MARYLAND DEPARTMENT OF THE ENVIRONMENT
1800 Washington Boulevard • Baltimore MD 21230
410-537-3000 • 1-800-633-6101
http://www.mde.state.md.us

GENERAL PERMIT FOR DISCHARGES FROM MARINAS INCLUDING BOAT YARDS AND YACHT BASINS

DISCHARGE PERMIT NO. 10-MA **NPDES PERMIT NO. MDG99**

Effective Date: March 1, 2011 **Expiration Date:** February 28, 2016

PART I. APPLICABILITY AND COVERAGE

Pursuant to the provisions of Title 9 of the Environment Article, Annotated Code of Maryland, and the provisions of the Clean Water Act (CWA), 33 U.S.C. §1251 et seq. and implementing regulations 40 CFR Parts 122, 123, 124, and 125, the Maryland Department of the Environment, hereinafter referred to as the "Department", hereby authorizes operators located in the State of Maryland, who have submitted a notice of intent (NOI) and received written approval from the Department, to discharge wastewater and storm water runoff associated with industrial activity to waters of the State of Maryland in accordance with the eligibility requirements and other conditions set forth in this permit and consistent with the permittees' NOI on file with the Department.

A. *Facilities Covered*

1. Federal storm water permit application regulations at 40 CFR Section 122.26(b)(14)(viii) require that certain services incidental to Water Transportation (SIC Industry Group 449) obtain a storm water discharge permit to comply with the CWA. Within this group, SIC Code 4493 applies to establishments, commonly known as marinas, engaged in operating docking and/or storage facilities for boat owners. Facilities with this classification include:

a. Marinas
b. Boating clubs with marinas
c. Sailing clubs with marinas
d. Yacht clubs with marinas
e. Boatyards that provide storage and incidental repair

If facilities in the above category provide or allow boat maintenance and/or equipment cleaning operations such as fueling, engine or boat maintenance/repair, boat washing, sanding, blasting, welding, or metal fabrication, or pressure washing, then a discharge permit is required and coverage is provided under this permit. (The retail sale of fuel alone at marinas, without any other boat maintenance or equipment cleaning operations, is not grounds for coverage under the Federal/State storm water permit regulations.)

2. Facilities that have their maintenance and/or equipment cleaning operations contained entirely indoors or otherwise not exposed to storm water may not need coverage for their storm water if they certify that they have no exposure (40 CFR 122.26(g)). However, any such facilities with non-storm water discharges of wastewater to waters of the State, including but not limited to wastewater from washing of boats, from maintenance operations or cooling water, require authorization under a permit consistent with the CWA.

B. *Eligible Discharges*

This permit covers the following discharges:

1. Storm water runoff to surface or groundwater from establishments involved in boat maintenance (including ship rehabilitation, mechanical repairs, painting, maintenance and lubrication);

2. Wastewater from washing of boats and engines;

3. Non-contact cooling water and condensate discharges from ice machines, refrigeration units, and other machinery; and

4. Bilge water collected and treated for discharge to surface or groundwater.

C. ***Ineligible Discharges***

The following discharges are not eligible for coverage under this general permit:

1. Storm water discharges that have been shown or may reasonably be expected to be contributing to a violation of a water quality standard;

2. Storm water discharges whose National Pollutant Discharge Elimination System (NPDES) permit has been terminated (other than at the request of the permittee) or denied, or those for which the Department requires an individual permit or an alternative general permit;

3. Sanitary wastewater discharges including any sanitary waste comingled with an otherwise authorized discharge; and

4. Wastewater discharges from chemical stripping operations.

D. ***No Permit Required***

No permit is required for establishments where there is no discharge of wastewater to waters of the State and where the operator has certified, in accordance with criteria established by the Department on form MDE/WMA/PER.067 (*http://www.mde.state.md.us/*), that there is no potential for exposure of pollutants to storm water being discharged to waters of the State. This exemption is non-transferable, does not require a fee, and is valid for five years or until conditions change.

E. ***Individual Permit or Another General Permit Required***

1. If a permittee is determined to cause an in-stream exceedance of water quality standards, additional actions including an application for an individual permit may be required.

2. The Department may require any person authorized by this permit to apply for and obtain an individual State or State/NPDES discharge permit or to obtain coverage under another general permit. If an owner or operator fails to submit, in a timely manner, an application for an individual State or State/NPDES discharge permit or a Notice of Intent (NOI) for another general permit as required by the Department under this condition, the applicability of this permit to the owner or operator is automatically terminated at the end of the day specified by the Department for the application or NOI submittal.

3. Any person authorized by this permit may request to be excluded from coverage under this permit by applying for an individual State or State/NPDES discharge permit or requesting coverage under another general permit. The Department may grant this request by issuing an individual State or a State/NPDES discharge permit or by granting coverage under another general permit, if the reasons cited by the owner or operator are adequate to support the request.

4. When an individual State or State/NPDES discharge permit is issued to a person for discharges otherwise subject to this permit, the applicability of this permit to the permittee is automatically terminated on the effective date of the individual State or State/NPDES discharge permit.

5. If there is evidence indicating potential or realized impacts on water quality due to any activity covered by this permit, the owner or operator of the discharging facility may be required to obtain an individual State or a State/NPDES discharge permit or coverage under another general permit.

6. If a person otherwise covered under this permit is denied coverage under an individual State or a State/NPDES discharge permit, the denial automatically terminates, on the date of the denial, the person's coverage under this general permit, unless otherwise specified by the Department.

7. The Department may process an NOI as an application for an individual permit if site specific conditions do not allow registration of the facility under the general permit without compromising water quality. Such circumstances may occur when a permittee proposes to discharge to impaired waters, with or without an existing Total Daily Maximum Load (TMDL), or for discharges to high quality waters.

F. ***Termination of Permit***

1. The Department may terminate coverage under this general permit for an existing permittee if the Department finds that:

a. The NOI contained false or inaccurate information;

b. Conditions or requirements of the discharge permit have been or are about to be violated;

c. Substantial deviation from plans, specifications, or requirements has occurred;

d. The Department has been refused entry to the premises for the purpose of inspecting to insure compliance with the conditions of the discharge permit;

e. A change in conditions exists that requires temporary or permanent reduction or elimination of the permitted discharge;

f. Any State or federal water quality stream standard or effluent standard has been or is likely to be violated; or

g. Any other good cause exists for terminating coverage under this permit.

2. If the Department terminates permit coverage as a result of one of the conditions listed in Section F-1 above, the permittee must apply for an individual permit immediately. The permittee must also cease all boat maintenance and washing, and any other activities with the potential to pollute storm water discharges until coverage is granted under an individual permit. If there are periods of discharge between the termination of the general permit and the effective date of the individual permit, the facility operator and owner are accountable for those discharges and any violations of State and federal law are subject to penalty as detailed in PART VII.

3. Any permittee not requesting termination of permit coverage remains responsible for meeting all permit requirements, including monitoring and reporting. A permittee should request permit termination by submitting a Notice of Termination (NOT) MDE/WMA/PER.005 form (*http://www.mde.state.md.us/*) if:

a. All operations at the facility have permanently ceased and there will be no further discharge of wastewater or storm water associated with industrial activity from the facility; or

b. A new owner or operator has taken over responsibility for the facility in accordance with PART I – Section H below.

G. *Authorization*

1. To be authorized to discharge under this general permit, a person is required to submit an NOI in accordance with the requirements of PART III of this permit, pay the required fee, receive notification from the Department of registration and comply with the terms and conditions of this permit. Coverage under this permit is effective on the date that the NOI is accepted by the Department, provided the NOI fee has been paid to the Department in accordance with the terms stipulated in PART III below. An owner, who submits such an NOI, is notified of its acceptance by the Department, complies with the terms and conditions of this permit, and pays the required fee, is authorized to discharge under the terms and conditions of this general permit.

2. If the NOI fee is paid by a check which does not clear for any reason, the person will be given 30 calendar days to make proper payment including any interest and other charges that are due. If payment is not made within this time, coverage under this permit shall be considered void from the outset. The permittee should save the cancelled check, a copy of the completed NOI, and the registration letter from the Department. These documents shall be provided to the Department upon request.

H. *Transfer of Authorization*

1. The authorization under this permit is not transferable to a change in facility location.

2. The authorization under this permit is not transferable to any person except in accordance with this section.

3. Authorization to discharge under this permit may be transferred to another person if:

a. The current permittee notifies the Department's Industrial Discharge Permits Division in writing of the proposed transfer along with the submittal of form MDE/WMA/PER.079 (*http://www.mde.state.md.us/*);

b. A written agreement, indicating the specific date of the proposed transfer of permit coverage and acknowledging the responsibilities of the current and new permittee for compliance with and liability for the terms and conditions of this permit, is submitted to the Department;

c. The new permittee either confirms in writing that the type of discharge, number of outfalls, and other information given on the original NOI remain correct or submits a modified NOI;

d. The new permittee confirms in writing that either they will follow the existing storm water pollution prevention plan or that they have developed and will implement a new plan within 30 days; and

e. Neither the current permittee nor the new permittee receives notification from the Department, within 30 days of receipt of items a through d above, of intent to terminate coverage under this permit.

4. The Department may continue coverage for the new permittee under this permit or may require the new permittee to apply for and obtain an individual State or State/NPDES discharge permit.

5. A new owner of a facility is responsible for any permit fees unpaid by the former owner.

I. ***Continuation of an Expired General Permit***
The terms and conditions of this permit and authorized permit registrations are automatically continued and remain fully effective and enforceable upon expiration of this permit until the date(s) specified under a reissued general permit unless the permit or authorization is revoked or terminated by the Department.

J. ***Change in Location***
Registration under this permit is specific to a geographic location. If an operation moves, the permittee must submit a Notice of Termination (NOT) MDE/WMA/PER.005 form (*http://www.mde.state.md.us/*) as stated in Section F, above. They must also apply for coverage at the new location by submitting a new NOI and SWPPP.

K. ***Responsibility of Permittee with Regard to Facility Users***

1. It is the responsibility of the permittee to ensure all employees and any user of the permitted facility (e.g., contractors, employees, slip owner/renters, day users, etc) has knowledge of the permit prohibitions and other relevant requirements of this permit. This shall be accomplished by either:

a. posting in a conspicuous location signage identifying prohibited discharges, the Department's Emergency Pollution Hotline (1-866-633-4686 (866-MDE GO TO)), and location of the three (3) of the nearest sanitary pump-out stations or contractors providing pump-out services (appropriate language for these signs can be found at the Department's website);

b. providing educational materials; and/or,

c. including conditions within contracts for slip renters, contractors, etc.

2. If a user's activity results in a violation of the terms of the permit and the permittee has performed its obligations with regard to the conditions in Section K.1, above, then the Department may directly address the violation with the responsible user.

PART II. DEFINITIONS

A. ***"Antifouling paint"*** shall be defined per COMAR 15.21.01 – "means a compound, coating, paint, or treatment applied or used for the purpose of controlling freshwater or marine fouling organisms on vessels".

B. *"**Ballast water**"* means water and suspended matter taken on board a vessel to control or maintain trim, draft, stability, or stresses of the vessel without regard to the manner in which it is carried. Ballast water is not regulated under this permit.

C. ***"Best management practices (BMP)"*** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of this State. BMP also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw materials storage.

D. ***"Boat"*** includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on the waters of the United States. This includes barges and tugs. For the purpose of this permit, vessel and boat may be used synonymously.

E. ***"Boat Bottom"*** as identified in this permit means the area of the vessel submerged when the vessel is afloat.

F. ***"Bypass"*** means the intentional diversion of wastes from any portion of a treatment facility.

G. ***"CFR"*** means Code of Federal Regulations.

H. ***"COMAR"*** means Code of Maryland Regulations.

I. ***"Daily maximum"*** means the highest measurement recorded for that given parameter.

J. ***"Department"*** means the Maryland Department of the Environment. Unless stated otherwise, all submissions to the Department shall be directed to the attention of the Wastewater Permits Program.

K. ***"Discharge"*** means:
1. The addition, introduction, leaking, spilling, or emitting of any pollutant to waters of this State; or
2. The placing of a pollutant in a location where the pollutant is likely to pollute.

L. ***"Estimated flow"*** means a calculated volume or discharge rate that is based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters, and batch discharge volumes.

M. ***"Federal Clean Water Act"*** means the Federal Water Pollution Control Act Amendments of 1972, its amendments and all rules and regulation adopted there under.

N. ***"General permit"*** means a discharge permit issued for a class of dischargers.

O. ***"Grab sample"*** means an individual sample collected over a period of time not exceeding 15 minutes. Grab samples collected for pH and total residual chlorine shall be analyzed within 15 minutes of time of sample collection.

P. ***"Groundwater"*** means underground water in a zone of saturation.

Q. ***"Impaired water"*** means water whose quality does not meet its designated use(s). For purposes of this permit 'impaired' refers to threatened and impaired waters:
1. For which TMDLs have been established,
2. For which existing controls such as permits are expected to resolve the impairment, or
3. For which a TMDL is required.
Impaired waters compilations are also sometimes referred to as 303(d) lists, and are included in Maryland's most current List of Impaired Surface Waters [*as* Category 4 or 5] (*http://staging.mde.state.md.us/programs/Water/TMDL/Pages/Programs/WaterPrograms/tmdl/index.aspx*).

R. ***"Impervious area"*** means any surface that does not allow storm water to infiltrate into the ground. Consistent with the Maryland Critical Area Commission, also means human-made surfaces that are not vegetated will be considered impervious. Impervious surfaces include roofs, buildings, paved streets and parking areas and any concrete, asphalt, compacted dirt or compacted gravel surface.

S. ***"Includes" or "including"*** means includes or including by way of illustration and not by way of limitation.

T. ***"Marina"*** means a facility for the mooring, docking, or storing of vessels on both tidal and non-tidal waters, including a commercial, noncommercial or community facility.

U. ***"Moored"*** means a vessel fastened to a fixed object such as a pier, quay or the seabed, or to a floating object such as an anchor buoy. For reference of this permit only, "moored" shall pertain to boats within the limits of the marina and/or fixed or floating objects owned by the marina.

V. ***"NPDES permit"*** means a National Pollutant Discharge Elimination System permit issued under the Federal Clean Water Act.

W. ***"NOI"*** means Notice of Intent to be covered by this permit (see PART III of this permit).

X. ***"Oil and Grease"*** refers to the use of and results yielded from EPA Method 1664"(or any EPA approved revisions of this analytical test method approved for use with Federal Clean Water Act monitoring programs).

Y. ***"Operator"*** means that person or those persons with responsibility for the management and performance of each facility.

Z. ***"Owner"*** means a person who has a legal interest in a marina, in the property on which a marina is located, or the owner's agent.

AA. ***"Permittee"*** means the person holding a permit issued by the Department and authorized to discharge under the provisions of this general permit.

BB. ***"Persistent Foam"*** means foam that does not dissipate within one half-hour of point of discharge and: forms objectionable deposits on the receiving water; forms floating masses producing a nuisance; produces objectionable color or odor; or interferes with a designated use of the water body. It does not mean foaming of the receiving water body caused by natural conditions**.**

CC. ***"Person"*** means an individual, receiver, trustee, guardian, personal representative, fiduciary, or representative of any kind, and any partnership, firm, association, corporation, or other entity. Person includes the federal government, this State, any county, Municipal Corporation or other political subdivision of this State or any of their units.

DD. ***"Sewage"*** means water-carried human, domestic and other wastes and includes all human and animal excreta from residences, buildings, industrial establishments, or other places.

EE. ***"Significant modification"*** means an expansion (property or slip capacity) of 20% or more, or other change that may reasonably be expected to affect the quantity of flow treated or the quality of the effluent discharged to the waters of the State.

FF. ***"State discharge permit"*** means the discharge permit issued under the Environment Article, Title 9, Subtitle 3, Annotated Code of Maryland.

GG. ***"Storm water"*** means that portion of precipitation, including snow melt runoff, that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, and the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

HH. ***"Surface waters"*** means all waters of this State that are not groundwater.

II. ***"Territorial boundaries"*** means both land and waters of the State.

JJ. ***"Total Maximum Daily Load (TMDL)"*** means a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources.

KK. ***"Upset"*** means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

LL. ***"Wash water"*** as identified in this permit means wastewater from washing boats. This includes pressure washing using high pressure water jet(s) to remove marine growth, dirt and paint, or manually scrubbing and rinsing with low pressure water.

MM. ***"Wastewater"*** means any:

1. Liquid waste substance derived from industrial, commercial, municipal, residential, agricultural, recreational, or other operations or establishments; and

2. Other liquid waste substance containing liquid, gaseous or solid matter and having characteristics that will pollute any waters of the State.

NN. ***"Waters of the State"*** includes:

1. Both surface and underground waters within the boundaries of this State subject to its jurisdiction, including that part of the Atlantic Ocean within the boundaries of this State, the Chesapeake Bay and its tributaries, and all ponds, lakes, rivers, streams, tidal and nontidal wetlands, public ditches, tax ditches, and public drainage systems within this State, other than those designed and used to collect, convey, or dispose of sanitary sewage; and

2. The flood plain of free-flowing waters determined by the Department of Natural Resources on the basis of the 100-year flood frequency.

OO. ***"Water Quality Standard"*** means such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in COMAR 26.08.02 *(http://www.dsd.state.md.us/comar/).*

PART III. CONDITIONS of INITIAL SUBMISSION

A. *Initial Submission Requirements*

1. Notice of Intent

a. Applicants shall complete all required information on this permit's corresponding NOI Form MDE-WMA-PER008 *(http://www.mde.state.md.us)*, including: permittee name, address, and telephone number; facility location including address and latitude and longitude; any preexisting NPDES permit number; receiving water body(s) for each outfall/discharge, and discharge type and flow (expressed as gallons per day) for each outfall. Detailed instructions on how to complete the NOI are located on the back of the form.

b. If a person operates multiple facilities, an NOI is required for each noncontiguous site.

2. Discharge Permit Fee

a. Persons who intend to obtain coverage under this general permit shall submit to the Department a one time fee (for the life of this permit) according the number of slips at their

property, per COMAR 26.08.04.09-1. Facilities owned and operated by local and state governments are not required to pay a fee.

Number of Slips	Permit Fee
200 or more	$500
100 or more but fewer than 200	$400
50 or more but fewer than 100	$300
10 or more but fewer than 50	$200
Fewer than 10	$100

b. All fees shall be made out to the Maryland Department of the Environment and sent along with the completed NOI to:

Maryland Department of the Environment
P.O. Box 2057
Baltimore, MD 21203-2057

3. Storm Water Pollution Prevention Plan (SWPPP)

a. The Storm Water Pollution Prevention Plan is a tool used to evaluate a facility and identify ways to minimize the exposure of storm water entering and leaving the property to any potential sources of pollutants and is described in more detail in PART V of the permit. It includes a written assessment of potential sources of pollutants in storm water runoff and control measures that will be implemented at a facility to minimize the discharge of these pollutants in runoff from the site. These control measures include best management practices (BMP), maintenance plans, inspections, employee training and reporting.

b. The SWPPP must be submitted with the NOI for permit coverage. If the SWPPP was prepared under a previous NPDES permit, it must be reviewed and updated to implement all provisions of this permit prior to submittal with NOI.

c. A digital (electronic) copy must be submitted to the Department and a hard copy must be available onsite.

d. The permittee shall provide the Department an electronic copy of the SWPPP by either:

i.) Mailing a Portable Document Format (.PDF) file on electronic media (CD, DVD, USB drive, or other approved media) to:

Maryland Department of the Environment
Wastewater Permits Program
1800 Washington Blvd, Ste 455
Baltimore, MD 21230

ii.) Emailing the .PDF file to SWPPP@mde.state.md.us (not to exceed 8 MB file size), include "10-MA", your facility name and physical address in the subject line;

iii.) Providing a link on a publicly available company website; or

iv.) Other electronic means as approved by the Department.

e. The SWPPP submitted shall not contain confidential information, and shall be suitable for review by the public.

B. *Deadlines for Notification*

1. New Discharges
At least 60 days prior to the commencement of any new discharge covered under this general permit, a person shall request coverage by submitting a NOI, SWPPP and fee in accordance with the requirements of this permit.

2. Existing Facilities
Any existing facilities subject to this permit shall submit a NOI, SWPPP and fee within 90 days of issuance of this permit to be considered for authorization under this permit.

3. Renewals of General Permit 02-MA
Within 90 days after the effective date of this permit, any permittee currently registered under General Permit 02-MA shall submit to the Department a new NOI, storm water pollution prevention plan, and fee in order to obtain coverage under this permit. Failure to provide the required documents will result in automatic termination of coverage under General Permit 02MA and the discharger will be subject to enforcement by the Department for discharging without a permit unless the permittee previously provided notice that this discharge has been terminated in accordance with the requirements of the permit. Permittees who submit timely notification for continued permit coverage shall operate under the administratively extended permit 02MA until receiving notification from the Department of coverage (or denial of coverage) under the new permit.

4. All Discharges
The Department may bring an enforcement action for failure to submit a NOI in a timely manner, or for any unauthorized discharges that occurred prior to obtaining coverage under this permit.

C. *Required Signatures*

1. Certification. Any person signing a NOI shall make the following certification as part of the NOI.

"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 gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage 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."

2. Signatories. All permit applications shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

i.) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

ii.) The manager of one or more properties belonging to the owner, provided the manager is authorized to make management decisions which govern the operation of the regulated property including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and

where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipal, State, Federal, or other public agency: By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:
i.) The chief executive officer of the agency; or
ii.) A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of the EPA).

3. Report Submission

a. All reports required by permits, and other information requested by the Department shall be signed by a person described in PART III C.2 or by a duly authorized representative of that person. A person is a duly authorized representative only if:
i.) The authorization is made in writing by a person described in PART III C.2;
ii.) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of marina manager, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company; and
iii.) The written authorization is maintained with the monitoring reports and made available to the Department upon request.

b. If an authorization under this subsection is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of PART III C.3(a) must be submitted to the Department prior to or together with any reports, information or applications to be signed by an authorized representative.

D. ***Failure to Notify***

Persons who engage in an activity covered under this permit, who fail to notify the Department of their intent to be covered under this permit within ninety days of permit issuance, and who discharge to waters of the State without an individual State or State/NPDES discharge permit, are in violation of the Federal Act and of the Environment Article, Annotated Code of Maryland, and may be subject to penalties.

E. ***Additional Notification***

Any facility registered under this permit that discharges into a municipal storm sewerage system shall make its plan available to the operator of that system if it is regulated by an NPDES permit. Local storm sewerage systems under NPDES permits are listed at *http://www.mde.maryland.gov/programs/water/stormwatermanagementprogram/pages/programs/waterprograms/sedimentandstormwater/storm_gen_permit.aspx*.
Contacts for large systems are available at *http://www.mde.state.md.us/assets/document/sedimentstormwater/NPDES_Phase_1_Contacts.pdf*

F. ***Change in Discharge***

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit at a level in excess of that authorized shall constitute a violation of the terms and conditions of this permit. The permittee shall report any anticipated facility expansions, production increases, or process modifications which will result in new, different or an increased discharge of pollutants by submitting a new application at least 180 days prior to the commencement of the changed discharge except that if the change only affects a listed pollutant and will not violate the effluent limitations specified in this permit, by providing written notice to the Department. Following such notice, the permit may be modified by the Department to include new effluent limitations on those pollutants.

1. The permittee shall submit Form WMA/NOICHANGE *(http://www.mde.state.md.us)* and revised SWPPP for any significant modification of the facility. Based on its evaluation of the form and revised SWPPP, the Department may:

a. Continue to authorize the discharge under this general permit; or

b. Require the permittee to apply for an individual State or State/NPDES discharge permit.

2. If any anticipated facility expansions, wastewater treatment modifications or any other change will not result in a violation of the effluent limitations specified in this permit, the permittee shall report the change to the Department in writing.

G. ***Permit Expiration and Renewal***

The terms and conditions of this permit and authorized permit registrations are automatically continued and remain fully effective and enforceable upon expiration of this permit until the date(s) specified under a reissued general permit unless the permit or authorization is revoked or terminated by the Department.

PART IV. NON-STORM WATER DISCHARGES

A. ***Prohibited Discharges***

The following discharges are prohibited under this permit:

1. Washing of boat bottoms painted with soft ablative paints, or paints which create a visible plume shall not be performed in water. Removal of any paints while vessel is in water is prohibited.

2. Discharges that contain visible oil sheen, persistent foam or floating solids.

B. ***Effluent Limitations and Monitoring Requirements***

1. Boat Bottom Wash Water

a. Conditions.

i.) Washing of boat bottoms painted with antifoulants must be performed in a dedicated area.

ii.) Beginning no later than September 1, 2012, all wastewater generated from boat bottom washing activities shall be captured and directed to one or more locations for treatment. The quality of wastewater shall be monitored in accordance with the table below. Compliance dates for wastewater quality limits shall be met in accordance with Section B.1.b *Limits*, below. The permittee shall indicate on the first monitoring report submitted

to the Department the locations of the monitoring points and where the effluent discharges to waters of the State.

PARAMETER	QUALITY OR CONCENTRATION		FREQUENCY	SAMPLE TYPE
	MAXIMUM	UNITS		
Total Suspended Solids (TSS)	50	mg/L	4/year	Grab
Oil & Grease	15	mg/L	4/year	Grab
Copper	0.06	mg/L	2/season	Grab
Zinc	0.81	mg/L	2/season	Grab
Lead	0.08	mg/L	2/season	Grab
Flow	Report	gpd	Monthly	Estimated

iii.) Sampling Frequency. Metals shall be sampled twice during the main washing season (September - December). Suspended solids and oil & grease shall be sampled twice during the main washing season and twice during the spring/summer season for a total of four times a year.

iv.) Flow shall be estimated and recorded on a monthly basis.

v.) All solids (i.e., paint chips, filter fabrics, barnacles, etc.) removed from the wastewater shall be disposed of properly.

b. Limits.

i.) Monitoring is required beginning September 1, 2012. The numeric **limits** for total suspended solids (TSS) and oil & grease (O&G) take effect beginning March 1, 2013. Numeric **limits** for metals take effect March 1, 2015. Prior to the effective date of the limits, all wastewater shall continue to be treated using reasonable measures, such as straw dam filters, geotextiles, settling basins, or sand filters to remove visible solids.

ii.) If wash water samples meet standards for at least three consecutive monitoring periods, the monitoring frequency may be reduced to annual for metals (during peak washing periods September – December). Permittees shall submit to the Department in writing a request for this decrease. Reduction in sampling will be permitted only upon written Department approval.

c. Compliance Plan

i.) Facilities that plan to redirect wash water in order to eliminate a surface water discharge should submit to the Department by February 28, 2013 a compliance plan to cease discharging by February 28, 2015. The plan must address the collection of all boat bottom wash water in a closed system, to one of the following:

1. A closed loop recycling system with proper disposal of solid wastes;
2. Off site disposal by a licensed operator; or
3. Connection to the sanitary sewer with permission from local utility's pre-treatment or industrial discharge program.

ii.) Upon receipt of the compliance plan, the Department will notify the permittee that metals monitoring is waived until February 28, 2015. The permittee shall update the Department of the project status in writing every six months to maintain the monitoring waiver. Note that all permit requirements for suspended solids continue to remain in effect at all times.

iii.) Upon completion of the system, the permittee shall maintain at the facility photos of the system which illustrate how it works and what it is connected to (if applicable); an as-built schematic or design drawing; and a copy of the agreement with the licensed hauler or local utility (for offsite disposal or discharge to sanitary sewer). These materials shall be updated as necessary and available onsite for the life of the permit.

2. Bilge Water

a. This permit does not require the collection of bilge water. However, if bilge water is collected from a vessel in order to prevent the discharge from entering into waters of the State, it must be treated prior to discharge into ground or surface waters of the State. Such discharge shall be sampled at the discharge point in accordance with the following chart and shall be reported as per PART VI of this permit. (Discharges of oil from bilge water directly from a vessel is regulated separately under 33 CFR Subchapter O and 40 CFR 110).

PARAMETER	QUALITY OR CONCENTRATION			FREQUENCY OF ANALYSIS	SAMPLE TYPE
	MONTHLY AVERAGE	DAILY MAXIMUM	UNITS		
Oil & Grease	10	15	mg/L	1/Month	Grab
Flow		Report	gpd	1/Month	Estimated

b. Bilge water discharges shall not cause any visible sheen in waters of the State.

c. Bilge waters shall not be discharged to waters of the State if solvents, detergents, emulsifying agents or dispersants have been added to the bilge (this includes soaps).

d. Wastewater from cleaning of engines or oily parts may be discharged in accordance with this PART.

3. Cooling Water

The discharge of non-contact cooling water is authorized if it does not contain any additives. Any discharge which contains additives may only be authorized by a separate individual NPDES permit.

4. Condensate

The discharge of condensate is authorized but has no limitations or monitoring requirements unless it comes in contact with contaminates associated with site activities.

C. *Management Requirements*

1. Invasives

Discharges may not contain any exotic and harmful species (e.g., zebra muscles). Any collected exotic or harmful species must be reported and handled per Maryland's Department of Natural Resources Invasive Species Resource Center *(http://www.dnr.state.md.us/invasives/*).

2. Erosion

All necessary measures shall be in place to prevent erosion damage during the discharge of wastewater. Any gullying greater than six inches in depth is considered excessive erosion. If the discharge is onto normally dry land or a dry drainage channel, these preventive measures may include, but are not limited to, discharge via a diffuser, discharge into riprap, discharge into a splash barrier, and flow rate controls. If the discharge is directly into flowing or standing

water, preventive measures may include flow rate control and locating the point of discharge in the receiving water at a sufficient depth to avoid bottom scour.

3. Divers

Require slip holders to use only contractors which abide by the best management practices of the Maryland Department of the Natural Resources' *Clean Marina Initiative*. Require divers to certify in writing they perform maintenance of boats under these best management practices (Resources for Professional Divers - http://www.dnr.state.md.us/boating/cleanmarina/).

4. Dredge / Fill / Construction

All dredging, filling or construction activities require a tidal wetlands license and permittee must contact the Department's Tidal Wetlands program (phone: 410-537-3835) prior to performing any of these activities.

PART V. STORM WATER MANAGEMENT

Storm water discharges can cause significant impact on the receiving water quality. Some of the common pollutants potentially found in marina storm water run-off include oils, grease, fuel, solvents, paint chips, copper and other heavy metals. Prior to the submission of an NOI, a permittee who seeks to obtain coverage under this general permit shall prepare a Storm Water Pollution Prevention Plan (SWPPP) for the facility. The primary objective of the plan shall be to identify ongoing or potential sources of pollution to storm water and to optimize Best Management Practices (BMP) in order to minimize pollutants in storm water runoff. Coverage under this permit is conditioned upon implementation of the SWPPP and respective BMP.

A. Storm Water Pollution Prevention Plan - General

The permittee shall implement and maintain a storm water pollution prevention plan (SWPPP) for the facility covered by this permit. The SWPPP shall be prepared in accordance with sound engineering practices and identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with eligible activities on the facility property. It shall prescribe practices to reduce and/or eliminate pollutants in storm water discharges associated with activities at the facility. The Department provides guidance and hyperlinks to sources that will aid in the creation/revision of an SWPPP (see *http://www.mde.state.md.us*). The SWPPP must include a year-round contact.

1. Administrative Requirements

a. The plan shall be signed in accordance with PART III - Section C.2 of this permit, and must be retained on site in accordance with PART VI – Section G of this permit. For new facilities, the plan shall be completed and implemented no later than the date operations begin. For existing facilities or those renewing permit coverage, the permittee shall develop and implement a plan upon the effective date of coverage under this general permit.

b. The Department may notify the permittee, at any time, that the SWPPP does not meet one or more of the minimum requirements of this Part. After such notification from the Department, the permittee shall make changes to the plan to meet the objections of the Department and shall submit to the Department a written certification along with the revised plan that the requested changes have been made and implemented. Unless otherwise provided by the Department, the permittee shall have 90 days after such notification to make the necessary changes.

c. The permittee shall keep the SWPPP current, and include the most recent date of the SWPPP on the front page of the plan. The permittee shall amend the plan whenever there is a significant modification to the facility and its potential for discharge of pollutants to the waters of the State. The permittee shall also amend the SWPPP if it proves to be ineffective

in achieving the general objectives of controlling pollutants in storm water discharges associated with their industrial activity. If there is a significant modification to the facility as identified in PART III - Section F, the permittee shall confirm the continued applicability of the existing plan or make needed changes, and submit the confirmation or amendment to the Department.

d. Plan retention for inactive sites. If during the term of this permit, a site becomes inactive, the permittee must contact the Department immediately and provide, in writing, the date of inactivity, the facility contact phone number and the location of the SWPPP. The SWPPP must be made available during normal working hours. **Note inactivity does not refer to seasonal closures.**

e. Permittees may be subject to additional requirements and regulations dictated by the Department's Oil Control Division and Emergency Planning and Community Right-to-Know Act (EPCRA) (40 CFR 116). Any requirements listed in this permit which control grease, oil or fuel are to address potential pollutants not governed directly by Oil Pollution Prevention (40 CFR 112), as the handling and storage of fuel and other petroleum products has a potential to cause negative impacts to ground and surface waters of the State.

2. Assessment Procedures

a. *Routine Facility Inspection*
At least once per quarter qualified site personnel shall conduct a site assessment which will review the effectiveness of the SWPPP. This inspection must be documented with a checklist or other summary signed in accordance with PART III – Section C.2 of this permit, dated and held in a logbook. The documentation shall include a certification that the site is in compliance with the SWPPP and this permit, or the deficiencies and necessary follow up actions shall be recorded. Any corrective actions which arise from the inspection must be completed by no later than the next inspection.

b. *Quarterly Visual Inspections*
The Department requires visual monitoring for use as an indicator to determine the effectiveness of the control measures utilized in the facility's storm water pollution prevention plan. Once each quarter, the permittee shall collect a storm water sample from each outfall (except as noted in *Adverse Weather Conditions* below) and assess the sample visually. Samples may be taken during any precipitation event where the amount is greater than 1/2-inch and must be sampled within the first 30 minutes of the storm event. These samples are not required to be collected consistent with 40 CFR 136 procedures but should be collected in such a manner that the samples are representative of the storm water discharge. If there are no direct means of conveyance (i.e., pipe) for a collection sample, a sample representative of the site conditions must be collected at the discharge point closest to the waters of the State (i.e., boat ramp, edge of land to dock, etc.). All inspections must be performed during daylight hours.

The Quarterly Visual Monitoring Form found in Appendix A of this permit shall be completed for each sample, and shall be kept onsite and available for inspection and review by the Department at anytime and in accordance to PART VIII - Section I below.

Adverse Weather Conditions: When adverse weather conditions prevent the collection of samples during the quarter, you must take a substitute sample during the next qualifying storm event. Documentation of the rationale for no visual assessment for the quarter must be included with your SWPPP records.

B. Storm Water Pollution Prevention Plan - Contents

1. Site Plans and Description
All permittees must maintain a site map which identifies discharge points, any water body where discharge is conveyed, hazardous material and main equipment/building locations. These include hazardous material storage, direction of flow for storm and permitted wastewater discharges, collection of sewage and fueling locations.

2. Pollution Prevention Team
All permittees must maintain an active pollution prevention team. This team is responsible for the development and implementation of the SWPPP and employee training. The SWPPP must identify the responsibilities of each team member.

3. Employee Training
Employee training programs shall inform personnel, responsible for implementing activities identified in the SWPPP or otherwise responsible for storm water management, of the components and goals of the SWPPP. The SWPPP shall identify how often training will take place, but in all cases training must be held at least twice per calendar year. As part of the employee training program, address, at a minimum, the following activities (as applicable): used oil management, spent solvent and paint management, disposal of spent abrasives (i.e., sand and soda blasting materials, etc.), disposal of vessel wastewaters, spill prevention and control, fueling procedures, general good housekeeping practices, painting and blasting procedures, used battery management, and sacrificial anode disposal.

4. Description of Potential Sources
The plan shall provide a description of potential sources that may be reasonably expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather to waters of the State. Each plan shall identify activities and significant materials that may potentially be significant pollutant sources.

5. Inventory of Exposed Materials
The plan must contain an inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored, or disposed in a manner to allow exposure to storm water at the facility from three years prior to the date of coverage under this permit to the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff at the facility from three years prior to the date of coverage under this permit to the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.

6. Spills and Leaks
A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility since three years prior to the date of coverage under this permit. Such list shall be updated as appropriate during the term of the permit.

7. Best Management Practices, Measures and Controls

Each facility covered by this permit shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The following are practices, measures and controls which must be addressed in the plan:

a. *Good Housekeeping*. Permittees must keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals. The plan must include a schedule for routine yard maintenance and cleanup. Scrap metal, wood, plastic, miscellaneous trash, paper, glass, industrial scrap, insulation, shrink-wrap, etc., must be routinely removed from the general yard area.

b. *Maintenance*. Permittees must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in storm water discharged to receiving waters. Permittees must maintain all control measures that are used to achieve the effluent limits required by this permit in effective operating condition. Nonstructural control measures must also be diligently maintained (e.g., spill response supplies available, personnel appropriately trained), and all needed replacement and repair completed as expeditiously as practicable. When not in use prevent any storm water from entering the treatment system for boat bottom washing. Identify in the plan measures employed to meet the requirements identified in PART IV - Section C, *Maintenance Activities.*

c. *Maintenance Activities.* Maintenance activities must be performed in a manner which controls the exposure and possible contamination of storm water. If storm water becomes contaminated due to comingling with maintenance activities and has the potential for discharging pollutants to waters of the State, it is the responsibility of the permittee to identify the appropriate measures to treat the contaminated water. Do not blow off or rinse off area as this can lead to contamination. Activity work areas must be secured each evening as to protect any exposure of pollutants to storm water. The facility must contain maintenance activities to prevent abrasives, paint chips and any overspray from reaching the receiving water or the storm sewer system.

i.) Surface Preparation

1. Chemical Stripping or burning shall be conducted over a suitable ground cover (i.e., rubber mat) or sealed impervious surface (i.e., epoxy lined concrete or asphalt).
2. Scraping of vessels in preparation for painting or other repair work shall be conducted over a suitable ground cover (i.e., filter cloth, tarp).
3. Soda / Sand Blasting, Sanding and / or Grinding
   a.) Permanent structures or temporary protective measures such as drop cloths and shrouding shall be secured around the activity to capture airborne particles. A suitable ground cover (i.e., tarp, rubber mat) must be placed under activity area in order to collect any debris.
   b.) If sanding is performed using a “dustless” vacuum sanding system, sanding is not subject to the enclosure requirements **unless** weather events render the vacuum ineffective. Any debris must be collected.

ii.) Tributyl Tin (TBT)

1. Antifouling paint containing TBT shall be removed only in protected areas.
2. Old anti-fouling coatings suspected to contain TBT are not to be burnt off.

iii.) Painting

1. All paint mixing, solvent transfer, and equipment clean up operations must be contained, and shall not enter floor or storm drains or the environment. Painting of bottoms, including “touch-up”, must be performed in an area where drips are controlled, prevented from spreading and will have no exposure to storm water.

2. Sprayed paint shall only be performed in an enclosed building or spray booth. A spray booth is a permanent shed or temporary enclosure that is erected around the boat during the activity and has a solid floor (i.e., tarp, concrete, etc).
3. Spills must be cleaned immediately with absorbent material, paper and/or rags.
4. Paint brushes, rollers, used paint and other equipment must be disposed of in accordance with Section B.7.c.*iv) Waste disposal*, below, as applicable. Any cleaning of used brushes or rollers shall not discharge to surface waters.

iv.) Waste disposal

Any solid waste generated from boat maintenance activities, including but not limited to batteries, paints and oils, shall be collected for disposal at an appropriate facility, in accordance with RCRA, MDE's Land Management Administration's regulations or any local environmental ordinances and/or waste disposal authorities. Containment of any solid waste shall be adequate to prevent any potential discharge from entering adjacent surface waters.

v.) Oil transfer

Any co-mingling of wash or storm water with petroleum products is considered an industrial process wastewater and is subject to effluent conditions identified in PART IV-Section A and B.2 and is subject to effluent limits identified in PART IV-Section B.2.b.

vi.) Sacrificial Anodes and Mechanical Repair

All anodes shall be properly disposed or recycled. All metal (i.e., running gear, mechanical parts, anodes, etc.) removed while vessel is in water shall be taken ashore.

d. *Material Storage Areas.* Store and plainly label all containerized materials (e.g., fuels, paints, solvents, waste oil, antifreeze, batteries) in a protected, secure location away from drains to eliminate the contamination of precipitation or surface runoff from the storage areas. Identify which materials are stored indoors, and ensure containment or enclosure for those stored outdoors. If abrasive blasting is performed, determine the appropriate storage and disposal of spent abrasive materials generated at the facility. Implement an inventory control plan to limit the presence of potentially hazardous materials onsite. Solid chemical products, chemical solutions, paints, oils, solvents, acids, caustic solutions and waste materials, **including used batteries and lead and copper waste, shall be stored under cover on an impervious surface**. Cracked batteries must be stored in a covered non-leaking secondary containment (a building that is watertight and does not drain to waters of the State provides secondary containment).

e. *Material Handling Areas.* The plan must describe measures that prevent or minimize contamination of storm water runoff from material handling areas (i.e., fueling, paint and solvent mixing, etc.).

f. *Engine Maintenance and Repair Areas.* Ensure there is no contamination of precipitation or surface runoff from all areas used for engine maintenance and repair. Drain all parts of fluid prior to proper disposal. Dispose filters in accordance with local requirements. Consider the following (or their equivalents): performing all maintenance activities indoors, maintaining an organized inventory of materials used in the shop, prohibiting the practice of hosing down the shop floor, using dry cleanup methods, and treating and/or recycling storm water runoff collected from the maintenance area. If a vessel is moved prior to pumping out the bilge, absorbent pads shall be used to prevent the accidental discharge of oils to water of the State.

g. *Drydock Activities.* Routinely maintain and clean the drydock to minimize pollutants in storm water runoff. Address the cleaning of accessible areas of the drydock prior to flooding, and final cleanup following removal of the vessel and raising the dock. Include procedures for cleaning up oil, grease, and fuel spills occurring on the drydock. Consider the following (or their equivalents): sweeping rather than hosing off debris and spent blasting material from

accessible areas of the drydock prior to flooding and making absorbent materials and oil containment booms readily available to clean up or contain any spills.

h. *Marine railway.* All solids and debris must be removed prior to being submerged as to prevent materials from being washed into waters.

i. *Erosion and Sediment Controls*. Permittees must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.

j. *Spill Prevention and Response Procedures.* Permittees must minimize the potential for leaks, spills and other releases that may be exposed to storm water and develop plans for effective response to such spills. In addition to any requirements of RCRA (42 U.S.C. §6901) , the Departments Division of Land Management Oil Control Program (*http://www.mde.maryland.gov*), NFPA 30 Flammable and Combustible Liquids Code or the Spill Prevention, Control and Countermeasure (SPCC) Plan (as a requirement of 40 CFR § 112), permittees shall identify in their SWPPP containers that are susceptible to spillage or leakage (i.e., use oil). Verify on a quarterly basis that all containment structures have no leaks/cracks and discharge is properly sealed. Check that plugs are properly affixed and any valve is in working condition and not leaking. The Department shall be notified of any oil spill, regardless of size, source or the cause of the discharge or spill, via the Maryland Department of the Environment's Emergency Spill Response number at (866) 633-4686. This number is monitored 24-hours a day.

C. Additional Requirements for Facilities Subject To SARA Title III, Section 313 Requirements

Facilities which are subject to SARA Title III, Section 313 (42 U.S.C.11023) reporting requirements shall, in addition to the requirements of this Part, provide additional narrative on the preventive measures used to eliminate the exposure of these chemicals to storm water run-on or run-off. To identify if a facility is subject to this requirement, visit the Maryland Department of the Environment's Community Right-to-Know website (*http://www.mde.state.md.us*) for more information. A list of the Section 313 chemicals can be found at the EPA's LIST OF LISTS Consolidated List of Chemicals Subject to the Emergency Planning and Community Right-To-Know Act (EPCRA) and Section 112(r) of the Clean Air Act (*http://www.epa.gov/*). Additionally, SARA Title III, Section 313 water priority chemicals are often identified on Material Data Safety Sheets (MSDS) as such.

PART VI. MONITORING AND REPORTING

A. *Representative Sampling*

1. The topography of the marina, dedicated wash area, and procedures will determine the best sampling location. Modification of the dedicated wash area may be necessary to collect reflective samples. Required samples and measurements shall be taken at such times as to be representative of the quantity and quality of the discharges during the specified monitoring periods. Where effluent authorized by this general permit (PART IV) mingles with other wastewaters, the time and place of sampling shall be chosen to uniquely represent the effluent authorized by this permit.

2. The permittee shall estimate flows and submit the following information with their discharge monitoring report each calendar year:

a. a description of the methodology used to estimate flow at each outfall where flow measurement equipment is not present;

b. documentation appropriate to the methodology utilized which provides information necessary to support the validity of the reported flow estimate. If actual measurements or observations are made, a description of typical sampling times, locations, and persons performing the measurements/observations should also be provided; and

c. a description of the factors (e.g. batch discharges, intermittent operation, etc.) which cause flow at the outfall to fluctuate significantly from the estimate provided.

B. ***Sampling and Analytical Methods***

1. The sampling and analytical methods used shall conform to procedures for the analysis of pollutants as identified in 40 CFR 136 - "Guidelines Establishing Test Procedures for the Analysis of Pollutants" unless otherwise specified.

2. Permittees shall utilize their site map, as required in PART V - Section A, and determine where the runoff from the eligible discharge activity drainage areas discharges from the permitted facility.

3. Required samples and measurements shall be taken at such times as to be representative of the quantity and quality of the discharges during the specified monitoring periods.

4. The Department provides general information on effluent testing on their website (*http://www.mde.state.md.us*).

C. ***Data Recording Requirements***

For each measurement or sample taken to satisfy the requirements of this permit, the permittee shall record the following information:

1. The exact place, date, and time of sampling or measurement;

2. The person(s) who performed the sampling or measurement;

3. The dates and times the analyses were performed;

4. The person(s) who performed the analyses;

5. The analytical techniques or methods used; and

6. The results of all required analyses.

D. ***Monitoring Equipment Maintenance***

The permittee shall periodically calibrate and perform maintenance procedures on all monitoring and analytical instrumentation to insure accuracy of measurements.

E. ***Additional Monitoring by Permittee***

If the permittee monitors any pollutant more frequently than required by this permit, the permittee shall use approved analytical methods as specified in Section B above, and shall report the results of such monitoring, including the increased frequency, in the calculation and reporting of the values as required in Section F, below.

