.gov/)  
Information about Federal laws and regulations and EPA programs

**US Fish and Wildlife Service Regional Office** (413) 253-8200 Fax (413) 253-8308 [www.fws.gov/](http://www.fws.gov/)

## TRADE ASSOCIATIONS

**Chesapeake Bay Yacht Clubs Association** (540) 659-3275 [www.cbyca.org](http://www.cbyca.org)

**Virginia Association of Marine Industries** (804) 977-3716

**Tidewater Marine Trades Association of Virginia** [www.tmtav.org](http://www.tmtav.org)

## NON-PROFIT GROUPS

**American Boat and Yacht Council (ABYC)** (410) 956-1050 Fax (410) 956-2737  
[www.abycinc.org/index.cfm](http://www.abycinc.org/index.cfm)  
Information about holding tank retrofits and vessel standards

**National Audubon Society** (212) 979-3000 Fax: (212) 979-3188  
[www.audubon.org/](http://www.audubon.org/)

**Boat/US Clean Water Trust** (703) 461-2855 Fax (703) 461-0920  
[www.boatus.com/](http://www.boatus.com/)

**Center for Marine Conservation** (202) 429-5609 [www.cmc-ocean.org/](http://www.cmc-ocean.org/)  
Educational materials on marine debris  
Information on annual international coastal cleanup (3rd Saturday in September)  
Regional Office-Virginia Beach (757) 496-0920

**Chesapeake Bay Foundation** [www.savethebay.cbf.org/](http://www.savethebay.cbf.org/)

Richmond Office: (804) 780-1392  
Hampton Roads Office: (757) 622-1964

- Oyster Restoration Program
- Storm drain stenciling information and materials
- Information about the annual international coastal cleanup

**National Fire Protection Association** 1-800-344-3555  
[www.nfpa.org/public\\_affairs@nfpa.org](http://www.nfpa.org/public_affairs@nfpa.org)



- Copies of NFPA standards
- Copies of NFPA standards may be available from your local fire marshal

**National Marine Manufacturers Association** (312) 946-6200 Fax: (312) 946-0388 [www.nmma.org/](http://www.nmma.org/)

**Sierra Club** (415) 977-5500 Fax (415) 977-5799 [www.sierraclub.org/](http://www.sierraclub.org/)

**States Organization for Boating Access** [www.soba.gen.dc.us/](http://www.soba.gen.dc.us/)

**US Coast Guard Auxiliary** [www.cgaux.org/cgauxweb/public/pubframe.htm](http://www.cgaux.org/cgauxweb/public/pubframe.htm)

**US Power Squadron** [www.usps.org/newpublic2/index.html](http://www.usps.org/newpublic2/index.html)

## **APPENDIX II**

# **SPILL PREVENTION, CONTROL AND COUNTERMEASURE (SPCC) PLAN**



# Spill Prevention, Control and Countermeasure (SPCC) Plan

Marina Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Contact Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

Email: \_\_\_\_\_

## FACILITY INFORMATION

Facility Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

\_\_\_\_\_

Physical address: \_\_\_\_\_

\_\_\_\_\_

Owner Name: \_\_\_\_\_

Owner Address: \_\_\_\_\_

Primary Contact Name: \_\_\_\_\_

Work Phone Number: \_\_\_\_\_

Home Phone Number: \_\_\_\_\_

Mobile Phone Number: \_\_\_\_\_

Secondary Contact Name: \_\_\_\_\_

Work Phone Number: \_\_\_\_\_

Home Phone Number: \_\_\_\_\_

Mobile Phone Number: \_\_\_\_\_

Date of Initial Operation: \_\_\_\_\_

## SITE ASSESSMENT

**Location:** *Describe where the facility is located.*

Adjacent water body: \_\_\_\_\_

Nearest confluence: \_\_\_\_\_

Mile marker: \_\_\_\_\_ Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

County: \_\_\_\_\_



## FACILITY DESCRIPTION

### Facilities and Equipment:

Place an X beside all that apply.

- |  |  |
|--|--|
| <input type="checkbox"/> wet slips, how many? ____             | <input type="checkbox"/> pumpout station                 |
| <input type="checkbox"/> dry slips, how many? ____             | <input type="checkbox"/> commercial fuel dock            |
| <input type="checkbox"/> maintenance buildings, how many? ____ | <input type="checkbox"/> non-commercial fuel pump        |
| <input type="checkbox"/> ships store                           | <input type="checkbox"/> travel lift                     |
| <input type="checkbox"/> restrooms                             | <input type="checkbox"/> hydraulic trailer               |
| <input type="checkbox"/> laundry facilities                    | <input type="checkbox"/> fork lift                       |
| <input type="checkbox"/> offices                               | <input type="checkbox"/> other structures and equipment. |
| <input type="checkbox"/> pavilion                              | Please list: _____                                       |
| <input type="checkbox"/> picnic area                           | <input type="checkbox"/> acres; How many _____           |

### Services:

Place an X beside all that apply.

- |   |  |
|---|--|
| <input type="checkbox"/> general maintenance  | <input type="checkbox"/> carpentry                           |
| <input type="checkbox"/> commissioning        | <input type="checkbox"/> air conditioning repair and service |
| <input type="checkbox"/> winterization        | <input type="checkbox"/> fiberglass                          |
| <input type="checkbox"/> pressure washing     | <input type="checkbox"/> blister repair                      |
| <input type="checkbox"/> cleaning and waxing  | <input type="checkbox"/> rigging                             |
| <input type="checkbox"/> engine repair/tuning | <input type="checkbox"/> canvas                              |
| <input type="checkbox"/> propeller repairs    |  |
| <input type="checkbox"/> oil changes          |  |
| <input type="checkbox"/> parts cleaning       |  |
| <input type="checkbox"/> painting             |  |
| <input type="checkbox"/> blasting             |  |
| <input type="checkbox"/> sanding              |  |
| <input type="checkbox"/> refrigeration        |  |
| <input type="checkbox"/> electrical           |  |
| <input type="checkbox"/> plumbing             |  |

**Fixed Storage:**

<b>Content</b>	<b>Capacity (gallons)</b>
Diesel	
Heating Oil	
Gasoline	
Waste Oil	
Kerosene	
Paint Thinner	
Other Solvents	

The combined quantity of the materials listed above: \_\_\_\_\_ gallons

**OIL SPILL HISTORY**

*Place an X on the appropriate line and proceed accordingly.*

\_\_\_ There has never been a significant spill at the above named facility.

\_\_\_ There have been one or more significant spills at the above named facility. Describe:

**SPILL 1**

Type of oil spilled	
Amount spilled	
Watercourse affected	
Description of physical damage	
Cost of damage	
Cost of clean-up	
Cause of spill	
Action taken to prevent recurrence	

## SPILL 2

Type of oil spilled	
Amount spilled	
Watercourse affected	
Description of physical damage	
Cost of damage	
Cost of clean-up	
Cause of spill	
Action taken to prevent recurrence	

### POTENTIAL SPILL VOLUMES AND RATES

Event	Volume Released	Spill rate
Complete failure of a full tank	_____ *Gallons	Instantaneous
Partial failure of a full tank	_____ Gallons	Gradual to instantaneous
Tank overflow	_____ Gallons	Up to _____ gallons/minute
Pipe failure	_____ Gallons	Up to _____ gallons/minute
Leaking during unloading	Several Ounces to gallons	Up to _____ gallons/minute
Leaking pipe or valve	Several Ounces to gallons	Up to _____ gallons/minute
Fueling operations	Several Ounces to gallons	Up to _____ gallons/minute
Oil and grease	Several Ounces to quarts	spotting

\* Volume of largest tank

# SPILL PREVENTION AND CONTROL

## Spill Prevention Controls and Procedures:

Control	Location/s
Double-walled tanks	
Containment berms	
Emergency shut-offs	
Drip pan	
Spill response kits	

Employees are trained annually in proper handling procedures and spill prevention and response procedures. Training includes: location and use of equipment and Emergency procedures.