F. *Reporting Monitoring Results*

1. All monitoring results obtained by the permittee during each calendar year shall be summarized on a Discharge Monitoring Report form EPA No. 3320-1. Facilities operating more than fifteen weeks each year shall submit results twice yearly, postmarked no later than the 28th day of the month following the end of each monitoring mid-calendar year (January 28th and July 28th). All others shall submit results annually, postmarked on or before October 15th. Results shall be submitted to the Department at the address below:

Maryland Department of the Environment
Water Management Administration
Compliance Program, Suite 425
1800 Washington Blvd.
Baltimore, MD 21230

2. All reports required by permits, and other information requested by the Department shall be signed by a person described in PART III – Section C.2 or by a duly authorized representative of that person as described in PART III – Section C.3.

G. *Records Retention*

All records and information resulting from the monitoring activities required by this permit, including all records of analyses performed, calibration and maintenance of instrumentation, and original recordings from continuous monitoring instrumentation, shall be retained for a minimum of three (3) years. This period shall be extended automatically during the course of litigation, or when requested by the Department.

H. *Noncompliance with Discharge Limits*

1. If, for any reason, the permittee does not comply with or will be unable to comply with the effluent limitations specified in this permit, the permittee shall notify, within 24 hours of discovery of the noncompliance, the:

Maryland Department of the Environment
Water Management Administration
Compliance Program, Suite 425
1800 Washington Blvd.
Baltimore, MD 21230
Phone: (410) 537-3510 Fax: (410) 537-4883

2. For any other instance of noncompliance with this permit, the permittee shall, within five days, provide the Department with the following information in writing:

a. A description of the noncompliant discharge, including its impact on the receiving water;

b. The cause of the noncompliance;

c. The anticipated time the cause of the noncompliance is expected to continue, or, if the condition has been corrected, the duration of the period of the noncompliance;

d. Steps taken by the permittee to eliminate the noncompliant discharge;

e. Steps planned or implemented by the permittee to prevent the recurrence of the noncompliance;

f. A description of the permittees accelerated or additional monitoring to determine the nature and impact of the noncompliant discharge.

3. The permittee shall take all reasonable steps to minimize or prevent any adverse impact to the waters of this State or to human health from noncompliance with any effluent limitations specified in this permit.

PART VII. VIOLATION OF PERMIT CONDITIONS

A. ***Compliance with this General Permit and Water Pollution Abatement Statutes***
The permittee shall comply at all times with the terms and conditions of this permit, the provisions of the Environmental Article, Title 7, Subtitle 2 and Title 9, Subtitles 2 and 3 of the Annotated Code of Maryland, and the Federal Clean Water Act, 33 U.S.C. § 1251 et seq.

B. ***Civil and Criminal Liability***
Except as provided in the permit conditions on "bypassing" and "upset", nothing in this permit shall be construed to preclude the institution of any legal action nor relieve the permittee from any civil or criminal responsibilities, liabilities, and/or penalties for noncompliance with Title 9 of the Environment Article, Annotated Code of Maryland or any federal, local or other state law or regulation.

C. ***Action on Violations***
The issue or reissue of this permit does not constitute a decision by the State not to proceed in an administrative, civil, or criminal action for any violations of State law or regulations occurring before the issuance or re-issuance of this permit, nor a waiver of the State's right to do so.

D. ***Civil Penalties for Violations of Permit Conditions***
In addition to civil penalties for violations of State water pollution control laws set forth in Section 9-342 of the Environment Article, Annotated Code of Maryland, the Federal Clean Water Act (CWA) provides that any person who violates Section 301, 302, 306, 307, 308, 318, or 405 of the Act, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the Act or in a permit issued under Section 404 of the CWA, is subject to a civil penalty not to exceed $25,000 per day for each violation.

E. ***Criminal Penalties for Violations of Permit Conditions***
In addition to criminal penalties for violations of State water pollution control laws set forth in Section 9-343 of the Environment Article, Annotated Code of Maryland, the CWA provides that:

1. Any person who negligently violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, or in a permit issued under Section 404 of the CWA, is subject to a fine of not less than $2,500 nor more than $25,000 per day of violation, or by imprisonment for not more than one (1) year, or by both.

2. Any person who knowingly violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, or in a permit issued under Section 404 of the CWA, is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than three (3) years, or by both.

3. Any person who knowingly violates Section 301, 302, 306, 307, 308, 318, or 405 of the CWA, or any permit condition or limitation implementing any of such sections in a permit issued under Section 402 of the CWA, or in a permit issued under Section 404 of the CWA, and who knows

at that time that he thereby places another person in imminent danger of death or serious bodily injury, is subject to a fine of not more than $250,000 or imprisonment of not more than fifteen (15) years, or both. A person that is a corporation, shall, upon conviction, be subject to a penalty of not more than $1,000,000.

F. ***Penalties for Falsification and Tampering***

The Environment Article, §9-343, Annotated Code of Maryland provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or who knowingly falsifies, tampers with or renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both. The Federal Clean Water Act provides that any person who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required to be maintained under the CWA, or who knowingly makes any false statement, representation, or certification in any records or other documents submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or by both.

PART VIII. GENERAL CONDITIONS

A. ***Right of Entry***

1. The permittee shall permit the Secretary of the Department, the Regional Administrator for the EPA, or their authorized representatives, upon the presentation of credentials:

a. To enter upon the permittees premises where an effluent source is located or where any records are required to be kept under the terms and conditions of this permit;

b. To access and copy, at reasonable times, any records required to be kept under the terms and conditions of this permit;

c. To inspect, at reasonable times, any monitoring equipment or monitoring method required in this permit;

d. To inspect, at reasonable times, any collection, treatment, pollution management, or discharge facilities required under this permit;

e. To sample, at reasonable times, any discharge of pollutants; and

f. To take photographs.

2. The permittee shall permit access for Department approved staff for research purposes. This includes allowing water samples within the marina, sediment and associated photographs.

B. ***Property Rights/Compliance with Other Requirements***

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

C. ***Duty to Provide Information***

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

D. ***Bypassing***

Any bypass of treatment facilities necessary to maintain compliance with the terms and conditions of this permit is prohibited unless:

1. The bypass is unavoidable to prevent a loss of life, personal injury or substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources;

2. There are no feasible alternatives;

3. Notification is received by the Department within 24 hours (if orally notified, then followed by a written submission within five calendar days of the permittee becoming aware of the bypass). Where the need for a bypass is known (or should have been known) in advance, this notification shall be submitted to the Department for approval at least ten calendar days before the date of bypass or at the earliest possible date if the period of advance knowledge is less than ten calendar days; and

4. The bypass is allowed under conditions determined by the Department to be necessary to minimize adverse effects.

E. ***Conditions Necessary for Demonstration of an Upset***

An upset shall constitute an affirmative defense to an action brought for noncompliance with technology-based effluent limitations only if the permittee demonstrates, through properly signed, contemporaneous operating logs, or other relevant evidence, that:

1. an upset occurred and that the permittee can identify the specific cause(s) of the upset;

2. the permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures;

3. the permittee submitted a 24-hour notification of upset in accordance with the reporting requirements of identified in the Non-Compliance conditions PART VI - Section H above;

4. the permittee submitted, within five calendar days of becoming aware of the upset, documentation to support and justify the upset; and

5. the permittee complied with any remedial measures required to minimize adverse impact.

F. ***Removed Substances***

Wastes such as solids, sludges, or other pollutants removed from or resulting from treatment or control of wastewaters, or facility operations, shall be disposed of in a manner to prevent any removed substances or runoff from such substances from entering or from being placed in a location where they may enter the waters of the State.

G. ***Facility Operation and Maintenance***

Permittee must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by you to achieve compliance with the conditions of the permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar system which is installed by the permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

H. ***Other Information***

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall submit, within 30 days, the facts or information.

I. ***Availability of Reports***

Except for data determined to be confidential under the Maryland Public Information Act and/or Section 308 of the Clean Water Act, 33 U.S.C. § 1318, all submitted data shall be available for public inspection at the offices of the Department and the Regional Administrator of the Environmental Protection Agency.

J. ***Toxic Pollutants***

The permittee shall comply with effluent standards or prohibitions for toxic pollutants established under the Federal Act, or under Section 9-314 and Sections 9-322 to 9-328 of the Environment Article, Annotated Code of Maryland. Compliance shall be achieved within the time provided in the regulations that establish these standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

K. ***Oil and Hazardous Substances Prohibited***

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibility, liability, or penalties to which the permittee may be subject under Section 311 of the Clean Water Act (33. U.S.C. § 1321), or under the Annotated Code of Maryland.

L. ***Water Construction and Obstruction***

This permit does not authorize the construction or placing of physical structures, facilities, or debris or the undertaking of related activities in any waters of the State.

M. ***Protection of Water Quality***

It is a violation of this permit to discharge any substance not otherwise identified in the effluent limits of PART IV-B of this permit at a level which would cause or contribute to any exceedance of the numerical water quality standards in COMAR 26.08.02.03. If an authorized discharge regulated by this permit causes or contributes to an exceedance of the water quality standards in COMAR 26.08.02.03, including but not limited to the general water quality standards, the Department is authorized to exercise its powers to modify, suspend or revoke the discharge authorization.

N. ***Permit Modification***

The Department may revoke this permit or modify this permit to include different limitations and requirements, in accordance with the procedures contained in COMAR 26.08.04.10 and 40 C.F.R. §§ 122.62, 122.63, 122.64 and 124.5.

This permit shall be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301, 304, and 307 of the Federal Clean Water Act [33 USCS §§ 1311, 1314, 1317] if the effluent standard or limitation so issued or approved:

1. contains different conditions or is otherwise more stringent than any effluent limitation in this permit or

2. controls any pollutant not limited in this permit. This permit, as modified or reissued under this paragraph, shall also contain any other requirements of the Act then applicable.

O. ***Total Maximum Daily Load (TMDL)***

The permit may be reopened in accordance with Maryland's Administrative Procedures Act to incorporate future Total Maximum Daily Load requirements.

P. ***Severability***

The provisions of this permit are severable. If any provisions of this permit shall be held invalid for any reason, the remaining provisions shall remain in full force and effect. If the application of any provision of this permit to any circumstances is held invalid, its application to other circumstances shall not be affected.

PART IX. AUTHORITY TO ISSUE GENERAL NPDES PERMITS

On September 5, 1974, the Administrator of the EPA approved the proposal submitted by the State of Maryland for the operation of a permit program for discharges into navigable waters under Section 402 of the Federal Clean Water Act, 33 U.S.C. Section 1342.

On September 30, 1990, the Administrator of the EPA approved the proposal submitted by the State of Maryland for the operation of a general permit program.

Under the approvals described above, this general discharge permit is both a State of Maryland general discharge permit and a NPDES general permit.

_____

Jay Sakai, Director
Water Management Administration

Appendix A:
Quarterly Visual Monitoring

Quarterly Visual Monitoring Form

Fill out a separate form for each sample collected (one form per outfall)

Facility				**Permit ID: 10-MA**	
Outfall No.		**Examiner's Name & Title**			
Quarter / Year:		**Date / Time Collected:**		**Date / Time Examined:**	
Rainfall Amount:		**Qualifying Storm?**	Yes No	**Runoff Source:**	Rainfall Snowmelt

Parameter	Parameter Description	Parameter Characteristics
1. Color	Does the storm water appear to have any color? **Yes** **No (Clear)**	If Yes, describe: *Yellow Brown Red Gray Other*:
2. Clarity	Is the storm water clear? **Yes** **No**	If not clear, which of the following best describes the clarity of the storm water? *Suspended Solids Milky/Cloudy Opaque Other:*
3. Oil Sheen	Can you see a rainbow effect or sheen on the water surface? **Yes** **No**	Which best describes the sheen? *Rainbow sheet Floating oil globules Other:*
4. Odor	Does the sample have an odor? **Yes** **No**	If Yes, describe: *Chemical Musty Rotten Eggs Sewage Sour Milk Oil/Petroleum Other:*
5. Floating Solids	Is there anything on the surface of the sample? **Yes** **No**	If Yes, describe: *Suds Oily Film Garbage Sewage Water Fowl Excrement Other:*
6. Suspended Solids	Is there anything suspended in the sample? **Yes** **No**	Describe:
******wait 30 minutes******		
7. Settled Solids	Is there something settled on the bottom of the sample? **Yes** **No**	Describe: (*wait 30 minutes after collection, note type, size and material)*
8. Foam	Is there foam or material forming on the top of the sample surface? **Yes** **No**	Describe: (*shake bottle gently, is there foam?)*

Detail any concerns, corrective actions taken and any other indicators of pollution present in the sample. This should include the identified source if there are visible indicators present in the sample:

Storm Water Examiner's Signature and Date:

Note – Sample should be collected and analyzed in a colorless glass or plastic bottle.

Instructions for Completing the Visual Monitoring Form

The Department requires visual monitoring of storm water as an indicator of the effectiveness of the control measures utilized in the facility's storm water pollution prevention plan. Once each quarter for the entire permit term, permittees must collect a storm water sample from each outfall and conduct a visual assessment of each of these samples. These samples should be collected in such a manner that they are representative of the storm water discharge. If there are no direct means of conveyance (i.e., pipe) for a collection sample, a sample representative of the site conditions must be collected at the discharge point closest to the waters of the State. Each assessment must be kept onsite and available for inspection and review by the Department at anytime. All inspections must be performed during daylight hours, and collected within 30 minutes of a storm event.

Fill out all information on the top of the visual monitoring form. To provide the best estimate of rainfall, use a rain gage or a website which provides this information (i.e., http://www.cocorahs.org/state.aspx?state=md). Take a grab sample in a clear container. Evaluate the sample in a well-lit area for the following parameters:

A. Color: Record the best description of the sample color in the appropriate space on the form. Color may indicate inappropriate discharge.

B. Clarity: This parameter refers to the degree of cloudiness present in the sample. It is *usually* an indication of fewer pollutants in the water if the sample is clear or transparent. If the clarity has changed since the last sample, identify what might have caused this to happen.

1. **Clear**-Sample doesn't filter out any light; can be seen through regardless of color.
2. **Cloudy-**Sample filters out some light; not clear but objects can still be identified when looking through the sample.
3. **Very Cloudy**-Sample filters out most light; objects are indiscernible when looking through the sample.
4. **Opaque**-Sample doesn't allow any light to pass through; objects cannot be seen when looking through the sample.

C. Oil Sheen: Record whether or not an oil sheen is present. If a film of iridescent color is noted on the surface of the sample or a rainbow effect appears to be floating on the surface of the water, this usually indicates oil is present.

D. Odor: If sample has no odor other than natural rainwater or snowmelt, write "NO" on the visual monitoring form. Note the presence of any of the following odors if detected: Gasoline, diesel, oil, solvents (WD-40, other petroleum products, etc.), garbage, fishy, sweet/sugary, any other unusual odors not normally present in clean runoff from the area sampled.

E. Floating Solids: A contaminated flow may contain floatable solids or liquids. Identifying floatables can aid in finding the source of the contamination. Examples of floatables are spoiled food products, oils, plant parts, solvents, sawdust, foams and fuel. Give a general description of the type of floating solids present (wood chips, leaf debris, algae, etc) in the general comments section for each sample. Identify amount of floating solids as described below.

1. **High**- More than 20% of the surface of the sample is covered with floating solids.
2. **Moderate**- Less than 20% of the surface of the sample is covered with floating solids.
3. **Slight**-Only a few floating particles observed on the surface of the sample.
4. **None**- No floating solids present on the surface of the sample.

F. Suspended solids: Record whether or not settled solids were present in the sample. Suspended solids will be suspended within the column of water and may contribute to changes in water color or clarity. Cracked or deteriorated concrete or peeling surface paint at an outfall usually indicates the presence of severely contaminated discharges. Contaminants causing this type of damage are usually very acidic or basic.

---------- **WAIT 30 MINUTES** ----------

G. Settled Solids: After 30 minutes has passed, give a general description of the type of settled solids present (sand, decayed plant matter, rust particles etc) in the general comments section for each sample.

H. Foam: After completing #7, shake the bottle *gently.* Record foam results on the form as they most closely match one of the descriptions listed below.

1. **None**-Most bubbles break down within ten (10) seconds of shaking; only a few large bubbles persist longer than ten (10) seconds.
2. **Moderate**-Many small bubbles are present but these bubbles persist for less than two (minutes) after shaking.
3. **High**-Many small bubbles are present and they persist longer than two (2) minutes after shaking.

Detail any concerns, corrective actions taken and any other indicators of pollution present in the sample. This should include the identified source if there are visible indicators present in the sample. The person performing test must sign and date each form.

Marina Boat Wash Wastewater Containment and Treatment

For Compliance with MDE Discharge Permit 10-MA

20410 Century Boulevard
Suite 230
Germantown, MD 20874
301.528.2010

TABLE OF CONTENTS

I. Introduction

Maryland Department of General Services contracted Huron Consulting in April 2012 to provide general engineering consulting services to assist marina owners as they attempt to comply with the Maryland Department of the Environment's (MDE) recently issued *General Permit for Discharges from Marinas including Boat Yards and Yacht Basins*, also known as, *Discharge Permit 10-MA* or *NPDES Permit MDG99*. This specific report has been prepared by Huron Consulting for Marinas in Maryland and the Maryland Department of Natural Resources' (DNR) Clean Marina Program to recommend possible solutions for compliance with the new Permit requirements.

The new Permit requirements, in summary, require marinas to collect all pressure washer wastewater generated from boat bottom washing activities and either 1) meet numeric limits for Total Suspended Solids, Oil and Grease, Copper, Zinc, and Lead and discharge the wastewater under a General Permit, or 2) eliminate discharges to surface waters by directing it to one location for treatment using a closed loop recycling system, utilizing off-site disposal, or to connect to a sanitary sewer system with permission of the local sewer authority.

Starting September 1, 2012, a means of collecting all pressure washer wastewater generated from boat bottom washing shall be implemented to begin monitoring the wastewater for Total Suspended Solids (TSS), Oil and Grease (O&G), Copper, Zinc, and Lead. This requires one discharge point where a grab sample can be taken and provided to a Maryland State Certified Laboratory for testing. The results shall be provided to MDE as compliant with the requirements of the Permit. Although not required, marina owners may submit to the State by March 1, 2013, in writing, a plan to cease discharging boat pressure washing wastewater before March 1, 2015. If submitted, and once a receipt has been provided from the State, the permittee will be waived from continuing to monitor Copper, Zinc, and Lead until February 28, 2015. However, TSS and O&G discharges must continue to be monitored as indicated in the Permit.

Beginning on March 1, 2013, wastewater discharges from marinas shall meet the numeric limits for TSS and O&G or the marina must cease the discharge of wastewater.

On March 1, 2015, the numeric limits for TSS, O&G, Copper, Zinc, and Lead must be met in order to discharge to waters of the State under the General Discharge Permit or the marina must eliminate all boat pressure washing wastewater discharges using one of the techniques listed above.

For further information regarding the General Discharge Permit 10-MA, contact the Maryland Department of the Environment, Water Management Administration, at 1-410-537-3000 or toll free at 1-800-633-6101.

II. Wastewater Collection

Containment Options

Several options are available to divert pressure washer wastewater to one discharge point.

One option is to construct a temporary collection system. This involves purchasing a waterproof plastic sheet or a 45mil UV resistant ethylene propylene diene monomer (EPDM) pond liner and some 6"x6" pressure treated lumber. Consideration for the largest boat to be washed is required. In most cases, a 15'x40' size may be adequate. If larger boats require pressure washing, a larger size should be utilized. A geotextile underlayment is recommended for prevention of puncturing. This type of temporary collection pad can cost between $500 and $1,500. Any pond supply or home improvement store may have these plastic sheets or EPDM liners available. An EPDM liner will typically hold up and last longer than plastic sheets.

Photo courtesy of www.aireindustrial.net

Another method of temporary containment is a prefabricated portable containment mat. These may also be referred to as a spill containment pad or containment berm. Many different types of these mats are available for purchase and may allow the operator to collect all wastewater from pressure washing. Several possible sources for this type of containment mat are listed in the table below. This is not a complete list.

Company	Phone Number	Web Address
Absorbents Online	(800) 869-9633	www.absorbentsonline.com
Aire Industrial	(800) 247-3846	www.aireindustrial.net
American Canvas Company, LLC	(603) 642-6665	www.americancanvasproducts.com
Baseline Equipment Company	(877) 844-3101	www.baselineequipment.com
Basic Concepts	(888) 810-3979	www.basicconcepts.com
Berg Company	(800) 228-8277	www.bergco.com
DS Sewing Inc.	(800) 789-8143	www.ds-sewing.com
Grainger Industrial Supply	(301) 459-7780	www.grainger.com
Interstate Products, Inc.	(800) 238-4259	www.store.interstateproducts.com
Ultimate Washer Inc.	(866) 858-4982	www.ultimatewasher.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

There are also many other companies that offer this type of product. The expected price for this type of containment mat ranges between $1,800 and $6,500. Depending on the material of temporary mat and the material it is being placed on, an underlayment may be required to help prevent the containment mat from becoming punctured. In most cases, plastic tarps or a geotextile is adequate. Be sure to ask what may be required when obtaining the temporary containment mat.

The last alternative for pressure washer wastewater containment is a permanent pad in the form of asphalt or concrete. This is a much more expensive endeavor and will require an engineered plan with permitting through the local municipality. This may also take an extended period of time to design, permit, and construct. While prices may greatly vary, you can expect to spend between $15,000 and $30,000 for a 20'x50' pad. This type of containment may also require sump pits, settling basins, trench drains, and

plumbing to allow for drainage. These items are an additional cost to the pad and will need to be designed dependent on the layout of the pad.

Dewatering

In addition to collecting the wash wastewater, a method to dewater the containment area is required. A bilge pump or submersible dewatering pump may be adequate for a temporary mat. A pump for this type of application should be capable of dewatering the wash pad to a 1/4" depth and should be able to pump effluent (particles up to ½" in diameter). Most local hardware stores supply these and generally range between $80 and $300.

Photo courtesy of www.usplastic.com

To help prevent a pump from becoming lodged with particulate matter, a screen to protect the pump should be utilized. This can be accomplished using a stainless steel dipping basket typically used for deep frying food. The size of the basket may depend on the size of the pump used, but generally, a 12" diameter 12" deep basket is sufficient. The perforations in the basket should be no larger than 3/16". Filling the basket with filter cloth and placing the dewatering pump inside this basket may prevent larger matter such as barnacles and paint chips from clogging the pump. Several manufacturers can fabricate the dipping basket. A brief list is provided below, but there are others. This is not a complete list.

Company	Phone Number	Web Address
Cooly Wire Products Inc.	(847) 678-8585	www.cooleywire.com
Eyster's Machine & Wire Products	(800) 618-4720	www.eysters.com
Fluid Filtration Manuf. Corp.	(888) 295-0408	www.fluidfiltr.com
Meadville New Products Inc.	(888) 456-2910	www.meadvillenewproducts.net
MetaFin Supply Company	(847) 740-1599	www.electoplating.metafinsupply.com
Newark Wire Cloth Company	(800) 221-0392	www.newarkwire.com
Paget Strainer Company	(800) 376-7130	www.pagetstrainer.com
Sterling Filter and Metal Products	(570) 842-7365	www.sterlingfilter.com
Three M Tool	(800) 309-0671	www.threemtool.com
U.S. Plastic Corporation	(800) 809-4217	www.usplastic.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

Other alternatives to the perforated basket are a 5 gallon bucket with perforations drilled in the sides and bottom or a stainless steel colander. While a perforated bucket may be a sufficient substitute, it may be difficult to provide as many perforations as are fabricated in a stainless steel basket or colander. The arrangement of perforations in a bucket will need to be optimized through trial and error. In addition, the dewatering depth may not be as shallow using a bucket.

In order to further reduce the amount of particulate matter that is pumped, an industrial strength 75 micron nylon filter bag may be installed around the pump prior to placing inside of the basket. Be sure to secure the filter bag in place while pumping and of large enough diameter to allow the pump to be placed in it. A perforated bucket and bag filter will cost approximately $10-$20, whereas, a perforated basket and bag filter will cost approximately $400-$600

Testing

By utilizing a containment pad, a pump, and a perforated basket, bucket, or colander with filter cloth and a 75 micron filter bag, this can be enough for the boat bottom pressure washing operation to comply with the September 1, 2012 requirement of capturing and directing wash wastewater to one location for treatment per the Maryland General Discharge Permit No. 10MA. From here, the effluent that is pumped out can be monitored as required by the Permit. A grab sample can be taken from the discharge point and submitted to a laboratory for testing. It is noted that a grab sampling is conducted when all of the test material is collected at one specific time. A grab sample will reflect the performance only at the point in time that the sample was collected. Contact your local laboratory for specific recommendations on how this is to occur. Many labs will provide the container to collect the sample and allow for the sample to be mailed via Fed Ex or UPS. Other labs may choose to obtain the sample themselves.

The following link provides a list of laboratories that MDE maintains that will conduct pollutant testing. http://www.mde.maryland.gov/programs/water/water_supply/documents/wsp-lab-2011may18.pdf.
Many local wastewater authorities can provide testing as well, for a fee. Several laboratories to consider in the Chesapeake Bay area are listed below. This is not a complete list.

Company	Phone Number	Web Address
Caliber Analytical Services, LLC	(410) 825-1151	www.caslabs.net
Community Environmental Labs	(410) 575-6179	www.watertestinglabs.com
Chesapeake Environmental Lab	(410) 643-0800	www.chesapeakeenvironmentallab.com
Environmental Testing Lab Inc.	(410) 224-4304	
Fountain Valley Analytical Lab	(410) 876-4554	www.fval.com
Mid-Atlantic Water Services	(410) 573-1020	http://mawaterservice.com
Microbac Laboratory Services	(410) 633-1800	www.microbac.com
Phase Separation Science, Inc.	(410) 747-8770	www.phaseonline.com
TestAmerica, Inc.	(410) 869-0085	www.testamericainc.com
Water Testing Labs of Maryland	(800) 200-5323	www.wtlmd.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

Each time a test is required for TSS, O&G, Copper, Lead and Zinc, each pollutant requires a specific test be conducted. The typical cost for all of these tests combined is between $150 and $300. It is noted that testing for TSS and O&G needs to be conducted four (4) times per year, and Copper, Lead, and Zinc will only need to be tested two (2) times during the main haul season. Flow for the discharge of effluent shall be estimated monthly and submitted with the monitoring report twice each calendar year to MDE and can be measured by the rate at which the bilge pump or dewatering pump discharges the wastewater.

After the containment measure is dewatered, all of the residual matter that is left on the mat should be left to dry and discarded with standard solid waste, much as is being done now using a filter cloth while washing. Your local waste company may require a onetime TCLP waste characterization (Toxicity Characteristic Leaching Procedure) before accepting the waste. This typically costs between $800 and $1,200.

III. Treatment Options

In order to comply with the General Discharge Permit No. 10MA, two options are available. The first involves treating the pressure wash wastewater to the limits set by the General Permit and to continue to discharge to waters of the State. The second involves collecting all pressure wash wastewater in a closed system and eliminating all discharges to waters of the State. Several methods are available in order to comply with the Permit requirements.

Option 1: Cease Boat Hull Pressure Washing

This may not be in the best interest of the marina, but is an option. No additional resources would be required. However, if the marina allows boat owners or contractors to conduct pressure washing of painted boat bottoms, Permit requirements and discharge limits remain in effect.

Option 2: Connect to Public Sanitary Sewer

If your marina does connect to a municipal sewer system, this method seems to be the cheapest and easiest method to comply with the Permit Requirements. However, most local sewer authorities have requirements that may make it cost prohibitive. The wastewater from pressure washing a boat is typically considered as industrial wastewater due to the level of heavy metal content from ablative paints found in the wastewater. Although paint chips are larger in size and easier to collect and remove, dissolved inorganics (dissolved heavy metals) are very small and do not easily settle out. Most sewer authorities have pre-treatment standards, as required by the Environmental Protection Agency (EPA), that must be met in order to discharge to their sewer system. There are many more pollutants required to meet the pre-treatment standards than what the General Discharge Permit is requiring. A wastewater analysis may need to be performed by the local sewer authority in order to determine if it will accept the wastewater. This can cost between $400 and $600. In order to discharge to a municipal sewer, pre-treatment requirements must be met, which will normally involve some form of treatment of the wastewater prior to discharge. In addition, the General Permit, as well as, local sewer authorities do not want rainwater or floodwater to co-mingle with wastewater, which may be problematic in the design of a system to bypass rainwater from pressure washing wastewater. Any design or connection to the public sewer system shall be coordinated with your local municipality.

If this option is considered, a bypass shall be designed to prevent rainwater or floodwater from entering the public sewer system. This may be achieved through the use of a diversion valve or gasketed inlet cover that can be removed when pressure washing operations occur. The inlet would need to be watertight to prevent any rainwater from entering the sewer system. In addition, pressure washing operations could not occur during rain events.

While connecting to the sewer system may be an option after pre-treatment, we feel that it may be difficult to satisfy the local sewer authority without a fail-proof system to bypass all rainwater. This may require that the entire wash area be constructed under a roof, which is a very costly endeavor, and not conducive for sailboats.

Option 3: Discharge to a Tank and have Hauled

Depending on the amount of wastewater that is generated from your boat pressure washing operations, it will need to be collected, stored, and removed by a licensed septage hauler. As mentioned previously, the wastewater from pressure washing boats is considered industrial wastewater, so an industrial wastewater

disposal company will need to come and pump the storage tank and transfer the wastewater to an industrial wastewater treatment facility. We recommend an above grade 5,000 gallon tank be utilized to collect the wastewater. These are approximately 12' in diameter and cost between $2,000 and $4,000. A smaller tank can be utilized, but may need to be pumped more frequently. Treatment of the wastewater is typically between $0.20 and $0.30 per gallon, plus the cost per hour to travel to the marina, pump out the tank, and transport to an industrial wastewater treatment facility. Typical rates per hour run between $100 and $150. In addition, the treatment facilities typically require an analytical test to be performed on the wastewater to ensure that what they are receiving is treatable at their facility. This test normally costs between $100 and $400. The total annual cost to have wastewater hauled is dependent on the amount of wastewater produced by your boat washing operations and your proximity to an industrial wastewater facility. Your local municipality may allow an above ground tank, but this will need to be verified at permitting. A heating source may be required so that the liquid in the tank does not freeze if installed above grade. Tanks should be UV protected and have an anchoring system. Odor and bacterial may be another issue, since the wastewater may be sitting for an extended period of time.

Several sources for a 5,000 gallon tank are listed below. This is not a complete list.

Company	**Phone Number**	**Web Address**
Boyd's Equipment	(806) 356-9102	www.boydsequipment.com
GoTo Tanks	(877) 468-2657	www.gototanks.com
National Tank Outlet	(888) 686-6265	www.ntotank.com
North American Rain Systems	(864) 316-5200	www.raincollectionsupplies.com
Plastic-Mart	(866) 310-2556	www.plastic-mart.com
PBM Supply & Manufacturing	(800) 688-1334	www.pbmtanksupply.com
RainHarvest Systems LLC	(770) 889-2533	www.rainharvest.com
Tank Depot	(866) 926-5603	www.tank-depot.com
Tanks for Less	(877) 558-8265	www.tanksforless.com
U.S. Plastic Corp.	(800) 809-4217	www.usplastic.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

There are only a few options for industrial wastewater treatment in the area, however, others may be available.

Company	**Phone Number**	**Contact**
B & P Environmental	(877) 705-0011	John Davis
Clean Harbors	(339) 788-0778	Kitty Davis
Environmental Recovery Corp.	(717) 393-2627	Eric Merling
Kline's Services	(717) 587-1927	Shawn Perry
Sprit Services	(717) 360-7916	Joe Staton

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

This method of treatment may provide the best economical choice for upfront cost, but may require greater annual costs.

Option 4: Water Evaporation System

This type of system uses a large steel chamber and burner typically fueled by Natural Gas or LPG. Some electric units are available. This system produces zero discharge, since all liquids are evaporated. There is, however, a waste produced from the pollutants (heavy metals) that does not evaporate out. This waste is considered hazardous and must be removed using a licensed hazardous waste hauler. This can cost between $200 and $1,000 per removal depending on the amount that is removed at one time. A settling tank and pre-filter are required to filter out material so that essentially only liquid is entering the system. Typical upfront costs for this type of system are in the $20,000 to $30,000 price range. As mentioned, a settling tank and pre-filter with plumbing to connect to the system will be required. This type of system should be enclosed by a building and usually requires a Natural Gas or LPG hookup. These additional items can add another $2,000 to $3,500 to the upfront costs. Other costs associated are fuel costs, which vary, and electrical and plumbing installation. Annual costs for this type of system are typically between $1,000 and $2,500, but will vary with fuel costs.

Photo courtesy of http://steamdraygon.com

These types of systems are mostly proprietary and generally require maintenance by the manufacturer's representative. They generally require high maintenance, and odor may be an issue if water is stored for long periods of time.

If purchasing this type of system, be sure that the vendor identifies how the system deals with corrosion, foaming, V.O.C. emissions, and ease of cleaning the evaporator chambers. In addition, the system should be capable of keeping up with your boat pressure wash operations. A 20 gph system would suffice for your marina. This system requires an area for the settling tank which is typically 8' in diameter, as well as, the water evaporator itself. Although the sizes do vary, most are approximately 4'x10'

Several available vendors are listed below. This is not a complete list.

Company	Phone Number	Web Address
Draygon	(800) 724-3610	http://steamdraygon.com
Encon	(866) 907-9010	www.evaporator.com
EMC	(888) 833-9000	www.equipmentmanufacturing.com
Industrial Equipment	(800) 287-8306	www.industrial-equipment.biz
RGF Environmental	(800) 842-7771	www.rgf.com
SkimOil Inc.	(314) 579-9755	www.skimoil.com
Wilson Environmental	(800) 469-0799	www.wilsonemi.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

Although this type of system has been used at boat marinas around the country, it is not the typical choice of marinas.

Option 5: Electrocoagulation System

Electrocoagulation is a type of wastewater treatment that has been in existence for about 100 years. The technology requires wastewater to travel through a series of cells where an electrical current is applied to promote smaller material to coagulate (join together) and settle out. This type of system is very useful in removing heavy metals from wastewater.

Much like some of the aforementioned options, this system does require the system to be placed in an area that is heated to prevent freezing. A building, electric, and plumbing, may be required. All permitting should be obtained through your local municipality and utilize a licensed plumber and electrician.

Photo courtesy of www.myco-inc.com

This type of system may be able to reduce pollutants enough to meet the numeric limits set by MDE and allow for discharge to waters of the State, but be sure to require any vendor to provide a guarantee that the limits can be met. In addition, this system can be used as a closed loop recycling system. This means that there is zero discharge to waters of the state and water can be reused to pressure wash boats. Note that water from pressure washing does evaporate and atomize, so the amount of water that goes into the pressure washer and that is collected and circulated in the treatment system are not the same. Water will need to be added to the system periodically. A sludge waste is produced and may be dried and disposed of as solid waste if allowed by a solid waste company. A TCLP test may be required. If this is identified as hazardous waste, it will need to be removed by a licensed hazardous waste hauler and can cost between $200 and $1,000 per removal depending on the amount that is removed at one time. Odors are controlled using ozone or a UV light to kill bacteria.

These systems generally cost between $30,000 and $40,000. This does not include a wash pad, electric, plumbing, etc. The size of the system is approximately 10'x10' and usually is mounted on a skid for easy relocation. The annual costs associated with an electrocoagulation system are normally between $1,000 and $2,000.

Several available vendors are listed below. This is not a complete list.

Company	Phone Number	Web Address
Bay Compliance Solutions	(410) 750-0607	www.baycompliance.com
Kaselco	(888) 527-3526	www.kaselco.com
Myco Inc.	(410) 381-0500	www.myco-inc.com
Powell Water Systems	(303) 627-0320	www.powellwater.com
WaterTectonics	(866) 402-2298	www.watertectonics.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

Electrocoagulation treatment may allow the water to be treated enough to be disposed of into the municipal sewer system. As stated before, the General Permit, as well as, the local sewer authority, do not want to have rainwater or floodwater co-mingle with wastewater, which may be problematic in the design of a system to bypass rainwater from pressure washing wastewater. Any design or connection to the public sewer system shall be coordinated with your local sewer authority. If an option to dispose of

wastewater into the municipal sewer system after pre-treatment is considered, please refer to Option 2 above.

Electrocoagulation systems work very well for removing dissolved metals from wastewater. However, these types of systems are generally more expensive than the other technologies.

Option 6: Filtration System

The technology of these systems utilizes settling basins and/or a series of filters or a membrane to remove pollutants. Many swimming pools utilize this type of system. Filtering systems will reduce the number of pollutants in the wastewater, but may not reduce them enough to comply with MDE requirements and discharge to waters of the State. Therefore, this type of system can only be used in a closed loop recycling application.

Photo courtesy of http://empind.net

These systems can be trailer mounted or skid mounted. Sizes of the skid require an area of 10'x10' and the trailer will be approximately 6'x12'. Like some of the previous options, this system does require the system to be placed in an area that is heated to prevent freezing. A building, electric, and plumbing, may be required. All permitting should be obtained through your local municipality and utilize a licensed plumber and electrician.

Filtering systems are typically a more economical choice of the treatment systems, as their upfront costs are between $14,000 and $25,000. However, there are several systems that are more replacement filters run between $300 and $600.

Several available vendors are listed below. This is not a complete list.

Company	Phone Number	Web Address
Atlantic Coast Hotsy	(732) 349-2212	http://njhotsy.com
Carbtrol Corp.	(800) 242-1150	www.carbtrol.com
Catec	(888) 536-7100	www.catec.com
Elias Environmental Solutions	(610) 490-9734	www.EliasEnvironmental.com
Encyclon Filtration	(937) 572-3280	www.cleanmarinapressurewash.com
Environmental Water Technologies, LLC	(410) 322-6701	www.ewth2o.com
Hydro Engineering, Inc.	(800) 247-8424	www.hydroblaster.com
John Furrh Equipment Company	(609) 876-0906	www.johnwfurrhassociates.com
RGF Environmental Group, Inc.	(561) 848-1826	www.rgf.com
The Next Generation in Waste Water Treatment Technology	(281) 639-7860	www.naturalwatertreatment.com

It is noted that the vendors listed are for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

Odors are managed using ozone, UV lights, or chlorine tablets. These systems will need to be backwashed (purged) on a weekly basis to flush the filters and will need to be circulated to kill any bacteria. The system can be winterized but will require an industrial septage hauler to remove the wastewater. Tanks for these systems vary in size but generally are between 350 and 500 gallons. The cost to have wastewater hauled once annually will be between $600 and $1,200.

In order to dispose of the filters, a hazardous waste disposal will be required. Many solid waste companies offer this as an added fee to their annual service. A TCLP test is usually required. A cost of between $200 and $500 to dispose of the used filters per year can be expected.

If you decide to purchase a filter system, be sure to ask the vendor if anything on the system is proprietary. Some vendors do have proprietary systems that require you to purchase all filters and replacement parts from them. Most are not proprietary which allows the user the flexibility to purchase filters anywhere, in addition to, replacement parts.

Note that water from pressure washing does evaporate and atomize so the amount of water that goes into the pressure washer and that is collected and circulated in the treatment system are not the same. Water will need to be added to the system periodically.

Filtration treatment may allow the water to be treated enough to be disposed of into the municipal sewer system. As stated before, the General Permit, as well as, the local sewer authority, do not want to have rainwater or floodwater co-mingle with wastewater, which may be problematic in the design of a system to bypass rainwater from pressure washing wastewater. Any design or connection to the public sewer system shall be coordinated with your local sewer authority. If an option to dispose of wastewater into the municipal sewer system after pre-treatment is considered, please refer to Option 2 above.

Filtration systems are the most commonly utilized technology in boat hull pressure washing wastewater treatment.

Option 7: Chemical Treatment System

Photo courtesy of http://cleanmarinesolutions.com

A chemical treatment system uses chemicals to flocculate (join together) pollutants and settle out. The chemicals typically change the pH of the wastewater to accommodate this. This method of treatment is very effective but can require training and become cost prohibitive. Because results may not meet that required by MDE for treatment and discharge to waters of the State, this system should be a closed loop recycling system.

This technology has been used for decades in the wastewater treatment industry; however, very few vendors have developed this for use related to pressure washing of boats, due to the requirements related to operation. However, there are a few that have developed systems that do not require a wastewater operator to be licensed. Chemical treatment may allow the water to be treated enough to be disposed of into the municipal sewer system, as this type of treatment usually clarifies the water to limits less than that of drinking water. As stated before, the General Permit, as well as, the local sewer authority, do not want to have rainwater or floodwater co-mingle with wastewater, which may be problematic in the design of a system to bypass rainwater from pressure washing wastewater. Any design or connection to the public sewer system shall

be coordinated with your local sewer authority. If an option to dispose of wastewater into the municipal sewer system after pre-treatment is considered, please refer to Option 2 above.

Upfront costs for this type of system are between $14,000 and $35,000. Again, this system needs to be prevented from freezing, so a building, electric, and plumbing, may be required. All permitting should be obtained through your local municipality and utilize a licensed plumber and electrician.

Annual costs associated with this type of system for chemicals are between $400 and $600. Some systems combine technologies and have filters as well. These filters are inexpensive, less than $100 per year, but do require costly disposal through a licensed hazardous waste hauler. In addition, a waste sludge is also produced which can be dried and disposed of through a solid waste company as long as the dried material is not considered hazardous. A TCLP test may be required by your waste company.

Note that water from pressure washing does evaporate and atomize so the amount of water that goes into the pressure washer and that is collected and circulated in the treatment system are not the same. Water will need to be added to the system periodically.

As mentioned above, there are a limited number of vendors that sell an "off the shelf" chemical treatment units for boat pressure washing purposes. The vendors listed below are only a few options; however, there are many other companies that specialize in custom chemical coagulation treatment systems. A wastewater engineer should be hired to design a small custom system.

Company	**Phone Number**	**Web Address**
Clean Marine Solutions	(910) 617-8018	www.cleanmarinesolutions.com
Myco Inc.	(410) 381-0500	www.myco-inc.com
WaterTectonics	(866) 402-2298	www.watertectonics.com

It is noted that the vendor listed is for informational purposes only and that the Maryland Department of Natural Resources, as well as, Huron Consulting do not recommend or endorse any product or service.

These systems are usually skid mounted and are 10'x10' in size. Odors are normally handled by a UV light. Systems are typically non-proprietary, but check with the vendor for more information. This will allow you to purchase filters anywhere they are sold and to replace parts as necessary.

While there are only a few vendors indicated, chemical treatment is a very cost effective technology.

IV. Recommendations

The best option for your marina to comply with the Permit requirements is dependent on the amount of wash wastewater that you produce. This is easily calculated using the number of gallons per minute your pressure washer uses multiplied by the number of boats you wash annually multiplied by the average time it takes for you to pressure wash a boat. This number can then be reduced, since some water from pressure washing does evaporate and atomize. Typically, only 85% of the water that is distributed from your pressure washer will be collected. This can fluctuate depending on the weather.

For a marina that produces less than 5,000 gallons of wash wastewater annually, the best and most affordable option for Permit compliance is to collect the wash wastewater, discharge to a tank, and have an industrial wastewater septage hauler transfer to an industrial wastewater treatment facility. For

marinas that produce more than 5,000 gallons per year, a closed loop recycling system may be the best and most affordable choice for compliance with the Permit requirements.

Since most municipalities have stated that pre-treatment will be required in order to connect to their sewer system, connecting to the sewer may not be possible without some sort of treatment system. A closed loop system will give any marina the opportunity to reuse water when pressure washing and allows them to fully comply with the General Discharge Permit by creating zero discharge. While connecting to the sewer system may still be an option after pre-treatment, we feel that it may be difficult to satisfy the local sewer authority without a fail-proof system to bypass all rainwater. This may require that the entire wash area be constructed under a roof, which is a very costly endeavor, and not conducive for sailboats.

As mentioned previously in this report, a temporary measure to collect the wash wastewater may be sufficient to comply with the Permit for September 1, 2012. After a wash water treatment system has been selected, the marina should consider the installation of a permanent pad, in the future, that will collect wash wastewater and supply it to the closed loop recycle system that is selected. This will require an engineered plan to be signed and sealed and submitted to the local municipality for approval and permit. Depending on the grade where the current wash location is, additional grading may be required. It may also make sense to construct the wash pad directly in front of the boat lift area. The permanent pad shall be designed such that any vehicles that may drive over it (travel lift with maximum boat size) will not damage the pad. The material of the pad shall be concrete or asphalt and shall include a trench drain or inlet to collect the wash wastewater. All areas around the pad shall be graded away from the pad as to not allow runoff to enter. Several conceptual layouts are provided in the appendices of this report.

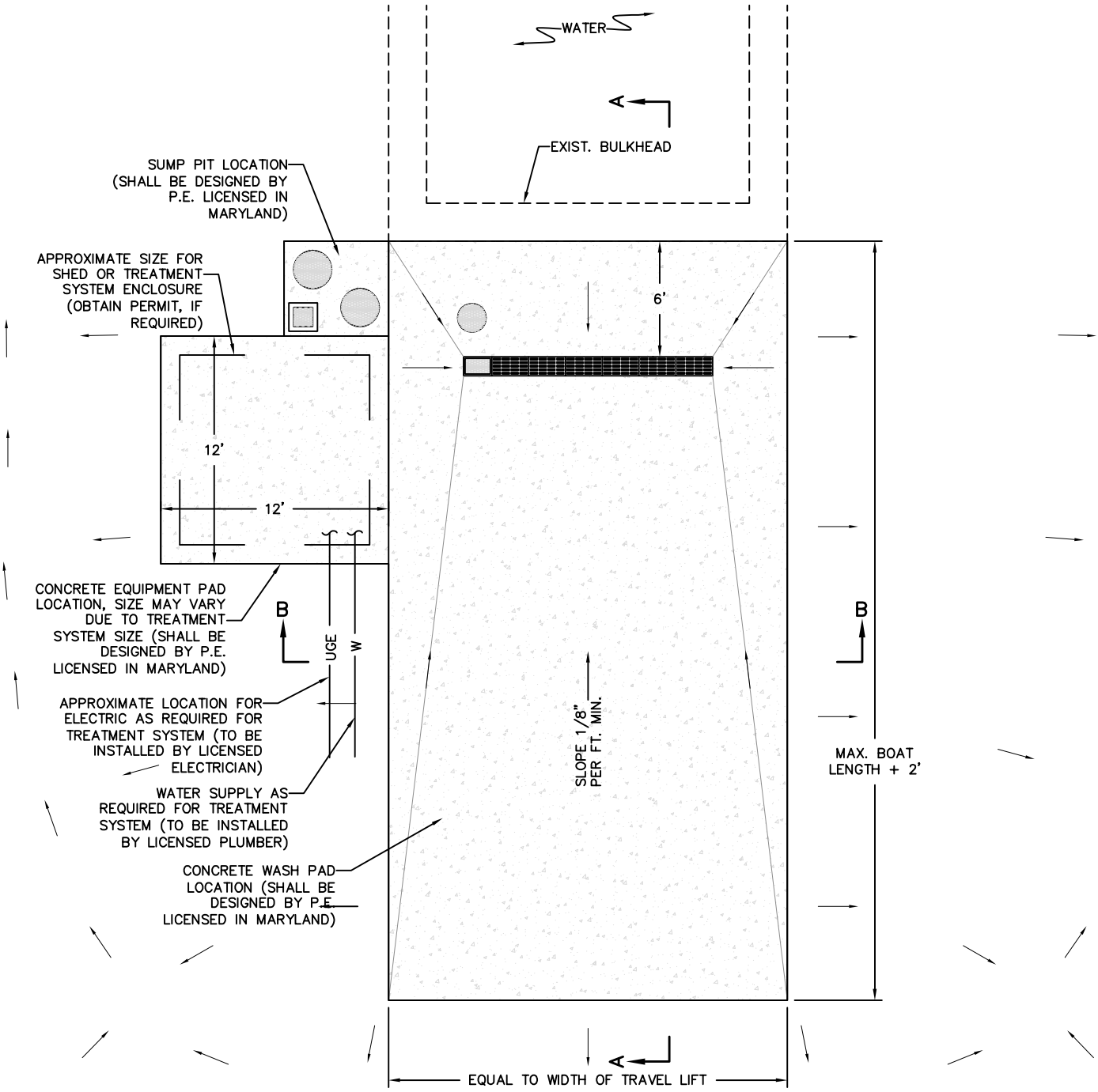
As mentioned previously, systems generally require that they are protected from freezing. In many cases, a shed with insulation or a heat lamp may provide enough heat to protect them. Be aware that any of the systems above require electricity and some may require Natural Gas or LPG, which may not be conducive to your marina. Always inquire to the warranty information for any system mentioned in this report.

We also recommend that your marina prepare a letter stating that you plan to cease discharges to waters of the State by March 1, 2015. This letter should be submitted to MDE by March 1, 2013. Once a receipt is provided from MDE, this will allow your marina to be waived in monitoring Copper, Zinc, and Lead. Bear in mind, that this does not absolve you from ceasing to discharge by March 1, 2015.

It is also recommended that other methods be utilized to minimize the pollutants from boat pressure washing, including: removing zincs or protecting zincs prior to any pressure washing activities, using a high pressure/low volume power washer, using non-toxic or non-biocide coatings in-lieu of biocide based paints, and keeping boats out of the water when not in use. In addition, do not allow bilge water to be added to wash wastewater.

It is noted that any of the treatment systems mentioned previously that will allow for a closed loop recycle system may be sufficient in meeting the MDE requirements for March 1, 2015. Ultimately, the type of treatment and the selected system to be used is up to the marina.

V. Appendices



NOTES:

ALL WASH WASTEWATER SHALL BE DIVERTED TO SUMP PIT LOCATION. NO STORMWATER SHALL BE DIRECTED TO THE SUMP PIT.

UNDER NO CIRCUMSTANCES SHALL WASH WASTEWATER DRAIN TO GROUNDWATER OR WATERS OF THE STATE.

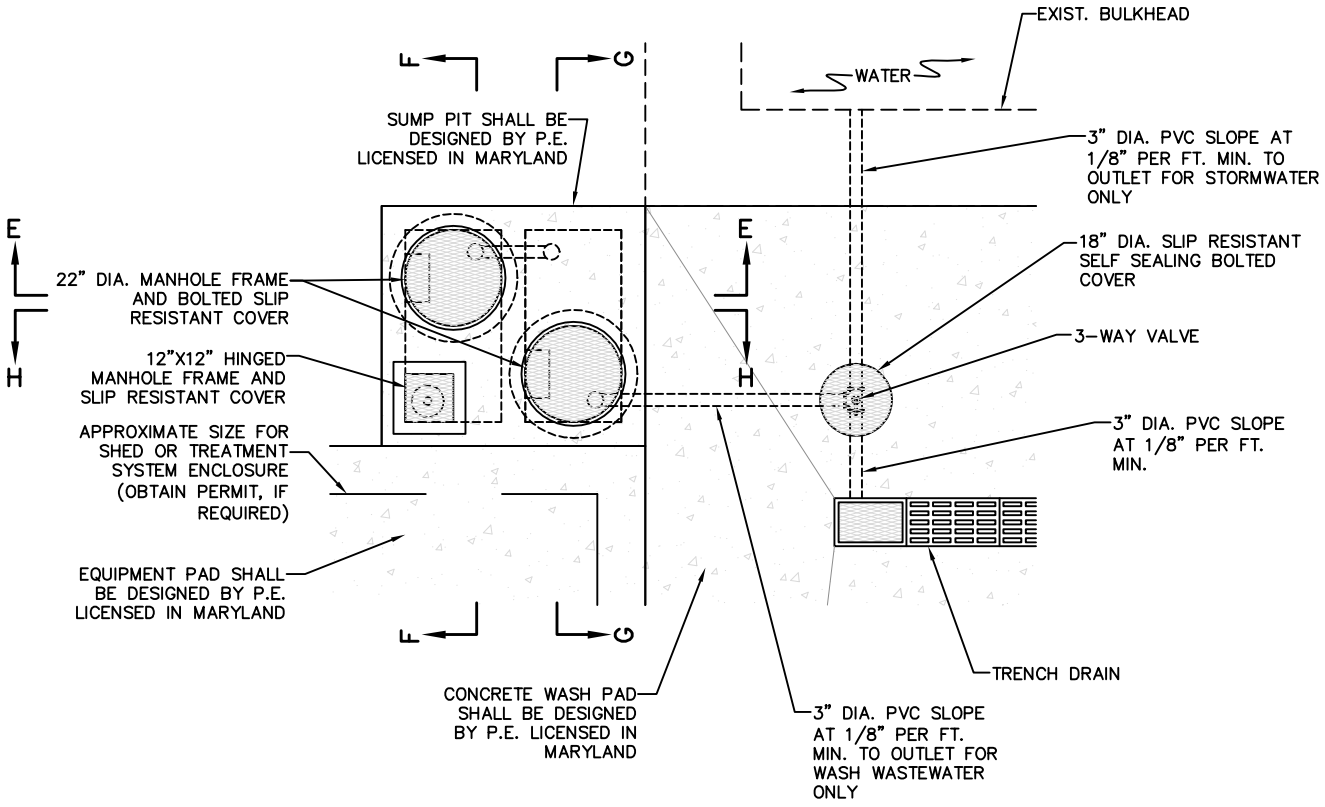
TYPICAL WASH PAD OVERALL LAYOUT

APPENDIX A

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



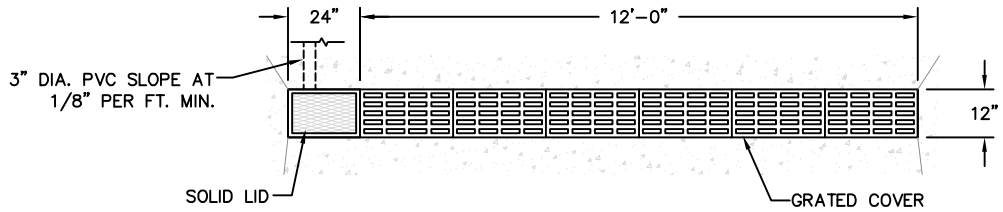
TYPICAL WASH PAD DETAILED LAYOUT

APPENDIX B

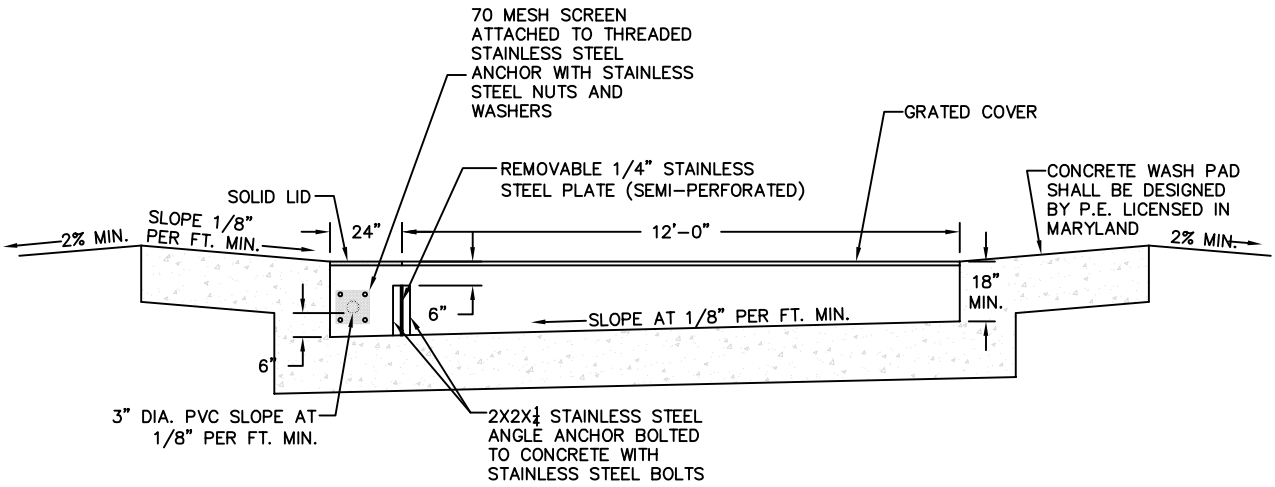
N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



PLAN VIEW



PROFILE

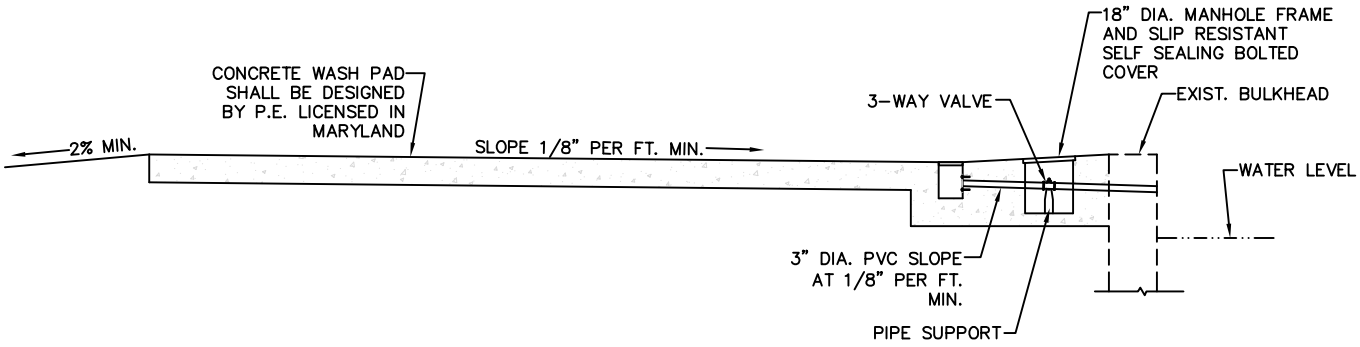
TYPICAL WASH PAD TRENCH DRAIN DETAILS

APPENDIX C

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



SECTION C-C

SECTION D-D

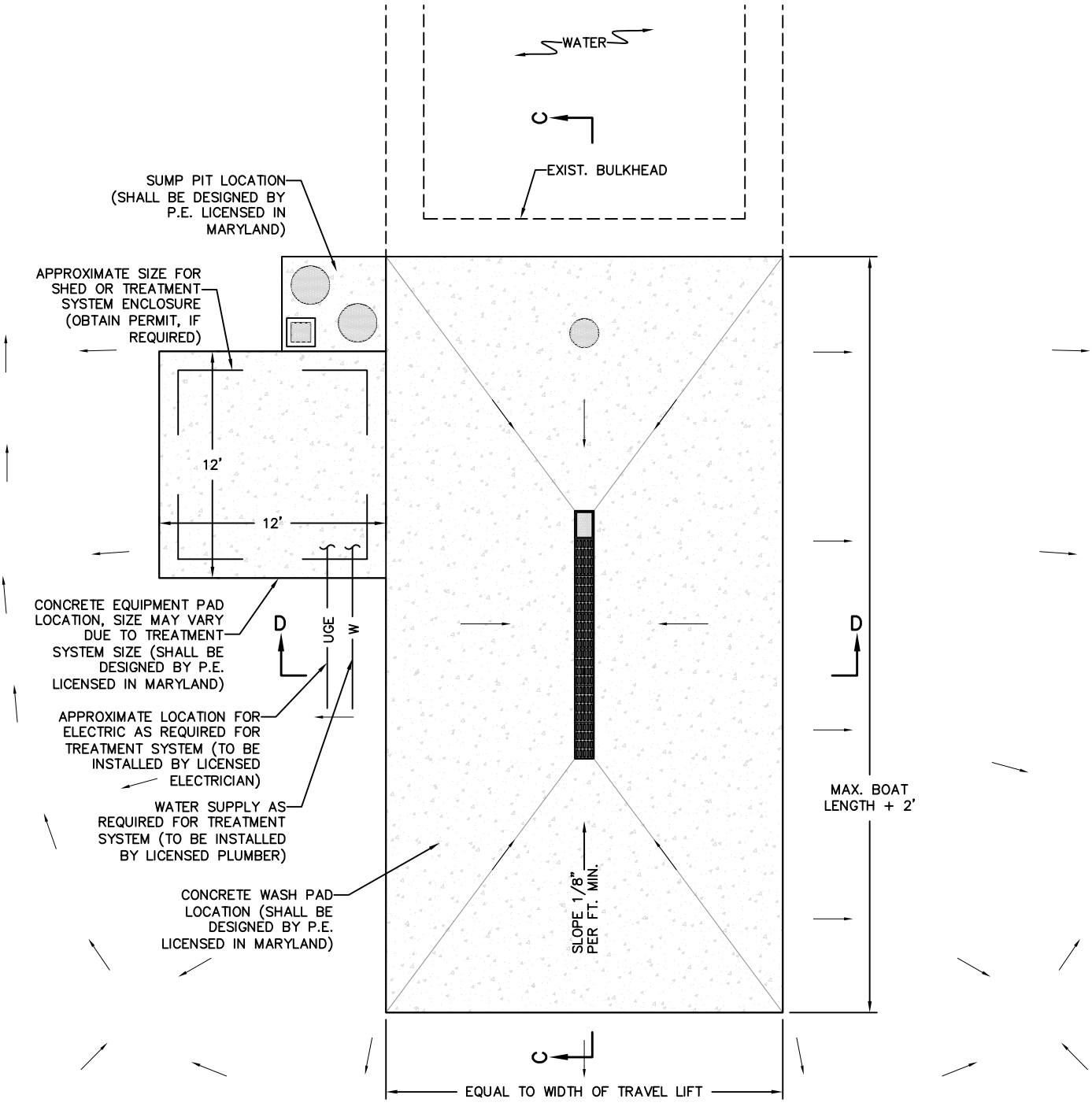
TYPICAL WASH PAD CROSS-SECTIONS

APPENDIX D

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



NOTES:

ALL WASH WASTEWATER SHALL BE DIVERTED TO SUMP PIT LOCATION. NO STORMWATER SHALL BE DIRECTED TO THE SUMP PIT.

UNDER NO CIRCUMSTANCES SHALL WASH WASTEWATER DRAIN TO GROUNDWATER OR WATERS OF THE STATE.

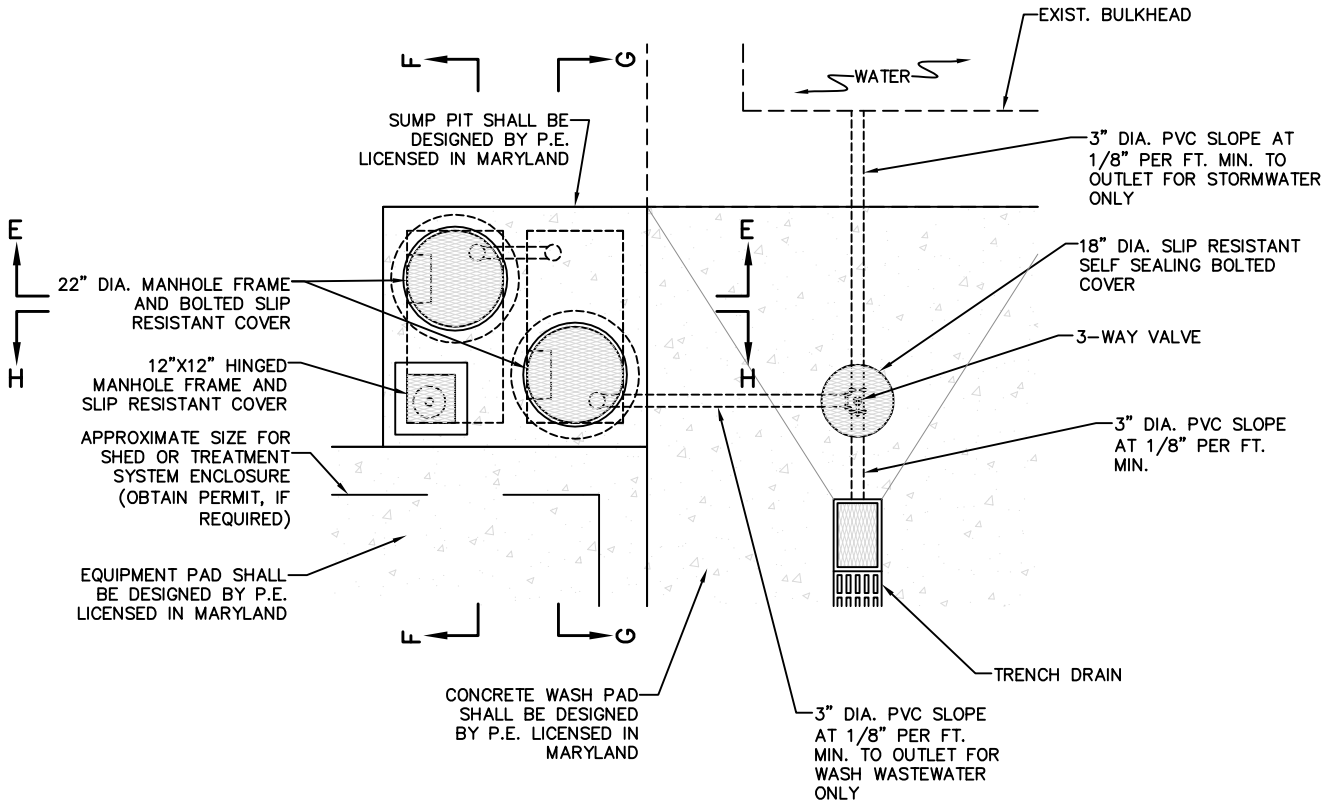
ALTERNATE WASH PAD OVERALL LAYOUT

APPENDIX E

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



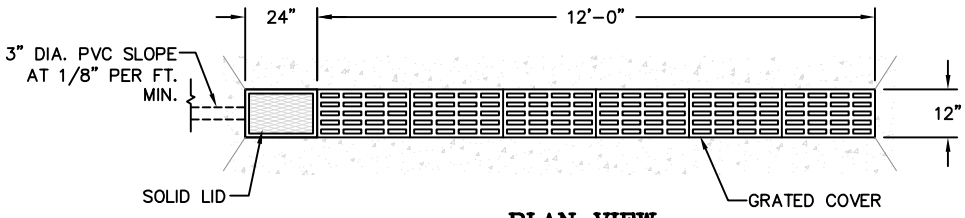
ALTERNATE WASH PAD DETAILED LAYOUT

APPENDIX F

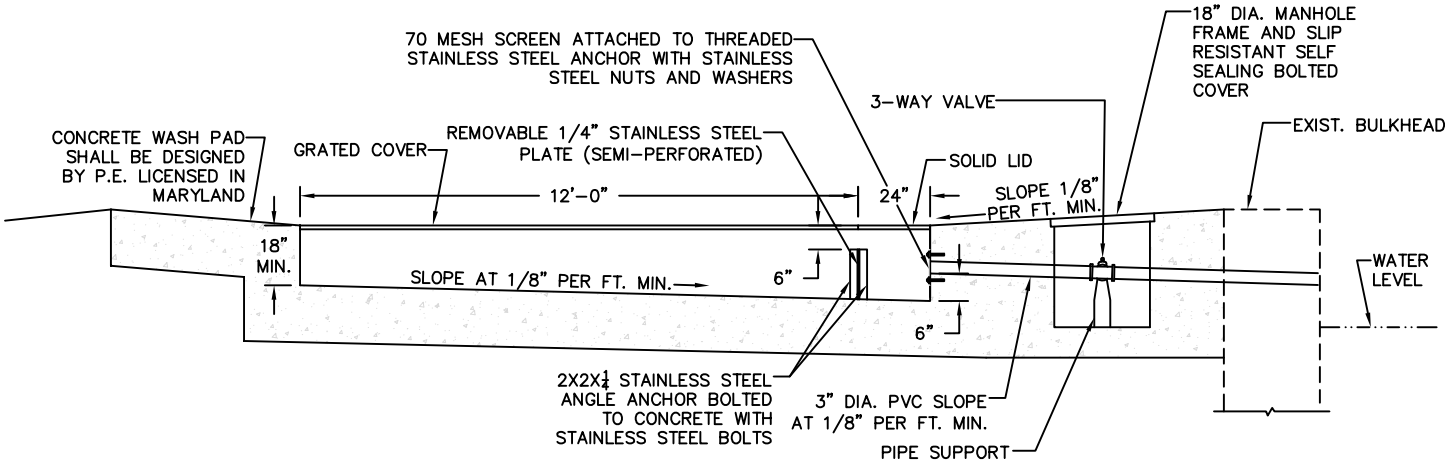
N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



PLAN VIEW



PROFILE

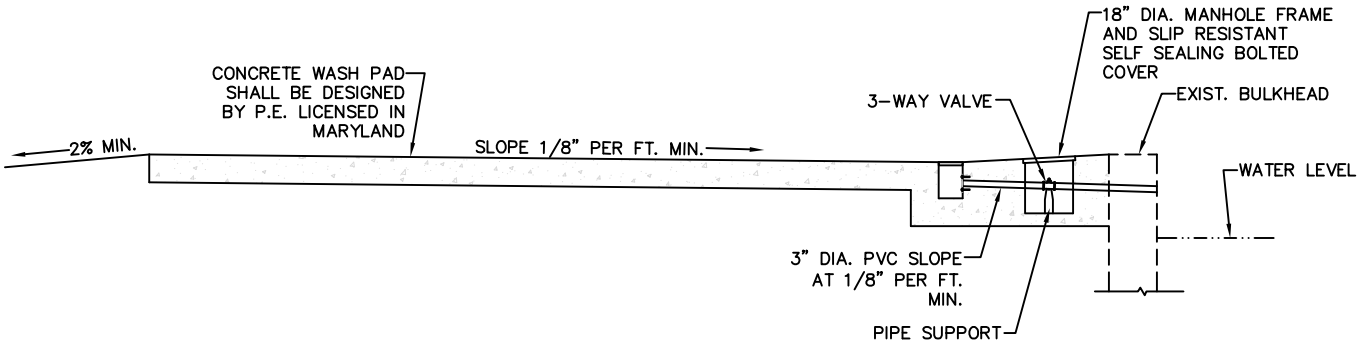
ALTERNATE WASH PAD TRENCH DRAIN DETAILS

APPENDIX G

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



SECTION C-C

SECTION D-D

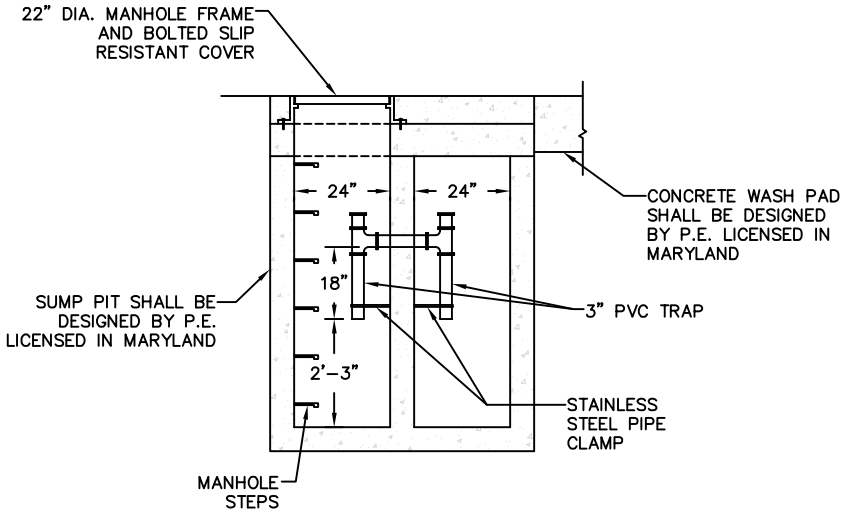
ALTERNATE WASH PAD CROSS-SECTIONS

APPENDIX H

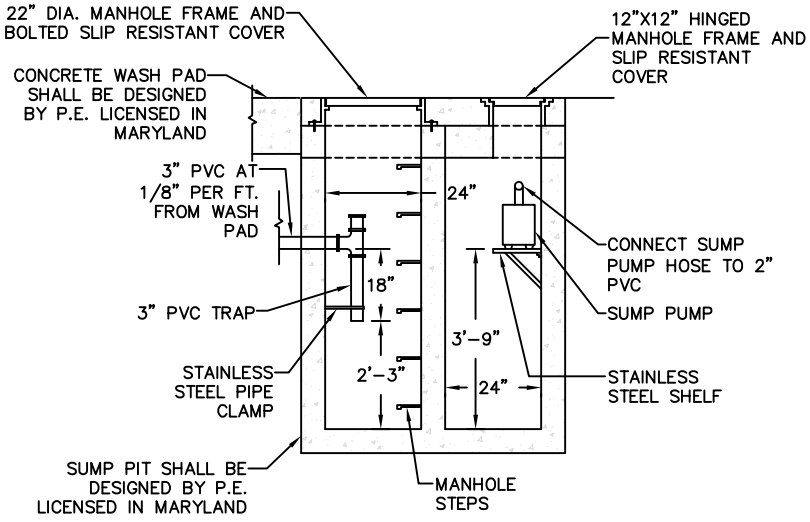
N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



SECTION E-E



SECTION F-F

NOTES:

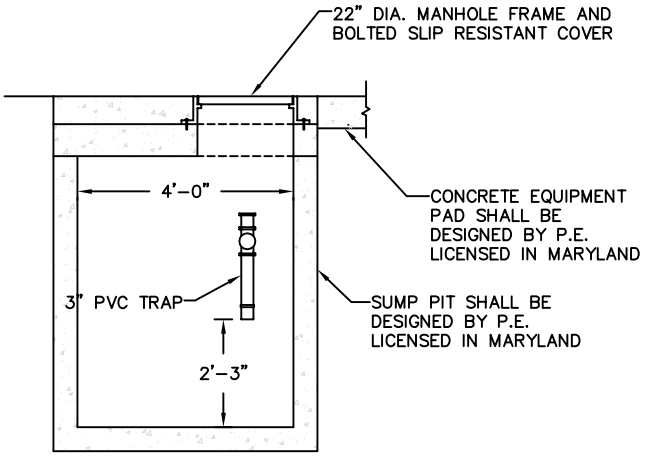
THE CONFIGURATION AND SIZE OF THE SUMP PIT MAY BE MODIFIED TO BE MORE CONDUCIVE TO THE MARINA'S NEEDS. DIMENSIONS SHOWN SHOULD BE CONSIDERED MINIMUM.

SIZE OF SUMP PIT INCLUDING ACCESS AND FUNCTIONALITY ARE SUBJECT TO AGENCY APPROVAL.

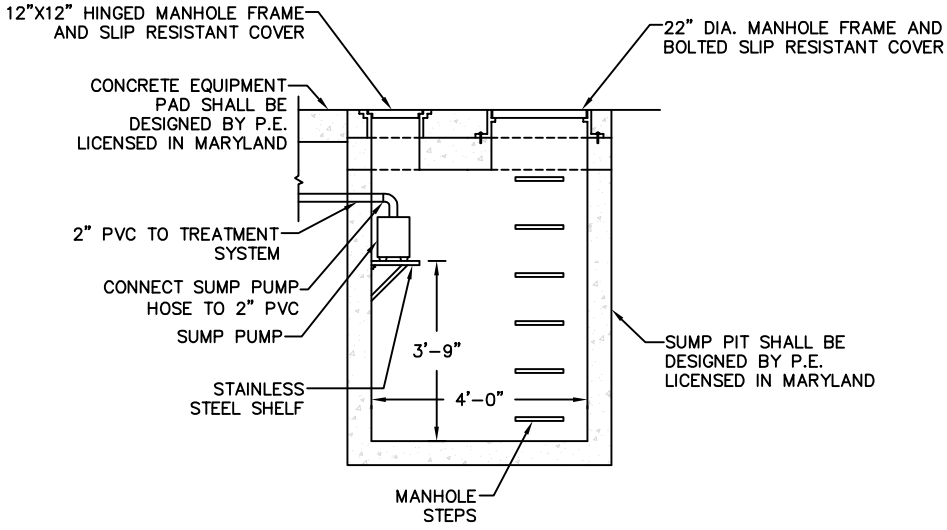
TYPICAL SUMP PIT CROSS-SECTIONS
APPENDIX I

N.T.S.

HURON CONSULTING
20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



SECTION G-G



SECTION H-H

NOTES:

THE CONFIGURATION AND SIZE OF THE SUMP PIT MAY BE MODIFIED TO BE MORE CONDUCIVE TO THE MARINA'S NEEDS. DIMENSIONS SHOWN SHOULD BE CONSIDERED MINIMUM.

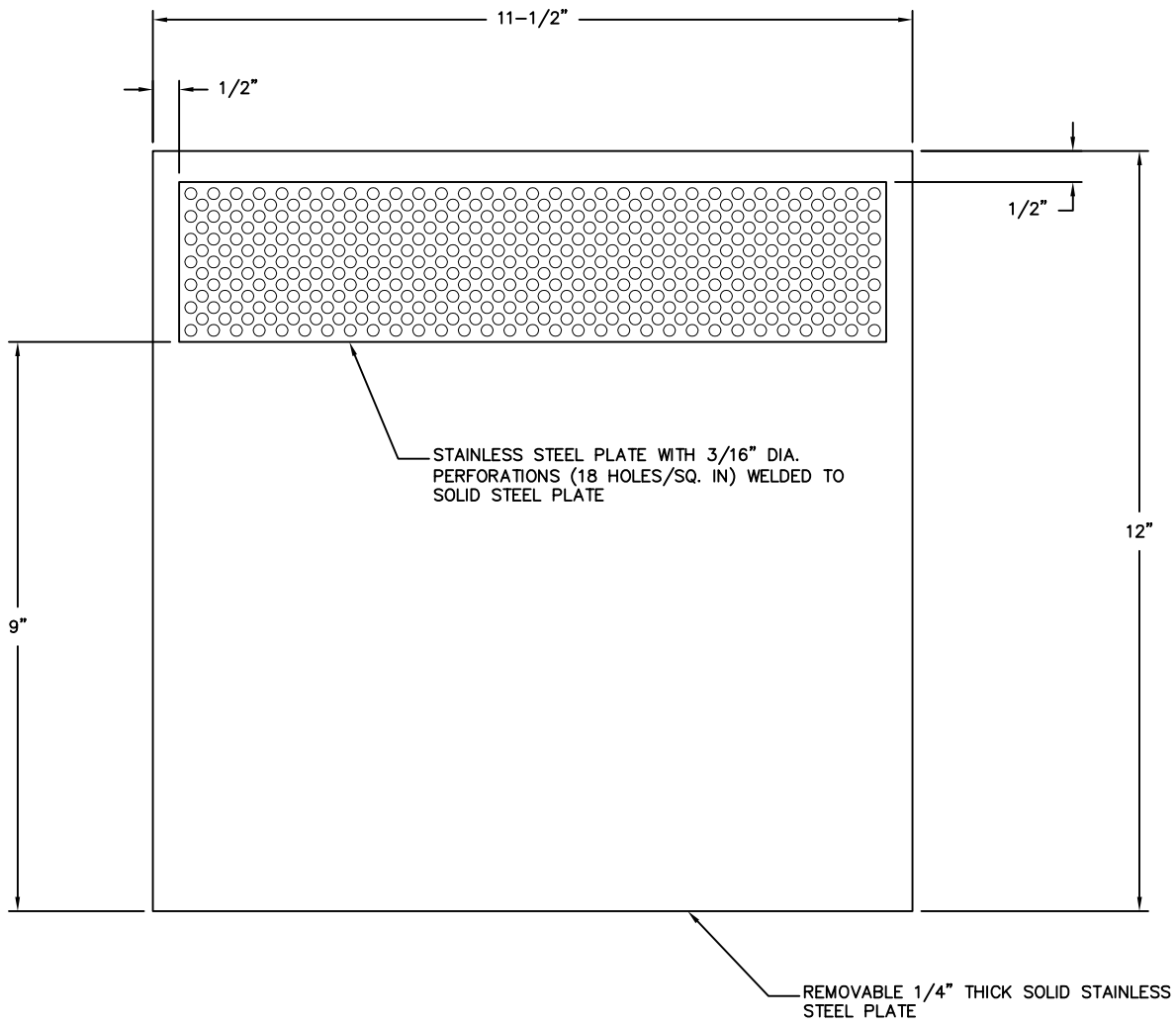
SIZE OF SUMP PIT INCLUDING ACCESS AND FUNCTIONALITY ARE SUBJECT TO AGENCY APPROVAL.

TYPICAL SUMP PIT CROSS-SECTIONS
APPENDIX J

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



NOTES:

THIS REMOVABLE PLATE MAY BE PREFABRICATED.

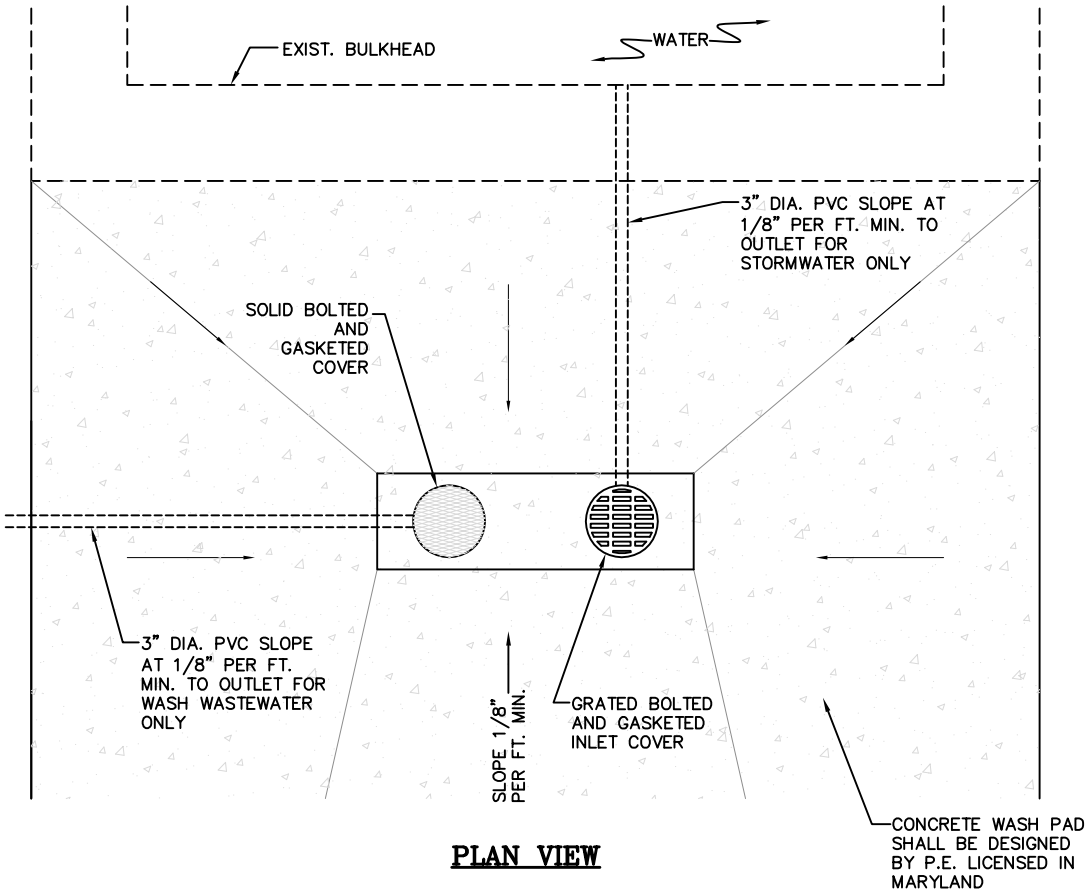
REMOVABLE SEMI-PERFORATED STAINLESS STEEL PLATE DETAIL

APPENDIX K

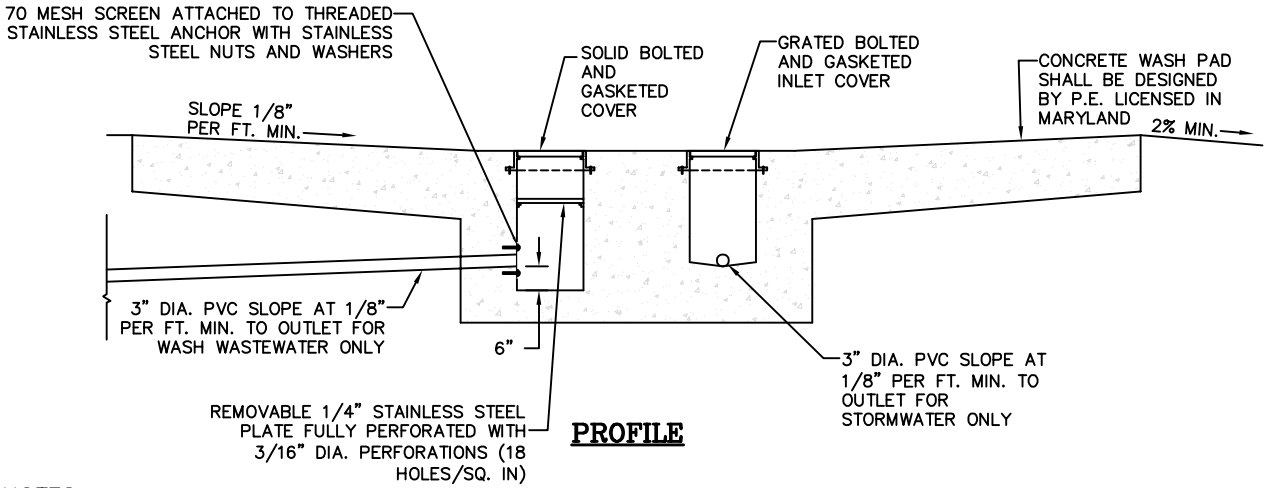
N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com



PLAN VIEW



PROFILE

NOTES:

INLET AND SOLID COVERS ARE TO BE INTERCHANGED WHEN WASH OPERATIONS ARE OCCURING. NO STORMWATER SHALL BE DIRECTED TO WASTEWATER OUTLET.

UNDER NO CIRCUMSTANCES SHALL WASH WASTEWATER DRAIN TO GROUNDWATER OR WATERS OF THE STATE.

MUST BE COORDINATED WITH SEWER AUTHORITY.

OPTIONAL WASH PAD DETAILED LAYOUT

APPENDIX L

N.T.S.

HURON CONSULTING

20410 CENTURY BLVD
SUITE 230
GERMANTOWN, MD. 20874
PHONE: (301) 528-2010
FAX: (301) 528-0124
www.huroncon.com

Maryland Clean Marina

GUIDEBOOK

A product of the Maryland Clean Marina Initiative

Prepared by
Maryland Department of Natural Resources
Annapolis, Maryland

2013

The Maryland Department of Natural Resources developed and authored this guidebook and it 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 Department of Natural Resources, 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.

Cover photographs taken by Robert De Young and Donna Morrow at Atlantic Marina Resort (rain barrel), Knapps Narrows Marina (shoreline), Port Annapolis Marina (vacuum sander and ground cover) and Bert Jabin's Yacht Yard (flag).

Revisions to this Guidebook made in 2011 reflect changes to the General Permit for Discharges from Marinas 10-MA.

Maryland Department of Natural Resources
Boating Services Unit
580 Taylor Avenue, E-4
Annapolis, MD 21401
Toll free in Maryland: (877) 620-8DNR x8773
Out of state call: (410) 260-8773
www.dnr.state.md.us/boating/cleanmarina

MARYLAND
DEPARTMENT OF
NATURAL RESOURCES

MARYLAND CLEAN MARINA

A Message from the Governor

Dear Friends:

People throughout Maryland are coming together in partnership to protect our Chesapeake Bay so that future generations can continue to enjoy its breathtaking beauty and vast resources.

The Maryland Clean Marina Initiative is a terrific example of this strong sense of environmental stewardship. More than 140 marinas and boatyards throughout 15 counties in our State have adopted these measures, and are now certified Maryland Clean Marinas or clean marina partners.

Working together, we have made real and steady progress toward our goals by creating the Chesapeake Bay 2010 Trust Fund, updating our Critical Area legislation for the first time in 25 years, and establishing BayStat to coordinate restoration efforts.

Boaters, business owners, and citizens throughout the State are all important partners in our effort as One Maryland to protect Maryland's waters for our children and grandchildren.

Sincerely,

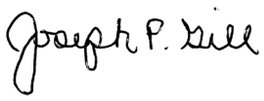
Martin O'Malley
Governor

Foreword

The Maryland Department of Natural Resources is pleased to present this guidebook of practical, common sense tips for controlling pollutants associated with vessel operation, maintenance and storage. This guidebook also reviews relevant environmental laws and regulations.

Maryland's Clean Marina Initiative, working in partnership with the Marine Trades Association of Maryland, promotes voluntary adoption of pollution prevention measures. Marinas, boatyards and yacht clubs of any size can be certified Maryland Clean Marinas after adopting the practices in this guide and passing a site inspection by DNR and industry representatives. Our goal is to certify at least 25 percent of the state's more than 600 marinas.

If your business has yet to become certified, we urge you to join the more than 140 operators who have chosen to lead by example in our effort to promote sustainable practices to protect Maryland's vast network of waterways.



Joseph P. Gill
Secretary
Maryland Department of Natural Resources

Acknowledgments

The Maryland Clean Marina Guidebook was written in 1997 by Elizabeth Fuller Valentine with the active participation of the Maryland Clean Marina Committee:

Steuart Chaney	Herrington Harbour Marinas
Philip Conner	Crockett Bros. Boat Yard
Annette Cropper	Ocean City Fishing Center
Bob DeYoung	Mears Marina
Lt. James F. Driscoll	United States Coast Guard, Activities Baltimore
Melissa Farrell	Maryland Center for Environmental Training, Charles County Community College
Dave Gohsman	Port Annapolis Marina
Marie Halka	Maryland Department of the Environment
Jonathan Jones	Haven Harbour Marina
Beth Kahr	Marine Trades Association of Maryland
Douglas Lipton	University of Maryland Sea Grant Program
Margaret Podlich	BoatU.S./ Clean Water Trust
John Polek	Sunset Harbor Marina
John Roberts	Point Lookout Marina
Pat Tantum	Maryland Environmental Service
Tom Wood	Watershed Associates
Sandy Zimmerman	Marine Trades Association of Maryland and Turkey Point Marina

The Committee members freely volunteered their time and effort to review and discuss the Guidebook. They are a truly knowledgeable and dedicated group.

Drafts of the Maryland Clean Marina Guidebook were also reviewed by many additional subject area experts. Reviewers included Jennifer Pereira, BoatU.S./ Clean Water Trust; Lee Ann Chandler, Critical Area Commission; Britt Slattery, U.S. Fish and Wildlife Service; Mary Ellen Setting, Maryland Department of Agriculture; and Cindy Tate, Anne Arundel County. The following people from the Maryland Department of the Environment commented on the Guidebook: Patsy Allen, Laura Armstrong, Rick Ayella, Bob Beasley, Brian Clevenger, Lori Del Pizzo, Andrew Der, Ed Gertler, Elder Ghigiarelli, Ed Hammerburg, Bec Hebler, Karen Irons, Lois McNamara, Nolan Penney, Ginny Sells, Greg Sonberg, and Ed Stone. Staff from the Maryland Department of Natural Resources also reviewed this document: David Burke, Ray Dintaman, Bob Ellsworth, Bob Gaudette, Barbara MacLeod, Frances McFaden, Donald O'Neill, Ren Serey, Kitty Riggin and Jody Roesler.

The 1998 Guidebook was designed and desktop published by Laura Ford and Susan Craton, Maryland Center for Environmental Training. Revised in 2002 by Elizabeth Fuller Valentine and in 2008, 2011, and 2013 by Donna Morrow.

The Clean Marina Initiative is staffed by the Boating Facilities and Access Planning Division of the Department of Natural Resources: Lisa Gutierrez, Division Director and Donna Morrow, Program Manager.

Table of Contents

Special Features

Tables

Figures

Boxes

Acronyms

BMP	Best Management Practice
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
COMAR	Code of Maryland Regulations
EPA	Environmental Protection Agency
DNR	Maryland Department of Natural Resources
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
IDA	Intensely Developed Area

LDA	Limited Development Area
MDA	Maryland Department of Agriculture
MDE	Maryland Department of the Environment
MES	Maryland Environmental Service
MPPRCA	Marine Plastic Pollution Research and Control Act
MSD	Marine Sanitation Device
NDZ	No Discharge Zone
NOI	Notice of Intent
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
PWC	Personal Water Craft
QAC	Quarternary Ammonium Compounds
RCA	Resource Conservation Area
RCRA	Resource Conservation and Recovery Act
SAV	Submerged Aquatic Vegetation
TCLP	Toxicity Characteristic Leaching Procedure
UL	Underwriters' Laboratories
UST	Underground Storage Tank
USC	United States Code
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

Introduction

The Maryland Clean Marina Initiative is an effort to assist marina and boatyard operators to protect the resources that provide their livelihood: clean water and fresh air. These natural assets are essential features of the boating industry. After all, many boaters are drawn to the water by nature's glory. They want to feel the sea rolling beneath them and the crisp air against their skin. They want to see fish running and birds diving. They want to be able to swim and crab without fear of disease. They want to test their mettle against a rising wind and to sit tranquilly at twilight. Ironically, it is the enjoyment of these natural wonders that may lead to their decline.

The maintenance, operation, and storage of recreational vessels has the potential to pollute adjacent waters and to impair air quality. Contaminants include dust from hull maintenance operations, solvents from engine repair shops, petroleum from careless fueling practices, sewage discharges from boats, and heavy metals from antifouling paints. These pollutants may be deposited directly into waterways or they may be carried in by stormwater runoff. Marina design and location may also contribute to environmental degradation by disturbing sensitive habitat areas.

This is not to say that marinas and boaters are the only contributors to environmental degradation. Quite the contrary is true. Water quality is impacted by fertilizers and pesticides applied by land owners (residential, commercial, and agricultural), by industrial discharges, and by our choices of home cleaning products. It is affected by sediment washed from cleared land and by stormwater runoff that collects oil and heavy metals deposited by our cars. Environmental degradation is not the result of any particular industry or user group. It is the consequence of all of our activities. As such, we all have an obligation to do what we can to minimize the negative environmental impacts of our actions. If we each take responsibility for that part of the problem which we can control–even if it seems insignificant–the cumulative result will be a cleaner, healthier environment.