### Description of where a spill would go:

For each potential spill source, describe where petroleum would flow in the event of a spill. For example, "The 6,000 gallon diesel tank has a pre-manufactured secondary containment system capable of holding 110 percent of the total volume of the tank" and, "A spill from engine repair would be contained inside the shop building and quickly cleaned up with oil absorbents." Incorporate site map by reference (see instructions under *Appendices*).

---

---

---

---

---

### Describe actions that would be taken in the event of a spill:

Identify what equipment would be deployed by whom and in what situation. See appendix B for emergency phone list. \_\_\_\_\_

---

---

---

---

**FACILITY INSPECTIONS**

<b>Facility</b>	<b>Frequency of Inspection</b>	<b>Person Responsible</b>
Fuel pumps		
Materials storage area		
Gasoline tank		
Diesel tank		
Waste oil tank		
Kerosene tank		
Solvent tank		

<b>Action</b>	<b>Person responsible</b>
Implement preventative maintenance program	
Oversee on-site inspections	
Coordinate employee training	
Maintain records	
Update plan	
Submits reports to proper authorities	

A site inspection is also conducted annually by appropriate responsible personnel to verify that the description of potential pollutant sources are accurate, that the map reflects current site conditions, and that the controls to reduce the pollutants identified in this plan are being implemented and are adequate. This annual inspection will be conducted above and beyond the routine inspections done focusing on designated equipment and areas where potential sources are located.

**RECORD KEEPING**

All records are retained for a minimum of three years. The following items will be kept on file: \_\_\_\_current SPCC plan

\_\_\_\_internal site reviews

\_\_\_\_training records

\_\_\_\_documentation of any spills

\_\_\_\_maintenance conducted

\_\_\_\_

\_\_\_\_

*Maintenance Inspection, Employee Training, and Record Keeping* logs are included in this template for your use.

**MARINA MANAGEMENT APPROVAL**

I certify that I have personally examined and am familiar with the information submitted in this document and that, based on my inquiry of those individuals responsible for obtaining this information, the information submitted is true, accurate and complete.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## APPENDICES

### Site map:

Include a site map as Appendix A to this plan. You may attach an existing site map or create your own. If you use an existing map, be sure that the items listed below are included. If you need to create a site map, the following instructions should guide you step-by-step. Please use a straight edge (ruler) while creating the sketch. The sketch should be oriented as if you were in a plane looking down on your property (an aerial view).

- Draw and label all roadways surrounding your marina property.
- Draw and label all facilities within your marina as close proportionately as possible.
- Draw an arrow indicating north.
- Draw an arrow(s) pointing in the direction of downhill flow of water when it rains.
- Draw the location of any inlets or catch basins that may presently exist on your property.
- Draw the location and general layout of all boat slips associated with your marina.
- Label the river or waterway adjacent to your marina.
- Draw and label all methods of entry to the waterway, *i.e.*, boat ramps, lift well, etc.
- Draw and label with an arrow boat washing areas.
- Draw and label the location of all fuel containment facilities.
- Draw and label the location of all in-place spill prevention, control and countermeasure devices.
- Draw and label the location of all proposed spill prevention, control and countermeasure devices.

### Other attachments:

List any additional information to be attached as Appendix B, C, D, etc. Label and staple the attachments to the end of this SPCC plan.

Appendix A: Site Map

Appendix B: Contact list and telephone numbers

Appendix C: Maintenance logs

Appendix D: Employee training logs

Appendix E: Spill logs

Appendix F: \_\_\_\_\_

**APPENDIX B**

**CONTACT LIST AND TELEPHONE NUMBERS**

Contact	Phone	Other
Local fire	911	
National Response Ctr.	800-424-8802	
VA Dept. of Emergency Mgmt. (nights, wknds. Holidays only)	800-468-8892	
VA Dept. of Environmental Quality- Pollution Response Program (find your contact number at <a href="http://deq.virginia.gov/prep/contacts.html">deq.virginia.gov/prep/contacts.html</a> )		
Facility spill response person		
Convenience store mgr		
Main office		
Convenience store		
Local Haz-Mat response team		
Emergency clean-up contractor		
Downstream water suppliers		

You must report a spill if:

- Discharges that cause a sheen or discoloration on the surface of a body of water;
- Discharges that violate applicable water quality standards; and
- Discharges that cause a sludge or emulsion to be deposited beneath the surface of the water or on adjoining shorelines.

To report a release or spill, contact the federal National Response Center (NRC). NRC is staffed 24 hours a day by U.S. Coast Guard personnel. Also call the VA Department of Environmental Quality—Pollution Response Program. You should be ready to report the following:

- Your name, location, organization, and telephone number
- Name and address of the party responsible for the incident
- Date and time of the incident
- Location of the incident Source and cause of the release or spill

- Types of material(s) released or spilled
- Quantity of materials released or spilled
- Danger or threat posed by the release or spill
- Number and types of injuries (if any)
- Weather conditions at the incident location
- Any other information to help emergency personnel respond to the incident

**Appendix C**

**MAINTENANCE INSPECTIONS**

Maintenance Coordinator: \_\_\_\_\_ . Maintenance Coordinator responsibilities include implementation of preventative maintenance programs and oversight of on-site inspections.

*Use this table to record inspections:*

<b>Facility Inspected</b>	<b>Date of Inspection</b>	<b>Name of Inspector</b>	<b>Result Pass/Fail</b>	<b>Comments</b>
<i>Oil recycling area</i>	<i>4/27/00</i>	<i>Eric Rose</i>	<i>Pass</i>	<i>No evidence of leakage</i>

Appendix D

**EMPLOYEE SPILL PREVENTION AND RESPONSE TRAINING**

Employee Training Coordinator: \_\_\_\_\_

<b>Name of Employee</b>	<b>Date of Training</b>	<b>Type of Training/Topics Addressed</b>
<i>Carl Bishop</i>	<i>3/26/01</i>	<i>Boom deployment</i>



## **APPENDIX III**

# **STORMWATER POLLUTION PREVENTION PLAN**

# **Stormwater Pollution Prevention Plan**

Marina Name  
Marina Address Line 1  
Marina Address Line 2  
City, VA Zip

Permit # VA0000000

Month Day, 2007

## 1. POLLUTION PREVENTION TEAM AND RESPONSIBILITIES

The SWP3 coordinator for the facility is \_\_\_\_\_

SWP3 coordinator duties include the following:

- Create a SWP3 team to aid in the implementation of the SWP3 plan
- Implement the SWP3 plan
- Oversee maintenance practices identified as BMPs in the SWP3
- Implement and oversee employee training
- Conduct or provide for inspection or monitoring activities
- Identify other potential pollutant sources and make sure they are added to the plan
- Identify any deficiencies in the SWP3 and make sure they are corrected
- Prepare and submit reports
- Ensure that any changes in facility operation are addressed in the SWP3

Following is a list of SWP3 team members and duties:

Person	Duties
<i>Eg. Tom Johnson</i>	<i>Implement housekeeping &amp; monitoring procedures</i>

## 2. FACILITY DESCRIPTION

Facility Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Physical address if different: \_\_\_\_\_

\_\_\_\_\_ Lat \_\_\_\_\_ Long

The facility is bound to the east by \_\_\_\_\_, to the south by \_\_\_\_\_, to the north by \_\_\_\_\_, and to the west by \_\_\_\_\_.