By adopting the best management practices recommended throughout this Guidebook, you will demonstrate your commitment to environmental stewardship. You can be proud that you are doing your share to protect the natural resources upon which we all depend. Additionally, your marina or boatyard will be a safer, healthier place to work. You may be able to save money by reducing your costs for materials and for waste cleanup and disposal. You may increase your income by renting out equipment such as vacuum sanders and by selling recyclable materials such as batteries and scrap metal. Similarly, cleaner, more efficient equipment will increase your staff's productivity. Your liability associated with waste handling may also be reduced. And, your facility will be more attractive to those who care about the health of our water, land, and air.

The Maryland Clean Marina Initiative seeks to promote clean water and fresh air by providing technical advice and educational material to marina operators and boaters. The goal is to encourage informed decision making that leads to a reduction in boating-related pollution. The Maryland 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, independent boatyards, and marine contractors. The Guidebook provides advice on the following topics:

- siting considerations for new or expanding marinas
- marina design and maintenance
- stormwater management
- vessel maintenance and repair
- petroleum control
- sewage handling
- waste containment and disposal
- marina management
- laws and regulations

Those marinas that adopt a significant proportion of the best management practices suggested within the Guidebook will be recognized as Maryland Clean Marinas. They will receive a certificate acknowledging their environmentally responsible actions, authorization to use the Maryland Clean Marina logo on their letterhead and in their advertising, a flag to fly from their property, and promotion by the Clean Marina Initiative in publications, on the world wide web, and at public events.

Now is the time to take a leadership role in protecting and enhancing the quality of Maryland's natural resources. Please, do your part.

Helpful Hint

As you read through the Guidebook you will find that recommendations are preceded by a diamond (◆), a broken diamond (❖), or an open diamond (✧). Solid diamonds identify legal requirements, broken diamonds precede highly recommended practices, and open diamonds indicate desirable activities.

How to Use this Guidebook

The Maryland Clean Marina Guidebook is intended to be used as a reference document. Refer to selected chapters as needed. For example, as you prepare for spring commissioning, review the recommendations in the Vessel Maintenance and Repair chapter.

As you read through the Guidebook you will find that recommendations are preceded by a diamond (◆), a broken diamond (❖), or an open diamond (✧). Solid diamonds identify legal requirements, broken diamonds precede highly recommended practices, and open diamonds indicate desirable activities.

Six Clean Boating Tip Sheets are included in the Guidebook. They address vessel cleaning and maintenance, bottom paint selection, underwater hull cleaning, petroleum control, vessel sewage, and waste containment and disposal. These tip sheets are meant to be photocopied and distributed to boaters. There is space on each sheet to include your marina's name and logo.

Throughout the book you will find references to additional sources of information. Contact information and brief descriptions of services offered by each authority are listed in Appendix I. Subsequent appendices contain information about local Critical Area Commissions, environmentally sensitive landscaping, recycling contacts, sample contract language, spill response companies, local economic development contacts, templates of commonly needed plans, waste gasoline haulers, and a training guide.

Siting Considerations for New and Expanding Marinas

Environmental Concerns

The natural plant and animal communities of coastal areas serve multiple functions. Wetlands, for example, provide habitat for fish and fowl. They form a natural buffer against incoming storms and act as a filter to purify stormwater runoff from the land. Wetlands also minimize erosion and support tourism, hunting, and fishing. Because of the ecological, economic, recreational, and aesthetic values inherent in coastal resources, it is important that shoreside development not diminish these features.

Legal Setting

Critical Area Program

Maryland enacted the Chesapeake Bay Critical Area Protection Program (Natural Resources Article §8-1801-1817 and COMAR, Title 27) in 1984, and extended the law in 2002 to the Atlantic Coastal Bays. The program minimizes damage to water quality and natural habitats by fostering more sensitive development along all Maryland tidal waters. The Critical Area Law is meant to:

- ◆ minimize adverse impacts on water quality that result from pollutants that are discharged from structures or conveyances or that have runoff from surrounding lands;
- ◆ conserve fish, wildlife, and plant habitat; and
- ◆ establish land use policies for development in the Chesapeake and Atlantic Coastal Bays Critical Areas which accommodate growth and also address the fact that, even if pollution is controlled, the number, movement, and activities of persons in those areas can create adverse environmental impacts.

While the Critical Area Law is a State law, it is implemented at the local level. Counties and municipalities in the Critical Area have developed local Critical Area Programs. The programs vary slightly so local programs and ordinances should always be consulted. Local planning offices are the first point of review for most development projects. Refer to Appendix II for local Critical Area contacts.

The Critical Area encompasses all waters and submerged lands of the Chesapeake and Atlantic Coastal Bays to the head of tide, and all lands and waters within 1,000 feet of mean high water or from the edge of tidal wetlands. The 100 feet of land closest to the mean high water line or edge of wetlands is the Critical Area buffer. Only “water-dependent” facilities, like marinas, are permitted in the buffer. Non-water dependent structures associated with marinas, such as tackle shops or dry storage areas, are not permitted in the

buffer. The siting of new or expanding marinas is further restricted to Intensely Developed Areas and Limited Development Areas within the Critical Area.

When selecting a site for a new or expanding marina, you must avoid or minimize your impact upon the following resources in order to comply with the Critical Area criteria.

- submerged aquatic vegetation (SAV)
- tidal and nontidal wetlands
- shellfish beds
- rare, threatened, or endangered species
- spawning, nursery, or propagation areas for anadromous fish
- shallow water habitat
- colonial waterfowl nesting sites
- existing riparian forests
- forests with interior dwelling bird species
- natural heritage areas
- tributary streams
- waterfowl staging areas

The Critical Area criteria also apply to the Atlantic Coastal Bays. See *Laws and Regulations* for a more complete discussion of Critical Area criteria.

Environmental Review

In addition to the resources listed above, the Department of Natural Resources (DNR) will evaluate all proposals–including those for projects outside of the Critical Area–for impacts to:

- stream buffers,
- wildlife corridors,
- wild and scenic rivers,
- navigational safety, and
- fisheries habitat, including natural oyster bars and barrier to migration.

The Environmental Review Unit of DNR will coordinate the Department's response to all proposals. Proposals may be submitted as part of the permit process (most environmental permits are issued by the Maryland Department of the Environment) or a preliminary plan may be submitted directly to the Environmental Review Unit. Once a preliminary plan has been reviewed, DNR can advise you what the expected impacts and mitigation measures will be.

State Tidal Wetlands Regulations

The State's tidal wetland regulations (COMAR 26.24.04.03) contain siting guidelines for new and expanding marinas. New and expanding marinas must be located to avoid and minimize impacts to tidal wetlands and other aquatic resources. Furthermore, they must be on waterways with strong flushing characterized by:

- ◆ a bottom that slopes from headwaters to mouth without sumps or other features which inhibit complete water exchange,
- ◆ an unconstricted entrance, and
- ◆ few branches, coves, and other features which inhibit complete mixing.

New or expanding marinas may not be located in water that is equal to or less than 4.5 feet deep at mean low water or in areas where their presence would adversely impact:

- ◆ submerged aquatic vegetation;
- ◆ productive macroinvertebrate communities;
- ◆ shellfish beds;
- ◆ fish spawning or nursery areas;
- ◆ rare, threatened or endangered species, or species in need of conservation; or
- ◆ historic waterfowl staging areas.

United States Army Corps of Engineers

The majority of marina development and expansion projects, including dredging, will require a permit from the Army Corps of Engineers. Section 10 of the Rivers and Harbors Act of 1899 gives the Army Corps authority to regulate all work and structures in navigable waters of the United States. Section 404 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act) regulates discharges of dredged or fill materials into navigable waters, including wetlands.

If an Army Corps Section 404 permit is required, the Maryland Department of the Environment (MDE) must investigate the site prior to construction. The Department of the Environment will document and evaluate water quality and the potential for pollution and adverse effects to living resources caused by marina siting and construction. The purpose of the Water Quality Certification process is to certify that federally permitted activities will not violate Maryland's water quality standards. The Water Quality Certification issued by MDE is then incorporated into the federal permit.

Site Selection Guidelines

Redevelop Existing Sites. Rather than disturbing pristine areas, place new facilities in previously-developed waterfront sites.

- ◆ State tidal wetlands regulations favor expansion of existing marinas over development of new facilities (COMAR 26.24.04.03).
- ◆ Critical Area criteria encourage placement of boating facilities in developed areas.

Characterize Project Site.

- ◆ Identify habitat types and seasonal use of the site by fish, shellfish, waterfowl, and other organisms.
- ❖ If necessary, hire a private consulting firm to perform the site assessment.

Identify Rare and Endangered Species.

- ◆ Rare and endangered species may not be disturbed (Federal Endangered Species Act, Natural Resources Article §4-2A-01 et seq., and Natural Resources Article §10-2A-01 et seq.).
- ◆ All proposed development sites must be assessed by the U.S. Fish and Wildlife Service (USFWS) and the Maryland Department of Natural Resources for endangered and threatened species and habitat protection areas.
- ❖ For a preliminary screening of a project site, contact your local planning office. Ask them to consult the Sensitive Species Project Review Areas (SSPRA) data layer of DNR's Geographic Information System, MERLIN Online, at www.mdmerlin.net.
- ❖ For more precise information concerning sensitive habitat areas, submit a project description and a photocopy of a United States Geological Survey topographic quadrangle map–with the site identified–to DNR's Environmental Review Unit and USFWS.
- ◆ If protected species are identified, you must implement an approved protection plan prior to project approval.

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

- ◆ Permits generally are not granted for any new or expanded construction that impacts existing SAV beds.
- ◆ State tidal wetlands regulations (COMAR 26.24.02.06) specifically prohibit dredging within 500 yards of SAV beds from April 15 to October 15.
- ◆ State tidal wetland regulations (COMAR 26.24.03.03) generally prohibit dredging in water three feet or less at mean low water, i.e., prime SAV habitat.
- ◆ Critical Area criteria mandate minimum SAV disturbance as a condition for locating water-dependent facilities (COMAR 27.01.03.04).
- ❖ Site new or expanded marinas such that navigation over SAV beds is not necessary.

State tidal wetlands regulations require that dredging projects first avoid and then minimize impacts to shellfish beds, submerged aquatic vegetation, and vegetated tidal wetlands (COMAR 26.24.03.02).

Debris and silt tend to collect in poorly-flushed areas and will eventually settle to the bottom. As the debris is decomposed by bacteria, oxygen is removed from the water. Water quality may suffer if oxygen is not replaced as quickly as it is remove**d.**

Minimize Disturbance to Wetlan**ds.**

- ◆ Minimize disturbance to wetlands and indigenous vegetation in riparian areas.
- ◆ It is the goal of the State to preserve–and when possible, increase–tidal wetland acreage and function (COMAR 26.24.01.01).
- ◆ Critical Area criteria specify that disturbance to wetlands must be minimized (COMAR 27.01.03.04).
- ◆ Any construction that does extend into tidal wetlands requires authorizations, licenses, or permits from the Maryland Department of the Environment, Army Corps of Engineers, and the Maryland Board of Public Works.
- ◆ Mitigation is required in cases where loss of wetlands is unavoidable.

Avoid Shellfish Beds.

- ◆ New or expanded marinas are not permitted in areas that may adversely impact shellfish beds (COMAR 26.24.04.03).
- ◆ Critical Area criteria require that shellfish beds not be disturbed or made subject to discharge that will render them unsuitable for harvesting (COMAR 27.01.03.04).
- ◆ An offset distance must be maintained between new marinas and shellfish beds. The separation helps to reduce chances that shellfish will become contaminated by boating-related pollutants.
- ◆ Shellfish stock may not be harvested from the waters of existing marinas.
- ◆ Harvesting shellfish from “buffer zones” in ambient waters near marina basins is prohibited between May 1 and September 30.

Avoid Critical Migration, Nesting, and Spawning Periods.

- ◆ Schedule construction to avoid critical migration, nesting, and spawning periods of important species of finfish, shellfish, and wildlife.
- ❖ Consult with DNR’s Environmental Review Unit for site-specific determinations of the potential effects of activities on wildlife populations.

Avoid Colonial Waterfowl Nesting and Staging Areas. 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 waterbird species. Marinas must be located such that the increased boating activities associated with new or expanded marinas do not deter waterfowl from using historic staging and concentration areas.

- ◆ State tidal regulations and Critical Area criteria require new or expanding marinas to avoid areas that will adversely impact historic waterfowl staging areas (COMAR 26.24.04.03 and COMAR 27.01.03.02).

Avoid Geographic and Hydrographic Impediments. Flushing is impeded at the head of tide and in areas where salinity or temperature differences produce variations in water density. Variations in density cause the water column to separate into distinct layers that do not readily mix.

- ◆ Marinas must be located on well-flushed waterways (COMAR 26.24.04.03).

Consider Bottom Configuration.

- ❖ A continuous, gradual downward slope from the berthing area into deeper water is ideal.
- ❖ Avoid canals, irregular pockets, and sumps that are deeper than adjacent channels.
- ❖ Avoid square corners in marina basins and dead-end channels to the greatest extent possible.

Follow Natural Channels.

- ❖ Align entrance channels with natural channels to increase flushing.
- ❖ Boat lanes should progressively widen toward the seaward end and narrow toward the inland end to allow water to flow freely and maintain its velocity within the marina.
- ❖ Avoid locating the entrance channel perpendicular to the natural channel as shoaling (and, therefore, dredging) is a potential problem.
- ❖ Avoid long winding channels connecting marinas to open water.
- ❖ Where possible, establish two openings at opposite ends of the marina to promote flow-through currents.

Information Sources

Appendix I

Critical Area Commission

Local Planning and Zoning Offices

Maryland Department of Natural Resources
- Environmental Review

Maryland Department of the Environment
- Water Management Administration

U.S. Fish and Wildlife Service

Appendix II

Local Critical Area Commission Contacts

Marina Design and Maintenance

Environmental Concerns

Land management decisions, operating procedures, and structural improvements may all contribute to–or detract from–the quality of the land and water surrounding your marina. Roads and parking areas may convey polluted stormwater directly into adjacent waterways. Dredging may resuspend 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 which 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, and clog fish gills.

Best Management Practices for Marina Facilities and Structures

Use Fixed or Floating Piers to Enhance Water Circulation. While being mindful of the need for pier/dock systems to provide access during routine operations and under emergency circumstances (e.g., evacuation preceding or during a storm), 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. Wave attenuators do not restrict water exchange nor do they interfere with bottom ecology or aesthetic view. Furthermore, they are easily removed and do not significantly interfere with fish migration and shoreline processes.

✧ 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.

✧ Use a de-ice bubbler system to aerate areas with poor circulation.

Use Environmentally Neutral Materials.

❖ For new pilings and other structures that are in or above the water, use materials that will not leach hazardous chemicals into the water and which will not degrade in less than ten years time, e.g., reinforced concrete, coated steel, recycled plastic, vinyl sheet piling.

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

✧ Avoid using wood treated with creosote for pilings and similar structures that

are in or above the water. Wood should be pressure treated to at least the minimum requirements recommended by the Southern Pine Council (http://newstore.southernpine.com/images/ref322.pdf). There is concern that these pressure treated timbers may also contribute to water pollution, however.

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

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

❖ 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. New marinas must be located in areas where deep water access can be obtained with a minimum of excavation, 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 water.

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

✧ Provide dry storage for smaller boats.

Minimize the Impacts of Dredging.

◆ Do not dredge during critical migration or spawning periods of important species of finfish or shellfish (COMAR 26.24.02.06). Contact the Department of Natural Resources Environmental Review Unit to learn when these periods are.

◆ Avoid colonial waterbird nesting areas and historic waterfowl staging and concentration areas (COMAR 26.24.04.04).

◆ The State tidal regulations specifically prohibit:
- mechanical dredging within 500 yards of shellfish areas December 16 to March 14 and June 1 to September 30;
- hydraulic dredging within 500 yards of shellfish areas between June 1 and September 30; and
- dredging between February 15 and June 15 in areas where yellow perch have been documented to spawn, and between March 1 and June 15 in areas where other important finfish species identified by DNR have been documented to spawn.

◆ Be certain that your dredging contractor selects an appropriate disposal site and containment design. The disposal site must have minimal impact on public safety, adjacent properties, and the environment. Dredge material must be disposed in accordance with the guidelines specified in COMAR 26.24.03.04-.05.

❖ Use dredging methods, like hydraulic dredging, that minimize environmental impacts.

❖ Use turbidity curtains to contain suspended sediments.

A Waterway Construction Permit and a Clean Water Act Section 404 Permit are required for all dredging projects.

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 (COMAR 26.24.01.01).

✧ If non-structural measures alone are not sufficient to control erosion, use revetments, breakwaters, or groins to stabilize and ensure the long-term viability of the non-structural controls.

✧ As a last resort, use structural controls in this order of preference: shoreline revetments, breakwaters, groins, and bulkheads.

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

Conserve Water and Energy.

❖ Equip all freshwater hoses with automatic shutoff nozzles.

❖ Fix leaks and drips.

✧ Install "low-flow" faucets, toilets, and shower heads.

❖ Install CFL bulbs in all fixtures.

❖ Install motion sensors on lights in bathrooms and other rooms used intermittently.

Maintain Structures Using Clean Marina Practices.

❖ Scrape, sand, and paint in-water and land-side structures according to the same management principles as for vessels (refer to the Vessel Maintenance and Repair chapter).

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

Best Management Practices for Protecting Sensitive Areas

Minimize Impervious Areas.

❖ Keep paved areas to an absolute minimum, e.g., just designated work areas and roadways for heavy equipment.

Use Upland and Inland Areas.

❖ 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.

Expand Upward.

✧ 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, scrape, and paint is eliminated.

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

❖ 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.

◆ Locate boatels outside of the 100-foot Critical Area buffer as they are not water-dependent facilities.

Conserve Sensitive Land.

✧ Provide a serene setting for your marina by placing adjacent, sensitive land in a conservation trust. Income, estate, and property tax benefits are available.

✧ Participate in Maryland Environmental Trust's Conservation Easement Program to preserve farmland, forestland, waterfront, wetlands, rare or unique areas, scenic areas, endangered species habitat, historic properties, and open space.

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

Practice Water-wise Landscaping. Save on water bills, reduce your maintenance activities, and protect water quality by minimizing your water use.

❖ Water only when plants indicate that they are thirsty: shrubs will wilt and grass will lie flat and show footprints. Water in the early morning or early evening 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. Refer to Appendix III for a sampling of beneficial plants.

❖ 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.[1] 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 stormwater. Planting groundcover at the base of trees serves the same function.

Landscape with native plants that require little care in terms of water, fertilizer, and pesticides.

[1] For best results, water grass to a depth of 1". Refer to Appendix III to learn how to calculate the time needed for proper water application

❖ 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 filtered and used 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 the collected water on your landscaped areas.

Adopt Integrated Pest Management Practices. Because of your proximity to the water, it is important to avoid toxic lawn and garden chemicals to the greatest extent possible. Instead, deter unwanted plants or animals with Integrated Pest Management practices. Integrated Pest Management employs preventive, cultural, biological, and chemical methods to control pests while minimizing impacts to non-target species, wildlife, and water quality.

❖ Select plants that are disease and insect resistant, that will out-compete common weeds, and that can thrive on your property. Refer to the BayScapes list of native plants (Appendix III) 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. If it is not actually harming anything, leave it alone.
❖ 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. Use organic alternatives to chemical pesticides. Also, rather than broadcasting pesticides, apply them directly to problem areas.
❖ Treat only serious or threatening intolerable pest infestations.
❖ 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, e.g., shore, wells, streams, ponds, bird baths, swimming pools, etc.

Best Management Practices for Creating Habitat Areas

Maintain and/or Develop Vegetated Areas. Vegetation filters and slows the flow of surface water runoff, stabilizes shorelines, and provides wildlife habitat, flood protection, and visual diversity.

- ❖ Maintain vegetated buffers (grassy or wooded) between all impervious areas (e.g., parking lots, boat storage areas) and the water.
- ❖ Plant vegetated areas with "beneficial" plants: those plants that require minimal care in terms of trimming, watering, and applications of fertilizer and pesticides. Native, or indigenous, plants demand little care since they are adapted to the local climate and soil types. Also, many horticultural varieties and imported plants may be considered beneficial if they have few maintenance requirements and if they do not displace naturally occurring vegetation (that is, if they are not invasive). Refer to Appendix III.
- ❖ Select perennial plants instead of annuals. Perennial plants need only be planted once, tend to shade out most weeds, and few require additional water or maintenance.
- ❖ Choose plants that bear flowers, fruit, nuts, and seeds to attract birds, small mammals, and other wildlife.
- ❖ Maintain proper soil pH and fertility levels. Fertility describes the presence of nutrients and minerals in the soil. Acidity and alkalinity levels are indicated by pH. These two measures together tell you which plants your soil can support. Soil pH may be adjusted by adding lime (base) or gypsum (acid). Add organic matter such as compost, leaf mold, manure, grass clippings, bark, or peat moss to improve fertility.
- ❖ Annually, submit a soil sample to the University of Maryland's Cooperative Extension Service 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.
- ❖ Compost leaves, branches, grass trimmings, and other organic matter. Use the mature compost to nourish your soil. Alternatively, chip branches and leaves and use as mulch to discourage weeds and to conserve moisture. More complete information on composting is available from the University of Maryland's Cooperative Extension Service.

Participate in Oyster Restoration Programs. Oyster reefs provide food and habitat for hundreds of animals. The oysters themselves improve water quality by filter-feeding on microscopic algae. A single 3-inch oyster can filter up to 50 gallons of water a day. Benefits accrue to marinas as well. Jonathan Jones of Haven Harbour Marina in Rock Hall noticed that his tenants became more cautious about waste disposal once he began participating in an oyster restoration program.

- ✧ Become an oyster "gardener." Work with the Chesapeake Bay Foundation to build and install a float system for growing oysters. You will tend to seed oysters for 12 to 14 months, after which time the oysters will be transplanted to non-harvested oyster bars. Do not eat oysters grown in marinas! They will likely contain heavy metals from bottom paints and possibly bacteria from sewage discharges.

Information Sources

Appendix I

Alliance for the Chesapeake Bay

Chesapeake Bay Foundation

Cooperative Extension Service

Maryland Department of Natural Resources
- Environmental Review
- Fisheries Service

Maryland Department of the Environment
- Water Management Administration

Maryland Environmental Trust

The Nature Conservancy

U.S. Fish and Wildlife Service

Appendix III

BayScapes Program

Stormwater Management

Environmental Concerns

Stormwater runoff is precipitation that has not been absorbed by the ground. Rather, it washes over the surface of the land picking up pollutants as it travels. Stormwater runoff may collect soil particles, petroleum products, residues from industrial activities, litter, and pet waste. All of these pollutants are carried with the runoff into surface waters where they adversely impact water quality.

The volume of stormwater runoff increases as natural forests and fields are replaced with hard surfaces such as buildings, parking lots, driveways, and roads. Also, without any plants to disrupt the flow, stormwater moves across the land more quickly than it did under predevelopment conditions. This greater, faster flow of stormwater can severely degrade receiving water bodies by accelerating erosion which leads to flooding, destruction of plant and animal life, and loss of habitat. Also, pollutants carried by stormwater impair water quality by increasing levels of nitrogen, phosphorus, suspended solids, biological oxygen demand, and chemical oxygen demand. Temperatures and levels of toxic metals and hydrocarbons tend to increase, dissolved oxygen decreases, and the acidity-alkalinity of the water typically changes. 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.

Legal Setting

Federal Clean Water Act—National Pollution Elimination Discharg System (NPDES) General Permit for Discharges from Marinas

Marine facilities that perform or allow shore-side boat repair, painting, or maintenance (including pressure washing) are required to obtain a General Permit for Discharges from Marinas from the Maryland Department of the Environment (MDE). The permit addresses the following discharges:

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

The control of pollutants that may be carried by stormwater runoff from vessel maintenance areas is addressed in Vessel Maintenance. Please refer to Laws and Regulations for more information about the General Permit for Discharges from Marinas.The Permit itself can be found on-line at http://www.mde.maryland.gov

State Law: Sediment Control and Stormwater Management

Maryland Environment Article Title 4 Subtitles 1 and 2 require that any construction project that disturbs 5,000 square feet or more of land or results in 100 cubic yards or more of earth movement must have approved erosion, sediment, and stormwater management plans before construction begins. The plans are typically approved by the local Soil Conservation District. For construction projects that disturb one or more acres, you must also obtain coverage under the NPDES General Permit for Construction Activities and, in certain jurisdictions, the local Planning and Zoning Office as well.

Critical Area Program

Critical Area criteria require that the impacts of any development or redevelopment within the Critical Area be reduced by adopting measures to control stormwater runoff. The extent of the required management measures differ depending upon whether you are sited within a Limited Development Area (LDA) or an Intensely Developed Area (IDA). Any new development in Limited Development Areas must limit impervious lot coverage to 15 percent of the project site. Stormwater facilities must be designed to treat both the quality and quantity of stormwater generated by development on that site. There is not state limit on impervious lot coverage in Intensely Developed Areas, however the criteria specify that management measures must reduce post-development pollutant loading to a level that is 10 percent below the load generated at the same site prior to development. This requirement is commonly referred to as the “10 Percent Rule.” Contact your local Critical Area representative (see Appendix II) for guidance on complying with the 10 Percent Rule. Refer to Laws and Regulations for a fuller discussion of Critical Area criteria.

Best Management Practices to Control Stormwater Runoff

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, gutters, 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.

- ❖ Capture and treat stormwater on site.
- ✧ For example, direct the runoff from your parking lot to a bioretention area rather than toward a storm sewer pipe. A “rain garden” is an example of **a**

bioretention area. It is an area planted with native vegetation and sited such that it collects stormwater. Water, nutrients, and pollutants are taken up by soil and plants within 24 to 48 hours after a storm. Rain gardens have the added advantage of being attractive areas that can provide shade and wildlife habitat, act as wind breaks, and muffle noise.

✧ Contact Prince George's County Department of Environmental Resources for additional information about low impact development and rain gardens.

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.

❖ Plant environmentally-sensitive landscapes at the edge of parking lots and within islands in parking lots. Refer to Appendix III for information about the BayScapes Program.

❖ 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.

✧ Construct wetlands to remove pollutants, protect the shore from storms, and provide habitat for aquatic species and birds.

✧ Use grassed swales to direct stormwater on your property. 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. Grassed swales are not practical on very flat land, on steep slopes, or in wet or poorly drained soils.

Minimize the Amount of Impervious Area. The less impervious area on site, the less runoff you will have to manage.

❖ Pave only those areas that are absolutely necessary.

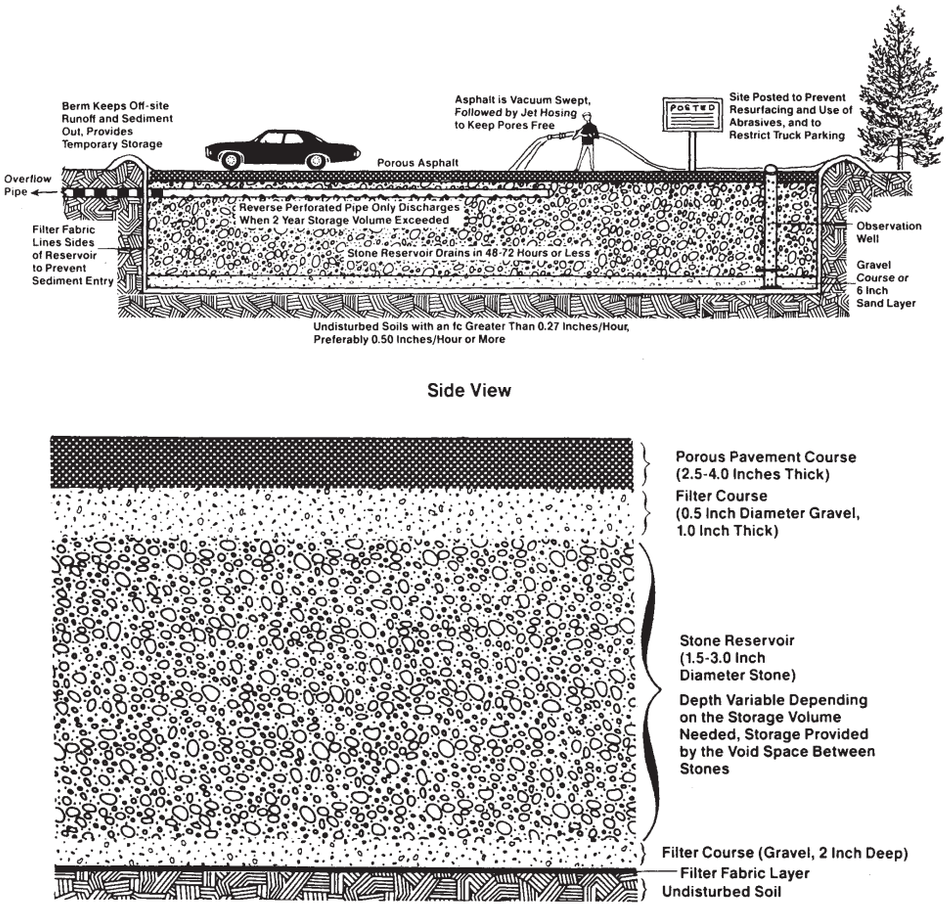
❖ Minimize the length of new roadway required to serve new or expanding marinas.

❖ Plan roads so they do not cross sensitive areas such as tidal wetlands.

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

✧ Investigate a non-toxic, organic soil binder derived from the Plantago plant family. When this binder is combined with crushed aggregate (e.g., gravel, shells) and soil, it creates a somewhat permeable surface that will not erode. 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.

Figure 1. Porous Pavement



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

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

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

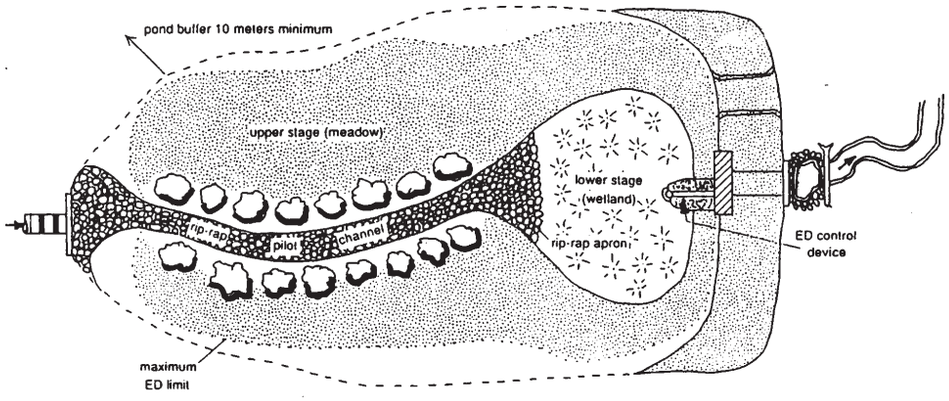
- Stormwater wetland systems are designed to mimic the ability of natural wetlands to cleanse and absorb storm flows. A Pocket Wetland (see Figure **3)** is created by excavating to the high water table elevation. Pocket wetlands can serve drainage areas of 5 to 10 acres.
- Infiltration systems are designed to take advantage of soil's natural infiltration capacities and pollutant removal characteristics. A Dry Well (see Figure 4) is an infiltration system designed to treat roof top runoff. Water is collected in downspouts and directed into a filter composed of crushed stone and fabric. Rain gardens and porous pavement are other examples of infiltration systems.
- Filter systems "strain" runoff to remove pollutants. Conventional Sand Filter Systems (see Figure 5) are constructed of layers of sand, from most course on top to most fine below. The sand overlies either a gravel bed (for infiltration) or perforated underdrains (for discharge of treated water). Oil Grit Separators (see Figure 6) 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.

❖ ALL stormwater management structures must be maintained in order to be effective.

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

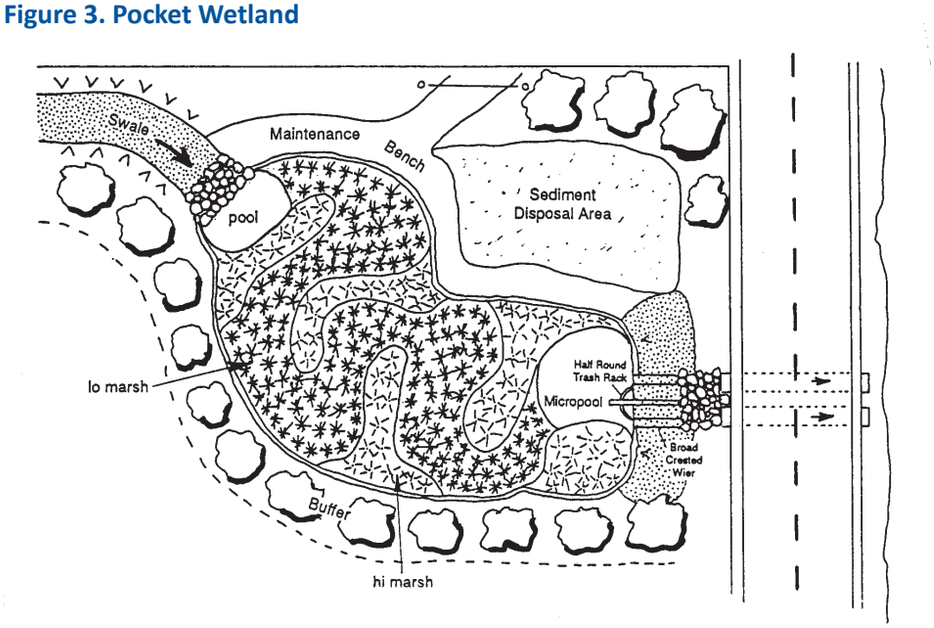
✧ Contact MDE's Water Quality Infrastructure Program for information about grant funding to local governments for the installation of stormwater management structures in existing developed areas.

Figure 2. Dry Extended Detention Pond



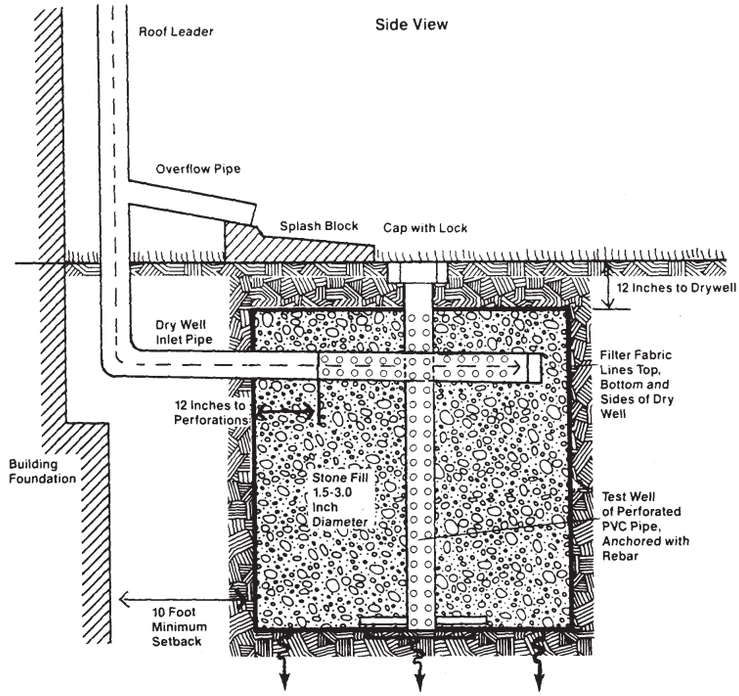
Source: Schueler, T.R. 1991. "Mitigating the Adverse Impacts of Urbanization on Streams: A Comprehensive Strategy for Local Governments," Proceedings of the National Conference Integration of Stormwater and Local Nonpoint Source Issues. Northern Illinois Planning Commission.

Figure 3. Pocket Wetland



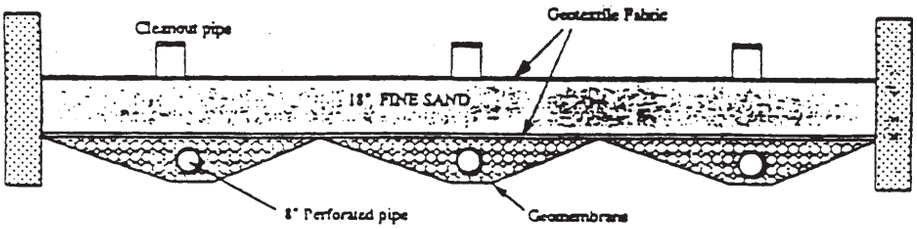
Source: Schueler, T.R. 1992. Design of Stormwater Pond Systems. Washington, DC: Metropolitan Washington Council of Governments.

Figure 4. Dry Well



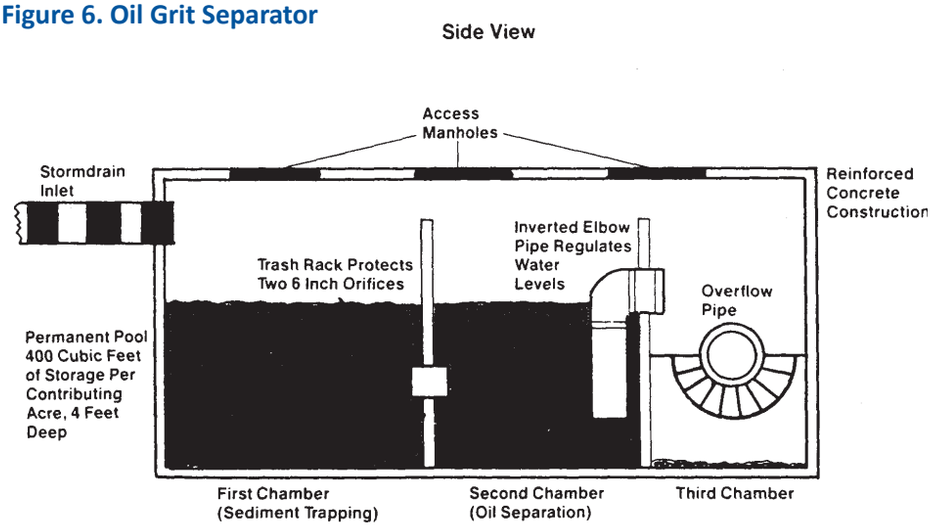
Source: Schueler, T.R. 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices. Washington, DC: Metropolitan Washington Council of Governments.

Figure 5. Sand Filter



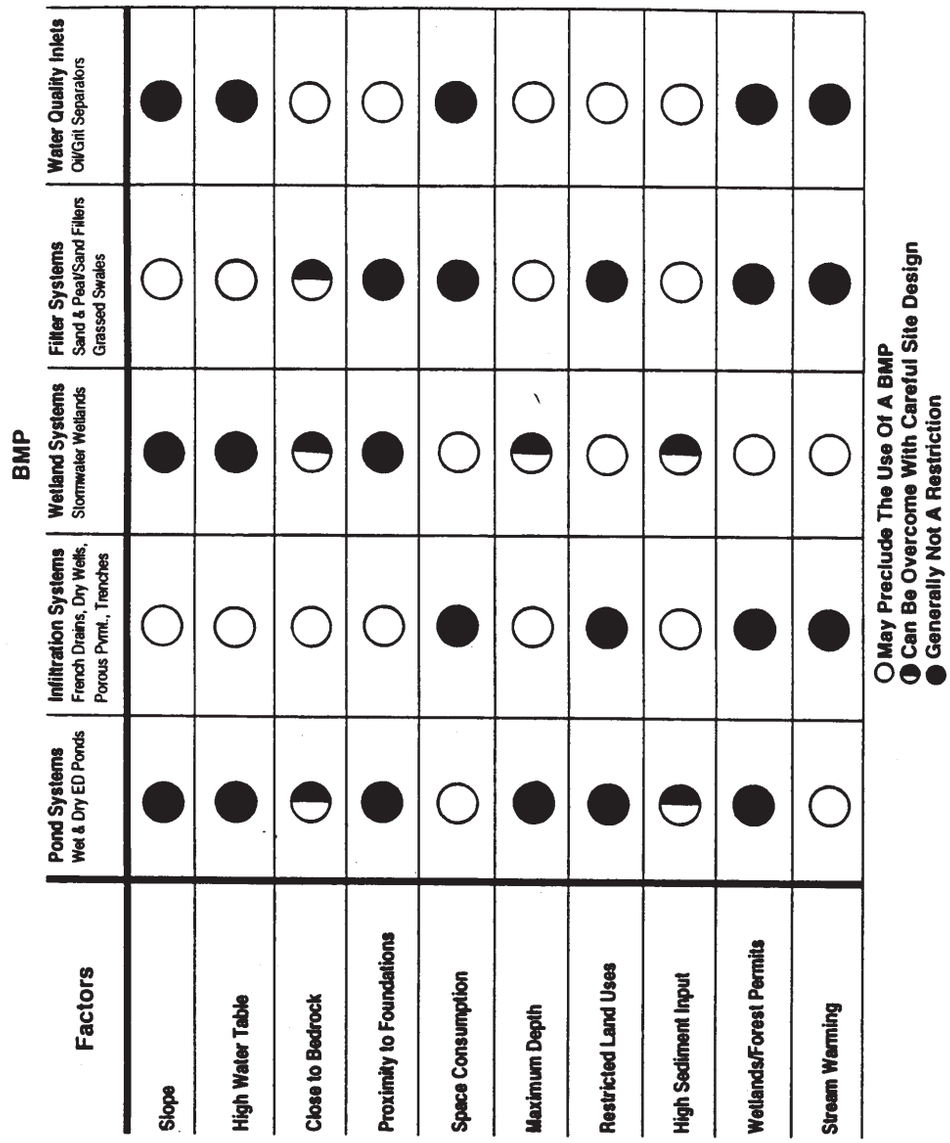
Source: City of Austin. 1991. Design Guidelines for Water Quality Control Basins. Austin, TX: Public Works Department.

Figure 6. Oil Grit Separator



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

Table 1. Screening Tools for Stormwater Management Best Management Practices Physical Feasibility



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

Information Sources

Appendix I

Chesapeake Bay Foundation

Chesapeake Bay Program Office

Maryland Department of the Environment
- Industrial Permits Division
- Water Management Administration
- Water Quality Infrastructure Program

Ocean Conservancy

Prince George's County

Appendix II

Local Critical Area Commission Contacts

Appendix III

BayScapes Program

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.

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 Department of Natural Resources, the Chesapeake Bay Foundation, and the Ocean Conservancy's Virginia Office. See Appendix I, "Information Sources" to reach one of these agencies.

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.

Vessel Maintenance and Repair

Environmental Concerns

Vessels require a great deal of attention. They must be scraped, painted, and cleaned. Their engines need to be lubricated and otherwise tended. They need to be prepared to withstand the cold of winter. Each of these activities has the potential to introduce pollutants into the environment.

Sanding, blasting, and pressure washing are meant to remove paint and marine growth. In the process, toxic heavy metals such as copper and tin may be released. If heavy metals find their way into the water, they may be consumed by mussels, worms, and other bottom-dwelling creatures and passed up the food chain to fish, birds, and humans. Heavy metals that are not incorporated into living tissue will remain in the sediments where they will substantially increase the cost of dredge spoil disposal.

Paints, solvents, thinners, and brush cleaners generally are toxic and may cause cancer. If spilled, they may harm aquatic life and water quality. Additionally, the fumes–known as volatile organic compounds (VOCs)–released by some paints and solvents contribute to air pollution. Likewise, oil and grease from maintenance areas threaten aquatic life.

Many of the cleaning products meant to be used in boat shops are also toxic. Many contain 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.

Legal Setting

Federal Clean Water Act—

National Pollution Discharge Elimination System (NPDES)

General Permit for Discharges from Marinas

As described earlier, all marinas that perform vessel maintenance and repair (including pressure washing) must obtain a General Permit for Discharges from Marinas from the Maryland Department of the Environment (MDE). The permit requires marina operators to control pollutants from vessel maintenance and wash areas. Please refer to Laws and Regulations for more information about the General Permit for Discharges from Marinas.

Critical Area Program

The Critical Area criteria state that adverse impacts to water quality from boat cleaning and maintenance operations must be minimized (COMAR 27.01.03.04).

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

Designate Work Areas One of the easiest ways to contain waste is to restrict the area where maintenance activities may be performed.

- ❖ Perform all major repairs–such as stripping, fiberglassing, and spray painting–in designated areas.
- ❖ Collect all maintenance debris. Clean work areas after completing each operation or at the end of the day–whichever comes first. Remove sanding debris, paint chips, fiberglass, trash, etc.
- ❖ Locate the maintenance area as far from shore as possible.
- ◆ Non-waterdependent areas for new marinas within the Chesapeake Bay Critical Area must be located outside of the 100-foot buffer.
- ◆ Vessel maintenance areas must have an impervious surface covering the ground (e.g., asphalt, cement, or a tarp). Although not required, where practical, a roof will prevent storm water 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 yet–unlike plastic, or to a lesser extent, canvas–filter fabric will allow water to pass through. Tarps may potentially be re-used multiple times.
- ❖ Surround the maintenance area with a berm or retaining wall.
- ❖ Use vegetative or structural controls cited in Storm water Management to treat storm water runoff.
- ◆ Establish a schedule for inspecting and cleaning storm water systems. Remove paint chips, dust, sediment, and other debris. Clean oil/water separators. Required as part of a Storm Water Pollution Prevention Plan.
- ❖ Prohibit extensive maintenance or repair work outside of the designated maintenance areas.
- ❖ Clearly mark the work area with signs, e.g., “Maintenance Area for Stripping, Fiberglassing, and Spray Painting.”
- ❖ Post signs throughout the boatyard describing best management practices that boat owners and contractors must follow, e.g., “Use Tarps to Collect Debris.”
- ❖ Develop procedures for managing requests to use the work space, to move boats to and from the site, and to insure the use of best management practices.

Contain Dust from Sanding.

- ◆ Do not let dust fall onto the ground or water or become airborne.
- ❖ Invest in vacuum sanders and grinders. These tools collect dust as soon as it is removed from the hull. Vacuum sanders allow workers to sand a hull more quickly than with conventional sanders. Additionally, because paint is collected as it is removed from the hull, health risks to workers are reduced.
- ❖ Require tenants and contractors to use vacuum sanders. Rent or loan the equipment to tenants and contractors.
- ✧ Post signs indicating the availability of vacuum sanders and grinders.
- ✧ Bring vacuum sanders to tenants if you see them working with non-vacuum equipment.
- ◆ Conduct shoreside sanding in the hull maintenance area or over a drop cloth.
- ❖ Restrict or prohibit sanding on the water to the greatest extent practical.
- ❖ When sanding on the water is unavoidable, use a vacuum sander and keep dust out of the water.
- ❖ Use a damp cloth to wipe off small amounts of sanding dust.
- ◆ Collect debris. Characterize the waste (either through an independent laboratory or product knowledge/MSDS) 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.