Owner Name: \_\_\_\_\_

Owner Address: \_\_\_\_\_

\_\_\_\_\_

**Primary Contact Name:**

Work Phone: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Mobile Phone: \_\_\_\_\_

**Secondary Contact Name:**

Work Phone: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Mobile Phone: \_\_\_\_\_

**Date of Initial Operation:** \_\_\_\_\_

**Acres of land:** \_\_\_\_\_

Typically, the facility operates \_\_\_\_\_ hours per day, \_\_\_\_\_ days per week, and maintains a staff of approximately \_\_\_\_\_ people.

**Facilities and Equipment:**

*Place an X beside all that apply.*

- |  |                                     |
|--|-------------------------------------|
| ___ wet slips, how many? _____             | ___ dry slips, how many?            |
| ___ fork lift                              | ___ picnic area                     |
| ___ maintenance buildings, how many? _____ | ___ travel lift                     |
| ___ ships store                            | ___ non-commercial fuel pump        |
| ___ restrooms                              | ___ commercial fuel dock            |
| ___ laundry facilities                     | ___ pumpout station                 |
| ___ offices                                | ___ hydraulic trailer               |
| ___ pavilion                               | ___ other structures and equipment. |

**Services:**

*Place an X beside all that apply*

- |                          |   |
|--------------------------|---|
| ___ general maintenance  | ___ sanding                             |
| ___ commissioning        | ___ plumbing                            |
| ___ winterization        | ___ electrical                          |
| ___ pressure washing     | ___ refrigeration                       |
| ___ cleaning and waxing  | ___ air conditioning repair and service |
| ___ engine repair/tuning | ___ carpentry                           |

\_\_\_ propeller repairs

\_\_\_ blister repair

\_\_\_ oil changes

\_\_\_ fiberglass

\_\_\_ parts cleaning

\_\_\_ rigging

\_\_\_ painting

\_\_\_ canvas

\_\_\_ blasting

\_\_\_ other services. Please list: \_\_\_\_\_

Table 1

**IMPERVIOUS SITE CHARACTERISTICS AS THEY RELATE TO STORMWATER.**

Area	Surface type	Acres
Parking lot		
Boat storage		
Undeveloped		
Roads		
Dry stack		

**INSERT LAYOUT HERE** showing the major site features, areas of significant activity (related to stormwater) and the locations of the storm drains.

**3. IDENTIFICATION OF POTENTIAL STORMWATER CONTAMINANT**

Table 2 **Inventory of Potentially Exposed Materials**

Trade Name	Material	Chemical/Physical Description *	Stormwater Pollutants *
	Paint thinner	Colorless to light-colored liquid	Xylenes, ethyl benzene, Stoddard solvent, petroleum distillates
	Paint	Various colored liquid	Metal oxides, Stoddard solvent, talc, calcium carbonate, arsenic
	Paint removers	Colorless to light-colored liquid	Methylene chloride, tetrachloroethane, trichloroethene, trichloroethylene
	Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets, or grains	Chlorinated hydrocarbons, organophosphates, carbamates, arsenic
	Fertilizer	Liquid or solid grains	Nitrogen, phosphorus

	Degreasing Solvents	Colorless or white liquid	Trichloroethylene, trichloroethane, perchloroethylene, methylene chloride, tetrachloroethane
	Chemical strippers	Clear, colorless liquid	Methylene chloride
	Cleaning solutions	Clear, various colored liquid	Chlorine, ammonia, phosphates, petroleum distillates
	Wood preservatives	Clear amber or dark brown liquid	Stoddard solvent, petroleum, distillates, arsenic, copper, chromium
	Antifreeze	Clear, green, yellow, red liquid	Ethylene glycol, propylene glycol, heavy metals
	Hydraulic oil/fluids	Brown, red, oily liquid	Petroleum distillates
	Gasoline	Colorless, pale brown or pink liquid	Benzene, ethyl benzene, toluene, xylene, MTBE
	Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil & grease, naphthalene, xylenes
	Lubricants	Amber liquid, brown paste	Kerosene, mineral oil, petroleum distillates
	Wash water	Clear liquid containing solids	Oil and grease, heavy metals
	Batteries	Clear to yellow liquid	Acid, heavy metals
	Switches	Silver metallic liquid	Mercury

## 5. HISTORIC SPILL AND LEAK RECORD

*Place an X on the appropriate line*

There has never been a significant spill at the above named facility.

There have been one or more significant spills at the above named facility. Describe:

**SPILL 1 Date:**

Type of oil spilled	
Amount spilled	
Watercourse affected	
Description of physical damage	
Cost of damage	
Cost of clean-up	

Cause of spill	
Action taken to prevent recurrence	

**SPILL 2      DATE:**

Type of oil spilled	
Amount spilled	
Watercourse affected	
Description of physical damage	
Cost of damage	
Cost of clean-up	
Cause of spill	
Action taken to prevent recurrence	

## 6. SUMMARY OF AVAILABLE STORMWATER SAMPLING DATA

\_\_\_\_\_ MARINA NAME has no available sampling data because sampling has not been conducted at the site to date.

OR

\_\_\_\_\_ A data summary of existing discharge sampling, describing pollutants in stormwater discharges from the facility and other required information, is included as Appendix A. This summary is updated as additional information is obtained.

## 7. RISK IDENTIFICATION AND SUMMARY OF POTENTIAL POLLUTANT SOURCES

Table 3

**Locations of Potential Sources of Stormwater Contamination**

<b>Potential Stormwater Contamination Point</b>	<b>Potential Pollutant</b>	<b>Potential Problem</b>
Boat and Trailer Storage Area	Pesticides, fertilizer, antifreeze, crankcase oil, hydraulic oil/fluids, gasoline, diesel fuel	Leaking fluids from boats and trailers as they await maintenance or use. Soil erosion.
Parking Lot and Launch Ramp	Pesticides, fertilizer, antifreeze, crankcase oil, hydraulic oil/fluids, gasoline, diesel fuel.	Leaking fluids from parked vehicles in the parking lot. Leaking fluids from boats as they enter and exit the river. Soil erosion. Litter and fish waste accumulated by boaters.
Boat Maintenance and Cleaning Area	All materials in Table 2	Fluid spills during maintenance activities, fuel leaks during fueling, and wastewater from cleaning operations.

Table 4

**Characteristics of Stormwater Drainage**

<b>Drainage Area, size (sq') and surface type</b>	<b>Stormwater Flow Description</b>	<b>Impervious Surface Area (square feet)</b>	<b>Adjacent water body</b>
Boat and Trailer Storage Area	Overland flow across the compacted gravel area to storm inlets SS-01 and SS-02.		
Parking and Launch Ramp Area	Sheet flow across the paved area to storm inlets SS-03 and SS-04. All roof drains from the office building and boating supply store discharge to storm inlet SS-04.		
Boat Maintenance and Cleaning Area	Sheet flow across the compacted gravel area to storm inlets SS-05 and SS-06. Sheet flow across the paved gas station to storm inlet SS-05. All roof drains from the maintenance warehouse and parts storage warehouse discharge to storm inlet SS-06.		
Vegetated Area	All vegetated areas located north of the boat maintenance and cleaning area. Flow from this area does not leave the site as stormwater run off.		

## 8. COMPLIANCE WITH OTHER PROGRAMS

- Storage of waste petroleum products and spent cleaning solvents complies with Resource Conservation and Recovery Act (RCRA) requirements.
- Weekly inspections of fluid storage areas are conducted to verify placarding, storage times, and the integrity of storage containers.
- Underground storage tanks (USTs) located on site comply with all UST regulations.
- Have a Spill Prevention and Control Countermeasure (SPCC) Plan.

## 9. STORMWATER BEST MANAGEMENT PRACTICE

*Check all that apply.*

To prevent stormwater impacts the following BMPs have been implemented.

\_\_\_\_\_ entering boats and trailers are inspected for leaks, and drip pans are placed under detected leaks.

\_\_\_\_\_ boats and trailers stored in this area awaiting maintenance are not stored for more than two weeks.

\_\_\_\_\_ storm sewer inlets have oil absorbent socks

\_\_\_\_\_ the boat and trailer storage area is paved with curbing along the perimeter

\_\_\_\_\_ Recycling bins are located next to launch ramp to minimize solid wastes.

\_\_\_\_\_ a fish cleaning facility that provides for the proper disposal of fish waste is available

\_\_\_\_\_ oil and battery recycling bins are available

\_\_\_\_\_ cleaning operations are prohibited or in the water. All operations take place in the boat cleaning and maintenance area.

\_\_\_\_\_ Facility has a fuel spill prevention plan

\_\_\_\_\_ Facilities parts washer and solvents have been supplied by a local vendor who will remove accumulated oily sludge and solvent from the parts washer and transport the material off-site to comply with the RCRA standards for a Conditionally Exempt Small Quantity Generator (CESQG). All parts washers will be stationed inside the maintenance warehouse.

\_\_\_\_\_ mechanical sanders equipped with vacuums are used to prevent the migration of debris and residue.

\_\_\_\_\_ during the handling of drums, adjacent storm sewers are covered to contain possible spills during clean up.

\_\_\_\_\_ fuel pump nozzles at the gas dock are equipped with automatic back pressure shut-off to prevent overfilling of fuel tanks.

\_\_\_\_\_ the underground storage tank (UST) storing fuel is equipped with an overfill protection valve which restricts flow when the tank capacity reaches ninety percent.

\_\_\_\_\_ the UST fill port is equipped with a containment bucket with a minimum capacity of five gallons.

\_\_\_\_\_ All fluid storage tanks are stored under a cover and on a raised pallet with secondary spill/leak prevention

\_\_\_\_\_ no 55-gallon drum handling will take place during rain events to prevent any spills from combining with stormwater and discharging from the site.

\_\_\_\_\_ weekly inspections of the fluid storage building will be conducted to look for leaks or deterioration of fluid storage containers. Any leaks identified during the inspection will be immediately cleaned using a dry absorbent.

\_\_\_\_\_ An emergency spill kit and telephone are located near the fluid storage area and on the loading dock.

\_\_\_\_\_ For spills that cannot be managed by the emergency spill kit, the local fire department will be immediately telephoned. All spills that reach the storm sewer will be reported to the National Response Center at 1-800-424-8802.

## **10. PREVENTIVE MAINTENANCE**

MARINA NAME maintains all drains on the site to minimize sources of contaminated runoff. The facility regularly inspects and tests all on site equipment and systems to uncover conditions that could cause breakdowns or failures that would result in discharges of pollutants to surface waters.

## **11. EMPLOYEE TRAINING**

All new employees will be trained within one week of their start date. All employees will be required to participate in an annual refresher training course. The training program will be reviewed annually by the SWP3 coordinator to determine its effectiveness and to make any necessary changes to the program. Training will include background on the components and goals of the SWP3 and the following:

- hands-on training in spill prevention and response
- good housekeeping and proper material handling
- disposal and control of liquid and solid waste
- container filling and transfer
- proper storage, washing, and inspection procedures
- used oil, spent solvent and abrasives, and used battery management
- proper disposal procedures for vessel wastewater
- fueling procedures
- proper paint application and removal methods



## 12. SEDIMENT AND EROSION CONTROL

Describe areas that have a high potential for significant soil erosion (primarily the shoreline) and the methods used to limit erosion (vegetation, restricted access, bulkhead, riprap, etc.).

## 13. COMPREHENSIVE SITE COMPLIANCE EVALUATION

### **Non Stormwater Discharges**

Visual inspections of all storm sewer inlets will be made quarterly during dry weather conditions for evidence of non-stormwater discharges. Visual inspections will be completed by an employee under the direction of the SWP3 Coordinator. The dry weather inspections will verify the site is not discharging sanitary or process water to storm sewers. Information recorded on the quarterly dry-weather inspection log shall include: date of inspection, storm sewer inlet location, inspection results, and potential significant sources of non-stormwater discovered through testing. If non stormwater discharges are identified, MARINA NAME will notify the DEQ as required in Part III D 3 g (3) of the Stormwater General Permit. Blank dry-weather inspection forms can be found in Appendix A of this SWP3.

### **Quarterly Visual Inspections**

MARINA NAME will perform quarterly visual inspections of all storm sewer inlets during rain events to look for evidence of stormwater contamination. Inspections will be conducted within the first thirty minutes of discharge or soon thereafter, but not exceeding 60 minutes. The visual inspection shall include any observations of color, odor, turbidity, floating solids, foam, oil sheen, or other obvious indicators of stormwater pollution. Information recorded during the quarterly inspection shall include: date of inspection, storm sewer inlet location, inspection results, and potential significant sources of stormwater contaminants if discovered. Blank quarterly inspection forms can be found in Appendix A of this SWP3.

### **Annual Compliance Inspections**

An annual stormwater compliance inspection will be conducted approximately one year following implementation of this SWP3 and annually thereafter. The inspection will determine if the BMPs have been implemented and will assess their effectiveness. The inspection will also determine if site operations have changed since development of this SWP3. If operational changes have been made, the SWP3 Coordinator will determine if those changes will impact stormwater quality and develop new BMPs to address the change. All operational changes and new BMPs will be recorded in this SWP3. Additionally, the inspection date, the inspection personnel, the scope of the inspection, major observations, and any needed revisions will be recorded. Revisions to the plan will occur within fourteen days after the annual inspection.

Blank annual compliance inspection forms can be found on the next pages.



*Inspection form templates:*

## **Quarterly Non-Stormwater Discharge Assessment Log**

Outfall Number or Description:

Flow<sup>1</sup> (Y/N):

If Flow is Yes, Complete This Section:

Possible Source:

Leaking fluids from boats and trailers as they await maintenance or use. Soil erosion

Observations<sup>2</sup>:

Corrective Action:

Outfall Number or Description:

Flow<sup>1</sup> (Y/N):

If Flow is Yes, Complete This Section:

Possible Source:

Leaking fluids from parked vehicles in the parking lot. Leaking fluids from boats as they enter and exit the river. Soil erosion. Litter and fish waste accumulated by boaters.

Observations<sup>2</sup>:

Corrective Action:

Outfall Number or Description:

Flow<sup>1</sup> (Y/N):

If Flow is Yes, Complete This Section:

Possible Source:

Fluid spills during maintenance activities, fuel leaks during fueling, and wastewater from cleaning operations.