Contain Debris from Blasting.

- ◆ Prohibit uncontained blasting.
- ◆ Perform abrasive blasting in the vessel maintenance area within a structure or under a plastic tarp enclosure. Do not allow debris to escape from the enclosure.
- ✧ Investigate alternatives to traditional media blasting. Hydroblasting and mechanical peeling essentially eliminate air quality problems. Debris must still be collected, however. Consider using a filter cloth ground cover.
- ✧ Avoid dust entirely by using a stripper that allows the paint to be peeled off. These products are applied like large bandages, allowed to set, and are then stripped off. When the strips are removed, the paint is lifted from the hull. Dust and toxic fumes are eliminated.
- ✧ Invest in a closed, plastic medium blast (PMB) system. These systems 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.
- ◆ Collect debris. Characterize the waste (either through an independent laboratory or product knowledge/MSDS) 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.

Minimize Impacts of Pressure Washing

- The General Permit for Discharges from Marinas 10-MA took effect March 1, 2011. Facilities that perform or allow vessel maintenance ashore (including pressure washing bottoms) must obtain the Permit. It is available at http://www.mde.maryland.gov or call 410-537-3603.
- The General Permit for Discharges from Marinas 10-MA requires marinas to collect and treat wash water beginning September 1, 2012. As of this date, marinas must also test wash water at point of discharge for Total Suspended Solids (TSS), Oil and Grease (O&G), and metals (copper, zinc, and lead). Testing frequency is established in the Permit.
- As of March 1, 2013 treated wash water must meet numeric limits for TSS and O&G prescribed in the General Permit for Discharges from Marinas 10-MA, if it will be discharged to surface or ground waters.
- Beginning March 1, 2015 treated wash water must meet numeric limits for TSS, O&G and metals (copper, zinc, and lead) prescribed in the General Permit for Discharges from Marinas 10-MA, if it will be discharged to surface or ground water.
- Prior to the effective date of the numeric limits, all wash water shall be treated using reasonable measures, such as straw dam filters, geotextiles, settling basins, or sand filters to remove visible solids.
  - Alternatively, marinas can collect the wash water in a closed system and send it to either: 1) a closed loop recycling system with proper disposal of solid waste; 2) off site disposal by a licensed operator; or 3) connection to the sanitary sewer with permission from the local utility's pre-treatment or industrial discharge program.
  - When 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.
- Collect debris. Characterize the waste (either through an independent laboratory or product knowledge/MSDS) 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.

The General Permit for Discharges from Marinas requires that discharge from pressure washing areas be collected, treated, and tested.

By March 1, 2013 wash water must meet limits for TSS and O&G prior to discharge to waters of the State.

By March 1, 2015 wash water must meet numeric limits for metals prior to discharge to waters of the State or discharge must cease.

Box 1. Bottom Paints

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

Antifouling paints containing cuprous oxide are not used on aluminum hulls; the interaction of copper and aluminum leads to corrosion of the aluminum. In the past tin-based paints (tributyl tin or TBT) were used on aluminum-hulled vessels. Because tin is extremely toxic and easily absorbed by fish and accumulates to high levels in sediments, it must be applied cautiously. 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). 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. As of December 2003 the registrations to manufacture the raw material were cancelled and in December 2005 the last registration to manufacture antifouling paint containing TBT was cancelled. The International Maritime Organization's (IMO)Treaty, *International Convention on the Control of Harmful Anti-Fouling Systems on Ships,* will ban the use of all tin-based paints. Vessels painted with TBT paints will not be allowed to enter ports without documentation that the paint has been either removed or sealed. Modern antifouling paints for use on aluminum boats use Zinc Pyrithione and Cuprous Thiocyanate as biocides.

Any boatyard operator wishing to apply TBT paints must obtain a pesticide business license from the Maryland Department of Agriculture and employ an applicator certified to apply TBT.

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. Consequently, fumes are a concern.

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 clean up 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.

Minimize Impacts of Paints.

❖ Recommend antifouling paints which contain the minimum amount of toxin necessary for the expected conditions to your customers.
❖ Avoid soft ablative paints.
❖ Use water-based paints whenever practical. Touch up areas under jack stands with quick-drying, solvent-based paints. Ask your sales representative to recommend compatible paints.
❖ Consider metal free bottom paints coming on the market.
✧ Stay informed about antifouling products, like Teflon, silicone, polyurethane, and wax, that have limited negative impacts. Pass the information along to your customers.
✧ Store boats out of the water, where feasible, to eliminate the need for antifouling paints.

Minimize Impacts of 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 the water.
- ❖ Limit in-water painting to small jobs.
- ◆ Any substantial painting done on land should be in the vessel maintenance area, and/or over a ground cloth.
- ❖ If painting with brush or roller on the water, transfer the paint to the vessel in a small (less than one gallon), tightly covered container. Small containers mean small spills.
- ❖ Mix only as much paint as is needed for a given job.
- ◆ Mix paints, solvents, and reducers in a designated area. 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 overmixing in the future.

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

- ◆ Conduct all spray painting in a spray booth or within an enclosure.
- ❖ Use equipment with high transfer efficiency. Tools such as high-volume, low-pressure (HVLP) spray guns direct more paint onto the work surface than conventional spray guns. As a result, less paint is in the air, less volatile organic compounds are released, less paint is used, and clean up costs are reduced. Air-atomizer spray guns and gravity-feed guns are other types of highly efficient spray equipment.
- ❖ Train staff to use spray painting equipment properly in order to reduce overspray and minimize the amount of paint per job.

Handle Solvents Carefully. Refer to Waste Containment and Disposal for further information about requirements for handling, storing, and transporting hazardous wastes.

- ◆ Store open containers of usable solvents as well as waste solvents, rags, and paints in covered, UL-listed, or Factory Mutual approved containers.
- ◆ Hire a licensed waste hauler to recycle or dispose of used solvents.
- ❖ Direct solvent used to clean spray equipment into containers to prevent evaporation of volatile organic compounds. A closed gun cleaning system will save you money on cleaning materials.
- ❖ 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 in order not to contaminate a large amount of 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.

To operate a permanent paint spray booth, you must obtain an air permit from the Maryland Department of the Environment.

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

Repair and Maintain Engines with Care.

◆ Store engines and engine parts under cover to prevent storm water contamination. Ideally store off the ground as well (concrete or pallete).
◆ Do not wash engine parts over the bare ground or water.
❖ Use dry precleaning methods, such as wire brushing.
❖ Avoid unnecessary parts cleaning.
✧ Adopt alternatives to solvent-based parts washers such as 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.
❖ If you use a solvent 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.
❖ Drain all parts of fluids prior to disposal.
❖ Clean engine repair areas regularly using dry cleanup methods, e.g., capture petroleum spills with oil absorbent pads.
❖ Prohibit the practice of hosing down the shop floor.

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

Winterize Safely.

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

Conduct In-Water Maintenance Wisely.

◆ If the impacts of cleaning or maintenance activities (regardless of area involved) cannot be contained or mitigated against, remove the boat from the water. No debris should be allowed to fall into the water.

❖ Keep containers of cleaning and maintenance products closed.
❖ Restrict or prohibit sanding on the water. When it is absolutely necessary to sand on the water, use vacuum sanders to prevent dust from falling into the water. Do not sand in a heavy breeze.
❖ Plug scuppers to contain dust and debris.
❖ Do not spray paint on the water.
❖ Discourage underwater hull cleaning in your facility. Given the concentration of boats, underwater cleaning is dangerous to divers and the heavy metals that are released are harmful to aquatic life. Insurance to cover divers is also expensive.daf
◆ If you allow divers to clean painted bottoms in the water, the General Permit for Discharges from Marinas 10-MA requires marinas to restrict customers to using only divers wich abide by the best management practices outlined on the Tip Sheet included in this Guidebook and available at http://www.dnr.state.md.us/boating/cleanmarina/
❖ Offer incentives, like reduced mid-season haul out rates, so that boaters can have their hulls cleaned on land where contaminants may be contained. Tie the incentive to early return and deposit for annual slip rental.

Educate Boaters.

❖ Copy the Vessel Cleaning and Maintenance, Selecting a Bottom Paint, and Underwater Hull Cleaning tip sheets from the back of this book and distribute them to your customers. There is room on each sheet to add your marina's name and logo.
❖ Find out about local hazardous waste collection days. Call 1-800-4-RECYCLE or visit **www.mde.state.md.us/was/recycle/index.html** for local recycling contacts. Post notices informing your tenants when and where they can take their hazardous wastes.

Information Sources

Appendix I

Maryland Department of Agriculture

Maryland Department of the Environment
- Air Quality Permits Program
- Industrial Permits Division

Petroleum Control

Environmental Concerns

Petroleum in or on the water is harmful and, in some cases, fatal to aquatic life. Benzene, a carcinogen, is in gasoline. Oil contains zinc, sulfur, and phosphorous.

Once petroleum is introduced into the water, it may float at the surface, evaporate into the air, become suspended in the water column, or settle to the sea floor. Floating petroleum is particularly noxious because it reduces light penetration and the exchange of oxygen at the water's surface. Floating oil also contaminates the micro layer. The micro layer refers to the uppermost portion of the water column. It is home to thousands of species of plants, animals, and microbes. Ninety-nine percent of the Chesapeake Bay's blue crab larvae feed in the micro layer which also serves as a nursery ground for rockfish (Hardy 1991). The abundance of life in the micro layer attracts predators: seabirds from above and fish from below. Pollution in the micro layer, thus, has the potential to poison much of the aquatic food web.

Legal Setting

Federal Water Pollution Control Act (Clean Water Act)

Because of the harm associated with petroleum, the discharge of oil is absolutely prohibited. The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of $5,000.

The United States 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 the spill. Failure to report a spill may result in fines.

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

Federal Emergency Planning and Community Right-to-Know Act (EPCRA)

EPCRA requires that facilities, including marinas, with 10,000 pounds or more of petroleum (approximately 1,250 gallons) file "Tier Two" forms with emergency response agencies by March 1 of each year. The single-page form must be submitted to MDE, your local Emergency Planning Committee (LEPC), and your local fire department. Forms and contact information for LEPCs is available from MDE at **www.mde.state.md.us/pia/fs_epcra.htm** or (410) 537-3800.

Maryland State Law

The discharge of oil is also prohibited by State law. Section 4-410(a) of Maryland Environment Article, Annotated Code of Maryland, states that

> Except in case of emergency imperiling life or property, unavoidable accident, collision, or stranding, or as authorized by a permit issued under §9-323 of this article, it is unlawful for any person to discharge or permit the discharge of oil in any manner into or on waters of this State.

All spills must be reported immediately to the Maryland Department of the Environment (MDE): 866-633-4686.

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

Best Management Practices for Preventing Spills at the Source

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

Above Ground Tanks

- Install double-walled or vaulted above ground fuel tanks. Tanks installed after April 21, 1978 should meet the following conditions (NFPA 30).
  a. The capacity of the tank shall not exceed 12,000 gal (45,420 L).
  b. All piping connections to the tank shall be made above the normal maximum liquid level.
  c. Means shall be provided to prevent the release of liquid from the tank by siphon flow.
  d. Means shall be provided for determining the level of the liquid in the tank. This means shall be accessible to the delivery operator.
  e. 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.
  f. Spacing between adjacent tanks shall be not less than 3 ft. (0.9 m).
  g. The tank shall be capable of resisting the damage from impact of a motor vehicle or suitable collision barriers shall be provided.
  h. Where the interstitial space is enclosed, it shall be provided with

emergency venting.

Also, refer to NFPA 30A Automotive and Marine Service Station Code.

◆ Alternatively, 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 locking spigots to drain collected materials. If possible, cover the tank with a roof to prevent rainwater from filling the containment area. The control of any stormwater that collects in the diked area must be addressed as a condition of your General Permit for Discharges from Marinas. Refer to COMAR 26.10.01.12 for additional requirements for above ground fuel tanks.

<u>Underground Oil Storage Tanks (USTs)</u>

◆ All underground storage tanks must be registered with MDE.

◆ All existing and new USTs must include corrosion protection and spill and overfill prevention equipment (COMAR 26.10.03).

◆ Install a leak detection system on all new and existing USTs and piping (COMAR 26.10.05).

◆ Maintain daily product inventory. Using a stick or electronic method, measure the liquid level in the tank and reconcile the results with pump meter readings and receipt of product (COMAR 26.10.04.01E).

◆ Monitor USTs on a monthly basis for leaks (COMAR 26.10.05.02).

◆ Install a readily accessible shut-off valve on shore to halt, when necessary, the flow of fuel through a pipeline from the oil storage facility to a wharf, pier, or dock (COMAR 26.10.01.20F and 26.10.03.07).

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

◆ Drop tubes are required on all USTs containing gasoline or diesel. A drop tube is a PVC pipe that runs from the surface fill to within 6 inches of the bottom of the tank and is intended to prevent static build up.

❖ Contact the Maryland Department of the Environment's Oil Control Program for further information and assistance with installation or plan review.

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

Avoid Waves and Wakes.

❖ Locate fuel docks in areas protected from wave action and boat wakes when constructing new or upgrading existing facilities. 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). You may purchase prefabricated drive-on docks or modify an existing dock by cutting a v-shaped berth and covering it with outdoor carpeting. Consider placing the PWC fueling area at the end of the fuel pier to reduce conflict with larger boats.

Maintain Fuel Transfer Equipment.

❖ Inspect transfer equipment regularly and fix all leaks immediately.

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

❖ 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 Pumps.

- ◆ Do not install holding clips**.** The use of holding clips to keep fuel nozzles open is illegal at marina fuel docks (COMAR 26.10.01.20E and 26.10.03.07).
- ❖ 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.
- ✧ Consider installing fuel nozzles that redirect blow-back into vessels' fuel tanks or vapor control nozzles to capture fumes.
- ❖ Maintain a supply of 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 leakage from reaching the water.
- ❖ Post instructions at the fuel dock directing staff and patrons to immediately remove spilled fuel from the dock and water with oil absorbent material. Indicate the location of the absorbents.
- ❖ Place small gas cans in oil absorbent-lined drip pans when filling.
- ✧ 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.

- ❖ Always have a trained employee at the fuel dock to oversee or assist with fueling.
- ❖ Train employees to clarify what the boater is asking for. For example, as your employee passes the fuel nozzle to the boater, have him or her say, "This is gasoline. You asked for gasoline."
- ❖ Train employees to hand boaters oil absorbent pads with the fuel nozzle. Request that boaters use them to capture backsplash and vent line overflow.
- ❖ 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.
- ❖ 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, i.e., 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 their tanks to no more than 90 percent of capacity.
- ❖ Instruct boaters to slow down at the beginning and end of fueling.
- ❖ Require boaters to stay with their craft during fueling.

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.

The person fueling the vessel, generally the boater, is liable for all penalties associated with spilled fuel.

❖ Instruct boaters to:
- Stop all engines and auxiliaries
- Shut off all electricity, open flames, and heat sources
- 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
- Ventilate all compartments after fueling until fumes are gone

❖ Train dock staff to carefully observe fueling practices; make sure fuel is not accidently put into the holding or water tank.

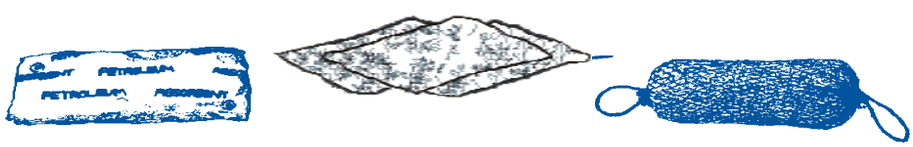
Box 2: Oil Absorbent Material

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.

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

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

How you dispose of used oil absorbent material depends on what type of product it is and how it was used:
- Standard absorbents that are saturated with gasoline may be air dried (away from spark/flame/heat) for safe disposal.
- Standard absorbents saturated with oil or diesel may be wrung out over oil recycling bins (if they are saturated with oil or diesel only!). 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 the microbes need oxygen to function, do not seal them in plastic bags.



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

Turn Down the Pressure. 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 set the delivery rate to 10 gallons per minute, especially if you cater to small boats.

Advocate the Use of Oil Absorbent Materials.

❖ Distribute pads, pillows, or booms to your customers.

✧ 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. The discharge from an oil/water separator must be sampled in accordance with the requirements of the General Discharge Permit for Marinas.

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 collected oil. Recycle the metal canister if practical. If not, dispose in your regular trash.

✧ 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, fork lifts, 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. The machinery should be placed on an impervious pad. Design containment areas with spigots to drain collected materials. Dispose of all collected material appropriately. Refer to the Waste Containment and Disposal section of this guidebook. If possible, cover the machinery with a roof to prevent rainwater from filling the containment area.

✧ 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.

Educate Boaters.

❖ Photocopy the Petroleum Control tip sheet from the back of this book and distribute to your customers. There is room to add your marina's name and logo.

Best Management Practices for Emergency Planning

Prepare a Spill Prevention, Control, and Countermeasure (SPCC) Plan.

◆ The Environmental Protection Agency's Oil Pollution Prevention Regulation requires that marinas prepare and implement a plan to prevent any discharge of oil into navigable waters or adjoining shorelines if the facility has an aggregate above ground storage capacity greater than 1,320 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."

◆ 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.

◆ In some cases the SPCC plan must be certified by a professional engineer and in other cases facility managers can "self-certify" their plan. **Because the SPCC rule is subject to change, marina operators should visit www.epa.gov/oilspill/spcc.htm to view up-to-date rules and criteria.**

◆ The SPCC plan must be kept on-site for EPA review. If a single spill of greater than 1,000 gallons occurs or two discharges of 42 gallons or more occur within one year, a copy of the SPCC plan must be submitted to EPA Region III.

◆ **SPCC plans must be reviewed by the marina owner or manager at least every five years (40 CFR 112.5). A record of the review should be kept** in the beginning of the plan showing the reviewer's signature, date signed, and list of any changes. Major changes such as tank installations or removals require a formal amendment signed by an engineer.

❖ Use the template in Appendix VIII to create your SPCC plan.

Assess Hazards.

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

Develop Emergency Response 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, e.g., use a large type size. Each emergency response plan should contain the following information:
Where:
- In the very front of the plan, insert a laminated site plan of the facility showing valves, pipes, tanks, structures, roads, hydrants, docks, power and fuel shutoffs, hazardous material storage locations, and telephones.
- Describe where response material is located.

Who:

- Identify who is responsible for taking what action, e.g., deploying equipment, contacting emergency agencies, etc.
- Designate one person on the marina staff as the official spokesperson for the facility.
- Include a list of emergency phone numbers: U.S. Coast Guard's National Response Center (800) 424-8802, MDE's Emergency Response Division 866-633-4686, Maryland Poison Center (800) 492-2414, local fire and police departments, owner, neighboring marinas that have emergency response equipment, and spill response contractors (see Appendix VI).
- Include a brief description of each agency's jurisdiction and information about what type of equipment and services are available from neighboring marinas and spill response firms.

What:

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

How:

- Explain how the equipment should be used and disposed.

When:

- Indicate when additional resources should be called for assistance.

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

❖ Use the outline in Appendix IX to create your emergency plans or obtain a copy of the Panic Preventer File for Marinas from Florida Sea Grant.

Make Plans Accessible.

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

❖ Place a copy of the Oil Spill Response Plan (or SPCC plan if applicable) in the oil spill response kit.

Train Employees.

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

❖ Train employees in the use of containment measures.

❖ Run emergency response drills at least twice annually.

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

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.

Maintain Oil Spill Response Equipment.

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

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

Store Oil Spill Response Equipment Smartly.

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

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

❖ Mark the storage site with a sign reading "Oil Spill Response Kit." Include instructions for deploying pads and booms and notification that all spills must be reported to the USCG at (800) 424-8802 and MDE at 866-633-4686.

✧ Consider leaving the storage container unlocked so that it is available to patrons, as well as to staff. If leaving the bin unlocked at all times is not palatable, try leaving it unlocked just on weekends and holidays when both activity and risk are greatest.

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

Box 3. Fuel Spill

What do you do when oil, gas, or diesel is spilled on the water?

1. Stop the flow.
2. Contain the spill.
3. Call the U.S. Coast Guard's National Response Center at (800) 424-8802 and Maryland Department of the Environment's Emergency Response Division at 866-633-4686.

Failure to report spills to the Coast Guard may result in civil penalties.

If less than a gallon is spilled and you clean it up immediately, the Coast Guard will probably not send anybody to your facility. The spill is still a violation, however.

Call the Coast Guard if a slick floats into your marina from an unknown source. The Coast Guard will clean up the spill with their own resources. They will also investigate and try to eliminate the source of the spill. You will not be held liable for a slick that did not originate at your facility.

Be Prepared for a Fire.

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

- ❖ Install smoke detectors.
- ❖ Provide and maintain adequate, readily accessible, and clearly marked fire extinguishers throughout the marina, especially near fueling stations.
- ❖ Inspect and test all 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 extinguisher, etc.
- ❖ Provide ready access to all piers, floats, and wharves for municipal fire fighting equipment.
- ❖ Call the State Fire Marshal's Office at 800-525-3124 to schedule a "basic fire inspection." The inspection will determine whether you are meeting the state fire code, including hazardous material storage requirements.
- ✧ 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.

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). 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 the materials listed are present.
- ❖ Inform the Local Emergency Planning Committee what materials you store and what is released when they burn.

File Tier Two Forms.

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires that facilities, including marinas, with 10,000 pounds or more of petroleum (approximately 1,250 gallons) file "Tier Two" forms with emergency response agencies by March 1 of each year. The single-page form must be submitted to MDE, your local Emergency Planning Committee (LEPC), and your local fire department. Forms and contact information for LEPCs is available from MDE at **www.mde.state.md.us/pia/fs_epcra.htm** or (410) 537-3800.

Information Sources

Appendix I

Florida Sea Grant College Program

Maryland Department of the Environment

- Emergency Planning and Community Right-to-Know
- Hazardous Waste Program
- Oil Control Program

National Fire Protection Association

State Fire Marshal's Office

United States Coast Guard

United States Environmental Protection Agency

Appendix VIII

Spill Prevention, Control and Countermeasure Plan

Appendix IX

Emergency Response Plans

Sewage Handling

Environmental Concerns

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 shellfish contaminated with viruses and other microorganisms contained in sewage discharge.

Sewage is also harmful to water quality. Because the microorganisms within sewage need oxygen, any effluent discharged to waterways reduces the amount of oxygen available to fish and other forms of aquatic life. Furthermore, the heavy nutrient load in sewage promotes excessive algal growth. As the algae multiply, they prevent life-giving sunlight from reaching subsurface vegetation. When the algae die they create another problem: the algae are decomposed by bacteria which further reduce levels of dissolved oxygen.

Legal Setting

Marine Sanitation Devices

For all of the reasons stated above, it is illegal to discharge raw sewage from a vessel within U.S. territorial waters, i.e., anywhere other than three or more miles out into the open ocean. The Federal Clean Water Act and Maryland law (Natural Resources Article §8-741) require that any vessel with an installed toilet be equipped with a certified Type I, Type II, or Type III marine sanitation device (MSD):

- Type I systems mechanically cut solids, disinfect the waste with a chemical additive or with chlorine disassociated from salt water with an electronic jolt, and discharge the treated sewage overboard. The fecal coliform bacteria count of the effluent may be no greater than 1,000 per 100 milliliters and may not contain any floating solids.

- Type II systems are similar to Type I systems except that the Type IIs treat the sewage to a higher standard; effluent fecal coliform bacteria levels may not exceed 200 per 100 milliliters and total suspended solids may not be greater than 150 milligrams per liter. Type IIs also require more space and have greater operating energy requirements.

- Type III systems do not allow sewage to be discharged. The most common form of a Type III system is a holding tank. Other forms include recirculating and incinerating systems.

Vessels 65 feet and under may have any of the three types of MSDs. Vessels over 65 feet must have a Type II or III system. Additionally, Type I and Type II systems must display a certification label affixed by the manufacturer. A certification label is not required on Type III systems.

State law allows a vessel with an installed toilet to have a "Y" valve or other means to bypass the sanitation system. Within State waters, including the entire Chesapeake Bay and its tributaries, however, all pathways for overboard discharge of raw sewage must be secured. The "Y" valve may be secured with a padlock or a non-reusable nylon tie known as a wire tie. Alternatively, the valve handle can be moved to the closed position and removed.

Finally, any vessel with an installed toilet that is offered in Maryland as a noncaptained charter must be equipped with an operational MSD. The lease agreement signed by the leasing party must include a paragraph outlining the operator's responsibility under Natural Resources Article §8-741.

It should be noted that MSD requirements do not apply to vessels with portable toilets. Portable toilets should be properly emptied on shore. Remember, it is illegal to discharge raw sewage to any State waterway. Most pumpout facilities have wand attachments to empty portable toilets. Some marinas have portable toilet dump stations.

While not required, it is a good idea to include information about the MSD law in your contracts for slips, transients, and liveaboards too.

Pumpout Stations

Maryland law, Environment Article §9-333, requires the following types of facilities to have pumpout stations:

- Existing marinas wishing to expand to a total of 11 or more slips and that are capable of berthing vessels that are 22 feet or larger.
- New marinas with more than 10 slips and that are capable of berthing vessels that are 22 feet or larger.
- Marinas with 50 or more slips and that berth any vessel over 22 feet in length. Marinas with 50 or more slips must be able to accept waste from portable toilets as well as from holding tanks.

Installation of a pumpout system may also be required as a condition of receiving a wetlands permit from the Maryland Department of the Environment.

No Discharge Zones

A No Discharge Zone (NDZ) is an area of water that requires greater environmental protection and where even treated sewage may not be discharged from a boat. When operating in an NDZ, 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 No Discharge Zones. States, with the approval of the U.S. Environmental Protection Agency, may establish NDZs in other State waters. In spring 2002, EPA approved two No Discharge Zones for Maryland: Herring Bay and the northern Coastal Bays. Others may be designated in the future if deemed necessary. Visit the Department of Natural Resources' website (www. dnr.maryland.gov/boating) for up to date locations and information.

Best Management Practices to Control Sewage

Install a Pumpout System. Help boaters to meet the requirements of the law by providing a convenient, reliable marine sewage disposal facility, i.e., a pumpout station. You, as a marina operator, may benefit from the installation of a pumpout in several ways. The presence of the pumpout facility promotes a public perception that you are environmentally responsible. More tangibly, the need for holding tanks to be pumped out regularly will draw a steady stream of customers to your dock. Each arriving vessel represents an opportunity to sell fuel, hardware, repair services, etc.

Marinas in Maryland may apply for up to $15,000 in grant funding to install pumpout systems.

Any public or private marina in Maryland is eligible to apply for up to $15,000 in grant funds to install a pumpout station. To apply for a Pumpout Station Grant, contact the Maryland Department of Natural Resources (DNR) for an application. Please be aware that the grants are strictly reimbursable. You must pay for the equipment and installation up front. The Department will then reimburse you for pre-approved expenses.

In exchange for grant funding, marina owners agree to maintain pumpout systems in operating condition for a minimum of 10 years and agree not to charge more than $5 per pumpout. The pumpout system must be able to accept waste from portable toilets as well as from holding tanks and must be available to the general public during reasonable business hours. Although most marinas choose to use grant funding, there is no requirement to do so.

Once you have decided to invest in a pumpout system, consider the following recommendations.

❖ *Select an Appropriate System.* Select a system that best meets the needs of your clients and that can move the expected volume of sewage over the required distance. Ask the manufacturer for a written assurance that their system will operate effectively given the specific conditions at your marina.

There are several types of pumpout systems available:

- systems permanently fixed to a dock,
- mobile systems mounted on a golf cart or hand truck,
- direct slipside connections, and
- pumpout boats.

- *Choose an Accessible Location.* Consider where the pumpout will be placed (if you select a fixed system). It should easily accommodate the types of boats that frequent your marina. Fuel docks are often good locations. Try to locate the pumpout system such that a vessel being pumped out does not prevent another boat from fueling.

- *Dispose of Collected Waste.* The best option for disposing of the collected waste is to connect directly to a public sewer line. If sewer is not available in your area, you will need a holding tank. The contents of the tank must be pumped periodically and trucked to a treatment plant. Holding tank size and location is generally determined by the local health department.

- *Handle Collected Waste with Care.* For health reasons, workers should take precautions to avoid coming into direct contact with sewage. Always consult pumpout manufacturers before attempting repairs.

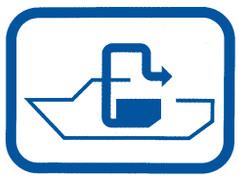
- *Decide if the Pumpout will be Staffed.* It is a good idea to have an attendant operate the pumpout. Consider installing a buzzer or paging system so that boaters at the pumpout station can easily locate the attendant. If the station is unattended, be sure that clear instructions for use are posted.

- *Decide Whether a Fee Will be Charged*. If a fee is charged, how much will it be? Will tenants and liveaboards be charged? Or just transients? Remember, no more than $5 may be charged if grant funds were accepted for the purchase and/or installation of the system. If the pumpout system is not regularly staffed, you will have to make arrangements to collect the fee. Token systems have been used with success in many locations in Maryland. Some counties do not allow self-serve pumpouts, so check first.

- *Post Signs.* Provide information about use and cost of the pumpout station, hours of operation, and where to call for service if the system is out of order. Also, post signs that are visible from the channel so that passing boaters are aware of the facility. If you do not have a pumpout system, post directions to the closest public pumpout.

- *Maintain the Pumpout System.* You should inspect the system regularly and keep a log of your observations. Contact the pumpout manufacturer for specific maintenance and winterization recommendations. During the boating season, test the efficiency of the pump weekly by measuring the length of time required for the system to empty a 5-gallon bucket of water. In order to quickly address any malfunctions, establish a maintenance agreement with a contractor qualified to service and repair pumpout facilities. Some funding for maintenance and repair of pumpout systems may be available through the Department of Natural Resources. Contact DNR for more information.

- Do Not Allow Waste to Drain into Receiving Waters. Do not allow rinse water or residual waste in the hoses to drain into receiving waters. Keep the pump



The national pumpout symbol is an easy way to advertise the availability of pumpout facilities.

running until it has been re-primed with clean water.

❖ Educate Staff. The Department of Natural Resources is aware of several incidents in which boaters were told that the pumpout system was broken when in fact it was not. The Department has also received complaints about rude dockhands and inconvenient procedures. If boaters are going to use the pumpout systems, the experience must be as pleasant and convenient as possible. As the manager of a marina with a pumpout, you are demonstrating your commitment to clean water. It is imperative that your staff exhibit this same level of care.

Discourage Discharge from Type I and Type II MSDs at the Slip or Mooring. Effluent from legal Type I and Type II systems contains nutrients and possibly toxic chemicals. It may contain pathogens as well. While many pass-through systems are capable of treating sewage to much higher levels, recall that the standard for Type I systems is a fecal coliform bacteria count of 1,000 per 100 milliliters. Bathing beaches may be closed at levels of 200 per 1,000 milliliters (COMAR 26.08.09.06). Thus, discharges from Type I and Type II systems in crowded, protected areas–such as marinas–pose a real threat to human health and water quality. Adopt the following recommendations to discourage discharge within your facility.

❖ Prohibit discharge of head waste in your marina as a condition of your lease agreements.

❖ Post signs prohibiting the discharge of head waste and directing people to use shoreside restrooms.

◆ If your marina is located within a No Discharge Zone (presently just Herring Bay and the northern Coastal Bays), boaters must secure their Type I and Type II MSDs, e.g., lock the door to the head or disable the seacock.

Provide Shoreside Restrooms.

❖ Provide clean, functional restrooms 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.

Design and Maintain Septic Systems to Protect Water Quality and Public Health. 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. The following tips will help you to avoid the health risks and nuisance associated with an overburdened system (Miller and Eubanks 1992).

❖ 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 septic system.

❖ Post signs in the laundry room encouraging patrons to use minimal amounts of detergents and bleaches.

❖ Do not dump solvents such as paint thinner or pesticides down the drain and post signs prohibiting customers from doing the same.

❖ Do not pour fats and oils down drains.
❖ Do not use a garbage disposal. Disposals increase the amount of solids entering the system. Capacity is reached more quickly. As a result, more frequent pumping is necessary.
❖ Use small amounts of drain cleaners, household cleaners, and other similar products.
❖ Do not use "starter enzyme" or yeast. These products can damage the system by causing the infiltration bed to become clogged with solids that have been flushed from the septic tank.
❖ Direct downspouts and runoff away from the septic field in order to avoid saturating the area with excess water. For stormwater management reasons, do not direct the flow toward paved areas.
❖ Do not compact the soil by driving or parking over the infiltration area.
❖ Hire a licensed professional to pump the tank every 2-5 years.

Provide Facilities for Liveaboards. Boaters who make their homes aboard vessels pose a tricky problem. It is not reasonable to expect that they will regularly untie in order to use a fixed pumpout facility. It is also unwise to assume that people living on their boats will always use shoreside restrooms. Furthermore, it is undesirable to allow a resident population to discharge Type I or II systems. Your obligation as marina owner/manager is to provide a convenient sewage disposal system for liveaboards while maintaining good water quality. Consider the following options to meet this challenge. Keep in mind that most liveaboards expect and are willing to pay a premium for extra service and more convenient slips.

❖ Provide a portable pumpout system or require that liveaboards contract with a mobile pumpout service.
❖ Reserve slips closest to shoreside restrooms for liveaboards. Be sure that the dock and route to the bath house are well lit at night.
❖ Stipulate in the lease agreement that vessels used as homes may not discharge any sewage and that you may inspect their MSD as needed.
❖ Offer to board their vessels and demonstrate the proper way to secure the "Y" valve.
✧ As a condition of the lease agreement, require that liveaboards place dye tablets in holding tanks to make any discharge clearly visible.
✧ Install direct sewer hookups for liveaboards.

Offer MSD Inspections.

✧ Service patrons' MSDs annually to ensure that their Type I and II systems are functioning properly.
✧ Encourage boaters to run dye tablets through their Type I or Type II systems outside of the marina. If a system is operating properly, no dye will be visible. Maintenance is required if dye can be seen in the discharge.

Encourage Compliance.

❖ Include information about MSD requirements and sewage laws in contracts for

Sewage and gray water from bath houses and laundry facilities may be discharged to a publicly owned treatment works or to an approved septic system.

slips rentals, transients, and liveaboards.

❖ State that failure to comply with the MSD laws and marina policy will result in expulsion from the marina and forfeiture of fees.

❖ If a customer fails to observe the law or honor your contract: 1) discuss the matter with him or her, 2) mail a written notice asking that the offending practice stop immediately and keep a copy for your records, and 3) evict the boater.

❖ If a boater is discharging raw sewage, report him or her to the Natural Resources Police. Provide as much information as possible: name of owner, vessel, location, etc. If such a

Educate Boaters. As the generators and conveyors of sewage, boaters need to be educated about the impacts of sewage and its proper disposal. They must also be encouraged to properly maintain their MSDs and to purchase environmentally-friendly treatment products for their heads and holding tanks.

❖ Photocopy the Sewage Handling tip sheet from the back of this book and distribute it to your customers. There is room to add your marina's name and logo.

Information Sources

Appendix I

American Boat and Yacht Council

Maryland Department of Natural Resources
- Natural Resources Police
- Boating Services Unit

Waste Containment and Disposal

Environmental Concerns

All marinas generate some waste; waste that could threaten human health, be hazardous to wildlife, and be costly to coastal communities.

Solid waste, particularly plastics, must be contained. There are many well-documented instances of marine mammals, fish, turtles, and seabirds that have become entangled in or choked on plastic marine debris. Plastics also represent a hazard to navigation as they can snare propellers and clog engine intake systems. Divers are, likewise, susceptible to entanglement. Furthermore, solid waste that washes up on shore is unattractive and may be costly to remove.

In addition to solid waste, marina operators must be concerned about the proper collection and disposal of liquid wastes and of corrosive, reactive, toxic, and/or ignitable materials, i.e., hazardous wastes.

Legal Setting

Marine Plastic Pollution Research and Control Act

The Marine Plastic Pollution Research and Control Act of 1987 (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 scraps are an exception. The discharge of fish waste into Maryland waters is not desirable, however.

The law also requires that marinas be able to accept garbage from vessels that normally do business with them.

Resource Conservation and Recovery Act and State Hazardous Waste Laws

The Federal Resource Conservation and Recovery Act (RCRA) of 1976 was established to improve the collection, transportation, separation, recovery, and disposal of solid and hazardous waste. Both RCRA and the State hazardous waste law (Environment Article Title 7, Subtitle 2) govern the management of hazardous waste in the State of Maryland.

Hazardous wastes are ignitable, corrosive, reactive, and/or toxic. A list of controlled hazardous wastes can be found in the Code of Maryland Regulations (26.13.02.15-.19).

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 one time. The following requirements apply to all hazardous waste generators.

- All generators and transporters of hazardous waste must apply to the Maryland Department of the Environment (MDE) for an Environmental Protection Agency (EPA) identification number. Use EPA Form 8700-12 (available from MDE).
- 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 and 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 (1,100 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. Copies must be given to MDE and local agencies.
- Document all hazardous waste training in each employee’s personnel file. All personnel who handle hazardous waste must receive training to ensure compliance with State regulations.
- Anybody who sends hazardous waste offsite for treatment, storage, or disposal must prepare a manifest. Ensure that all of the information on the manifest is correct. The hazardous waste manifest must accompany all hazardous wastes ”from cradle to grave.” It is your responsibility to 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 of.
- Submit a bi-annual report to MDE that summarizes hazardous waste activities during odd numbered years. It is recommended, but not mandatory, to report figures for even numbered years too.
- Retain all records, including manifests and waste analysis and annual reports, for at least three years. The files must be available for inspection by MDE.

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.

Best Management Practices to Properly Contain and Dispose of Waste

Reduce Waste. In addition to the suggestions offered in the balance of this Guidebook, consider the following recommendations to further reduce waste. Keep in mind that less waste means lower disposal costs.

❖ Avoid having leftover materials by sizing up a job, evaluating what your actual needs are, and buying just enough product for the job. Encourage boaters to do the same.

❖ Minimize office waste: make double-sided copies, use scrap paper for notes and messages, purchase recycled office paper, and reuse polystyrene peanuts or give them to companies that will reuse them, e.g., small scale packing and shipping companies.

❖ Request alternative packing material from vendors, e.g., paper, potato starch peanuts, popcorn, etc.

❖ Discourage the use of plastic and styrofoam cups, food containers, utensils, and other non-biodegradable products.

✧ Encourage boaters to exchange excess paints, thinners, varnishes, etc. To facilitate this type of activity, provide a bulletin board where boaters can post notices that they are seeking particular materials or have an excess of a substance.

✧ Post the names of local schools or theater groups that are willing to accept excess, non-toxic paints.

Never dispose of any hazardous substance by dumping it into a sink, floor drain, storm drain, or onto the ground.

Control the Disposal of Fish Waste. When large amounts of fish scraps are deposited in an enclosed area, the resultant, unsightly mess can produce foul odors and a decrease in levels of dissolved oxygen.

❖ Establish fish cleaning areas. Adopt one of the following methods to dispose of the waste.

- Provide a stainless steel sink equipped with a garbage disposal that is connected to a sanitary sewer.
- Compost fish waste. Proper composting will control the odor and, over time, will produce an excellent soil conditioner that can be used for your landscaping needs. Contact Minnesota Sea Grant for a copy of Composting Fish Waste by Thomas Halbach and Dale Baker. This booklet provides instructions for composting 25 five-gallon buckets of fish waste per week using sphagnum peat moss and wood chips.
- Instruct boaters to place fish scraps in plastic bags and dispose in dumpster or at home.
- Instruct boaters to dispose fish scraps off shore over deep water.

❖ Prohibit fish cleaning outside of designated areas.

❖ Post signs directing people to clean their fish at a fish cleaning station or at home.

Manage Trash.

❖ Develop your waste management strategy based on the number of patrons, the types of waste generated, the layout of your marina, and the amount of staff time you can devote. Ask boaters specifically what their needs are.

- ❖ Promote your image as a responsible business by providing adequate and reasonably attractive trash receptacles, e.g., cans, bins, dumpsters.
- ❖ Locate trash receptacles in convenient locations. Select high traffic areas such as at the landside foot of the dock, near bathrooms and showers, alongside vending machines, adjacent to the marina office, or on the path to the parking lot.
- ❖ Do not place trash containers on docks as waste may inadvertently be tossed or blown into the water.
- ❖ 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 lids or some other means to trap the waste inside and to prevent animals and rainwater from getting in.
- ❖ Post signs indicating what may not be placed in the dumpster: engine oil, antifreeze, paints, solvents, varnishes, pesticides, lead batteries, transmission fluid, distress flares, and polystyrene peanuts (loose peanuts tend to blow away).
- ❖ Require all employees to be involved in policing the facility for trash and vessel maintenance wastes. Do not allow litter to mar your grounds or near-shore areas.
- ❖ Use a pool skimmer or crab net to collect floating debris that collects along bulkheads or elsewhere within your marina.
- ✧ Post signs directing people to trash receptacles if they are not in plain view.
- ✧ Provide lights around trash receptacles so that they are easy to find and safe.
- ✧ Plant or construct a windscreen around the dumpster to make the area more attractive and to prevent trash from blowing away. Use native shrubs such as red chokeberry (Aronia arbutifolia), spicebush (Lindera benz oin) or mountain laurel (Kalmia latifolia).

Recycle Whenever Possible. Divert reusable materials out of the waste stream. A recycling program is an easy, highly visible means to demonstrate environmental stewardship. Recycling programs are also a good way to introduce patrons to pollution prevention practices. In fact, many are likely to already be in the habit of recycling at home and may expect to see recycling bins. The added cost of providing recycling facilities may be offset by income derived from the sale of some high quality recyclable items such as lead batteries, office paper, aluminum, and cardboard. Also, you may realize cost savings due to less frequent tipping of your dumpster(s) because of the reduced volume of trash.

- ❖ Contact a waste hauler or your local solid waste recycling coordinator (refer to Appendix IV) to learn what materials are collected in your area. The following materials may be recycled: antifreeze, oil, metal fuel filter canisters, solvents, glass, shrink wrap, type 1 and 2 plastics, aluminum, steel, tin, lead batteries, newspaper, corrugated cardboard, mixed paper, scrap metal, tires, and white goods (appliances).
- ❖ If you are not able to provide all of the desired services at your facility, post information about local recycling services. Refer to Appendix IV for county and State recycling contacts. Or, contact Maryland Environmental Service for the nearest used oil and antifreeze recycling center.

Recycle Solid Waste.

❖ Provide containers to collect, at a minimum, plastic, glass, and aluminum.
❖ Clearly mark each container so people know what may and may not be put in it.
❖ Provide lids or some type of restricted opening to prevent the collected material from being lifted out by the wind and to prevent rainwater from collecting inside.
❖ Place the collection bins for solid recyclables in convenient locations. High traffic areas near trash receptacles are best.
❖ Collect used anodes (zinc or aluminum) and other scrap metal for recycling. Be sure to store indoors or under cover.
❖ Carefully collect used batteries for recycling with a dealer. Be sure to store indoors or under cover.
✧ Make the recycling bins look different from the standard trash cans, e.g., use a different color or material.

Recycle Liquid Waste.

❖ Provide containers to collect oil and antifreeze. Also, collect solvents from your boatyard according to hazardous waste regulations.
❖ Provide separate containers for oil, antifreeze, and solvents.
❖ Surround tanks with impervious, secondary containment that is capable of holding 110 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.
❖ 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.
❖ Post signs indicating what may and may not be placed in each tank.
❖ Do not allow patrons to pour gasoline, solvents, paint, varnishes, or pesticides into the oil or antifreeze recycling containers. The introduction of these materials may require the mixture to be managed as hazardous waste. This would result in the whole tank having to be disposed of as hazardous waste: a very expensive undertaking.
✧ Consider locking the intake to oil and antifreeze recycling containers to prevent contamination. If you do lock the tanks, instruct your patrons to get the key from the appropriate staff person or to leave their oil or antifreeze next to the collection tank. If you select the second option, assign a member of your staff to inspect the collection site daily for any material that may have been dropped off.
❖ Be aware that recycling liquid materials is a long-term obligation. Investigate waste haulers to insure that they do 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).

Minimize Your Use of Hazardous Products. By minimizing your use of hazardous products, you can reduce health and safety risks to your staff, tenants, and contractors; lower disposal costs; decrease liability; and limit chances that you will be responsible for a costly clean-up of inappropriately disposed material.

- ❖ Avoid using products that are corrosive, reactive, toxic, or ignitable to the greatest extent possible.
- ❖ Adopt an inventory control plan to minimize the amount of hazardous material you purchase, store, and dispose of.
- ❖ Do not store large amounts of hazardous materials. Purchase hazardous materials in quantities that you will use up quickly.
- ❖ Establish a ”first-in first-out” policy to reduce storage time. Dispose of excess material every 6 months.

Box 4. How Do You Know if a Substance is Hazardous?

All waste generators must determine whether or not their refuse is hazardous. Use the following steps to determine if you have hazardous waste.

1. Determine if it is listed as a hazardous waste in COMAR 26.13.02.15-.19.
2. Determine if the waste exhibits one or more of the characteristics of hazardous materials: ignitability, corrosivity, reactivity, or toxicity. A generator may either test the waste to determine if it exhibits a hazardous characteristic or use knowledge of the waste, e.g., first hand experience or information gathered from a Material Safety Data Sheet. The test for toxicity is called the Toxicity Characteristic Leaching Procedure (TCLP) and is performed by environmental testing laboratories.

Store Solvents and Hazardous Materials with Care

- ◆ If you have more than a couple small cans of solvents or other hazardous materials, store them in fire-safe containers that are UL listed or Factory Mutual approved. Containers must meet U.S. Department of Transportation standards for protecting against the risks to life and property inherent in the transportation of hazardous materials. Approved containers will carry specification markings (e.g., DOT 4B240ET) in an unobstructed area. Refer to 49 CFR 178 for additional packaging specifications.
- ❖ Small quantities of solvents may be stored in the containers they were purchased in. Keep the storage area neat.
- ◆ Plainly label all stored and containerized material. For hazardous waste, mark the date accumulation begins and ends on each container.
- ◆ Store containers on pallets in a protected, secure location away from drains and sources of ignition. Inspect routinely for leaks.
- ◆To minimize air pollution, cap solvents and paint thinners whenever not in use. Store rags or paper saturated with solvents in tightly closed, clearly labeled containers.
- ◆ Separate hazardous chemicals by hazardous class. Call MDE at (410) 537-3344 to determine which classes the chemicals you have fall into.
- ❖ Assign control over 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 materials to prevent them from outlasting their shelf life.
❖ Call the State Fire Marshal's Office at 800-525-3124 to schedule a "basic fire inspection." The inspection will determine whether you are meeting the state fire code, including hazardous material storage requirements.