Observations<sup>2</sup>:

Corrective Action:

<sup>1</sup> Evaluation shall take place during dry periods

<sup>2</sup> Observations include flow, stains, sludge, color, odor, or other indications of a non-stormwater discharge

**Inspector's Name:**

**Date:**

# Quarterly Visual Monitoring Inspection Log

Outfall Number or Description:

Weather Conditions:

Observations<sup>2</sup>:

Probable Source of Any Observed Contamination:

Leaking fluids from boats and trailers as they await maintenance or use. Soil erosion

Outfall Number or Description:

Weather Conditions:

Observations<sup>2</sup>:

Probable Source of Any Observed Contamination:

Leaking fluids from parked vehicles in the parking lot. Leaking fluids from boats as they enter and exit the river. Soil erosion. Litter and fish waste accumulated by boaters.

Outfall Number or Description:

Weather Conditions:

Observations<sup>2</sup>:

Probable Source of Any Observed Contamination:

Fluid spills during maintenance activities, fuel leaks during fueling, and wastewater from cleaning operations.

**Inspector's Name**

**Date:**

**Time<sup>1</sup>:**

<sup>1</sup> Inspections shall be conducted within the first thirty minutes of discharge or as soon thereafter as practical, but not exceeding sixty minutes

<sup>2</sup> Observations include color, odor, turbidity, floating solids, foam, oil sheer, etc.



# Annual Facility Site Compliance Inspection Log<sup>1</sup>

Drainage Area:

Potential Pollutants and Source:

.

Changes in Drainage Conditions or Operations Since Last Inspection<sup>2</sup>:

BMP Effective (Y/N):

Current and Proposed BMPs:

Implementation Schedule for proposed BMPs:

Drainage Area:

Potential Pollutants and Source:

Changes in Drainage Conditions or Operations Since Last Inspection<sup>2</sup>:

BMP Effective (Y/N):

Current and Proposed BMPs:

Implementation Schedule for proposed BMPs:

Drainage Area:

Potential Pollutants and Source:

Changes in Drainage Conditions or Operations Since Last Inspection<sup>2</sup>:

BMP Effective (Y/N):  
Current and Proposed BMPs:

Implementation Schedule for proposed BMPs:

<sup>1</sup> Scope of this inspection is to verify that BMPs are properly operated and are adjusted if operational or site changes require new BMPs to prevent stormwater contamination.

<sup>2</sup> Changes in drainage conditions or operations require revisions to the SWP3.

**Inspector's Name:**

**Date:**

**14. RECORD RETENTION REQUIREMENTS**

Records described in the SWP3 must be retained on site for a period of at least three years from the date of the sample, measurement, report or request for coverage under a stormwater permit, and shall be made available to the state or federal compliance inspection officer upon request. Additionally, employee training records and waste and recycling receipts or vouchers shall also be maintained.

**15. PROVISIONS FOR AMENDMENT OF THE PLAN**

If the facility expands, experiences any significant production increases or process modifications, or changes any significant material handling or storage practices which could impact stormwater, the SWP3 will be amended appropriately. The SWP3 will also be amended if the state or federal compliance inspection officer determines that it is ineffective in controlling stormwater pollutants discharged to waters.

**16. CERTIFICATION STATEMENT**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

## **APPENDIX IV**

# **MARINA / BOATYARD HURRICANE PREPARATIONS**

## MARINA OPERATOR CHECKLIST

### EQUIPMENT ON SITE

- |  |   |
|--|---|
| ___ <input type="checkbox"/> Lines                       | ___ <input type="checkbox"/> plywood                |
| ___ <input type="checkbox"/> chafing gear                | ___ <input type="checkbox"/> tarps                  |
| ___ <input type="checkbox"/> screw anchor                | ___ <input type="checkbox"/> batteries              |
| ___ <input type="checkbox"/> portable generator          | ___ <input type="checkbox"/> first aid kit          |
| ___ <input type="checkbox"/> cut/patch equipment         | ___ <input type="checkbox"/> duct tape              |
| ___ <input type="checkbox"/> submersible pump            | ___ <input type="checkbox"/> plastic sheeting       |
| ___ <input type="checkbox"/> camera/video equipment      | ___ <input type="checkbox"/> minimum repair kit     |
| ___ <input type="checkbox"/> mobile radio/cellular phone | ___ <input type="checkbox"/> spill containment gear |
- 
- 

### INSPECT YEARLY

- \_\_\_  docks have quick shut off above the flood plain
  - \_\_\_  docks are attached to pilings that can sustain a 50 year storm surge and wind load
  - \_\_\_  there is enough storage space above the flood plain for boats and vehicles
  - \_\_\_  there is storage space above the flood plain for office records and equipment
  - \_\_\_  there is emergency power for winch operation, travel lift, pumps and communication
  - \_\_\_  cradles and jacks are stored and easily accessible
  - \_\_\_  moorings have been checked by a diver and set
  - \_\_\_  all employees are trained for hurricane plan actions
  - \_\_\_  all boaters have received checklists for hurricane planning
  - \_\_\_  all boaters have current insurance for their vessels
- 
- 

### INSPECT MONTHLY

- \_\_\_  building roofs, doors and windows
- \_\_\_  fuel and sewer pumping lines
- \_\_\_  fire fighting gear
- \_\_\_  spill containment gear
- \_\_\_  lifts and cranes
- \_\_\_  electrical supplies
- \_\_\_  debris is removed from open areas
- \_\_\_  trees and shrubs are trimmed

- \_\_\_\_  trash bins and dumpsters are secured in protected areas
  - \_\_\_\_  salvage or abandoned hulls, equipment and parts are disposed of or secured
  - \_\_\_\_  dry storage areas and racks
- 
- 

**CONTRACTORS FOR RECOVERY**

<b>Service</b>	<b>Name</b>	<b>Phone/Fax</b>
<b>County Inspector</b>		
<b>FEMA Assistance</b>		
<b>Crane/Barge</b>		
<b>Diver</b>		
<b>Plumber</b>		
<b>Electrician</b>		
<b>Roofer</b>		
<b>Boat Repairs</b>		
<b>General Contractor</b>		
<b>Dock Supplier</b>		
<b>Fuel Spill</b>		
<b>Engineer</b>		

## 72-48 HOURS PRIOR TO PROJECTED STORM ARRIVAL

### MANAGER (this job is the same throughout the preparation stage)

- \_\_\_  monitor NOAA weather station and/or the internet weather reports
- \_\_\_  assist where needed
- \_\_\_  coordinate volunteers
- \_\_\_  be a home base where employees can report jobs completed and still needed
- \_\_\_  coordinate supplies, tools and labor

### OFFICE

- \_\_\_  notify customers that facility is on alert
- \_\_\_  monitor NOAA weather station and/or internet weather reports
- \_\_\_  process mail and all paperwork
- \_\_\_  back up computer records
- \_\_\_  delay orders of materials and stocks that are due to be shipped
- \_\_\_  contact all contractors for post-storm clean-up
- \_\_\_  contact volunteers to begin preparation work
- \_\_\_  cover and tape windows

### YARD

- \_\_\_  remove or secure blowables (signs, tables, chairs, trash cans, etc.)
- \_\_\_  fill fuel tanks
- \_\_\_  remove or secure small drystorage boats (dinghies, kayaks, canoes etc)

### DOCKS

- \_\_\_  begin hauling boats
- \_\_\_  begin securing boats that have decided to remain at the docks
- \_\_\_  allow boat owners to evacuate to an off-site location
- \_\_\_  assist boaters in preparation