Follow Recommended Disposal Methods. The following table contains information about recommendations for the proper disposal of wastes typically found at marinas. Refer to Appendix IV for lists of recyclers and hazardous waste haulers.

Table 2. Recommended Disposal Methods

Waste	Disposal Options **If multiple options are listed, the first option (√) is the preferred method**
Antifreeze • Propylene glycol • Ethylene glycol *Contact your waste hauler to confirm that they will accept mixed antifreeze.*	√ Recycle. • Hire a waste hauler to collect and dispose. • Purchase an on-site recovery unit. Distillation systems are more expensive than filtration systems but are more efficient at renewing used antifreeze.
Waste Oil • Engine oil • Transmission fluid • Hydraulic oil • Gear oil • #2 Kiesel • Kerosene *Contact your waste hauler to confirm that they will accept mixed oil.*	√ Recycle. Use waste oil for space heating (subject to regulations under COMAR 26.13 and 26.11). • Take small quantities to a household hazardous waste collection day.
Quart Oil Cans	√ Drain completely and dispose in regular trash. They cannot be recycled.
Non-terneplated Oil Filter	√ Puncture and completely hot drain for at least 12 hours. Recycle the oil and the metal canister. • If you do not recycle the canister, double-bag it in plastic and place it in your regular trash.
Terneplated Oil Filter (used in heavy equipment and heavy-duty trucks)	√ Dispose of as hazardous waste (contain lead).
Stale Gasoline	√ Add stabilizer in the winter to prevent it from becoming stale or an octane booster in the spring to rejuvenate it. Use the fuel. • Mix with fresh fuel and use. • Hire a hazardous waste hauler to collect and dispose of. A hazardous waste manifest is required. • Take small quantities to a household hazardous waste collection day. • Baltimore County Resource Recovery Facility will take stale gasoline from Baltimore County residents year round.

Table 2. Recommended Disposal Methods, page 2 of 4

Waste	Disposal Options **If multiple options are listed, the first option (√) is the preferred method**
Kerosene	√ Filter and reuse for as long as possible then recycle.
Mineral Spirits	√ Filter and reuse.
Solvents • Paint and engine cleaners such as acetone and methylene chloride	√ Reuse as long as possible and then recycle. • Dispose of as hazardous waste.
Sludge Recovered from a Solvent Listed as Hazardous Waste Under COMAR 26.13.02.15-.19	√ Dispose of as hazardous waste.
Sludge Recovered from a Solvent Not Listed as a Hazardous Waste Under COMAR 26.13.02.15-.19 and Which Does Not Exhibit Hazardous Characteristics	√ Let sludge dry in a well-ventilated area, wrap in newspaper, and dispose in garbage.
Paints and Varnishes • Latex • Water-based • Oil-based	√ Allow to dry completely. Dispose in regular trash. • Use leftover material for other projects, i.e., as an undercoat for the next boat. • Encourage tenants to swap unused material.
Paint Brushes	√ Allow to dry completely. Discard in regular trash
Paint Filters	√ 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 dispose. Dispose of the solvent that collects in the bottom of the container as hazardous waste. Wring rags out over a collection receptacle and have laundered by an industrial laundry. If rags fail TCLP test, dispose of as hazardous waste.
Used Oil Absorbent Material	√ If the material does not meet the definition of hazardous waste (is not ignitable and does not fail TCLP test), and the material does not contain free liquids, double bag it in plastic and discard in trash.
Used Bioremediating Bilge Booms	√ Dispose 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 solid waste.

Table 2. Recommended Disposal Methods, page 3 of 4

Waste	Disposal Options **If multiple options are listed, the first option (√) is the preferred method**
Glue and Liquid Adhesives	√ Catalyze and dispose of as solid waste
Containers • Paint cans • Buckets • Spent caulking tubes • Aerosol cans	√ May be put in trash can as long as: • All material that can be removed has been. Be sure no more than 1" of residue is on the bottom or inner liner. • Containers that held compressed gas are at atmospheric pressure. • Containers that held acute hazardous waste have been triple rinsed with solvent. Properly dispose of the solvent.
Reside from Sanding, Scraping, and Blasting	√ If the residue does not exhibit any characteristics of hazardous waste (residues from removing lead-based paint could be a hazardous waste, for example) dispose of as solid waste.
Residue from Pressure Washing	√ If the residue does not exhibit any characteristics of hazardous waste (residues from cleaning a surface with lead-based paint could be a hazardous waste, for example) dispose of as solid waste.
Lead Batteries	√ Recycle or sell to scrap dealers. Store indoors if possible, or 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 may receive a credit towards their new battery.
Expired Distress Signal Flares	√ Encourage boaters to keep on board as extras. √ Store in well-marked, fire safe container. Use expired flares for safety demonstrations. Notify the fire department and Coast Guard ahead of time–especially if using aerial flares. Conduct demonstrations over the water. • Encourage boaters to bring to local fire department or household hazardous waste collection day.
Scrap Metal	√ Recycle.
Light Bulbs • Fluorescent bulbs • Mercury vapor lamps • High-pressure sodium vapor lamps • Metal halide lamps • CFLs	√ Recycle. • For any lamps that fail TCLP test either manage as hazardous waste or under "universal waste" rules of COMAR 26.13.10.06 - 26.13.10.25. • Contact MDE (www.mde.state.md.us) for information on proper disposal of compact fluorescent light bulbs.
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 (for ACS and electric chillers), HCFC-123 (replaces CFC-11), HFJ-134A (replaces CFC-12).

Table 2. Recommended Disposal Methods, page 4 of 4

Waste	Disposal Options **If multiple options are listed, the first option (√)is the preferred method**
Monofilament Fishing Line	√ Recycle through a manufacturer or tackle shop.
Scrap Tires	√ Recycle. Need to register with MDE if you will be collecting more than 50 tires. See COMAR 26.04.08. Store according to National Fire Protection Association Standards.
Pesticides	√ Dispose of as hazardous waste.
Plastic shrink wrap	√ Recycle. Contact local landfill for information.
Fish Waste	√ Prohibit disposal of fish waste into confined marina waters. Establish a fish cleaning station and adopt one of the following disposal methods: • Equip the cleaning station with a garbage disposal connected to municipal sewer if permitted. • Compost the scraps. • Instruct boaters to bag scraps in plastic and place in a dumpster or bring home. • Instruct boaters to dispose scraps off shore over deep water.

Track Pollution Incidents.

✧ Copy and use the Pollution Report and Action Log included at the end of this chapter to track pollution incidents and actions taken.
✧ Post the Log on a clipboard in the maintenance area or another easily accessible location.
✧ Consult the Pollution Report and Action Log daily.

Educate Boaters.

❖ Photocopy the Waste Containment and Disposal tip sheet from the back of this book and distribute it to your customers. There is room to add your marina's name and logo.
✧ Contact the Ocean Conservancy for marine debris educational materials at minimal cost.
✧ Post information about county Household Hazardous Waste Collection events and recycling centers. See Appendix IV for a list of local coordinators.

Information Sources

Appendix I

Maryland Department of the Environment
- Emergency Response Division
- Enforcement
- Hazardous Waste Program
- Recycling Office

Maryland Environmental Service

Minnesota Sea Grant College Program

Ocean Conservancy

State Fire Marshal's Office

Appendix IV

Recycling Coordinators

Appendix X

Waste Gasoline Haulers

Pollution Report and Action Log

Report Date	Staff Reporting	Problem Description	Action Taken	Action Date	Staff Responsible

Marina Management

Once you have adopted some of the best management practices outlined in this Guidebook, tell people about it! Train your staff so that they will routinely minimize pollution. Inform boaters how their actions can effect water quality. And let the public know that you are doing your part to protect the environment.

Staff Training

Stormwater Pollution Prevention Plan. The General Permit for Discharges from Marinas requires that you develop a written stormwater pollution prevention plan, and teach your employees about the components and goals of plan. ***Appendix XII*** contains a template which can assist you. The training must be conducted at least twice a year and must address the following topics as applicable.

- ◆ Used oil management
- ◆ Spent solvent and paint 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
- ◆ Sacrificial anode disposal

Also, provide training on the proper use of equipment such as dustless sanders and high-volume low-pressure spray guns. Refer to ***Appendix XI*** for a training guide to help you organize and track your employee training.

Emergency Response Plans. During a real emergency–when time is of the essence–you will want people to know what to do and how to do it.

- ❖ 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.

Be Watchful. Involve all employees in policing your marina for waste. Encourage your staff to look for and immediately halt the following 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.

Approach Polluters.

❖ 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.

Investigate Community College Offerings.

❖ Look for college courses related to environmental protection. For example, Anne Arundel Community College has offered a course titled Environmental Compliance for Marinas and Boatyards.

Maintain Training Records.

❖ Record training dates, topics, and names of employees and instructors.

❖ Keep copies of instructional material.

If a boater is sanding and not containing the debris, bring a vacuum sander to him or her. Explain that it collects most of the dust and allows one to work more quickly. Charge him or her your standard rental fee for the equipment.

Inform Patrons and Independent Contractors

The General Permit for Discharges from Marinas requires that customers and contractors be informed about pollution control practices and be required to use them.

Incorporate Best Management Practices into Contracts. In addition to being a legal document, contracts are very effective educational tools. Use the contract to inform boaters and contractors how to minimize their environmental impacts.

❖ Include language requiring the use of best management practices in all of your contracts: slip holders, liveaboards, transients, charters, workers, contractors, and tenants.

❖ Include language specifying the consequences for not using best management practices, e.g., failure to use best management practices will result in expulsion from the marina and forfeiture of rental fees.

❖ Include information about requirements for Marine Sanitation Devices.

✧ See *Appendix V* for sample contract language. Call the Department of Natural Resources if you would like to receive an electronic copy of the contract language.

Post Signs Detailing Best Management Practices.

❖ Post signs at fuel docks and pumpout stations, along piers, in vessel maintenance areas, and at dumpsters and recycling stations. See samples below.
❖ Be sure the signs are visible.
❖ Signs must be durable, eye catching, and appropriately sized.
❖ Post your facility's environmental policy in a conspicuous location.

Keep Fuel Out of the Water
Do Not Top Off Tank
Listen to Anticipate When Tank is Full
Wipe-up Spills Immediately

OIL SPILL RESPONSE KIT

Include name and number of person to contact at the marina in case of a spill

Be sure that a copy of the Oil Spill Response Plan is clearly visible inside the Spill Response Kit

Vessel Maintenance Area

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

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

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

Report Oil Spills to
USCG at (800) 424-8802 and
MDE at (866-633-4686

Pumpout Station

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

Do Not Discharge Sewage
Please use our clean, comfortable restrooms while you are in port

Nutrients and pathogens in sewage impair water quality

Think Before You Throw
The following items may not be placed in this dumpster

- Oil
- Antifreeze
- Paint or varnish
- Solvents
- Pesticides
- Lead batteries
- Transmission fluid
- Distress flares
- Loose polystyrene peanuts
- Hazardous waste

Recycle

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

Indicate which items you recycle and where the collection sites are

Include information about local recycling services for materials that you do not collect

Recycle Oil
This container is for

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

Tailor to fit your hauler's requirements

Gasoline is STRICTLY PROHIBITED

If container is locked, include information about where to find the key or leave the oil

Recycle Antifreeze
This container is for

- Ethylene glycol antifreeze
- Propylene glycol antifreeze

Tailor to fit your hauler's requirements

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

If container is locked, include information about where to find the key or leave the antifreeze

No Fish Scraps
Please do not discard fish scraps within the marina basin

- Use our fish cleaning station
- Bag the scraps and dispose in dumpster or at home
- Save and dispose over deep water

Marine Sanctuary
This marina provides food and shelter for young fish
- Prevent oil spills!
- Keep bilge clean!
- Use oil sorb pads!

Help by recycling or properly disposing of used oil, antifreeze, solvents, cleaners, plastics, and other waste.

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

Thank you for keeping the Bay clean and safe!

Distribute Literature to Patrons.

❖ Copy and distribute the Clean Boating Tip Sheets included in this Guidebook or create your own. Boater tip sheets on Vessel Maintenance, Selecting a Bottom Paint, Underwater Hull Cleaning, Petroleum Control, Boat Sewage, and Waste Disposal can be found at the end of this book.

❖ Send the tip sheets with monthly mailings or place in dock boxes or on vessels. Be cautious that they do not end up in the water. You can also create a link on your website to the tips sheets at www.dnr.state.md.us/boating/cleanmarina.

❖ Include articles about best management practices in your newsletter.

❖ Get copies of clean boating materials from organizations such as the Chesapeake Bay Foundation, the Ocean Conservancy, and BoatU.S. Foundation.

❖ Contact the United States Coast Guard for publications summarizing Federal boating requirements.

Host a Workshop.

❖ Include a walking tour of the facility to demonstrate best management practices.

❖ Try to schedule the workshop to coincide with an existing marina function that is traditionally well attended.

✧ Offer incentives to attendees: door prizes, discounts, product samples, food.

Make Use of Informal Communication Mechanisms.

❖ Pass along pollution prevention information in conversations with patrons and contractors.

❖ Post information about best management practices on the marina bulletin board.

Recognize Boaters.

❖ Publicly recognize boaters who are making an effort to control pollution.
❖ Include a feature in your newsletter, post a flyer with the boater's picture on a public bulletin board, give an award or prize, etc.

Public Relations

Publicize Your Good Deeds.

❖ Seek free publicity with local press, magazines, television, and radio outlets.
❖ Prepare news releases to highlight your innovative practices, new equipment or services, available literature, or a workshop you are sponsoring.
❖ Plan news releases to coincide with seasonal activities, e.g., helpful tips for winterization.
❖ Start news releases with a contact person's name and phone number, the date, and a headline. The first paragraph should contain vital information: who, what, when, and where. Fill in with secondary information and support data. Conclude with a "call to action" (e.g., visit the marina for a demonstration of the new plastic media blasting system). Double-space the text. One page is best. It should be no longer than two pages. Refer to the Associated Press Style Book for additional formatting information.
❖ Learn media deadlines and send releases in time to meet them.
❖ When submitting a news release, be sure you have the name of the correct editor and that it is spelled accurately.
✧ Get press kits from manufacturers of environmentally-sensitive products. Use their photographs and product information.

Become a Maryland Clean Marina.

❖ Apply to the Maryland Department of Natural Resources for recognition as a Maryland Clean Marina. Once you have satisfied the award criteria, you may use the Maryland Clean Marina logo in your advertising and correspondence, fly a Clean Marina flag, and enjoy promotion by the Clean Marina Initiative in publications, on the World Wide Web, and at public events.
❖ Use your certification as an opportunity to prepare a press release.

Business Practices

Offer Environmental Products and Audits for Boaters.

❖ If you operate a ship's store, stock non-toxic cleaning products, bilge pads, and other eco-friendly items and showcase them prominently. Invite a product sales representative in to market the products and explain how they work. Green Seal (www.greenseal.org) is an independent organization that certifies claims of environmental safety in cleaners, paints, and other products. Beware of general claims on product labels without an independent certification.

✧ Expand your business by selling environmental audits.
✧ Inspect engines, bilges, fuel systems, and marine sanitation devices.
✧ Sell oil absorbent pads, air/fuel separators, etc.

Consider Environmental Surcharges.

❖ Charge for tangible items such as tarps, vacuum sanders, and protective clothing. Customers are used to such charges at automotive repair shops and do not mind a fee for something they can understand.
✧ Consider a flat "environmental surcharge" on all jobs if it is easier, but be prepared to explain it to customers. Marinas may also be requierd to pay tax on such income. Contact the State Comptroller's Office for clarification.
✧ Consider donating a portion of rental fees (e.g., for vacuum sanders) to an environmental organization. The boater can feel good about controlling pollution and about the fact that a portion of his or her money is going to help conserve nature.

Be Diligent.

❖ Be absolutely diligent in containing pollution; your own and that created by your staff. Boaters will notice and follow your example.

Information Sources

Appendix I

BoatU.S. Foundation

Chesapeake Bay Foundation

Maryland Department of Natural Resources
- Boating Services Unit

Ocean Conservancy

United States Coast Guard

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,
- a look at the General Permit for Discharges from Marinas, and
- a synopsis of information about other pertinent permits and licenses.

Selected Federal Agencies and Their Jurisdictions

The 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.

The mission of the National Oceanic 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.

The United States Army Corps of Engineers (COE) is responsible for ensuring adequate flood control, hydropower production, navigation, water supply storage, recreation, and fish and wildlife habitat. The Corps contracts and regulates coastal engineering projects, particularly harbor dredging and beach renourishment projects. They also review and permit coastal development and artificial reef projects. A joint permit from the Maryland Department of the Environment and the Army Corps of Engineers is required for all dredging projects.

The United States Coast Guard, an arm of the U.S. Department of Homeland Security, protects the public, the environment, and U.S. 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.

Selected State Agencies and Their Jurisdictions

The **Critical Area Commission** works with local contacts to implement the Critical Area Protection Act. The Act is designed to protect the Chesapeake Bay, its tributaries, and the Atlantic coastal bays from resource degradation by mandating land use restrictions within 1,000 feet of mean high water or from the edge of tidal wetlands.

The mission of the **Maryland Department of Natural Resources (DNR)** is to "inspire people to enjoy and live in harmony with their environment, and to protect what makes Maryland unique–our treasured Chesapeake Bay, our diverse landscapes and our living and natural resources." DNR coordinates all natural resources activities within the State affecting the State's bays and tributaries, fisheries, forests, parks, wildlife, and geology. The Department oversees State land acquisition and management and historic preservation. Additionally, DNR reviews and evaluates all natural resources policies, plans, programs, and practices of county, State, regional, and Federal agencies, and institutions. The Maryland Natural Resources Police serve to preserve and protect Maryland's natural resources and its citizens by enforcing all conservation, boating, and criminal laws and by serving as the primary search and rescue agency on Maryland waters and in remote areas of the State. DNR is the lead agency for the Clean Marina Initiative and is responsible for the Sewage Pumpout Program (www.dnr.maryland.gov).

The **Maryland Department of the Environment (MDE)** seeks to protect and restore the quality of Maryland's air, land, and water resources while fostering economic development, healthy and safe communities, and environmental education for the benefit of the environment, public health, and future generations. MDE oversees the restoration and maintenance of ground and surface waters and wetland habitats. They provide technical and scientific analysis and data for regulatory activities, make environmental risk assessments, monitor air pollutant levels, develop strategies and regulations to control air emissions, oversee toxic and hazardous waste clean up, and coordinate emergency response activities. Most State environmental permits are issued by MDE. The Permitting and Customer Services division is available to help business owners identify and comply with applicable permits (www.mde.state.md.us).

Maryland Environmental Service (MES) is a quasi-public water, wastewater, and solid waste management utility offering planning, management, financing, design, construction, and operations and maintenance services. When MES was created in 1970, it was directed "to encourage reduction in the amount of waste generated and discharged to the environment." Maryland Environmental Service maintains the 1-800-4-RECYCLE hotline.

Maryland Environmental Trust (MET) promotes growth management–the protection of rural areas and significant resources–to discourage sprawling development patterns. Among other programs, MET operates a conservation easement program. A conservation easement is an agreement between a landowner and the Trust ensuring that a property will not be developed beyond an agreed limit. The agreement provides for permanent protection of significant natural resources and can create income, estate, and property tax benefits to the landowner without detriment to rights of ownership, occupancy, and privacy.

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. Outboard engines and gasoline marine engines used in personal watercraft and jet boats are covered by the rule. Because sterndrive and inboard engines offer cleaner technologies, emission standards were not set for these types of engines.

Boat engines currently in use are not affected by this regulation. Boat owners are in no way responsible for making modifications to their current engines to meet the standards. Likewise, boat dealers are not responsible for compliance with this regulation. The regulation does require that manufacturers of outboard and personal watercraft marine engines achieve yearly emission reductions by meeting a corporate average emission standard which allows them to build some engines to emission levels lower than the emission standard and some engines to emission levels higher than the standard, provided the manufacturer's overall corporate average is at or below the standard.

Clean Vessel Act (CVA)

The Clean Vessel Act (CVA) provides funds to states to construct, renovate, and operate marine sewage pumpout stations and to conduct boater environmental education. Contact the Maryland Department of Natural Resources for information about receiving up to $15,000 in grant funding to install 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 Maryland Clean Marina Initiative. Section 6217 of the Amendments require that nonpoint source pollution from marinas be contained. Through the Clean Marina Initiative, Maryland 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, addresses many facets of water quality protection. 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 the 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:

Discharge of Oil Prohibited

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

The Clean Water Act requires that the 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. Report spills to (800) 424-8802.

Furthermore, the Act prohibits the discharge of raw sewage within U.S. waters and requires that all recreational boats with installed toilets have an operable marine sanitation device on board (see "State Laws" below).

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 a vessel's distance from shore.

- ◆ Within U.S. lakes, rivers, bays, sounds, 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, 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).

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 (e.g., tankers must be double-hulled, captains may lose their licenses for operating a vessel under the influence of drugs or alcohol). Some of the requirements are applicable to recreational boating, however. 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 restricts the use of organotin antifouling paints, including tributyl tin-based paints. Tributyl tin (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. Under the provision of the State antifoulant paint law (Agriculture Article §5-901) marina operators must obtain a license from the Maryland Department of Agriculture to purchase and apply organotin antifouling paints and hire a certified pesticide applicator. It is illegal for anybody without a license to distribute, sell, use, or possess antifoulants containing tributyl tin. The only exception is for private use of spray cans that are 16 ounces or less and which do not exceed the release rate of less than or equal to 5.0 micrograms per square centimeter per day.

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 Maryland hazardous waste regulations are based on RCRA and the State Environment Article.

Hazardous waste is either specifically listed as hazardous in Maryland or federal regulations, or displays one or more of the hazardous characteristics defined in the regulations (ignitability, corrosivity, reactiviity, and toxicity). 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 one time. The following requirements apply to all hazardous waste generators.

- All generators and transporters of hazardous waste must apply to the Maryland Department of the Environment (MDE) for an Environmental Protection Agency (EPA) identification number. Use EPA Form 8700-12 (available from MDE).
- 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. Make sure that containers are in good

condition, and the material of construction is compatible with the waste being stored.

- ◆ Store hazardous waste no longer than 90 days before sending it off site for treatment, recycling or disposal. (A generator may store waste for an additional 90 days if the amount of waste in storage is less than 500 kg, and the generator never generates 1,000 kg or more of hazardous waste in any calendar month.)
- ◆ Prepare a written emergency contingency plan if you produce or accumulate more than 100 kg (220 lbs) of hazardous waste. Copies must be given to MDE and local agencies.
- ◆ Document all hazardous waste training in each employee's personnel file. All personnel who handle hazardous waste must receive training to ensure compliance with the State regulations.
- ◆ Anybody who sends hazardous waste off site for treatment, storage or disposal must prepare a hazardous waste manifest. This is a standard tracking document for hazardous waste shipments. Ensure that all of the information on the manifest is correct. The hazardous waste manifest must accompany all hazardous wastes "from cradle to grave."
- ◆ It is your responsibility to 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. If you do not receive your copy within 35 days of the date of shipment, you are required to make inquiries with the transporter and/or destination facility on the status of the shipment. If you do not receive the manifest copy within 45 days of the date of shipment, you must file a report with MDE.
- ◆ Submit a biannual report to MDE that summarizes hazardous waste activities during odd numbered years. It is recommended, but not mandatory, to report figures for even numbered years too.
- ◆ Retain all records, including manifests and waste analysis and annual reports, for at least three years. The files must be available for inspection by MDE.

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" under Maryland regulations. 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. However, note that such waste is still considered hazardous, and is prohibited from disposal in Maryland landfills or municipal incinerators.

Selected State Laws that Impact Marinas

Marine Sanitation Devices

The Federal Clean Water Act and Maryland State law (Natural Resources Article §8-741) require that any vessel with an installed toilet be equipped with a certified Type I, Type II, or Type III marine sanitation device (MSD):

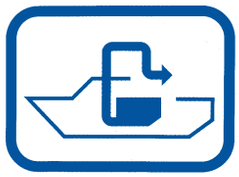
- Type I systems mechanically cut solids, disinfect the waste with a chemical additive or with chlorine disassociated from salt water with an electronic jolt, and discharge the treated sewage overboard. The fecal coliform bacteria count of the effluent may be no greater than 1,000 per 100 milliliters and may not contain any floating solids.

- Type II systems are similar to Type I systems except that the Type IIs treat the sewage to a higher standard: effluent fecal coliform bacteria levels may not exceed 200 per 100 milliliters, and total suspended solids may not be greater than 150 milligrams per liter. Type IIs also require more space and have greater operating energy requirements.

- Type III systems do not allow sewage to be discharged. The most common form of a Type III system is a holding tank. Other forms include recirculating and incinerating systems.

Vessels 65 feet and under may have any of the three types of MSDs. Vessels over 65 feet must have a Type II or III system. Additionally, Type I and Type II systems must display a certification label affixed by the manufacturer. A certification label is not required on Type III systems.

The State law allows a vessel with an installed toilet to have a "Y" valve or other means to by-pass the sanitation system. Within State waters, including the entire Chesapeake Bay and its tributaries, however, all pathways for overboard discharge of raw sewage must be secured. The "Y" valve may be secured with a padlock or a non-reusable nylon tie known as a wire tie. Alternatively, the valve handle can be moved to the closed position and removed.



Finally, any vessel with an installed toilet that is offered in Maryland as a noncaptained charter must be equipped with an operational MSD. The lease agreement signed by the leasing party must include a paragraph outlining the operator's responsibility under Natural Resources Article §8-741.

Pumpout Systems

Maryland law, Environment Article §9-333, requires the following types of facilities to have pumpout stations.

- Existing marinas wishing to expand to a total of 11 or more slips and that are capable of berthing vessels that are 22 feet or larger.

- ◆ New marinas with more than 10 slips and that are capable of berthing vessels that are 22 feet or larger.
- ◆ Marinas with 50 or more slips and that berth any vessel over 22 feet in length. Marinas with 50 or more slips must be able to accept waste from portable toilets as well as from holding tanks.

Pollutant Discharge Prohibited

State Environment Article §9-322 prohibits the discharge of any pollutant into State waters without a discharge permit.

Critical Area Protection Act for the Chesapeake and Atlantic Coastal Bays

Maryland enacted the Critical Area Protection Program (Natural Resources Article §8-1801-1816 and COMAR, Title 27) in 1984. The program minimizes damage to water quality and natural habitats by fostering more sensitive development along the Chesapeake and Atlantic coastal bays. The Critical Area Law is meant to:

- ◆ minimize adverse impacts on water quality that result from pollutants that are discharged from structures or conveyances or that have runoff from surrounding lands;
- ◆ conserve fish, wildlife, and plant habitat; and
- ◆ establish land use policies for development in the Critical Area which accommodate growth and also address the fact that, even if pollution is controlled, the number, movement, and activities of persons in that area can create adverse environmental impacts.

The Critical Area encompasses all waters and submerged lands of Chesapeake and Atlantic coastal bays to the head of tide and all lands and waters within 1,000 feet of mean high water or from the edge of tidal wetlands. The 100 feet of land closest to the mean high water line or edge of wetlands is the Critical Area buffer. Only new or expanded "water-dependent" facilities, like marinas, are permitted in the buffer. An activity is water-dependent if it cannot exist outside of the buffer and is dependent on the water by the intrinsic nature of its operation (COMAR 27.01.03.01). Non-water dependent structures associated with marinas, such as tackle shops or dry storage areas, are not permitted in the buffer. The siting of new or expanded marinas is further restricted to Intensely Developed Areas and Limited Development Areas within the Critical Area.

In a given area, the Critical Area is designated as one of three land-use zones: Intensely Developed Areas (IDAs), Limited Development Areas (LDAs), and Resource Conservation Areas (RCAs). New marinas and commercial boat docking facilities normally are not permitted in Resource Conservation Areas. New or expanded marinas generally are allowed in Intensely Developed Areas and Limited Development Areas provided that it can be shown that:

- ◆ they are water-dependent;

- the project meets a recognized private right or public need;
- adverse effects on water quality and fish, plant, and wildlife habitat are minimized;
- insofar as possible, nonwater-dependent structures or operations associated with water-dependent projects or activities are located outside the buffer; and
- the facilities are consistent with an approved local water-dependent facilities plan as specified in COMAR 27.01.03.03.

Critical Area criteria require that the impacts of any development or redevelopment within the Critical Area be reduced by adopting measures to control stormwater runoff. The extent of the required management measures differ depending upon whether you are sited within a Resource Conservation Area, Limited Development Area, or Intensely Developed Area. Any water-dependent expansions in the Resource Conservation Area and new development in Limited Development Areas must limit impervious lot coverage to 15 percent of the project site. Stormwater facilities must be designed to eliminate all runoff caused by the development in excess of that which would have come from the site if it were in its pre-development state. Water-dependent development within the Resource Conservation Area is further constrained as marinas and other commercial boat docking facilities proposing expansion in the Resource Conservation Area must demonstrate a net improvement in water quality for project approval (COMAR 27.01.03.06).

For Intensely Developed Areas, the criteria specify that management measures must reduce post-development pollutant loading to a level that is 10 percent below the load generated at the same site prior to development. This requirement is commonly referred to as the "10 Percent Rule." Contact your local Critical Area representative (see Appendix II) for guidance on complying with the 10 Percent Rule.

While the Critical Area Law is a State law, it is implemented at the local level. Counties and municipalities along the bays and their tidal tributaries have developed local Critical Area Programs. The programs vary slightly so local programs and ordinances should always be consulted. Local water-dependent permit approval processes must be based upon consideration of how well the proposed project addresses the following eight areas of concern (COMAR 27.01.03.04).

- Activities will not significantly alter existing water circulation patterns or salinity regimes.
- The water body upon which the activities are proposed has adequate flushing characteristics in the basin area.
- The disturbance to wetlands, submerged aquatic plant beds, or other areas of important aquatic habitats will be avoided and/or minimized.
- The adverse impacts to water quality that may accrue as a result of these activities, such as non-point source runoff, sewage discharge from land activities or vessels, or from boat cleaning and maintenance operations, is minimized.
- Shellfish beds will not be disturbed or be made subject to discharge that will make them unsuitable for harvesting.

- ◆ Dredging will be conducted in a manner, and using a method, which causes the least disturbance to water quality and aquatic and terrestrial habitats in the area immediately surrounding the dredging operation or within the Critical Area.
- ◆ Dredged material will not be placed within the buffer or elsewhere in that portion of the Critical Area which has been designated as a Habitat Protection Area except as necessary for a) backfill for permitted shore erosion protection measures, b) use in approved vegetative shore erosion projects, c) placement on previously approved channel maintenance material disposal areas, and d) beach nourishment.
- ◆ Interference with the natural transport of sand will be minimized.

All projects proposed for the Critical Area must be reviewed by local Critical Area programs. Proposals for extensive projects may also be reviewed by the State Critical Area Commission. Proposals are evaluated to determine how the project will impact the following resources.

- ◆ Submerged aquatic vegetation (SAV)
- ◆ Tidal and nontidal wetlands
- ◆ Shellfish beds
- ◆ Rare, threatened, or endangered species
- ◆ Spawning, nursery, or propagation areas for anadromous fish
- ◆ Shallow water habitat
- ◆ Colonial waterfowl nesting sites
- ◆ Existing riparian forests
- ◆ Forests with interior dwelling bird species
- ◆ Natural heritage areas
- ◆ Tributary streams
- ◆ Waterfowl staging areas

The following mapping and narrative information must be provided with all proposals.

Mapping Information: Vicinity Sketch; Floodplain; Wetlands; Bathymetry; Soil Types; Steep Slopes; Upland Natural Areas, Areas of Critical State Concern, Critical Area Boundaries and Habitat Protection Areas; Spawning Areas, Nursery Areas, Submerged Aquatic Vegetation and Shellfish Beds; Buffers; and Areas of Clearing, Limits of Disturbance, and Construction Areas.

Narrative Information: Rare and Endangered Species; Vegetative Description; Animals; Stormwater Management; Pollutants; Shoreline Protection Measures; Mitigation; Calculations; and Flushing and Water Quality Provisions (except for “minor” expansions).

Environmental Permits and Licenses

Federal Clean Water Act—National Pollution Discharge Elimination System (NPDES)

General Permit for Discharges from Marinas 10-MA

Who must obtain a permit?

In 1990, EPA implemented regulations requiring permits for stormwater discharges from certain activities. The stormwater permit program requires that certain marinas classified by the Office of Management and Budget with Standard Industrial Classification (SIC) system number 4493 be covered by a National Pollution Discharge Elimination System (NPDES) permit. Any marina or boat yard that performs or allows boat maintenance activities ashore, including pressure washing bottoms, or that has wastewater discharges must apply for coverage under a permit. In Maryland, this permit is known as the General Permit for Discharges from Marinas.

This permit authorizes the discharge of boat and equipment washing water, stormwater runoff from boat maintenance areas, treated bilge water, noncontact cooling water, and condensate discharges. In order to comply with the permit, marina operators must develop a Storm Water Pollution Prevention Plan (SWPPP) and implement best management practices to ensure that wastewater and stormwater leaving the marina property will not harm the quality of the surrounding waters. Guidance and a template for a SWPPP is available at http://www.dnr.state.md.us/boating/cleanmarina/ The template is also shown in Appendix XII of this Guidebook.

How does one apply for the permit?

To obtain coverage, an applicant must submit a notice of intent (NOI) form to the Maryland Department of the Environment (MDE) along with the required application fee and an electronic Storm Water Plan. The fee varies from $100 to $500 depending upon the number of slips. Notice of intent forms are available at www.mde.maryland.gov

Upon notification of acceptance of the NOI by the Maryland Department of the Environment, the marina is authorized to discharge in accordance with the special conditions listed below.

Wash Water

- The General Permit for Discharges from Marinas 10-MA requires marinas to collect and treat wash water beginning September 1, 2012. As of this date, marinas must also test wash water at the point of discharge for Total Suspended Solids (TSS), Oil and Grease (O&G), and metals (copper, zinc, and lead). Testing frequency varies and is established in the Permit.
- As of March 1, 2013 treated wash water must meet numeric limits for TSS and O&G described in the General Permit for Discharges from Marinas 10-MA, if it will be discharged to surface or ground waters.

◆ Beginning March 1, 2015 treated wash water must meet numeric limits for TSS, O&G and metals (copper, zinc, and lead) described in the General Permit for Discharges from Marinas 10-MA, if it will be discharged to surface or ground water.

◆ Prior to the effective date of the numeric limits, all wash water must be treated using reasonable measures, such as straw dam filters, geotextiles, settling basins, or sand filters to remove visible solids.

❖Alternatively, marinas can collect the wash water in a closed system and send it to either: 1) a closed loop recycling system with proper disposal of solid waste; 2) off site disposal by a licensed operator; or 3) connection to the sanitary sewer with permission from the local utility's pre-treatment or industrial discharge program.

◆ Discharge of wastewater from the cleaning of engines or other oily parts is prohibited.

Treated Bilge Water

◆ All discharges of treated bilge water to surface waters or discharged for reuse in the power wash system shall be monitored monthly at each point of discharge. A professional lab must do the analysis.

◆ Total residual oil and grease may not exceed 15 part per million (ppm).

Cooling Water

◆ Discharge of non-contact cooling water is authorized by the General Permit for Discharges from Marinas if the water does not contain any additives. Any discharge which contains additives may only be authorized by a separate individual NPDES permit.

Condensate

◆ Discharge of condensate is authorized by the General Permit for Discharges from Marinas. Condensate has no limitations or monitoring requirements unless it comes into contact with contaminates associated with site activities.

Accidental Discharge of Oil or Hazardous Substances

◆ In the event of an oil spill, the discharger must notify MDE at 866-633-4686 and the National Response Center at (800) 424-8802 or (202) 426-2675 in the Washington, DC metropolitan area.

◆ Within 10 days of becoming aware of a release, the permitee must submit a written description of the release to MDE.

◆ The stormwater pollution prevention plan required as a condition of the general permit must be modified within 14 day to include a description of the release and to identify measures to prevent and respond to a recurrence.

◆ Facilities which have more than one anticipated discharge per year of the same hazardous substance or oil which is caused by events occurring within the scope of the relevant operating system shall, likewise, report the release to MDE and identify measures to prevent or minimize such releases.

Stormwater

◆ The permitee must develop and implement a Stormwater Pollution Prevention Plan. The plan must identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with industrial activity at the facility. Additionally, the plan shall

describe and ensure the implementation of practices to reduce pollutants in stormwater discharges from the facility. Refer to Box 5 for a general outline and Appendix XII for a template of a Stormwater Pollution Prevention Plan.

✧ For additional guidance in developing a Stormwater Pollution Prevention Plan, refer to: Developing Your Stormwater Pollution Prevention Plan; A Guide for Industrial Operators. This document is available at http://www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf

◆ The plan must be completed and implemented prior to submitting a Notice of Intent for coverage under the general permit.

◆ The permitee shall amend the plan whenever there is a change in design or operation that will have a significant effect on the potential for pollutants to be discharged to State waters. The plan shall also be amended if it proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with industrial activity.

Box 5. Contents of a Stormwater Pollution Prevention Plan

1. Site Plan and Description
2. Pollution Prevention Team
3. Employee Training
4. Description of Potential Pollution Sources (list)
5. Inventory of Exposed Materials (going back three years and including materials management practices)
6. History of Significant Spills or Leaks (past three years)
7. Best Management Practices, Measures, and Controls
   A. Good housekeeping
   B. Maintenance of storm water controls
   C. Best Practices for All Vessel Maintenance Activities
   D. Best Practices for Material Storage & Handling Areas, Engine Repair Areas, Dry Dock Activities, & Marine Railways
   E. Erosion and Sediment Controls
   F. Spill Prevention and Response Procedures.
8. Signature and Date

Information Sources

Appendix I

Maryland Department of the Environment
- Environmental Permits Service Center
- Industrial Discharge Permits

Maryland Department of Natural Resources
- Boating Services Unit

National Technical Information Service

Appendix XII

Stormwater Pollution Prevention Plan

Air Quality General Permit to Construct and Operate Small Stationary Gasoline Storage Tanks

- ◆ Operators of gasoline tanks in the 2,000-20,000 gallon range need to apply for an Air Quality General Permit to Construct Small Stationary Gasoline Storage Tanks. This requirement applies to both underground and aboveground gasoline storage tanks. All facilities covered by the permit must have Stage I Vapor Recovery. That is, there must be a mechanism to collect vapors that are released as fuel is transferred from a delivery truck to the storage tank. Certain facilities are also required to have Stage II Vapor Recovery: a mechanism to collect vapors that are lost during refueling of motor vehicles (e.g., any vehicle that is required to be registered with the Motor Vehicle Administration). The Stage II requirements apply to facilities in Baltimore City and Anne Arundel, Baltimore, Calvert, Carroll, Cecil, Charles, Frederick, Harford, Howard, Montgomery, and Prince George's counties that dispense more than 10,000 gallons of gasoline per month. Facilities in these counties that dispense less than 10,000 gallons per month do not need to have Stage II Recovery devices or fulfill the other permit requirements related to testing, inspections, training, and signage. They do, however, have to maintain records of gasoline throughput and tank sizes. The records must be made available to MDE upon request. To obtain coverage under the Air Quality General Permit, submit a "request for coverage" form to MDE along with the onetime fee of $200. The form, a fact sheet and a copy of the permit are available at www.mde.state.md.us/Permits/AirManagementPermits/Air_Permit/index.asp For additional information, contact MDE's Air and Radiation Administration at 410-537-3230.

Oil Operations Permit

- ◆ Marina operators are required to obtain an Oil Operations Permit from the Maryland Department of the Environment (MDE) if they have the capacity to store an aggregate of 10,000 gallons or more of petroleum in aboveground storage tanks or if they store more than 1,000 gallons of used oil. Prior to February 2002, marinas were exempt from this permit if they had less than 50,000 gallons of storage capacity. Applicants for the Oil Operations Permit (required by COMAR 26.10.01.07) must submit three forms to MDE:

1. Oil Operations Permit Application General Form: a one-page document or general information such as facility name and address.

2. Oil Operations Permit Application Form A: A four-page document for recording more detailed information such as the type of operation (e.g., oil storage) and descriptions of tanks.

3. Plan for Notification, Containment and Clean-up of Oil Spills: This three-page form helps marina operators to document what actions would be taken in the event of a spill and what types of response materials are available on site. This form could be incorporatedinto a Spill Prevention Control and Countermeasure Plan (SPCC) by reference if the facility also needs an SPCC plan. (The SPCC

program is implemented and enforced by the federal U.S. EPA rather than at the State level by MDE.) See page 41 and Appendix VIII.

For copies of the forms and additional information, contact MDE's Oil Control Program at 410-537-3386 or visit MDE's website at ww.mde.state.md.us/Permits/wastemanagement/permits/oilpermit/index.asp There is no fee for this permit although operating without a permit is a violation subject to penalties and fines.

Table 3. Summary of Environmental Permits and Licenses

The following table was adapted from Business Guide to Environmental Permits and Approvals (MDE 1998). For assistance determining which State requirements apply to you, contact MDE's Environmental Permits Service Center. Contact your local Office of Economic Development (see Appendix VII) for assistance with local permitting and regulatory requirements. Or, you may consult the online Business License Information System (BLIS) at www.blis.state.md.us. It is a system to help people identify which licenses and permits are needed to operate a business in Maryland.

Table 3. Summary of Environmental Permits and Licenses, page 1 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Construction in the Chesapeake and Atlantic Coastal Bays Critical Area	Local Critical Area Protection Program Approval	Local ordinances and Natural Resources Article §8-1801-1816	To minimize adverse impacts on water quality that result from pollutants that are discharged from structures or conveyances or that have runoff from surrounding lands; conserve fish, wildlife, and plant habitat; and establish land use policies for development in the Critical Area which accommodate growth and address the fact that, eve if pollution is controlled, the number, movement, and activities of persons in that area can create adverse environmental impacts.	Must address Critical Area Criteria	See Appendix II for local Critical Area contacts Critical Area Commission 1804 West Street Suite 100 Annapolis, MD 21401 (410) 260-3460
General construction activities	Land use and zoning approvals	Local/county ordinances	To comply with local land use policies (e.g., building permits, use and occupancy permits, grading permits)	Vary	County Office of Economic Development (see Appendix VII)

Table 3. Summary of Environmental Permits and Licenses, page 2 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Any construction activity in Maryland that disturbs 5,000 sq. ft. or more of land or results in 100 cubic yards or more of earth movement	Erosion and Sediment Control Approval Stormwater Management Approval	STATE: Environment Article, Title 4, Subtitle 1 for erosion and sediment control and Subtitle 2 for stormwater management. These statutes are further defined in COMAR 26.09.01-.02	To reduce stream channel erosion, pollution, siltation, and local flooding caused by land use changes.	STATE/FEDERAL PROJECTS: Erosion/sediment control plans are reviewed and approved by MDE. They must meet the 1994 standards and specifications for soil erosion and sediment control, and adhere to the Erosion and Sediment Control Guidelines issued by MDE in 1990 and the 1987 Stormwater Management Guidelines for State and Federal Projects. ALL OTHER PROJECTS: Plans for private sector projects are reviewed by local authorities; generally a soil conservation district or municipality.	County Office of Economic Development (see Appendix VII) MDE Water Management Administration (410) 537-3543 Sediment, Storm Water and Dam Safety Program (410) 537-3563 MDE Inspection and Compliance Program (410) 537-3510

Table 3. Summary of Environmental Permits and Licenses, page 3 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Any construction activity that disturbs 5 or more acres	NPDES Stormwater Permit for Construction Activity	FEDERAL: Clean Water Act, Section 402 for stormwater discharge permits and 40 CFR 122.26 STATE: Environment Article, Title 9, Subtitle 3; COMAR 26.08.04	To maintain after development, as nearly as possible, the pre-development runoff conditions	In addition to the erosion and sediment control and stormwater management requirements cited above, all projects that disturb 5 or more acres must submit a Notice of Intent (an application form) to comply with MDE's stormwater general permit for construction activity (an NPDES permit.)	MDE Inspection and Compliance Program (410) 537-3510

Table 3. Summary of Environmental Permits and Licenses, page 4 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Discharge of boat and equipment wash water, stormwater runoff from boat maintenance areas, noncontact cooling water, and condensate discharges	NPDES General Permit for Discharges from Marinas	FEDERAL: Clean Water Act, Section 402 for stormwater discharge permits and 40 CFR 122.26 STATE: Environment Article, Title 9, Subtitle 3; COMAR 26.08.04.09	To control pollution generated from runoff associated with industrial activity	Any marina or boatyard that conducts boat maintenance activities, including washing, and has wastewater or stormwater discharges must apply for coverage under the General Permit for Discharges from Marinas unless they have a valid individual discharge permit or coverage under 02-SW. In order to receive coverage under the permit, applicants must develop and implement a stormwater pollution prevention plan.	MDE Industrial Discharge Permit Division (410) 537-3323

Table 3. Summary of Environmental Permits and Licenses, page 5 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Any work that may change a tidal wetland	Tidal Wetland Licenses and Permits	STATE: Environment Article Title 16; COMAR 08.05.05	To protect wetlands because of their importance to humans and animals	Critical Area Protection Program approval is required for most projects within 1,000 ft. of a tidal waterway. All conditions of Tidal Wetlands Licenses and Permits must be met during the construction phase. Many projects also require local building permits.	MDE Wetlands and Waterways Program (410) 537-3835
Any work that will change the course, current, or cross-section of a nontidal stream or body of water. Also, any plan to fill in the 100-year floodplain or construct, reconstruct, repair, or maintain any development within the floodplain.	Construction Permit for Activities within the 100-Year Floodplain (Nontidal Wetlands and Waterways Permits)	STATE: Environment Article Title 5, Subtitle 501 through 514; COMAR 08.05.03	To prevent, wherever possible, further degradation and losses of nontidal wetlands due to human activity; and wherever practicable and feasible, to offset unavoidable losses or degradations through the deliberate restoration or creation of nontidal wetlands	Engineering analysis is required for bridges, culverts, filling, and other construction. Also, environmental impacts, including impacts to nontidal wetlands, instream fisheries, wildlife, endangered species, and habitat associated with the proposed project and alternatives to reduce or eliminate adverse impacts are required.	MDE Wetlands and Waterways Program (410) 537-3766

Table 3. Summary of Environmental Permits and Licenses, page 6 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Any of the following activities in a nontidal wetland or its buffer: grading or filling; excavating or dredging; changing existing drainage patterns; disturbing the water level or water table; and destroying or removing vegetation	Proposed Activities in Nontidal Wetlands (Nontidal Wetlands and Waterways Permit)	FEDERAL: Section 10 of the Rivers and Harbors Act of 1899[3]; Section 404 of the Clean Water Act[4] STATE: Environment Article Title 5, Subtitle 5-901, et seq., COMAR 08.05.04	To prevent, wherever possible, further degradation and losses of nontidal wetlands due to human activity; and wherever practicable and feasible, to offset unavoidable losses or degradations through the deliberate restoration or creation of nontidal wetlands.	Wetland Migration construction or monitoring requirements may be required in many instances and may extend well beyond construction of an approved mitigation project.	MDE Wetlands and Waterways Division (410) 537-3766
Discharge of sewage and grey water from a marina's private sewage treatment plant to groundwater	Groundwater Discharge Permit	Environment Article, Title 9, Subtitle 3; COMAR 26.08.01-4 and 26.08.07	To control the disposal of treated municipal or industrial waste water into the State's groundwater via spray irrigation or other land-treatment applications	Must be included in county water and sewer plans. MDE must make a preliminary site evaluation. A hydrogeological study of the proposed site may be required.	MDE Water and Wastewater Permits Program (410) 537-3662

[3]Regulates all work and structures in navigable waters of the United States
[4]US COE permits are issued or denied to regulate discharges of dredged or fill materials in navigable waters of the U.S., including wetlands

Table 3. Summary of Environmental Permits and Licenses, page 7 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Discharge of sewage and grey water from a marina's private sewage treatment plant to surface water	Surface Water Discharge Permit	FEDERAL: Federal Clean Water Act STATE: Environment Article, Title 9, Subtitle 3; COMAR 26.08.01-.04	To maintain water quality standards in the water receiving the discharge	Must be included in county water and sewer plan. Must meet all effluent limits, monitoring requirements, and other permit conditions.	MDE Water and Wastewater Permits Program (410)537-3671
Storage of 1,000 gallons or more of used oil or 10,000 gallons or more of oil in an above-ground tank or operation of an oil-transfer facility	Oil Operations Permit	Environment Article §4-405; COMAR 26.10.01	Spill prevention and control	Spill prevention and response training; spill contingency plans; spill prevention and containment equipment; detection and control of spills	MDE Oil Control Program (410)537-3412
To load or unload oil within the State	Oil Transfer License	Environment Article §4-411; COMAR 26.10.01.06	Submit quarterly reports indicating volume and method of transfer into State and the fee paid	Report number of barrels transferred to MDE	MDE Oil Control Program 410-537-3442

Table 3. Summary of Environmental Permits and Licenses, page 8 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
Anybody who installs, removes, upgrades, repairs, or retrofits an underground storage tank must be certified	Underground Storage Tank (UST) Installers Certification	Environment Article §4-405; COMAR 26.10.06	To protect groundwater from leaks caused by improperly installed or removed USTs	PRE-APPROVAL: Demonstrated knowledge of the principles of proper UST installation and State requirements. POST-APPROVAL: Continued proper installation. Certification must be renewed every 2 years. Also, check with county and local authorities before work begins	MDE Oil Control Program (410) 537-3442
To operate a charbroiler, pit barbecue, small fuel burning equipment, and/or **a small** stationary gasoline storage tank (2,000 - 20,000 gallons)	General Air Quality Permit to Construct	Environment Article, Title 2, Subtitle 4; COMAR 26.11.02	To control emissions	Vary depending upon type of activity. May include control of visible emissions, inspection, training, and/or record keeping.	MDE Air Quality Permits Program (410) 537-3230

Table 3. Summary of Environmental Permits and Licenses, page 9 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
To operate a paint spray booth	Air Quality Permit to Construct	FEDERAL: Federal Clean Air Act, Section 110 and Title V, 42 U.S.C. 7401 et seq. STATE: Environment Article Title 2, Subtitle 4; COMAR 26.11.02.01 through 26.11.02.21	To ensure that any new, modified, replaced, or relocated source of air pollution complies with all air quality requirements. Air quality standards have been adopted to protect public health, vegetation, and forests.	PRE-APPROVAL: Before an air pollution source is constructed or modified, a permit must be obtained from MDE, Air and Radiation Management Administration. POST-APPROVAL: Periodic emissions tests and/or reports may be required depending on the nature of the operation and its emissions.	MDE Air Quality Permits Program (410) 537-3230
To apply antifoulant paints containing tributyl tin	TBT Applicators License	FEDERAL: Organotin Antifoulant Paint Control Act STATE: Agriculture Article §5-901; COMAR 15.05.01	Restrict use of TBT to vessels > 25m or that have aluminum hulls and to outboard and lower drive units	It is unlawful for anybody other than an owner or agent of a commercial boatyard to possess, distribute, sell, offer for sale, use, or offer for use any paint containing a TBT compound (except for spray can ≤ 16 oz.)	Maryland Department of Agriculture Pesticide Regulation Section 50 Harry S. Truman Pkwy. Annapolis, MD 21401 (410) 841-5710

Table 3. Summary of Environmental Permits and Licenses, page 10 of 10

Activity	Permit/License	Authority	Purpose	Requirements	Contact
If you will generate 100 kg of hazardous waste in a calendar month or accumulate this amount at any one time	Notification of Hazardous Waste; EPA Identification Number for Generators, Transporters, and Treatment/Storage/ Disposal (TSD) Facilities	FEDERAL: RCRA- Section 3010; 40 CFR Part 262.12,263.11, and 264.11 STATE: COMAR 26.13.03.03, 26.13.04.01B and 26.13.05.02B	To ensure proper storage and disposal of hazardous waste	A generator may not treat, store, dispose of, transport, or offer for transportation, hazardous waste without having received an EPA Identification Number. A generator may not offer hazardous waste to transporters or to a TSD facility that has not received an EPA Identification Number.	MDE Hazardous Waste Program

Bibliography

Amaral, Mark and Virginia Lee. 1994. Environmental Guide for Marinas: Controlling Nonpoint Source and Storm Water Pollution in Rhode Island. Narragansett, RI: Rhode Island Sea Grant, University of Rhode Island Coastal Resources Center.

American Boat and Yacht Council. 1993. "A Visible Sheen," ABYC Newsletter. Edgewater, MD.

American Boat and Yacht Council. 1995. Sewage Holding Tank Systems for Recreational Boats. Edgewater, MD.

Arthur D. Little, Inc. 1995. Biodiesel Marine Market Pre-evaluation for the Chesapeake Bay. Cambridge, MA: Arthur D. Little, Inc.

Associated Press. 1995. "Bacteria is Altered to make Ethanol from Garbage," Baltimore Sun. January 13, 1995.

BOAT/U.S. "Winterizing Your Boat," Seaworthy, Item 920901.

Broward County Board of County Commissioners. 1996. Pollution Prevention and Best Management Practices for Marine Facilities. Fort Lauderdale, FL: Broward County Department of Natural Resource Protection.

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

Chesapeake Area Professional Captains Association. 1996. "New Fuel Fill Fitting also Serves as Overflow, Vent," The Log, Vol. 7, No. 10, October 1996.

Chesapeake Bay Foundation. 1994. Your Boat and the Bay: Simple Ways to Save the Bay. Annapolis, MD: Chesapeake Bay Foundation.

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

Clifton, Clay B. and Leigh T. Johnson. 1995. Clean Boating Tips. San Diego, CA: California Sea Grant, UCSGEP-SD 95-7.

Clifton, Clay B., Erika J.A. McCoy, Leigh T. Johnson. 1995a. Marina Pollution Prevention Manual. San Diego, CA: California Sea Grant, UCSGEP-SD 95-5.

Clifton, Clay B., Erika J.A. McCoy, Leigh T. Johnson. 1995b. Clean Boating Guide. San Diego, CA: California Sea Grant, UCSGEP-SD 95-6.

Delaware Department of Natural Resources and Environmental Control. 1990. Your Boat and Water Pollution. Dover, DE: DNREC.

Department of the Interior. OEA Pollution Prevention Handbook: Marinas and Boatyards.

Dodson, Paul E. 1994. Practices & Products for Clean Marinas: A Best Management Practice Handbook. North Kingstown, RI: International Marina Institute.

Florida Department of Environmental Protection. 1997. Florida "Clean Marina" Draft Best Management Practices.

Fugro and McClelland. 1992. Best Management Practices for Coastal Marinas. Hartford, CT: Connecticut Department of Environmental Protection.

Gardner, R. C. 1997. Rainfall and Runoff. Annapolis, MD: Maryland Department of Natural Resources.

Gordon, Nancy D., Thomas A. McMahon, and Brian L. Finlayson. 1992. Stream Hydrology: An Introduction for Ecologists. New York: John Wiley & Sons.

Halbach, Thomas R. and Dale R. Baker. 1991. Composting Fish Waste: An Alternative for Minnesota Resorts. St. Paul, MN: Minnesota Sea Grant College Program and Minnesota Extension Service, University of Minnesota.

Hardy, John T. 1991. "Where the Sea Meets the Sky," Natural History. May, 1991.

Image Club Graphics. 1994. "Image Club Clipart Software: Woodcuts, Art Jam, and Our Environment." Alberta, Canada: Image Club Graphics Incorporated.

Kent County News. 1997. Haven Harbour Assists Oyster Comeback. November 13, 1997.

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

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

Kumble, Peter, Lorraine Herson-Jones, and Thomas Schueler. 1993c. Technical Guide for 10% Rule Compliance. Annapolis, MD: Chesapeake Bay Critical Area Commission.

Leopold, Aldo. 1949. A Sand County Almanac and Sketches Here and There. New York: Oxford University Press.

Marin County Office of Waste Management. 1996. The Regional Marina and Boat Yard Pollution Prevention Project: Final Report. San Rafael, CA: Marin County Office of Waste Management.

Maryland. Annotated Code of Maryland. Charlottesville, VA: The Michie Company.

Maryland. Code of Maryland Regulations. Annapolis, MD: Division of State Documents.

Maryland Department of Natural Resources. 1995a. How to Apply. . . Pumpout Station Grants. Annapolis, MD: Maryland Department of Natural Resources.

Maryland Department of Natural Resources. 1995b. Q & A's on. . . Pumpout Station Grants. Annapolis, MD: Maryland Department of Natural Resources.

Maryland Department of Natural Resources. 1997. What You Need to Know about Proper Sewage Disposal. Annapolis, MD: Maryland Department of Natural Resources.

Maryland Department of the Environment. 1998. Business Guide to Environmental Permits and Approvals. Baltimore, MD: Maryland Department of the Environment.

Maryland Environmental Service. 1996. Maryland Recycling Directory, 11th Edition. Annapolis, MD: Maryland Environmental Service.

Maryland Environmental Service. Oil & Water Don't Mix. Annapolis, MD: Maryland Environmental Service.

McCoy, Erika J.A. and Leigh T. Johnson. 1995a. Underwater Hull Cleaner's Best Management Practices. San Diego, CA: California Sea Grant, UCSGEP-SD 95-2.

McCoy, Erika J.A. and Leigh T. Johnson. 1995b. Selecting Underwater & Topside Maintenance Services for Your Boat. San Diego, CA: California Sea Grant, UCSGEP-SD 95-3.

McCoy, Erika J.A. and Leigh T. Johnson. 1995c. Selecting a Hull Paint for Your Boat. San Diego, CA: California Sea Grant, UCSGEP-SD 95-4

McCoy, Erika J.A. and Leigh T. Johnson. 1995d. Boating Pollution Economics & Impacts. San Diego, CA: California Sea Grant, UCSGEP-SD 95-8.

Miller, Thomas H. and Paula A. Eubanks. 1993. Septic Records and Maintenance Guidelines. College Park, MD: University of Maryland Cooperative Extension Service.

Natchez, Daniel S. 1997. "Marina Engineering II: Preventing Marina Pollution," Docks and Marinas '97: Marina Design for the 21st Century. Madison, WI: University of Wisconsin.

National Marine Manufacturers Association. Water Watch: What Boaters Can Do to be Environmentally Friendly. Chicago, IL: National Marine Manufacturers Association.

New York State Department of Environmental Conservation. 1996. Marina Operations for Existing Facilities.

O'Brien, Egan P. 1994. A Guide to Boating-Related Activities in the Critical Area. Annapolis, MD: The Chesapeake Bay Critical Area Commission.

Oregon Sea Grant and Oregon State Marine Board. 1996. Protecting Oregon Waters: Practical Solutions for Boaters. Corvallis, OR: Oregon Sea Grant.

Outboard Marine Corporation. 1997. The Johnson Oceanrunner® Outboards with FICHT™ Fuel Injection (FFI™). USA.

Practical Sailor. 1997. "Oil-Safe Bilge Pump Switches," Practical Sailor. May 15, 1997. Pp. 12-15.

Prince George's County and Maryland Department of Natural Resources. Low Impact Development. Landover, MD: Prince George's County Government.

Queeney, Tim. 1994. "Burned Vegetables," Ocean Navigator. No. 63, September/ October 1994.

Rhode Island Sea Grant. "Bilges, Fueling, and Spill Response," Boater Fact Sheet. Narragansett, RI: University of Rhode Island.

Rhode Island Sea Grant. "Engine Maintenance," Boater Fact Sheet. Narragansett, RI: University of Rhode Island.

Rhode Island Sea Grant. "Sanding and Painting," Boater Fact Sheet. Narragansett, RI: University of Rhode Island.

Rhode Island Sea Grant. "Vessel Cleaning and Fish Wastes," Boater Fact Sheet. Narragansett, RI: University of Rhode Island.

Rhode Island Sea Grant. "Vessel Sewage," Boater Fact Sheet. Narragansett, RI: University of Rhode Island.

Rhodes, Jared, Mark Amaral, Jason Marino, and Virginia Lee. 1996. Nonpoint Source Pollution Abatement for Recreational Boating Facilities: Applying Innovative Best Management Practices. Narragansett, RI: Rhode Island Sea Grant, University of Rhode Island Coastal Resources Center.

Ross, Neil W. Pumpouts for Marinas: Why We Need Them. Kingston, RI: Neil Ross Consultants.

Ross, Neil W. How to Apply for a Pumpout Grant. Kingston, RI: Neil Ross Consultants.

Ross, Neil W. Ten Strings Attached to CVA Pumpout Grants. Kingston, RI: Neil Ross Consultants.

Ross, Neil W. 1996. Clean Marinas Best Management Practices Workbook. Kingston, RI: Neil Ross Consultants.

Ross, Neil W. 1996. “Clean Marinas-Clear Value,” Boating Industry Magazine. November, 1996.

Ross, Neil W. 1997. Personal Communication (E mail 10/10/97).

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

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

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

Spinazola, Gene. 1997. “Marina Fire Emergency Response Contingency Planning,” Docks and Marinas ’97: Marina Design for the 21st Century. Madison, WI: University of Wisconsin.

United States Coast Guard. How’s the Water? Washington, DC.

United States Coast Guard. 1992. Federal Requirements and Safety Tips for Recreational Boats. Washington, DC.

United States Coast Guard. 1994. Managing Waste at Recreational Boating Facilities: A Guide to the Elimination of Garbage Disposal at Sea. Washington, DC: USCG Marine Environmental Protection Division.

United States Environmental Protection Agency. 1989. Safer Use of Boat Bottom Paints. Washington, DC: OPA-89-005.

United States Environmental Protection Agency. 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. Washington, DC: EPA-840-B-92-002.

United States Environmental Protection Agency. 1996a. Clean Marinas-Clear Value: Environmental and Business Success Stories. Washington, DC: EPA-841-R-96-003.

United States Environmental Protection Agency. 1996b. “Emission Standards for New Gasoline Engines,” Environmental Fact Sheet. Washington, DC: EPA-420-F-96-012.

United States Environmental Protection Agency. 1997. The Recreational Boating Industry and the National Oil and Hazardous Substances Pollution Contingency Plan. Washington, DC.

United States Fish and Wildlife Service. “BayScapes for Wildlife Habitat,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. “BayScaping to Conserve Water,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. “Conservation Landscaping,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. “Creating Landscape Diversity,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. “Integrated Pest Management,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

United States Fish and Wildlife Service. “Using Beneficial Plants,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

Virginia Department of Health. 1996. Feasibility of Establishing Sewage No-Discharge Zones for Boats. Richmond, VA: Virginia Department of Health.

Watershed Information Network News. 1997. “Common Weed Offers Natural Pavement,” Runoff Report, Vol. 5, No. 1. Alexandria, VA: Terrene Institute.

Webb, D.A. and L.R. Gjovik. 1997. “Treated Wood Products, Their Effect on the Environment,” Docks and Marinas ’97: Marina Design for the 21st Century. Madison, WI: University of Wisconsin.

Clean Boating Tip Sheet

Vessel Cleaning and Maintenance

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 paint chips may then harm worms, oysters, and other bottom-dwelling creatures and, thus, disrupt the aquatic food chain.

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 non-toxic 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 to damage seam compounds.
- Avoid detergents that contain ammonia, sodium hypochlorite, chlorinated solvents (bleach), petroleum distillates, and lye.
- Try some of the alternative cleaning products listed on the reverse side of this page.

Maintain Mindfully

- Collect all paint chips, dust, and residue. Dispose 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.
- Call 1-800-4-RECYCLE for locations of recycling centers and information about hazardous waste collection days.
- Visit the Maryland Department of the Environment's web page at http://www.mde.state.md.us/researchcenter/factsheets/landfactsheets/haz_collect.asp for hazardous waste collection information listed by county.

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 which merely CAUTION consumers.
- Be wary of unqualified general claims of environmental benefit, e.g., "ozone friendly." A better, more meaningful label would read, "This product is 95 percent less damaging to the ozone layer than past formulations that contained chlorofluorocarbons (CFCs)."
- For additional information about environmentally responsible products, contact Green Seal. Green Seal is an independent, nonprofit organization that sets environmental standards for consumer goods. Products that meet 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 or call (202) 872-6400.

Alternatives to Toxic Products

While baking soda, vinegar, lemon juice, and vegetable oils are far less harmful than bleaches, scouring powders or detergents, they are still toxic to marine life. Use cleaning products sparingly and prevent discharge into the water to the extent possible (e.g., plug scuppers and use a hand pump to tranfer soapy water to a bucket for disposal ashore). Never dispose of any cleaning products down the thru-hull drain; dispose of them on shore.

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

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

MARYLAND CLEAN MARINA

For information about the Maryland Clean Marina Initiative, contact the Maryland Department of Natural Resources at (410) 260-8773 or visit www.dnr.maryland.govboating

Clean Boating Tip Sheet

Selecting a Bottom Paint

The Issue

Marine growth, such as barnacles and slime, impair vessel performance. To maintain top performance, therefore, boats are often painted with toxic paint to prevent fouling growth. Unfortunately, the biocides found in the paints are harmful to many marine critters—not just those that try to make their homes on the undersides of boats.

Selecting a bottom paint is not an easy job. The challenge is to select the least toxic paint that will effectively prevent fouling. The effectiveness of a particular paint will be impacted by water temperature and salinity and by how frequently and how quickly the vessel is operated.

The Paints

Bottom paints can be separated into three general categories: antifouling hard, antifouling ablative, and non-toxic coatings.

The two most commonly used varieties of coatings are hard and ablative paints:

- When hard or "contact leaching" paints dry they create a porous film on the hull. Biocides are held in the pores. The toxins dissolve when they contact water.
- Ablative or "sloughing" paints are partially soluble. The active ingredient is continually leached out. The underlying film then weakens and is polished off as the boat moves through the water. Fresh antifouling paint is, thus, exposed.

Hard paints contain varying levels of biocides which are released slowly. Ablative paints generally contain lower levels of toxins yet they are released at a more steady rate. The impact to the aquatic environment overtime is about the same.

Non-toxic coatings are the most environmentally-friendly option. They contain Teflon or silicone and produce hard, slick surfaces to which fouling growth cannot firmly attach. Paint companies are moving toward the broad introduction of non-toxic slick paints. At this time, however, they are not widely available.

Which bottom paint is right for you?

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

- How frequently do I use my boat? Ablative paint is most effective when a boat is used regularly.
- How quickly do I typically travel? Speed boats are generally painted with hard paints.
- Will I want the hull scrubbed while the boat is in the water? If you anticipate underwater hull cleaning, do not use ablative paint.
- Will I have the boat hauled annually? Hard paint is applied annually. Some ablative paints are designed to last for more than one season.
- What type of coating is presently on the hull? Select a new coating that is compatible.

Comparison of Maintenance Requirements

Maintenance Need	Ablative Paint	Hard Paint	Environmental Issue
Frequency of repainting	Every 1 to 3 years depending on the thickness of the original application and use of boat.	A single coat is applied annually.	**Air Quality.** Fumes (volatile organic compounds) that are harmful to human health and air quality are released whenever solvent-based paints are used. Use water-based paints whenever practical.
Hull preparation	Light sanding is generally all that is needed prior to application of new paint.	Annual heavy sanding is sggested to improve adhesion & prevent build up. If you chose light sanding instead, the resulting build up will need to be blasted or stripped off periodically.	**Debris.** Use the following techniques to keep debris out of the water: • Collect dust created by sanding with a vacuum sander or in tarps. • Blast or strip in an enclosed area where debris can be easily captured. • Send collected debris with your regular trash to a municipal landfill or incinerator. • Encourage your marina or boatyard to follow these pollution prevention practices.
Pressure washing	Pressure washing will remove some ablative paint.	Pressure washing will remove fouling growth and possibly paint chips. Very little pigment should be released.	Release of Biocides. Boatyards are required by law to remove visible solids from pressure wash water before it is returned to local waterways. • Solids from hulls painted with hard paints are easily collected in filter cloth, settling basins or even hay bales. • Inform your yard manager if you have ablative paint. He or she should use minimal water pressure so that, to the greatest extent possible, just slime is removed. You will be protecting the environment and your investment in the paint.
Underwater hull cleaning	Ablative paint should not be cleaned in the water.	Hard paints may be cleaned by divers if done carefully.	**Release of Biocides.** Be aware that colored plumes should not be visible in the water when a hull is being cleaned. They indicate that paint is being removed. • Hard or slick paints may be cleaned while a vessel is in the water as long as care is taken to use the least abrasive material practical (see the Clean Boating Tip Sheet Underwater Hull Cleaning). • Ablative paints should not be cleaned in the water as the scrubbing action will release paint and its associated biocide. If they must be cleaned while in the water, care should be taken to use soft material such as terry cloth.

MARYLAND CLEAN MARINA

For information about the Maryland Clean Marina Initiative contact the Maryland Department of Natural Resources at (410) 260-8773 or visit www.dnr.maryland.gov/boating

Clean Boating Tip Sheet

Underwater Hull Cleaning:

Tips for divers, marina operators, and boaters

In order to maintain maximum performance and to stretch the time between haul-outs, some boaters hire professional divers (or dive themselves) to clean their hulls while their boats are in the water. If done properly, underwater hull cleaning removes marine growth and a minimal amount of antifouling paint. When done too vigorously or when ablative paint is scrubbed, however, unacceptable levels of toxic bottom paint are released into the surrounding water.

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

Best Management Practices for Divers

- Clean gently to avoid creating a plume or cloud of paint in the water.
- On boats painted with ablative paints, clean only running gear and zinc anodes.
- Refrain from hull cleaning for a minimum of 60 days after hard antifouling paint has been applied.
- Always use the least abrasive material that will effectively clean the painted surfaces:
  - Use soft sponges or pieces of carpet to clean marine growth.
  - Use soft nylon or similar material on rotary brush machines.
  - Use more rigorous cleaning pads only as needed to remove hard growth.
  - Use stainless steel pads or brushes only on unpainted metal areas.
- Do not clean the entire hull if it is not dirty. Just do the waterline, running gear, and propeller.
- Never sand, strip or chip hull paint underwater.
- If you have been hired to replace zinc anodes, bring the old ones ashore for recycling. Look in the phone book under “scrap” for dealers.
- Provide customers with a copy of your standard pollution prevention procedures.

Best Management Practices for Boatyard and Marina Operators

- Provide an alternative to underwater hull cleaning by offering mid-season pressure wash specials.
- Allow only divers that follow the Best Management Practices outlined above to clean hulls within the confines of your marina. Ask all subcontractors to sign in. Also, ask to see a current business license and proof of liability insurance.
- Keep a referral list of reputable divers to pass along to boaters seeking underwater hull services.
- Encourage boaters that typically hire divers to use hard bottom paints.
- After painting a boat's hull, provide the boat owner with a simple description of the paint used and the maintenance requirements. For example, "Your boat was painted on April 27, 2008 with Barnacle B-gone. Barnacle B-gone is an ablative paint. It should not be scrubbed while in the water. The active ingredient is cuprous oxide which is a potent biocide. A copy of the Material Safety Date Sheet is attached for your information. Barnacle B-gone retains its antifouling effectiveness when hauled and can be relaunched without repainting. Depending on frequency of use and other factors, the hull will need to be repainted in approximately 2 years."
- Ask customers who have had their hulls coated with ablative paints to read and sign a notice that states, "I understand that my boat has been painted with an ablative paint. If the hull is scrubbed while in the water, unacceptable concentrations of paint and the pesticide cuprous oxide will be released."
- Earn cash by collecting and recycling used zinc anodes. Look in the phone book under "scrap" for dealers.

Best Management Practices for Boaters

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

MARYLAND CLEAN MARINA

For information about the Maryland Clean Marina Initiative contact the Maryland Department of Natural Resources at (410) 260-8773 or visit www.dnr.maryland.gov/boating

Clean Boating Tip Sheet

Petroleum Control

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. Ninety-nine percent 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, thus, 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. The Maryland Department of the Environment may impose additional fines.

Fueling Practices

Gas or diesel may be spilled during the act of fueling: as backsplash out the fuel intake or as overflow out the vent fitting. Spills of this sort harm aquatic life, waste money, and can result in stains on the hull and damage to the gel coat and striping. Follow these tips to avoid problems:

- Fill tanks to no more than 90 percent 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 percent full, listen to the filler pipe, use a sounding stick, and be aware of your tank's volume.
- Rather than filling your tank upon your return to port, wait and fill it just before leaving on your next trip. This practice will reduce spills due to thermal expansion because the 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 or containment jugs to catch all drips.
- Slow down at the beginning and end 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.

- Place oil absorbent materials or a bioremediating bilge boom in the bilge.
- Place an oil absorbent pad under the engine.
- Replace oil absorbent materials regularly.
- Look for contractors or marinas that offer a bilge pumpout service.
- Do not treat oily water with detergents. Soaps pollute and make clean up impossible. You may be fined up to $25,000 for using soaps 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:

- 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.

Emissions Control

Marine engines–especially 2-stroke outboard motors–produce the highest average level of hydrocarbon exhaust emissions after lawn and garden equipment. Hydrocarbon emissions contribute to ground level ozone, a known health risk. 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. 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.
- Call the Maryland Department of the Environment's Emergency Response Division at 866-633-4686.

For information about the Maryland Clean Marina Initiative, contact the Maryland Department of Natural Resources at (410) 260-8773 or visit www.dnr.maryland.gov/boating

Clean Boating Tip Sheet

Vessel Sewage

Is Sewage a Problem?

Raw or poorly treated boat sewage is harmful to human health and water quality. Typhoid, hepatitis, cholera, gastroenteritis, and other waterborne diseases may be passed directly to people who swim in contaminated waters. People may also become infected by eating shellfish contaminated with viruses and other micro-organisms contained in sewage discharge.

Sewage is also harmful to water quality. Because the microorganisms within sewage need oxygen, any effluent discharged to waterways reduces the amount of oxygen available to fish and other forms of aquatic life. Furthermore, the heavy nutrient load in sewage promotes excessive algal growth. As the algae multiply, they prevent life-giving sunlight from reaching subsurface vegetation. When the algae die they create another problem: the algae are decomposed by bacteria which further reduce 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.

Within a No Discharge Zone (NDZ), the discharge of all sewage is prohibited. Herring Bay and the northern Coastal Bays are NDZs. Boaters with Type I and II systems must secure them while navigating within an NDZ. Locking the door to the head or disabling the seacock are acceptable methods for preventing overboard discharges.

What Can You Do?

Holding Tanks

Install a holding tank. Information explaining how to retrofit a boat to include a holding tank is available on the Department of Natural Resources' web site at **dnr.maryland.gov/boating**

Use good plumbing to control holding tank odor. Fiberglass and metal tanks are highly resistant to permeation. Specially labeled flexible "sanitation hoses" and PVC piping are also highly impermeable. Hose runs should be as short and as straight as possible. Wherever practical, use rigid pipe below the level of the holding tank and in other areas where sewage will accumulate. Keep the number of connections to a minimum and insure that seals are tight.

Use enzyme-based products in your holding tank to further control odor. Enzymatic products use biological processes, rather than harsh chemicals, to break down sewage. Be sure to pump and rinse your holding tank prior to initial use of an enzyme product if you have used chemical-based odor control additives in the past. Chemical residues may interfere with the effectiveness of enzyme-based products.

Avoid holding tank products that contain quaternary ammonium compounds (QACs) and formaldehyde. These products may disrupt sewage treatment plants.

Type I and II MSDs

Maintain your Type I or II MSD. Establish a regular maintenance schedule based on your owner's manual to remind yourself when chemicals need to be added, electrodes need to be cleaned, etc.

Do not discharge your Type I or II MSD while in a marina, in a swimming area, in a No Discharge Zone, 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.

MARYLAND CLEAN MARINA

For information about the Maryland Clean Marina Initiative, contact the Maryland Department of Natural Resources at (410) 260-8773 or visit www.dnr.maryland.gov/boating.

Clean Boating Tip Sheet

Waste Containment and Disposal

Trash is ugly and may be dangerous–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. 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 scraps.
- 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.

Meeting the law is easy. Just follow these tips!

Contain Trash

- Don't let trash get thrown or blown overboard.
- If trash blows overboard, retrieve it. Consider it "crew-overboard" practice.
- Pack food in reusable containers.
- Buy products without plastic or excessive packaging.
- Don't toss cigarette butts overboard. They are made of plastic (cellulose acetate).
- Purchase refreshments in recyclable containers and recycle them.
- Properly dispose of all trash on-shore, e.g., bring home or leave in a dumpster at the marina.

Recycle

- Recycle cans, glass, newspaper, antifreeze, oil, oil filters, and lead batteries.
- Call 1-800-4-RECYCLE for locations.
- Bring used monofilament fishing line to recycling bins at your tackle shop or marina.

Fish Scraps

For safety reasons, marinas are often located in sheltered areas–areas that will protect boats from wind and waves during a storm. The same features that protect boats during a storm, 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 scraps are discarded into 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 innards. Avoid problems by following these tips.

- Do not discard fish waste in poorly flushed areas.
- Find out what your marina's disposal policy is.
- Bag waste and dispose at home or in a dumpster.
- Dispose over deep water.

Maintenance Waste

Dispose of the following items according to the recommendations listed below. Call 1-800-4-RECYCLE for recycling center locations or visit www.mde.state.md.us/was/recycle/index.html for the names and numbers of local recycling and hazardous waste coordinators.

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 in regular trash.
Solvents, Gasoline, and Pesticides	Bring to a household hazardous waste collection day.
Expired Emergency Flares	Bring to local fire department or a household hazardous waste collection day.

For information about the Maryland Clean Marina Initiative, contact the Maryland Department of Natural Resources at (410) 260-8773 or visit www.dnr.maryland.gov/boating

Appendix I. Information Sources

Alliance for the Chesapeake Bay
6600 York Road, Suite 100
Baltimore, MD 21212
(410) 377-6270
Web: www.acb-online.org

American Boat and Yacht Council
613 Third Street, Ste. 10
Annapolis, MD 21403
(410) 990-4460
(410) 990-4466 (fax)
Web: www.abycinc.org
- Information about vessel standards

BoatU.S. Foundation
147 Old Solomons Island Road, Suite 513
Annapolis, MD 21401
(800) 245-BOAT (2628)
(410) 897-0396 (fax)
Web: www.boatus.com/foundation
- Clean boating educational materials

Chesapeake Bay Foundation
6 Herndon Avenue
Annapolis, MD 21403
(410) 268-8816 (Annapolis office)
(301) 261-2350 (Washington, DC office)
(800) 445-5572
Web: www.cbf.org
- Oyster Restoration Program
- Copies of "Your Boat and the Bay"

Chesapeake Bay Program Office
410 Severn Avenue, Suite 109
Annapolis, MD 21403
(410) 267-5700
(800) YOUR BAY
Web: www.chesapeakebay.net

Cooperative Extension Service
University of Maryland
Home and Garden Information Center
12005 Homewood Road
Ellicott City, MD 21042
(800) 342-2507
Web: www.hgic.umd.edu
- Soil test kits
- Information and advice about environmentally responsible landscaping, composting, and Integrated Pest Management

Critical Area Commission
1804 West Street, Suite 100
Annapolis, MD 21401
(410) 260-3460
- Critical Area criteria
- Compliance guidebooks, copies of "Bay Smart"
- Information about MD nurseries that sell native plants
- See Appendix II for a list of local contacts

Florida Sea Grant College Program
PO Box 110409
Gainesville, FL 32611-0409
(352) 392-2801
Web: www.flseagrant.org
- Order copies of the Panic Preventer File for Marinas at 1-800-226-1764 ($15 + shipping). Item number SGEB-45.

Local Planning and Zoning Offices
- Ask to consult the Sensitive Species Project Review Areas (SSPRA) data layer of MERLIN, Maryland's Environmental Resources and Land Information Network. This data layer is meant to be used for preliminary screening.

Marine Trades Association of Maryland
P.O. Box 3148
Annapolis, MD 21403
(410) 269-0741
Web: www.mtatm.org
- Represent the interests of the recreational boating industry in Maryland

Maryland Department of Agriculture
Pesticide Regulation Section
50 Harry S. Truman Parkway
Annapolis, MD 21401
(410) 841-5710
Web: www.mda.statemd.us
- License for tributyl tin paints

Maryland Department of Natural Resources
580 Taylor Avenue
Annapolis, MD 21401
Toll free in MD 1-877-620-8DNR
Web: www.dnr.state.md.us

Environmental Review
(410) 260-8330
- The Department's single point of contact for environmental review issues including shellfish beds, anadromous fish spawning waters, other important finfish, State endangered/threatened species, waterfowl nesting areas, and Natural Heritage Areas

Fisheries Service
(410) 260-8281
- Advice and suggestions for raising oysters (suitability of location, techniques, options, costs, legal issues, etc.)

Natural Resources Police
(410) 260-8888
- In case of emergency or to report violations

Natural Resources Police
(410) 260-8888
- Abandoned boats and general law enforcement questions

Natural Resources Police - Boating Safety Education
(410) 260-3280
- Information about complying with MSD laws

Boating Services Unit
(410) 260-8770
- Maryland Clean Marina Initiative
- Clean boating educational material
- Pumpout station grants
- Waterway Improvement Fund
- Hydrographic operations

Maryland Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230
(410) 537-3000
Web: www.mde.state.md.us

Air Quality Permits Program
(410) 537-3230
- Permit for a permanent paint spray booth
- Permit for small gasoline storage tanks

Emergency Planning and Community Right-to-Know
(410) 537-3800
- Information about EPCRA requirements, including Tier Two forms

Emergency Response Division
1-866-MDE-GO-TO (866-633-4686)
- Oil or hazardous material spill response

Inspection and Compliance
(410) 537-3510
- Enforcement related questions and complaints

Customer Service Center
(410) 537-3772 or 866-MDE-GO-TO
- Assistance with permit identification and application

Hazardous Waste Program
(410) 537-3344
- Information about hazardous waste regulations

Wastewater Permit Program
(410) 537-3599
- General Permit for Discharges from Marinas

Oil Control Program
(410) 537-3442
- Permits for petroleum storage tanks
- Assistance with installation and plan review
- Register underground storage tanks and loan program

Recycling Office
(410) 537-3314
- Contact information for local recycling and household hazardous waste disposal coordinators
- Location of recycling facilities

Water Management Administration
(410) 537-3837
- Tidal wetlands permits
- Dredging information

Water Management Administration
(410) 537-3543
- Erosion and sediment control approval
- Stormwater management approval
- NPDES General Permit for Construction
- Copy of Maryland Stormwater Design Manual

Maryland Environmental Service
259 Najoles Road
Millersville, MD 21108
(410) 729-8200 or (800) 473-2925 (4-RECYCLE)
- Information about recycling used oil and antifreeze
- Locations of recycling centers

Maryland Environmental Trust
100 Community Place, First Floor
Crownsville, MD 21032
(410) 514-7900 or (877) 514-7900
Web: www.dnr.state.md.us/met
- Conservation Easement Program

Minnesota Sea Grant College Program
University of Minnesota 152 Ch Pk
31 West College Street
Duluth, MN 55812
(218) 726-8106
- Copy of Composting Fish Waste by Thomas Halbach and Dale Baker ($2)

Web:www.seagrant.umn.edu

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02169-7471
(800) 344-3555
Web: www.nfpa.org
- Copies of NFPA standards
- Copies of NFPA standards may be available from your local fire marshal

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
(800) 553-6847
Web: www.ntis.gov
- Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices
- EPA-published summary document on the same subject

Ocean Conservancy
1300 19th Street, NW 8th Floor
Washington, DC 20036
(202) 429-5609 or 1-800-519-1541
Web: www.oceanconservancy.org
- Marine debris educational material
- Storm drain stenciling information and materials
- Information about the annual international coastal cleanup

Prince George's County
Department of Environmental Resources
Environmental Services Group
9400 Peppercorn Place, 6th Floor
Largo, MD 20774
(301) 883-5834
- Low Impact Development Design Manual
- Bioretention handbook

Web: www.princegeorgescounty.gov

State Fire Marshal's Office
1201 Reisterstown Road
Pikesville, MD 21208
(800) 525-3124
- Call to schedule a "basic fire inspection"

The Nature Conservancy
4245 North Fairfax Drive, Suite 100
Arlington, VA 22203-1606
(800) 628-6860
Web: www.nature.org
- Private, non-profit land conservancy

United States Coast Guard
National Response Center
c/o United States Coast Guard (CG 3RPF-2)
2100 Second Street, SW, Room 2111-B
Washington, DC 20593-0001
(800) 424-8802
(202) 267-2180
Web: www.nrc.uscg.mil
- Oil spill response

United States Coast Guard, Sector Baltimore
Waterways Division
(410) 576-2693 or (410) 576-2525
- Marine environmental protection
- Waterways management

U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, PA 19103
(800) 438-2474
Web: www.epa.gov
- Information about Federal laws and regulations and EPA programs
- Visit the Oil Prevention Program's web page at www.epa.gov/oilspill for information about oil control laws and regulations

U.S. Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4500

Endangered/Threatened Species
- Federal endangered/threatened species
- Submit a USGS topographic quad with the proposed project site marked and a brief project description

BayScapes
(410) 573-4500
- BayScapes information including a list of beneficial plants

Appendix II. Local Critical Area Commission Contacts

Aberdeen
Phyllis G. Grover
Director of Planning & Community Development
City of Aberdeen
60 N Parke Street
Aberdeen, MD 21001
Email: Phyllis@aberdeen-md.org

Annapolis
Department of Planning and Zoning
Municipal Building
145 Gorman Street, 3rd Floor
Annapolis, MD 21401
Phone: 410-263-7961 x7792
Fax: 410-263-3322

Anne Arundel County
Office of Planning and Zoning
2664 Riva Road
Annapolis, MD 21401
410-222-7960 or 410-222-7455
Fax: 410-222-7255

Baltimore City
City of Baltimore Planning Commission
Department of Planning, Current Planning Division
417 E. Fayette Street, 8th Floor
Baltimore, MD 21202-3416
(410) 396-5902 (Critical Area)
Fax: (410) 269-6785 (in Annapolis)
Web: www.ci.baltimore.md.us/government/planning

Baltimore County
Department of Environmental Protection and Resource Management
County Courts Building
401 Bosley Avenue
Towson, MD 21204
(410) 887-3980
Fax: (410) 887-4804
Web: www.co.ba.md.us

Betterton
PO Box 339, Third Avenue
Betterton, MD 21610
(410) 348-5522
Web: betterton@dmv.com

Calvert County
Calvert Co. Dept. of Planning and Zoning
150 Main Street
Prince Frederick, MD 20678
(410) 535-2348
Fax: (410) 414-3092
Web: www.co.cal.md.us

Cambridge
Department of Public Works
705 Leonard Lane
Cambridge, MD 21613
(410) 228-6466
Fax: (410) 228-1474
Web: www.cambridgemd.net

Caroline County
Planning and Codes
403 South 7th Street, Suite 210
Denton, MD 21629
(410) 479-8100
Fax: (410) 479-4169

Cecil County
Cecil Co. Office of Planning and Zoning
129 E. Main Street, Room 300
Cecil County Courthouse
Elkton, MD 21921
(410) 996-5220
Fax: (410) 996-5305
Web: www.ccgov.org

Centreville
101 Lawyers Row
PO Box 100
Centreville, MD 21617
(410) 758-1180
Fax: (410) 758-4741

Charles County
Charles Co. Dept. of Planning and Growth Management
PO Box 2150
La Plata, MD 20646
(301) 645-0540
Fax: (301) 645-0543
Web: www.charlescounty.org

Charlestown
PO Box 154, 241 Market Street
Charlestown, MD 21914
(410) 287-6173
Fax: (410) 287-6620

Chesapeake Beach
Box 400
Chesapeake Beach, MD 20732
(301) 855-8398
Fax: (301) 855-0043
Web: www.chesapeake-beach.md.us

Chesapeake City
PO Box 205, 109 Bohemia Avenue
Chesapeake City, MD 21915
(410) 885-5298
Web: www.chesapeakecity.com

Chestertown
PO Box 38,118 North Cross Street
Chestertown, MD 21620
(410) 778-0500 x13
Fax: (410) 778-4378
Web: www.chestertown.com

Church Hill
Town Hall
PO Box 85, 324 Main Street
Church Hill, MD 21837
(410) 758-3740
Fax: (410) 556-6635

Crisfield
City Hall, Main Street
PO Box 270
Crisfield, MD 21817-0270
(410) 968-1333
Fax: (410) 968-2167

Denton
Housing and Community Development
13 N Third Street
Denton, MD 21629
(410) 479-3625
Fax: (410) 479-3534
Web: www.dentonmd.com

Dorchester County
Dorchester Co. Planning and Zoning Office
County Office Building
501 Court Lane, PO Box 107
Cambridge, MD 21613
(410) 228-3234
Fax: (410) 228-1563
Web: http://www.docogonet.com/

Easton
PO Box 520, 14 S. Harrison Street
Easton, MD 21601
(410) 822-2525
Fax: (410) 410-822-3542
Web: www.town-eastonmd.com

Elkton
Office of Building and Inspections, Planning, and Zoning
PO Box 157
100 Railroad Avenue
Elkton, MD 21922-0157
(410) 398-4999
Fax: (410) 392-5294
Web: www.townofelkton.org

Federalsburg
PO Box 471, 118 Main Street
Federalsburg, MD 21632
(410) 754-8173
Fax: (410) 754-9269
Web: www.federalsburg.org

Fruitland
PO Box F, 401 E. Main Street
Fruitland, MD 21826-0120
(410) 548-2800
Fax: (410) 548-4354
Web: www.cityoffruitland.com

Greensboro
Commissioners of Greensboro
PO Box 340, 118 N. Main Street
Greensboro, MD 21639
(410) 482-6222
Fax: (410 482-7429
Web: http://www.greensboromd.com/

Harford County
Harford County Dept. of Planning and Zoning
220 S. Main Street
Bel Air, MD 21014-3865
(410) 879-2000 ext. 103
Fax: (410) 879-8239
Web: www.co.ha.md.us

Havre de Grace
Department of Planning
711 Pennington Avenue
Havre de Grace, MD 21078
(410) 939-1800
Fax: (410) 939-7632
Web: www.havredegrace.com

Hillsboro
The Commissioners of Hillsboro
PO Box 128
Hillsboro, MD 21641
(410) 364-5760

Indian Head
4195 Indian Head Highway
Indian Head, MD 20640
(301) 743-5511
Fax: (301) 743-9008
Web: www.townofindianheadmd.org

Kent County
Kent Co. Planning Commission
400 High Street
Chestertown, MD 21620
(410) 778-7475
Fax: (410) 810-2932
Web: www.kentcounty.com

Leonardtown
206 Tudor Place
Tudor Hill, PO Box 1
Leonardtown, MD 20650
(301) 475-9791
Fax: (301) 475-5350
Web: www.somd.com/leonardtown

Mardela Springs
PO Box 81
Mardela Springs, MD 21837
(410) 742-7988

Millington
PO Box 330
Millington, MD 21651
(410) 928-3880
Fax: (410) 928-5764

North Beach
8916 Chesapeake Avenue
PO Box 99
North Beach, MD 20714
(301) 855-6681
Fax: (301) 855-0113
Web: www.ci.north-beach.md.us

North East
PO Box 528, 106 South Main Street
North East, MD 21901-0528
(410) 287-5801
Fax: (410) 287-8267
Web: www.northeastmd.org

Ocean City
Town of Ocean City Engineering Dept.
PO Box 158
Ocean City, MD 21843-0158
(410) 289-8825

Oxford
100 North Morris Street, PO Box 339
Oxford, MD 21654
(410) 226-5122
Fax: (410) 226-5597
Email: townoffice@goeaston.net

Perryville
PO Box 773
Perryville, MD 21903-0513
(410) 642-6066
Fax: (410) 642-6391
Web: www.perryvillemd.org

Port Deposit
64 South Main Street
Port Deposit, MD 21904
(410) 378-2122
Fax: (410) 378-9104

Prince George's County
Dept. of Environmental Resources
9400 Peppercorn Place, Ste. 600
Largo, MD 20774
(301) 883-5919
Fax: (301) 883-7148

Princess Anne
3089 Broad Street
Princess Anne, MD 21853
(410) 651-1818
Fax: (410) 651-0027
Web: www.townofprincessanne.com

Queen Anne
Ms. Juanita Kohn
P O Box 365
Queen Anne, MD 21657-0365
(410)-364-9229

Queen Anne's County
Office of Planning and Zoning
160 Coursevall Drive
Centreville, MD 21617
(410) 758-1255
Fax: (410) 758-2905

Queenstown
PO Box 4
Queenstown, MD 21658
(410) 827-7646
Fax: (410) 827-7661

Rock Hall
PO Box 367
Rock Hall, MD 21661
(410) 639-7611
Fax: (410) 639-2455
Web: www.rockhallmd.com

St. Mary's County
Department of Planning and Permits
23150 Leonard Hall Drive
Leonardtown, MD 20650
(301) 475-4200 xt. 1547
Fax: (301) 475-4635
Web: www.co.saint-marys.md.us

St. Michaels
PO Box 206, 300 Mill Street
St. Michaels, MD 21663-0206
(410) 745-9535
Fax: (410) 745-3463

Secretary
PO Box 248
Secretary, MD 21664
(410) 943-3113
Fax: (410) 943-3926

Sharptown
PO Box 338
Sharptown, MD 21861
(410) 883-3767
Fax: (410) 883-3772

Snow Hill
Mayor and Council Office
Municipal Bldg., PO Box 348
Snow Hill, MD 21863
(410) 632-2080
Fax: (410) 632-2858

Somerset County
Dept. of Technical and Community Services
11916 Somerset Avenue, Room 102
Princess Anne, MD 21853
(410) 651-1424
Fax: (410) 651-2597

Talbot County
Office of Planning and Zoning
28712 Glebe Road, Suite 2
Easton, MD 21601-3178
(410) 770-8030
Fax: (410) 770-8043
Web: Www.talbotcountymd.gov

Vienna
PO Box 86
Vienna, MD 21869
(410) 376-3442 (Wednesday only)
Fax: (410) 376-3892

Wicomico County/Salisbury
PO Box 870
Salisbury, MD 21803
(410) 548-4860
Fax: (410) 548-4955
Web: www.wicomicocounty.org

Worcester County
Development, Review and Permitting
One W Market Street, Room 1201
Snow Hill, MD 21863
(410) 632-1200 x146
Fax: (410) 632-3008

Appendix III. BayScapes Program

BayScapes is a program developed by the U.S. Fish and Wildlife Service and the Alliance for the Chesapeake Bay to promote action to reduce nutrient inputs and other threats to water quality, and encourage the development of environmentally sound landscapes that benefit people, wildlife, and the Chesapeake Bay. The program encourages homeowners and others how to practice conservation landscaping, create wildlife habitat, use native plants, conserve water, create diversity, use integrated pest management, and plan for the long term. The BayScapes Program also emphasizes and facilitates strong participation from larger scale land managers, including Federal, State, and local government facilities, corporate landowners, and communities.