## 48-24 HOURS PRIOR TO PROJECTED STORM ARRIVAL

### OFFICE

- \_\_\_  remove equipment and records to safe storage
- \_\_\_  cover remaining equipment and furniture with plastic
- \_\_\_  move items that could sustain water damage to tables or off the ground
- \_\_\_  purchase extra batteries, food and water for emergency securing and recovery workers

- \_\_\_  have a source of ready cash for recovery work
- \_\_\_  confirm insurance coverage and secure policies
- \_\_\_  establish an “outside the area” contact person for communication during evacuation
- Other \_\_\_  \_\_\_\_\_

#### **YARD**

- \_\_\_  move all vehicles upland
- \_\_\_  secure the marina from non-essential traffic
- \_\_\_  remove floating docks if possible and tie them down
- \_\_\_  turn off water supply if it is public
- \_\_\_  turn off fuel pumps and main electricity
- \_\_\_  take pictures/video of the facility and preparation conditions
- Other \_\_\_  \_\_\_\_\_

#### **DOCKS**

- \_\_\_  continue securing vessels
- \_\_\_  check boats to see that no occupants are remaining
- Other \_\_\_  \_\_\_\_\_

## **24-0 HOURS BEFORE PROJECTED STORM ARRIVAL**

#### **OFFICE**

- \_\_\_  lock doors and brace them against wind
- \_\_\_  set up answering machine (have battery back-up installed)
- \_\_\_  give instructions for post-storm activities
- \_\_\_  give approximate time to return to the marina (to be confirmed by off-site contact)
- \_\_\_  ensure everyone has the number of the off-site contact
- Other \_\_\_  \_\_\_\_\_

#### **YARD**

- \_\_\_  do a last patrol of the grounds
- \_\_\_  secure all access points

#### **DOCKS**

- \_\_\_  conduct a last patrol of the vessels, checking dock lines and moorings
- \_\_\_  ensure no one remains on their vessel-if they choose to remain have them sign a waiver of liability and give you their next of kin address and phone

**Send All Employees Home Unless A Skeleton Crew Is Needed To Remain For The Storm**



## DURING THE STORM

### ON-SITE

- \_\_\_  Monitor weather reports on radio, TV and/or internet
- \_\_\_  Stay in a protected area
- \_\_\_  Use extreme caution and stay off the docks
- \_\_\_  Do not attempt to re-tie or board a loose vessel during the storm

### OFF-SITE

- \_\_\_  Monitor weather reports on radio, TV and/or computer
- \_\_\_  Coordinate return of all employees
- \_\_\_  Review recovery plan
- \_\_\_  Review insurance policy

## RECOVERY

***Beware Of Snakes, Downed Electric Lines, Wet Electronic Equipment,  
Leaking Gas or Fuel***

- \_\_\_  contact employees regarding when they should return
- \_\_\_  contact recovery crews
- \_\_\_  contact insurance company to get an adjuster and surveyor to you
- \_\_\_  set up security to prevent looting and for crowd control
- \_\_\_  photograph/video everything
- \_\_\_  complete a survey of the facility including equipment and inventory
- \_\_\_  estimate damages and prepare a written assessment if possible
- \_\_\_  if anything is stolen, file an incident report with local police
- \_\_\_  set up an answering machine or volunteer to respond to customers' inquiries
- \_\_\_  investigate to find a marina where your customers can berth temporarily
- \_\_\_  coordinate employees and contractors
- \_\_\_  investigate boat repair facilities for customer referral
- \_\_\_  control news media; no media exposure is usually better
- \_\_\_  control conflicts between returning boat owners and recovery of damaged boats
- \_\_\_  order repair supplies
- \_\_\_  coordinate utility evaluation and reinstatement of service
- \_\_\_  if your marina did not sustain damage, let other marinas know that you can take boats

## CUSTOMER CHECKLIST

### Equipment To Be Kept On Board:

- \_\_\_  chafing gear
- \_\_\_  fenders
- \_\_\_  two sufficient anchors with 300' or more oversized rode
- \_\_\_  flashlight with spare batteries
- \_\_\_  battery-operated radio

### Check Monthly:

- \_\_\_  exterior lights operable
- \_\_\_  auto bilge pump operating (check battery)
- \_\_\_  hatches are watertight
- \_\_\_  power and electric gear operating
- \_\_\_  engine battery charged
- \_\_\_  flashlight battery charged
- \_\_\_  radio batteries charged

### To Do At A New Marina:

- \_\_\_  learn marina approaches and basin
- \_\_\_  learn the size and type of your mooring
- \_\_\_  ensure mooring and lines are sufficient for all likely wind direction and velocity
- \_\_\_  ensure mooring has enough weight and scope and is properly set
- \_\_\_  learn your moorage lease and rental agreement responsibilities
- \_\_\_  learn responsibilities for your boat's safety when a hurricane is approaching
- \_\_\_  develop a plan for securing your vessel outside the marina if you plan to evacuate
- \_\_\_  if evacuating, visit the site by boat and time the trip
- \_\_\_  learn what possible delays you may encounter when evacuating
- \_\_\_  photograph your boat and surroundings
- \_\_\_  keep a list of all equipment on board
- \_\_\_  keep a list of all equipment that will be removed during storm preparations
- \_\_\_  keep a complete set of records for your boat at home
- \_\_\_  give the marina operator the name and number of your absentee skipper
- \_\_\_  give the marina operator a description of your boat, registration number and location

### **DOCKED BOAT PREPARATIONS**

- \_\_\_  strip all removable items, including spare rigging
- \_\_\_  clear self-bailing cockpit drains
- \_\_\_  close all through-hull fittings
- \_\_\_  set chafing gear where lines will rub (chocks, cross lines, deck edge, etc.)
- \_\_\_  remove portable fuel and oil storage containers
- \_\_\_  remove ship papers
- \_\_\_  shut off fuel tanks
- \_\_\_  leave anchor light on
- \_\_\_  leave auto bilge pump on
- \_\_\_  check openings to ensure boat is watertight
- \_\_\_  set and check storm anchors
- \_\_\_  consider attaching 3 sets of bow and stern spring lines
- \_\_\_  consider attaching lines to cleats at a 45 degree angle
- \_\_\_  consider tying your boat between two piers or along a pier and anchored off one side

### **MOORED BOAT PREPARATIONS**

- \_\_\_  Make Plans To Have Someone Pick You Up From Your Boat Before The Storm Arrives
- \_\_\_  strip all removable items, including spare rigging
- \_\_\_  clear self-bailing cockpit drains
- \_\_\_  close all through hull fittings
- \_\_\_  remove portable fuel and oil storage containers
- \_\_\_  remove ship papers
- \_\_\_  shut off fuel tanks
- \_\_\_  leave anchor light on
- \_\_\_  leave auto bilge pump on
- \_\_\_  check openings to ensure boat is watertight
- \_\_\_  use storm pennants to increase scope
- \_\_\_  attach chains directly to pennants instead of swivels
- \_\_\_  add an emergency catenary weight at the vessel end of the chain
- \_\_\_  use double or triple chafe protection
- \_\_\_  use chafing gear over entire length of pennants
- \_\_\_  use two pennants

## TRAILERABLE BOAT PREPARATIONS

*Store in a garage:*

- \_\_\_  strip all removable items, including spare rigging
- \_\_\_  clear self-bailing cockpit drains
- \_\_\_  close all through-hull fittings
- \_\_\_  remove portable fuel and oil storage containers
- \_\_\_  remove ship papers
- \_\_\_  shut off fuel tanks
- \_\_\_  leave auto bilge pump on
- \_\_\_  check openings to ensure boat is watertight

Other \_\_\_  \_\_\_\_\_

*If no garage is available:*

- \_\_\_  secure trailer to a sturdy object
- \_\_\_  let half the air out of the trailer tires
- \_\_\_  put wood blocks between the frame and axle
- \_\_\_  take out the drain plugs
- \_\_\_  cover with tarp
- \_\_\_  use tie-downs

Other \_\_\_  \_\_\_\_\_

## ANCHORED BOAT PREPARATIONS

***Make Plans To Have Someone Pick You Up From Your Boat Before The Storm Arrives***

- \_\_\_  strip all removable items, including spare rigging
- \_\_\_  clear self-bailing cockpit drains
- \_\_\_  close all through-hull fittings
- \_\_\_  remove portable fuel and oil storage containers
- \_\_\_  remove ship papers
- \_\_\_  shut off fuel tanks
- \_\_\_  leave auto bilge pump on
- \_\_\_  check openings to ensure boat is watertight
- \_\_\_  use 3 or 4 substantial anchors and good tie rope
- \_\_\_  tie your boat high on the mainland to a substantial tree or similar structure

- \_\_\_  do not tie parallel to the bank
- \_\_\_  keep a navigable passage at your stern to allow other boats passage
- \_\_\_  use enough line to allow for storm surge
- \_\_\_  leave enough room between your boat and others to allow for swing
- \_\_\_  take valuables off
- Other \_\_\_  \_\_\_\_\_

## **APPENDIX V**

# **SAMPLE CONTRACT LANGUAGE**

The following text is adopted from the Marine Trades Association of New Jersey.

### 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, i.e., 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:

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

Signed \_\_\_\_\_ Date \_\_\_\_\_

### Pollution Prevention Practices:

**Repairs and Service** (to hull and engine; painting, cleaning, washing, sanding, scraping, etc.)

- Work on hulls and engines only in designated areas or use portable containment enclosures with approval of marina management.
- Use tarps and vacuums to collect solid wastes produced by cleaning and repair operations. especially boat bottom cleaning, sanding, scraping, and painting.
- Conduct all spray painting within an enclosed booth or under tarps.
- Use non-toxic, biodegradable solvents.
- Capture debris from boat washing and use only minimal amounts of phosphate-free, non-toxic, and biodegradable cleaners.
- Use drip pans for any oil transfers, grease operations, and when servicing I/Os and outboard motors.

- 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.
- Use spill proof oil change equipment.

### **Vessel Maintenance Waste**

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

### **Fuel Operations**

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

### **Waste Oil and Fuel**

- Recycle used oil and antifreeze.
- 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.
- 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.
- Absorbent materials soaked with gasoline (flammable): air dry and reuse.
- 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.
- Oil filters: drain and recycle the oil; recycle the filter or double bag and put in regular trash.

### **Onboard Practices**

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

### **Sewage Handling**

- Never discharge raw sewage within Virginia waters.
- If you have an installed toilet, you must have an approved Marine Sanitation Device (MSD).
- Do not discharge Type I or Type II marine sanitation devices within the marina basin.
- Use marina restroom facilities when at slip.
- Do not empty port-a-pots overboard; use marina dump facility. Do not empty port-a-pots in the restrooms.
- Do not discharge holding tanks overboard; use pumpout facilities.
- If you must use a holding tank additive, use an enzyme-based product. Avoid products that contain quaternary ammonium compounds (QACs), formaldehyde, formalin, phenal derivative, alcohol bases, or chlorine bleach.

- Liveaboards, place a dye tablet in holding tank after each pumpout. The dye will make any illegal discharges clearly visible.

**Organic Waste**

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

**Solid Waste**

- Recycle plastic, glass, aluminum, newspaper, and used lead batteries (*tailor this section to fit your facility's practices*).
- Place trash in covered trash receptacles; replace covers.

## **APPENDIX VI**

# **GRANT OPPORTUNITIES**

## Marina Program Grant Programs

Among the challenges facing the recreational boater today are finding convenient and reasonably priced sewage holding tank pump out facilities and securing dockage as a transient boater. The United States Fish and Wildlife Service (FWS) administers two federal grant programs specifically designed to enhance these services. The Clean Vessel Act (CVA) of 1992 and the Boating Infrastructure Grant (BIG) of 1998 were created to give back to the recreational boater a portion of the monies collected through excise taxes on items such as fishing equipment, motorboat fuels and fishing licenses. Both are funded through the Federal Aid in Sport Fish Restoration Program.

Managed locally by state governing bodies, the CVA provides financial assistance for the installation of pump out and dump stations. A portion of the funds is used to educate the boaters and marina owners on the serious health and environmental threat posed by the discharge of sewage into the marine environment. Federal funds may constitute 75% of a project with the remaining funds supplied by the recipient of the grant money.

The BIG program authorizes FWS to create a program that assists marinas with their transient vessel facilities. Geared towards non-trailerable vessels, the program is designed to enhance access to historic, recreational and scenic resources by providing public access from the water to shore communities. Projects eligible for funding include transient boat slips, restrooms, navigational aids, and any project that will benefit the transient boater.

BIG funding is available on a two-tier basis. All states and territories that submit eligible proposals receive \$100,000 through Tier I funding. Tier II funding is very competitive and is reserved for larger, more expensive projects. Facilities receiving funds are reimbursed up to 75% after completion of approved projects.

By providing funds through the CVA for the installation of pump out and dump stations, as well as funding educational outreach programs, boaters can expect to see more convenient and reasonably priced methods of properly disposing their vessel sewage. BIG funds are enabling many facilities to develop and expand their transient accommodations, providing access to cultural and historic resources throughout the nation.

**For more information:**

<http://www.vdh.state.va.us/EnvironmentalHealth/Wastewater/MARINA/index.htm>

804/864-7465

## **APPENDIX VII**

# **BOATER FACT SHEETS**

# FACT SHEET 1 - PETROLEUM

Petroleum in or on the water is harmful and, in some cases, 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 microlayer refers to the uppermost portion of the water column. It is home to thousands of species of plants, animals, and microbes. 99% of the Chesapeake Bay's blue crab larvae 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 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 a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of \$5,000 from the U.S. Coast Guard. State law also prohibits the discharge of oil with additional fines as a consequence.

## METHODS

### Fueling Practices

Gas or diesel that is spilled during the act of fueling, as a result of backsplash out the fuel intake or as overflow out the vent fitting is harmful to the environment and costs you money. Silled gas and diesel fuel are harmful to aquatic life and can stain boat hulls and damage gel coatings. Follow these tips to avoid problems:

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

### Bilge Maintenance

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

- Keep your engine well tuned to minimize the amount of oil that is released. Be sure there are no leaking seals, gaskets, or hoses. This will also save you costly engine repairs in the future.
- 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. Recycle them if practical.
- Look for contractors or marinas that offer a bilge pumpout service.

- **Do not** treat oily water with detergents. Soaps pollute and make clean up impossible. You may be fined up to \$25,000 for using soap to dissipate oil.

### **Disposal of Oil Absorbent Materials**

The disposal of used oil absorbent material depends on what type of product it is and how it was used. Follow these tips:

- Standard absorbents that are 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 they are 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 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.

### **Air Emissions Control**

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

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

### **Preventive Equipment**

Products are available commercially which can help you prevent spills and reduce emissions.

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

### **In Case Of A Spill**

- Stop the flow
- Contain the spill
- Call the U.S. Coast Guard National Response Center at (800) 424-8802.

# FACT SHEET 2-VESSEL SEWAGE

Raw or poorly treated boat sewage is harmful to human health and water quality. Typhoid, hepatitis, cholera, gastroenteritis, and other waterborne diseases may be passed directly to people who swim in contaminated waters. People may also become infected by eating contaminated shellfish. Sewage is also harmful to water quality. The microorganisms in sewage need oxygen, so effluent discharges take available oxygen from fish and other aquatic life. The heavy nutrient load in sewage promotes excessive algal growth preventing life-giving sunlight from reaching subsurface vegetation. As algae dies it is decomposed by bacteria which further reduces levels of dissolved oxygen.

## WHAT DOES THE LAW SAY?

According to Federal and State law, it is illegal to discharge raw sewage. All vessels with installed toilets must have a Marine Sanitation Device (MSD)

- Type I systems mechanically cut solids and disinfect waste. They must bear a U.S. Coast Guard certification label.
- Type II systems are similar to Type I systems. The difference is that Type IIs treat sewage to a higher standard and generally require more space and energy. Type II systems must also have a Coast Guard certification label.
- Type III systems do not discharge sewage. Holding tanks are the most common Type III system. Incinerating systems are another option. A Coast Guard label is not required. Vessels 65 feet and under may have any of these three types of MSDs. Vessels over 65 feet must have a Type II or III system.

## METHODS:

### Holding Tank Information

- Install a holding tank.
- Use good plumbing to control holding tank odor. Fiberglass and metal tanks are highly resistant to permeation as are specially labeled flexible “sanitation hoses” and PVC piping. Hose runs should be as short and as straight as possible. Where possible, use rigid pipe below the level of the holding tank and in other areas where sewage will accumulate. Minimize the number of connections and insure that seals are tight.
- Use enzyme-based products in holding tank to further control odor. Enzymatic products use biological processes, rather than harsh chemicals, to break down sewage. Pump and rinse the 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 enzymebased products.
- Avoid holding tank products that contain quaternary ammonium compounds (QACs) and formaldehyde. These products may disrupt sewage treatment plants.

### Type I and Type II MSDs

- To maintain Type I or II MSDs, establish a regular maintenance schedule based on the owner’s manual.
- Do not discharge your Type I or II MSD in a marina, in a swimming area, over an oyster bar, or in a poorly flushed area. 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.

# FACT SHEET 3- WASTE CONTAINMENT

Trash is ugly and may be dangerous to humans and to wildlife. For example, plastic may snare propellers and choke sea turtles. Congress passed a law in 1987 to protect our waterways from garbage.

## WHAT DOES THE LAW SAY?

The Marine Plastic Pollution research and Control Act (Title II of Public Law 100-220) regulates the disposal of garbage at sea according to how far a vessel is from shore:

- Within U.S. lakes, rivers, bays, sounds, and within 3 nautical miles from the ocean shore, it is illegal to dump anything other than fish guts.
- Between 3 and 12 nautical miles from shore, it is illegal to dump plastic and any other garbage that is greater than one inch in size.
- Between 12 and 25 nautical miles from shore, it is illegal to dump plastic and dunnage, i.e., lining and packing material, nets, lines, etc.
- Beyond 25 nautical miles, it is illegal to dump plastic.

## METHODS:

### Contain Trash

- Don't let trash get thrown or blown overboard.
- If trash blows overboard, retrieve it. Consider it "person 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, i.e., bring home or leave in the dumpster at the marina.

### Recycle

- Recycle cans, glass, newspaper, antifreeze, oil, oil filters, and lead batteries.
- Bring used monofilament fishing line to recycling bins at your tackle shop or marina or leave in a covered trash can at the marina.

### Fish Waste

For safety reasons marinas are often located in sheltered areas-areas that will protect boats from winds, waves and storms. The same features that protect boats from the elements, however, also limit the exchange of water. Poor exchange, or flushing, means that any waste which is discharged into the water may stay in the same general area for an extended length of time. Fish cleaning may pose a problem if the carcass and/or innards are discarded in a poorly flushed marina basin. Fish waste is smelly and unsightly. Also, life-sustaining oxygen is removed from the water column as bacteria decompose the refuse.

Avoid these problems by following these tips:

- Do not discard fish waste in poorly flushed areas.
- Find out what your marina's policy is.
- Bag waste and dispose at home or in a dumpster.
- Compost fish waste.
- Grind fish waste and use for chum. Do not discharge ground fish into poorly flushed water.

**Maintenance Waste**

Dispose of the following items according to the recommendations listed below.

**WASTE PRODUCT DISPOSAL METHOD**

Oil --Recycle

Oil Filters-- Puncture and hot drain for 24 hours. Recycle oil and canister

Antifreeze-- Recycle

Paint and Varnish-- Allow to dry completely, i.e., solidify. Dispose of in regular trash

Solvents, Gasoline-- Bring to a household hazardous and pesticides waste collection day

Expired Emergency Flares-- Bring to a local fire department or a household hazardous waste

collection day

Derelict Vessels-- Obtain title and sell

## FACT SHEET 4 - CLEAN BOATING

As a boater, you are well aware of the care your vessel requires. In order to keep your boat safe, reliable, and attractive, you must clean and maintain it. As you do so, minimize environmental impacts by following the recommendations listed here. Caution is necessary because your choice of products and activities can have serious impacts on water quality and aquatic life. For example, if paint chips from a hull are not contained, they may end up in the water. The heavy metals in the paints chips may then be consumed by oysters, clams, worms, and other-bottom dwelling creatures and passed up the food chain to fish, birds and humans.

### METHODS:

#### Clean Carefully

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

#### Maintain Mindfully

- Collect all paint chips, dust and residue. Dispose in regular trash.
- Share leftover paint and varnish.
- Use less toxic propylene glycol antifreeze.
- Avoid overkill. Select a bottom paint developed for the mid-Atlantic region.

#### Recycle Regularly

- Recycle used oil, oil filters, and antifreeze.
- Bring used solvents and waste gasoline to local hazardous waste collection days.
- Visit the web site [www.deq.state.va.us/recycle/r-coord.html](http://www.deq.state.va.us/recycle/r-coord.html) to locate contacts for recycling information in your area.

#### 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, at the most, a CAUTION.
- Be wary of unqualified general claims or environmental benefit, i.e., “ozone friendly”. A better, more meaningful label would read, “This product is 95% 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 their criteria are awarded a “Green Seal of Approval”. You may search Green Seal’s database of Green Seal certified, environmentally responsible products at [www.greenseal.org](http://www.greenseal.org) or call (202) 588-8400.

## 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 ½ lemon dipped in borax, then rinse
- General Cleaners-- Baking soda and vinegar. Or lemon juice combined with borax paste
- Floor Cleaner-- One cup vinegar + 2 gallons of water
- Window Cleaner-- One cup vinegar + 1 quart of warm water. Rinse and squeegee
- Aluminum Cleaner-- 2 Tbsp. cream of tartar + 1 quart 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 & 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 consisting of equal amounts of lemon juice and salt, or white vinegar and salt
- Drain Opener-- Disassemble or use a plumber’s snake. Or flush with boiling water + ¼ cup baking soda + ¼ 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