For more information, contact the BayScapes Program at (410) 573-4500 or on the web at http://www.fws.gov/chesapeakebay/bayscapes.htm

How to Calculate the Time Needed to Properly Water Your Lawn

From: United States Fish and Wildlife Service. "BayScaping to Conserve Water," A Homeowner's Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

To determine how long you should run your water sprinkler to apply 1 inch of water to your lawn, use the following method:

Place your sprinkler in the desired location and set up five equally sized cans or cartons at intervals away from the sprinkler. Place cans no farther than 5 feet apart.

Run your sprinkler for one hour.

After the elapsed time, collect the cans and pour the water into a single can.

Measure the depth of the water you have collected during the 60 minutes and divide the amount of collected water in inches by the number of cans (five) to determine the application rate on an inch(es)-per-hour basis.

Example: If a sprinkler runs for 60 minutes and the total water collected from the five cans is 7.5 inches, the application rate will be 1.5 inches per hour (7.5 inches per 60 minutes divided by five cans equals 1.5 inches per hour). Therefore, to apply 1 inch of water, divide watering time by average depth to arrive at the number of minutes needed to apply 1 inch of water (60 minutes divided by 1.5 inches per hour equals 40 minutes needed to apply 1 inch).

Native Wildflowers and Grasses of the Northeastern U.S.

The following information was compiled by the U.S. Fish and Wildlife Service, Chesapeake Bay Field Office, 177 Admiral Cochrane Drive, Annapolis, MD 21401 (410) 573-4500.

States included: KY, WV, OH, VA, DC, MD, DE, PA, NJ, NY, RI, CT, MA, VT, NH, ME

						Moisture Dry, Average, Wet			**Soil** Sand, Loam, Clay			**Sun** Full Sun, Partial Sun, Shade		
Latin Name	**Common Name**	**Type A/P**	**Color**	**Ht**	**Bloom Period**	**D**	**A**	**W**	**S**	**L**	**C**	**F**	**P**	**S**
Wildflowers														
Aquilegia canadensis	Eastern Columbine	P	Scarlet	1-2′	Mar-May	•	•			•	•	•	•	•
Asclepias incarnata	Swamp Milkweed	P	Pink	3-5′	Jun-Aug		•	•	•	•	•	•	•	
Asclepias tuberosa	Butterfly Milkweed	P	Orange	2-3′	Jun-Aug	•			•	•		•		
Aster laevis	Smooth Aster	P	Violet	2-4′	Aug-Oct	•	•		•	•		•		
Aster novae-angliae	New England Aster	P	Purple	2-6′	Aug-Oct	•	•		•	•	•	•	•	
Caltha palustris	Marsh Marigold	P	Yellow	1-2′	Apr-May		•	•	•	•			•	•
Chelone glabra	White Turtlehead	P	White	2-4′	Aug-Sep			•	•	•		•	•	
Coreopsis lanceolata	Lanceleaf Coreopsis	P	Yellow	1-2′	Jun-Aug	•	•		•	•		•		
Coreopsis tinctoria	Tickseed Sunflower	A	Yellow	1-3′	Jun-Sep	•						•	•	
Echinacea purpurea	Purple Coneflower	P	Purple	2-3′	Jul-Sep	•	•		•	•	•	•	•	
Eupatorium dubium	Joe Pye Weed	P	Purple	4-7′	Jul-Sep		•	•		•	•			
Eupatorium perfoliatum	Boneset	P	White	3-4′	Jul-Aug		•	•	•	•	•	•		
Eupatorium purpureum	Joe Pye Weed	P	Pink	2-6′	Jul-Sep		•			•				
Iris versicolor	Blue Flag Iris	P	Purple	2-3′	Jun-Jul			•	•	•				
Liatris spicata	Blazingstar	P	Purple	2-5′	Jun-Sep	•	•					•	•	
Lobelia cardinalis	Cardinal Flower	P	Red	2-5′	Jul-Sep		•	•	•	•		•	•	
Lupinus perennis	Lupine	P	Blue	1-2′	May-Jun	•	•		•			•	•	
Monarda didyma	Bee Balm	P	Scarlet	2-4′	Jun-Jul		•	•		•	•	•	•	
Monarda fistulosa	Wild Bergamot	P	Lavender	2-5′	Jun-Jul	•	•		•	•	•	•	•	•
Oenothera biennis	Evening Primrose	A/P	Yellow	3-6′	Jun-Oct	•	•		•	•		•	•	
Oenothera perennis	Sundrops	P	Yellow	1-3′	May-Aug	•			•					
Penstemon digitalis	Smooth Penstemon	P	White	2-3′	Jun-Jul	•	•		•	•	•	•	•	
Penstemon leavigatus	Beardtongue	P	White	1-2′	May-Jun		•			•			•	•

						Moisture Dry, Average, Wet			Soil Sand, Loam, Clay			Sun Full Sun, Partial Sun, Shade		
Latin Name	**Common Name**	**Type A/P**	**Color**	**Ht**	**Bloom Period**	**D**	**A**	**W**	**S**	**L**	**C**	**F**	**P**	**S**
Wildflowers														
Phlox divaricata	Blue Phlox	P	Blue	.5-1′	Apr-May		•			•			•	•
Rudbeckia hirta	Black Eyed Susan	P	Yellow	1-3′	Jul-Sep	•	•		•	•	•	•	•	
Solidago rugosa	Rough Goldenrod	P	Yellow	3-5′	Aug-Oct		•	•	•	•		•	•	
Thalictrum dayscarpum	Meadowrue	P	White	3-6′	Jun-Jul		•	•	•	•	•	•	•	
Vernonia noveboracensis	New York Ironweed	P	Purple	5-8′	Aug-Sep		•	•		•	•	•	•	
Viola pedata	Birds Foot Violet	P	Purple	1′	Mar-Jun	•			•	•		•		

						Moisture Dry, Average, Wet			Soil Sand, Loam, Clay			Sun Full Sun, Partial Sun, Shade		
Latin Name	**Common Name**	**Type A/P**	**Color**	**Ht**	**Bloom Period**	**D**	**A**	**W**	**S**	**L**	**C**	**F**	**P**	**S**
Grasses														
Andropogon gerardi	Big Bluestem	P	⌀	3-8′		•	•	•	•	•	•	•	•	
Andropogon virginicus	Broomsedge	P		1-3′		•	•		•	•	•	•	•	
Elymus canadensis	Canada Wild Rye	P				•	•		•	•	•	•	•	
Panicum virgatum	Switchgrass	P		3-6′			•	•	•	•	•	•		
Schizachyrium scoparium	Little Bluestem	P		4′		•	•		•	•		•	•	
Sorghastrum nutans	Indiangrass	P		5-7′		•	•		•	•		•	•	

⌀ **Note:** The grasses are various shades of greens, blues, goldens, coppers during different times of the year.

This list was developed from several sources and represents only a partial list of species. Most species were selected because of their availability from some seed companies. Most plants are also available in pots.

Sampling of Other Native Plants

	Name	Height	Features
Evergreen Trees	American Holly, *Ilex opaca*	45′	red berry; wildlife value; needs moist, acid soil
	Eastern Red Cedar, *Juniperus virginiana*	80′	pyramidal; wildlife value; thick branches, dense foliage; tolerates poor soils
	Canadian Hemlock, *Tsuga canadensis*	90′	pyramidal; dense habitat; wildlife value; prefers rich, moist soil
Deciduous Trees	Shagbark Hickory, *Carya ovata*	60-80′	oval; narrow habitat; nuts; wildlife value; needs deep, rich soil and sun
	White Oak, *Quercus alba*	60-90′	round-headed, largest of oaks; wildlife value; tolerates range of soils
	Sourwood, Sorrel Tree, *Oxydendron arboreum*	40-60′	pyramidal; flowers in July, glossy foliage, striking fall color
Evergreen Shrubs	Inkberry, *Ilex glabra*	3-15′	globular; nectar for bees, open habit, small leaf, black berry; tolerates sandy, peaty, acid soil
	Bayberry, *Myrica pensylvanica*	4-8′	persistent leaves, aromatic; wildlife value; tolerates dry, sandy soils
	Wax Myrtle, *Myrica cerifera*	25-30′	persistent leaves; wildlife value; grayish-waxy fruit, inconspicuous flowers
Deciduous Shrubs	Red Chokeberry, *Aronia arbutifolia*	9′	flowers May-June, smooth pale leaves, red berry; wildlife value; tolerates wet acid or dry soil
	Sweet Pepperbush, *Clethra alnifolia*	6′	oval; fragrant flower July-Aug, persistent brown seed; wildlife value; tolerates acid wet or dry soil and some shade
	Flame Azalea, *Rhododendron calendulaceum*	9′	oval; May-June flower; tolerates dry, acid soil and light shade
Ground Covers	Violet Wood Sorrel, *Oxalis violacea*	4-8"	excellent for rock gardens; tolerates some shade, dry soil, and drought
	Blazing Star, *Liatrus spicata*	1-3"	rose-purple flowers, late summer bloom, hairy stem
	Bird-Foot Violet	2-6"	purple flowers; tolerates some shade, dry soil, and drought

Some Native Plant Nurseries

Note, the Department of Natural Resources neither recommends nor endorses any particular company. The following is a sampling of a list provided by the U.S. Fish and Wildlife Service at http://www.fws.gov/chesapeakebay/BayScapes/bsresources/bs-nurseries.htm This list is not comprehensive but is provided for informational purposes. Please contact the nurseries directly for a catalog and conditions of sale.

MARYLAND

Adkins Arboretum
12610 Eveland Road
PO Box 100
Ridgely, MD 21660
(410) 634-2847
Email: adkinsar@intercom.net
Web: www.adkinsarboretum.org

American Native Plants
4812 E. Joppa Road
Perry Hall, MD 21236
(410)529-0552, wholesale
(443) 552-7022, retail
Email: retailnativeplants@comcast.net
Web: www.americannativeplantsonline.com

Babikow Greenhouses
7838 Babikow Road
Baltimore, MD 21237
(410) 391-4200
(410) 574-7582 (fax)

Clear Ridge Nursery, Inc.
217 Clear Ridge Road
Union Bridge, MD 21791
(410) 848-4789
(410) 848-5806(fax)

Conard-Pyle
613 Hayden Road
Centreville, MD 21617
(410) 758-3766
(410) 758-3769 (fax)
also in Pennsylvania

Eastern Shore Nurseries
30104 Dover Road
Easton, MD 20601
(410) 822-1320
Email: esn@goeastern.net

Environmental Concern, Inc.
P.O. Box P, 201 Boundary Lane
St. Michaels, MD 21663
(410) 745-9620
(410) 745-3517 (fax)
Web: www.wetland.org

Heartwood Nursery
2121 Blue Mount Road
Monkton, MD 21111
(410) 343-0390
(410) 357-8799 (fax)
www.heartwoodnurseryinc.com

Kollar Environmental Services
5200 West Heaps Road
Pylesville, MD 21132
(410) 836-0500
(410) 836-1931
Email: kollars@earthlink.net

Kurt Bluemel Inc.
2740 Greene Lane
Baldwin, MD 21013
(410) 557-7229
(410) 557-9785 (fax)

Lower Marlboro Nursery
P.O. Box 1013
Dunkirk, MD 20754
(301) 812-0808
www.lowermarlboronursery.com

Signature Horticultural Services
19960 Gore Mill Road
Freeland, MD 21053
(410) 329-6466
(410) 329-2156 (fax)

NEW JERSEY

Pinelands Nursery
323 Island Road
Columbus, NJ 08022
(609) 291-9486
(609) 298-8939 (fax)
Web: www.pinelandsnursery.com

PENNSYLVANIA

Bowman's Hill Wildflower Preserve/Seed Catalog
PO Box 685
New Hope, PA 19838-0685
(215) 862-2924
(215) 862-1846 (fax)
Email: bhwp@bhwp.org
Web: www.bhwp.org

Ernst Conservation Seeds
9006 Mercer Pike
Meadville, PA 16335
(800) 873-3321
(814) 336-2404
(814) 336-5191 (fax)
www.ernstseed.com

North Creek Nurseries
388 North Creek Road
Ladenburg, PA 19350
(610) 255-0100
(610) 255-4762 (fax)
Web: www.northcreeknurseries.com

Octoraro Wetland Nursery
6126 Street Road
Kirkwood, PA 17536
(717) 529-3160
(717) 529-4099 fax
www.octoraro.com

Sylvia Native Nursery and Seed
3815 Roser Road
Glen Rock, PA 17327
(717) 227-0486
(717) 227-0484 (fax)

VIRGINIA

Nature by Design
300 Calvert Avenue
Alexandria, VA 22301
(703) 683-GROW (4769)
Email: plantfolks@nature-by-design.com
Web: www.nature-by-design.com

Pinelands Nursery
8877 Richmond Road
Toano, VA 23168
(757) 667-2729
(800) 667-2729
Email: sales@pinelandsnursery.com
Web: www.pinelandsnursery.com

FOR MORE PLANT INFORMATION

Irvine Natural Science Center
8400 Greenspring
Stevenson, MD 21153
(410) 484-2413
(410) 484-3573 (fax)
Web: www.explorenature.org

MD Native Plant Society
P.O. Box 4877
Silver Spring, MD 20914
Web: www.mdflora.org
The National Arboretum
Education Department
3501 New York Ave., NE
Washington DC 20002
(202) 245-4521
(202) 245-4575
Web: www.usna.usda.gov

INTEGRATED PEST MANAGEMENT MAIL ORDER SUPPLIERS

Alternative Garden Supply, Inc.
P.O. Box 662
Cary, IL 60013
(800) 444-2837
Web: www.altgarden.com

Gardens Alive!
5100 Schenley Place
Lawrenceburg, IN 47025
(513) 354-1482
www.gardensalive.com

Gempler's Pest Management Supply Company
PO Box 44993
Madison, WI 53744
(800) 382-8473
Web: www.gemplers.com

Appendix IV. Recycling Coordinators, Oil/Antifreeze Haulers, and Light Bulb Disposal Sources

The names of the county recycling contacts listed below were taken from the Maryland Department of the Environment's web page (www.mde.state.md.us/was/recycle/index.html). Refer to this page for information about drop-off sites. Maryland Environmental Service is another excellent source of information regarding drop-off centers, industrial recyclers, and recyclable materials. Call Maryland Environmental Service at 1-800-4-RECYCLE.

County Recycling Contacts

Allegany County

Recycling Coordinator
Allegany County Dept. of Public Works
701 Kelly Road
Cumberland, MD 21502
(301) 777-5933
http://gov.allconet.org/recycle/

Anne Arundel County
Department of Public Works
Waste Management Services, Recycling Division
2662 Riva Road, MS-7207
Annapolis, MD 21401
(410) 222-7951
www.aacounty.org/DPW/WasteManagement/

Baltimore City
Recycling Coordinator
Bureau of Solid Waste
201 Abel Wolman Municipal Bldg.
200 Holliday Street
Baltimore, MD 21202
(410) 396-5916
www.ci.baltimore.md.us/government/dpw/recycle/

Baltimore County
Bureau of Solid Waste Mgmt.
County Office Bldg., Room 225
111 West Chesapeake Avenue
Towson, MD 21204
(410) 887-3188
(410) 887-4370 (recording)
http://www.baltimorecountymd.gov/Agencies/publicworks/recycling/

Calvert County
Office of Recycling
P.O. Box 1330
401 Sweetwater Road
Lusby, MD 20657
(800) 560-1004
(410) 326-0210
http://www.co.cal.md.us/residents/waste/

Caroline County
Recycling Coordinator
Caroline Co. Dept. of Public Works
520 Wilmuth Street
Denton, MD 21629
(410) 479-4142
http://www.carolinemd.org/governmt/pubworks/solid_waste.html

Carroll County
Carroll County Government
225 North Center Street, Suite 105
Westminster, MD 21157-5107
(410) 386-2633
http://ccgovernment.carr.org/ccg/recycle/default.asp

Cecil County
Department of Public Works
758 East Old Philadelphia Road
Elkton, MD 21921
(410) 996-6275
http://www.ccgov.org/dept_works/recycling.cfm

Charles County
Chief of Solid Waste
Department of Public Facilities
1001 Radio Station Road
La Plata, MD 20646
(301) 932-3440
http://www.charlescounty.org/pf/sw/recycling/

Dorchester County
Department of Public Works
5435 Handley Road
Cambridge, MD 21613
(410) 228-2920
docogonet.com/index.php?page=solid_waste

Frederick County
Recycling Manager or Coordinator
Division of Public Works
9031 Reichs Ford Road
Frederick, MD 21704
(301) 600-2960
www.co.frederick.md.us/index.asp?NID=1764

Garrett County
Solid Waste and Recycling Division
3118 Oakland—Sang Run Road
Oakland, MD 21550
(301) 387-0322
www.co.garrett.md.us/GeneralServices/SolidWaste/Main.aspx

Harford County
Recycling Coordinator
Division of Environmental Affairs
220 S. Main Street
Bel Air, MD 21014
(410) 638-3417
www.harfordcountymd.gov/dpw/envaffairs/information.html

Howard County
Bureau of Waste Management, Recycling Division
6751 Gateway Drive
Columbia, MD 21046
(410) 313-6444
www.co.ho.md.us/dpw/recycling.htm

Kent County
Recycling Coordinator
Kent County
709 Morgnec Road
Chestertown, MD 21620
(410) 778-7448
www.kentcounty.com/gov/pubworks/waste.htm

Montgomery County
Department of Environmental Protection/Public Works
101 Monroe Street, 6th Floor
Rockville, MD 20850
(240) 777-6400
(301) 590-0046, Recycling Hotline
(240) 777-7765 (fax)
www.montgomerycountymd.gov/swstmpl.asp?url=/content/dpwt/solidwaste/index.asp

Prince George's County
Dept. of Environmental Resources
Office of Recycling
9400 Peppercorn Place, 5th Floor
Largo, MD 20785
(301) 883-5810
www.co.pg.md.us/Government/AgencyIndex/DER/about_recycling.asp

Queen Anne's County
Midshore Regional Recycling Program
P.O. Box 56
312 Safety Drive
Centreville, MD 21617
(410) 758-2697
(410) 758-6605

Somerset County
Somerset County Government
Department of Solid Waste
11916 Somerset Avenue
Princess Anne, MD 21871
(410) 651-9641
www.co.somerset.md.us/ccomplex_files/solidwaste.htm

St. Mary's County
Recycling Coordinator
St. Mary's Co. Dept. of Public Works
Engineering Services
P.O. Box 508
California, MD 20619
(301) 863-8400
www.co.saint-marys.md.us/dpw/index.asp

Talbot County
Talbot County Dept. of Public Works
28712 Glebe Road, Suite 3
Easton, MD 21601
(410) 770-8170
www.talbotcountymd.gov/index.php?page=Public_Works

Washington County
Washington County
Solid Waste Department
100 W. Washington Street, #238
Hagerstown, MD 21740
(240) 313-2790
www.washco-md.net/public_works/solid_waste/solidw.htm

Wicomico County
Solid Waste Division
6948 Brick Kiln Road
Salisbury, MD. 21801
(410) 548-4935
www.wicomicocounty.org/pubwrk/solid.htm

Worcester County
Department of Public Works--Recycling
7091 Central Site Lane
Newark, MD 21841
(410) 632-3177
www.co.worcester.md.us/pw/recycling.htm

State of Maryland
Chief Recycling Division
Department of the Environment
1800 Washington Boulevard
Baltimore, MD 21230
(410) 537-3314

Used Motor Oil and Antifreeze Haulers

Note, the following is not a complete list of motor oil and antifreeze haulers. The Department of Natural Resources neither recommends nor endorses any particular company.

Siemans Water Technologies
Baltimore/Washington Branch
(301) 210-7760
(301) 210-7746
- Used oil, antifreeze, oily water

www.water.siemens.com/en/pages/default.aspx

International Petroleum Corporation (IPC)
A Division of FCC Environmental (below)
6305 E. Lombard Street
Baltimore, MD 21224
(800) 222-2511
(410) 633-0789 (fax)
- Used oil
- Serve MD, DE, VA, PA, NJ

FCC Environmental
(800) 673-8521
(888) 749-8344
www.fccenvironmental.com/locations.html

Mid States Oil Refining Co.
3520 Fairfield Road
Baltimore, MD 21226
also
606 Lewisville Road
Fair Hill, MD 21921
(410) 354-9500
(800) 331-5408
http://www.midstatesoil.com/
- Used oil, antifreeze, oily water, and oil filters

Safety-Kleen Corporation
1448 Desota Road
Baltimore, MD 21230
(410) 525-0001
www.safety-kleen.com/Pages/SKHome.aspx
- Used oil, solvent recovery
- Serve MD

Fluorescent Tube and PCB Ballast Disposal Sources

Note, the following is not a complete list of fluorescent tube and PCB ballast disposal sources. The Department of Natural Resources neither recommends not endorses any particular company.

Veolia Environmental Services Technical Solutions
105 Willow Springs Circle
York, PA 17408
(888) 877-2387
http://veoliaes-ts.com/Contacts/York%20%20PA
- Metallic mercury, fluorescent tubes, mercury contaminated devices

Universal Appliance Recycling
8500 Ardwick Ardmore Road
Landover, MD 20785
(301) 773-3400
www.universalappliance.com/
- All used appliances, will remove and dispose of PCB capacitators, if they are part of the appliance

USA Lights
12036 Old Baltimore Pike
Beltsville, MD 20705
(301) 699-6244
- Flourescent lamps and ballasts. Other hazardous wastes accepted at other facilities.

Bethlehem Apparatus Co.
890 Front Street
P.O. Box Y
Hellertown, PA 18055
(610) 838-7034
(610) 838-6333 (fax)
- Flourescent lamps, quartz and HID lamps, mercury contaminated devices, on-site mercury distillati

USA Lamp and Balast Recycling and
Clean Lights Recycling
(845) 795-1282
- Fluorescent lamps, ballasts, transformers

Green Lights Recycling Inc.
6240 MacCorkle Ave., SW
St. Albans, WV 25177
(800) 704-0794
(304) 768-7111
www.greenlightsrecycling.com/index.html
- Fluorescent lamps, HID and mercury lamps, and PCB/non-PCB ballasts

Inmetco
One INMETCO Drive
Ellwood City, PA 16117
(724) 758-2800
www.inmetco.com/
- Nickel, cadmium, and nickel metal hydride batteries

Appendix V. Sample Contract Language

The following text is based on the Marine Trades Association of New Jersey's Best Management Pledge. The language may be incorporated into lease agreements. **Contact the Maryland Department of Natural Resources at (410) 260-8773 for an electronic copy for easy editing and printing.**

FOR TENANTS:

I,_____, understand that _____
(name) (marina/boatyard)

subscribes to and enforces pollution prevention procedures. I further understand and agree that in return for the privilege of performing work on a boat at this facility such as hull cleaning, washing, sanding, polishing and/or painting; bottom cleaning, sanding, scraping, and/or painting; opening the hull for any reason, e.g., installation of equipment or engine work; engine and/or stern drive maintenance, repair, painting; etc., it is my responsibility to comply with, at a minimum, the following pollution prevention practices. I understand that this list may not be complete and pledge that I will exercise common sense and judgment in my actions to insure that my activities will not deposit pollution residues in surface waters or elsewhere where they may be conveyed by stormwater runoff into the surface waters. I understand that failure to adopt pollution prevention procedures may result in expulsion from the marina/boatyard (insert name of facility) and forfeiture of rental fees. I understand that I may elect to employ the facility to perform potentially pollution producing activities on my behalf in which case the responsibility for compliance with the best management practices is entirely theirs.

Signed _____ Date _____

FOR SUB-CONTRACTORS ONLY:

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

Signed _____ Date _____

POLLUTION PREVENTION PRACTICES:

A. REPAIRS AND SERVICE (to hull and engine: painting, cleaning, washing, sanding, scraping, etc.)
   1. Work on hulls and engines only in designated areas or use portable containment enclosures with approval of marina management.
   2. Use tarps and vacuums to collect solid wastes produced by cleaning and repair operations–especially boat bottom cleaning, sanding, scraping, and painting.
   3. Conduct all spray painting within an enclosed booth or under tarps.
   4. Use non-toxic, biodegradable solvents.
   5. Capture debris from boat washing and use only minimal amounts of phosphate-free, non-toxic, and biodegradable

continued page A-20

cleaners.
6. Use drip pans for any oil transfers, grease operations, and when servicing I/Os and outboard motors.
7. Obtain management approval before commencing any repair which will open the hull. Clean and pump bilges free of contaminated materials before and after repairs which open the hull.
8. Use spill proof oil change equipment.

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

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

D. WASTE OIL AND FUEL
1. Recycle used oil and antifreeze.
2. Add a stabilizer to fuel tank in the fall or an octane booster to stale fuel in the spring. Use the fuel or bring it to a household hazardous waste collection site.
3. Absorbent materials soaked with oil or diesel: drain liquid and dispose of in used oil recycling container; double bag absorbent material in plastic and dispose in regular trash receptacle.
4. Absorbent materials soaked with gasoline (flammable): air dry and reuse.
5. Bioremediating absorbent products: dispose in regular trash as long as no liquid is dripping. Because the microbes need oxygen to function, do not seal in plastic.
6. Oil filters: drain and recycle the oil; recycle the filter or double bag and put in regular trash.

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

F. SEWAGE HANDLING
1. Never discharge raw sewage within Maryland waters.
2. If you have an installed toilet, you must have an approved Marine Sanitation Device (MSD).
3. Do not discharge Type I or Type II marine sanitation devices within the marina basin.
4. Use marina restroom facilities when at slip.
5. Do not empty port-a-pots overboard; use marina dump facility. Do not empty port-a-pots in the restrooms.
6. Do not discharge holding tanks overboard; use pumpout facility.
7. If you must use a holding tank additive, use an enzyme-based product. Avoid products that contain quaternary ammonium compounds (QACs), formaldehyde, formalin, phenal derivatives, alcohol bases, or chlorine bleach.
8. Liveaboards, place a dye tablet in holding tank after each pumpout out. The dye will make any illegal discharges clearly visible.
9. The marina management reserves the right to inspect any head or marine sanitation device to ensure compliance.

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

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

Appendix VI. Spill Response Companies

Note, the following is not a complete list of spill response companies. Independent research may find other companies. The Department of Natural Resources neither recommends nor endorses any particular company. Source: Maryland Department of the Environment's Oil Control Program. To request additions or deletions to the list contact MDE at 410-537-3442 or toll-free in Maryland at 800-633-6101, ext. 3442.

A & A Environmental Services
Baltimore: (410) 636-3700 or (800) 404-8037
Salisbury: (410-543-1559 or (800) 411-3353
- Oil
- Limited haz-mat
- Underground storage tanks

A.C. & T Company, Inc.
P.O. Box 4217
Hagerstown, MD 21740
(800) 458-3835
(301) 582-2700
Web: www.acandt.com
- Limited oil

American Tank/Petroleum Services
P.O. Box 185
Davidsonville, MD 21035
(410) 798-7080

Clean Harbors Environmental Services
3527 Whiskey Bottom Road
Laurel, MD 20724
(800) 638-4440
(301) 939-6000
- Oil
- Haz-mat

Gardner Environmental Services
P.O. Box 273
Monrovia, MD 21770
(301) 864-2111
- Surface spills

Gerald Taylor Company
12 West Potomac Street
Williamsport, MD 21795
(301) 582-2800
(301) 223-5958

Guardian Environmental Service, Inc.
1280 Porter Road
Bear, DE 19701
(302) 834-1000
(800) 345-4395
- Oil
- Haz-mat
- Underground storage tanks

Industrial Marine
23 Stahl Point Road
Baltimore, MD 21226
(410) 636-3800
(888) 229-4672
- Surface spills

React Environmental Services
6901 Kingsessing Avenue
Philadelphia, PA 19142
(800)326-2439
(215)729-3220
- Surface spills

S & S Technologies, Inc.
515 Glen Heights Avenue
Glen Burnie, MD 21061
(301) 829-8275
- Surface spills

Schnabel Engineering
656 Quince Orchard Road, Suite 700
Gaithersburg, MD 20878
(301) 548-4300
- Surface spills

Sea Tow Annapolis
David DuVall
PO Box 3113
Annapolis, MD 214403
(410) 267-7650
(410) 267-9556 (fax)
Email: seatowmcc@earthlink.net
- Towing and salvage
- Spill containment
- Minor spill clean up

SECOR International
3700 Koppers Street Suite 135
Baltimore, MD 21227
(410) 644-3855
(410) 644-3854
- Surface spills

T. D. Environmental
221 Cree Terrace
Rising Sun, MD 21911
(410) 658-3646
(443) 309-6069
- Surface spills

TPH Industries
7948 Fort Smallwood Road
Baltimore, MD 21226
(410) 437-7500
(410)-437-9547
- Surface spills

Waste-Tron of Maryland
3922 Vero Road, Suite M
Baltimore, MD 21227
(410) 536-4200
- Surface spills

Weavertown Environmental Group
201 South Johnson Road
Houghstown, PA 15342
(800) 746-4850
- Surface spills

Appendix VII. Local Economic Development Contacts

From Maryland Department of Business & Economic Development website www.choosemaryland.org

Local economic development staffs can help make you aware of local permitting and regulatory requirements. They can serve as liaisons with the local administration and other local agencies, such as Planning and Zoning, Licenses and Permits, Public Works, and the local Soil Conservation District.

Allegany
Allegany County Economic Development
701 Kelly Road, Ste. 400
Cumberland, MD 21502
(410) 777-5967
(800) 555-4080
(410) 777-2194 (fax)
Email: info@alleganyworks.org
Web: www.alleganyworks.org

Anne Arundel
AA Co. Economic Development Corp.
2660 Riva Road, Suite 200
Annapolis, MD 21401
(410) 222-7410
(410) 222-7415 (fax)
Email: info@aaedc.org
Web: www.aaedc.org

Baltimore City
Baltimore Development Corporation (BDC)
36 S. Charles Street, Suite 1600
Baltimore, MD 21201-3015
(410) 837-9305
(410) 837-6363 (fax)
E Mail: info@baltimoredevelopment.com
Web: www.baltimoredevelopment.com

Baltimore
Dept. of Economic Development
Court House Mezzanine
400 Washington Avenue
Towson, MD 21204
(410) 887-8000
(410) 887-8017 (fax)
Email: businesshelp@baltimorecountymd.gov
Web: www.baltimorecountymd.gov

Calvert
Dept. of Economic Development
Courthouse
Prince Frederick, MD 20678
(800)331-9771
(410) 535-4585 (fax)
Email: info@ecalvert.com
Web: www.ecalvert.com

Caroline
Economic Development Corporation
Button Factory Building
317 Carter Ave, Suite 107
Denton, MD 21629
(410) 479-4188
(410) 479-4061 (fax)
Email: info@carolinemd.org
Web: www.carolinemd.org/business

Carroll
Dept. of Economic Development
255 N. Center Street, Suite 101
Westminster, MD 21157
(410)386-2070 or
Balt. (410) 876-2450 ext. 2070
(410) 876-8471 (fax)
Email: info@carrollbiz.org
Web: www.carrollbiz.org

Cecil
Office of Economic Development
200 Chesapeake Blvd., Suite 2700
Elkton, MD 21921
(410) 996-6292
(410) 996-6279 (fax)
Web: www.ccgov.org/dept_ecdev

Charles
Economic Development Department
103 Centenniel Street, Suite C
LaPlata, MD 20646
(301) 885-1340
(301) 885-1341 (fax)
Web: www.ccbiz.org

Dorchester
Dorchester Co. Economic Development Office
5263 Bucktown Road
Cambridge, MD 21613
(410) 228-0155
(410) 228-9518 (fax)
Email: info@dorchestereconomic.com
Web: www.dorchestereconomic.com

Frederick
Frederick Co. Office of Economic Development
534 Spectrum Drive, Suite A
Frederick, MD 21703
(301) 600-1058
(800) 248-2296
(301) 600-2340 (fax)
Email: info@discoverfrederickmd.com
Web: www.discoverfrederickmd.com

Garrett
Economic Development Department
203 S. Fourth Street, Room 208
Oakland, MD 21550
(301) 334-1921
(301) 334-1985 (fax)
Email: economicdevelopment@garrettcounty.org
Web: www.gcedonline.com

Harford
Office of Economic Development
220 S. Main Street
Bel Air, MD 21014
(410) 638-3059
(410) 879-8043 (fax)
Email: oed@harfordcountymd.gov
Web: www.harfordbusiness.org

Howard
Howard Co. Economic Development Authority
6751 Columbia Gateway Dr, Suite 500
Columbia, MD 21046
(410) 313-6500
(410) 313-6525 (fax)
Email: hceda@hceda.org
Web: www.hceda.org

Kent
Economic Development Office
400 High Street
Chestertown, MD 21620
(410) 778-7434
(410) 778-0810 (fax)
Email: jsteinmetz@kentgov.org
Web: www.kentcounty.com/bus/index.htm

Montgomery
Office of Economic Development
111 Rockville Pike, Ste 800
Rockville, MD 20850
(240) 777-2000
(240) 777-2201 (fax)
Email: arnetta.quarles@montgomerycountymd.gov
Web: www.montgomerycountymd.gov

Prince George's
Prince George's Co. Economic Development Corporation
1100 Mercantile Lane, Suite 115A
Largo, MD 20774
(301) 583-4650
(301) 772-8540(fax)
Email: info@pgcedc.com
Web: www.pgcedc.com

Queen Anne's
Queen Anne's Co. Dept.of Economic Development and Agriculture
160 Coursevall Drive
Centreville, MD 21617
(410) 758-4418
(410) 758-0196 (fax)
Web: www.choosequeenannes.com

St. Mary's
Dept of Economic and Community Development
23115 Leonard Hall Drive
Leonardtown, MD 20650
(301) 475-4200 ext.1401
(301) 475-4414 (fax)
Web: www.stmarysmd.com/decd

Somerset
Somerset Co. Economic Development Commission
11916 Somerset Avenue, Suite 202
Princess Anne, MD 21853
(410) 651-0500
(410) 651-3836 (fax)
Email: edc@co.somerset.md.us
Web: www.somersetcountyedc.org

Talbot
Talbot County Office of Economic Development
28712 Glebe Road, Ste. 5
Easton, MD 21601
(410) 770-8058
(410) 770-8059 (fax)
Web: www.talbotcountymd.gov

Washington
Hagerstown-Washington Co. Econ. Devel. Commission
100 W. Washington Street, Room 103
Hagerstown, MD 21740
(240) 313-2280
(240) 313-2281 (fax)
Email: edcinfo@hagerstownedc.org
Web: www.hagerstownedc.org

Wicomico
Salisbury-Wicomico Economic Development
1 Plaza East, Suite 501
PO Box 4700
Salisbury, MD 21803
(410) 749-1251
(800) 521-7933
(410) 749-1252 (fax)
Email: info@swed.org
Web: www.swed.org

Worchester
Department of Economic Development
100 Pearl Street, Suite 8
Snow Hill, MD 21863
(410) 632-3112
(410) 632-5631 (fax)
Web: www.co.worcester.md.us

STATEWIDE
Maryland Dept. of Business and Economic Development
217 E. Redwood Street
Baltimore, MD 21202
(888) ChooseMD
(410) 767-6300
Web: www.ChooseMaryland.org

Appendix VIII. Spill Prevention, Control and Countermeasure Plan

Frequenty Asked Questions

What is a Spill Prevention, Control and Countermeasure (SPCC) Plan?
An SPCC plan is a written document that describes measures one has taken to prevent, contain and clean up oil spills. The term "oil" includes gasoline, diesel, heating oil, and solvents.

Who needs an SPCC Plan?
Any marine facility that has an aggregate above ground petroleum storage capacity greater than 1,320 gallons, or below ground storage capacity greater than 42,000, and where there is a reasonable expectation of a discharge into or upon the navigable waters of the U.S. or adjoining shorelines, must have a Spill Prevention, Control and Countermeasure plan.

Are SPCC plans required by law?
Yes, SPCC plans are required by federal regulation 40 CFR 112 which is implemented by the U.S. Environmental Protection Agency. Like all rules, the SPCC rule is subject to change. Visit http://www.epa.gov/emergencies/content/spcc/index.htm for current information.

Can I prepare my own SPCC plan?
In most cases, yes. The owner or operator of a "qualified facility" as defined below may self-certify his facility's Plan. A qualified facility is one that meets the following Tier I or Tier II qualified facility criteria.

A Tier II qualified facility is one that has at total above ground storage capacity of 10,000 gallons or less, and has had no single discharge exceeding 1,000 U.S. gallons or no two discharges exceeding 42 U.S. gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to this part if the facility has been in operation for less than three years. Tier II qualified facilities may use the free template, available on the Maryland Clean Marina website to certifiy their own plan: http://www.dnr.state.md.us/boating/cleanmarina/plans.asp

A Tier I qualified facility is one that meets all Tier II criteria above and has no aboveground oil storage containers with a capacity greater than 5,000 U.S. gallons. Tier I qualified facilities should use the EPA template available at http://www.epa.gov/emergencies/content/spcc/tier1temp.htm#ext1

Facilities that do not meet Tier I or II criteria must have a professional engineer (P.E.) review and certify the plan. The Clean Marina program developed the following template to assist such facilities. Such facilities should contact the Program office to request an electronic version of this free template (dmorrow@dnr.state.md.us or 410-260-8773). Marinas actively participating in the Maryland Clean Marina Program may be provided the services of a P.E. at no cost, based on availability of funding. Contact the program office at the number above for more information and approval.

What counts toward storage capacity?
Storage capacity includes the capacity of all containers able to hold 55 gallons or more of petroleum such as tanks, portable tanks, and 55-gallon drums. The capacity of any empty containers that may be used to store oil and are not permanently taken out of service are also counted in a facility's total storage capacity.

Does the term "oil" include vegetable oil, transformer oil, and other non-petroleum based oil?
Yes. "Oil" is defined in 40 CFR 112.2 as oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse and oil mixed with wastes other than dredge spoil. This definition has been interpreted to include vegetable oil, mineral oil, transformer and other oils.

Who do I give the SPCC plan to?
A copy of the entire SPCC plan must be maintained at the marina if the facility is normally attended at least eight hours per day, or at the nearest field office if the facility is not so attended.

continued

Since a boating facility must be in compliance with all applicable laws and regulations in order to be certified as a Maryland Clean Marina, any facility wishing to be recognized as a Clean Marina and that is subject to the SPCC requirements must submit a copy of its SPCC plan to the Clean Marina office.

The SPCC plan is not required to be filed with the U.S. EPA, but a copy must be available for on-site review by the regional administrator during normal working hours. The SPCC plan must be submitted to the U.S. EPA Region III regional administrator and the Maryland Department of the Environment along with the other information specified in 40 CFR 112.4 if either of the following occurs:

- the facility discharges more than 1,000 U.S. gallons of oil into or upon the navigable waters of the United States or adjoining shorelines in a single event, or
- the facility discharges oil in excess of 42 gallons in each of two spill events within any twelve month period.

How often must I review the SPCC plan?
The facility owner or operator must review the SPCC plan **at least every five years.** These reviews must be documented. If the marina operator self-certified the SPCC Plan, he or she may self-certify any minor changes and reviews of the plan. If a P.E. certified the plan, then a P.E. must certify the plan again if significant changes are made following a review. Any changes that disqualify the marina from Tier II criteria or which substantially affect the marina's risk for a fuel spill, must be reviewed and certified by a P.E.

When do I have to update the SPCC plan?
The SPCC regulation requires the owner or operator to amend the plan whenever there is a change in facility design, construction, operation, or maintenance that materially affects the facility's potential to discharge oil. Such amendments must be fully implemented not later than six months after the change occurs. Significant changes to an SPCC plan require the review and approval of a professional engineer.

Spill Prevention, Control and Countermeasure (SPCC) Plan

Marina Name: _____

Address: _____

_____

_____

Contact Name: _____

Phone: _____

Fax: _____

Email: _____

Certification:
I hereby certify that I have examined the facility, and, being familiar with the provisions of 40 CFR part 112, attest that this SPCC plan has been prepared in accordance with good engineering practices.

This plan has been certified by:

Name of engineer/firm: _____

Address: _____

_____

_____

Date of certification: _____ *Engineer's Seal*

Facility Information

Facility Name: _____
Mailing Address: _____
_____
_____

Physical address if different: _____
_____
_____

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 facility is located. For example, "This site is located along Broad Creek about 2 miles north of its confluence with the Choptank River at Holland Point. Road access is from. . . . The site is located on Talbot County ADC map 22 (H5). Latitude is ____ and longitude is ____ ."

_____
_____
_____

Facility Description

Acres of land: _____

Place an X beside all that apply.

Facilities and Equipment:

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

Services:

____ general maintenance
____ commissioning
____ winterization
____ pressure washing
____ cleaning and waxing
____ engine repair/tuning
____ propeller repairs
____ oil changes
____ parts cleaning
____ painting
____ blasting
____ sanding
____ canvas
____ rigging
____ fiberglass
____ blister repair
____ carpentry
____ air conditioning repair and service
____ refrigeration
____ electrical
____ plumbing
____ other services. Please list:

Fixed Storage:
List capacity and contents of each storage container. For example, "One 6,000 gallon above ground tank containing diesel fuel." Be sure to include diesel, gasoline, waste oil, heating oil, kerosene, paint thinner and other solvents.

Total quantity of stored materials:
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. Details of such spill(s) are described below.

For each spill that occurred, supply the following information:

- Type and amount of oil spilled
- Location, date and time of spill(s)
- 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

Fill in all applicable blanks. Be prepared to show the engineer documentation of flow rates. Your fuel vendor and the manufacturer of your storage and dispensing equipment should be able to provide this documentation.

Potential Event	Volume Released	Spill Rate
Complete failure of a full tank*	____ gallons	instantaneous
Partial failure of a full tank*	1 to ____ gallons	gradual to instantaneous
Tank overflow**	1 to ____ gallons	up to ____ gallons per minute
Leaking during unloading***	up to ____ gallons	up to ____ gallons per minute
Pipe failure****	up to ____ gallons	up to ____ gallons per minute
Leaking pipe or valve****	several ounces to gallons	up to ____ gallons per minute
Fueling operations****	several ounces to gallons	up to ____ gallons per minute
Oil and grease	several ounces to quarts	spotting

* Volume of largest tank.
** Calculate using the rate at which fuel is dispensed from the delivery truck into your tank(s).
*** Calculate using the rate at which petroleum would be withdrawn from the tank if it should have to be emptied (e.g., if it was being taken out of service).
**** Calculate based on the specifications of your equipment.

Spill Prevention and Control

Spill Prevention:
Provide specific descriptions of containment facilities and practices. Include descriptions of items such as double-walled tanks, containment berms, emergency shut-offs, drip pans, fueling procedures and spill response kits. Also, describe how and when employees are trained in proper handling procedures and spill prevention and response 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 a site map of your facility by reference.

Describe actions that would be taken in the event of a spill:
Identify what equipment would be deployed by whom and in what situation. Also, include phone numbers for response agencies, e.g., U.S. Coast Guard, fire department, spill response contractors, etc. A copy of your spill response plan may be attached as an appendix to this SPCC plan in lieu of completing this section.

Facility Inspections

A. Name facilities and the frequency with which they are inspected. For example, "The fuel pumps are inspected daily. The materials storage area is inspected monthly." Name the person who has responsibility to implement preventative maintenance programs, oversee on-site inspections, coordinate employee training, maintain records, update the plan as necessary, and ensure that reports are submitted to the proper authorities.

B. Include a description of annual comprehensive inspections. For example, "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

Describe record keeping procedures. For example, “Record keeping procedures consist of maintaining all records a minimum of three years. The following items will be kept on file: current SPCC plan, internal site reviews, training records, and documentation of any spills or maintenance conducted in regards to these sites.” 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.

Signature _____ Title _____

Printed name _____ Date _____

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:

Facility Inspected	Date	Inspector's Name	Result Pass/Fail	Comments
Oil recycling area	4/27/08	Eric Rose	Pass	No evidence of leakage

Employee Training

Employee Training Coordinator: _____

Use this table to record spill prevention and response training.

Name of Employee	Date of Training	Type of Training/Topics Addressed
Carl Bishop	3/26/08	Boom deployment

Record Keeping of Incidental Spills

Record Keeper: _____. Record Keeper responsibilities include maintaining records of incidents, updating the SPCC plan as necessary and ensuring reports are submitted to the proper authorities when necessary.

Incident No.	Type of Incident	Date of Occurence	How it was Cleaned Up
1	Leaky connection on fuel pump	7/21/11	Diesel soaked up with oil absorbent pad. Called U.S. Petroleum to fix fuel dispenser.

Appendices

Site map:
Include a site map as Appendix A to this plan. You may attach an existing site map or create your own. In either case, be sure that the items listed below are included.

Sketch out the layout of your marina. The following instructions should guide you step-by-step. 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: _____
Appendix C: _____
Appendix D: _____
Appendix E: _____
Appendix F: _____

Appendix IX. Emergency Response Plans

Establish a single binder for all of your emergency response plans. Give it a bright cover and spine so that it stands out. Make sure each employee knows where it is and what type of information it contains.

The first item ought to be a site plan:

_____ **Site Plan:** Show valves, pipes, tanks, structures, roads, hydrants, docks, power and fuel shutoffs, hazardous material storage locations (e.g., solvents, fuels, pool chemicals, pesticides - indicate quantities), location of response materials, fire extinguishers, and telephones.

Then, prepare individual plans for all likely threats such as fuel spills, health emergencies, fires, hurricanes, etc. Keep the plans SIMPLE. Include the following information in each.

_____ **Personnel:** Identify who (by name or title) is responsible for taking what action, e.g., deploying equipment, contacting emergency agencies, etc. Designate one person on the marina staff as the official spokesperson for the facility.

_____ **Phone Numbers:**
When calling an emergency response agency, be prepared to describe the nature of the emergency, the location and address of the marina, and the exact location within the complex.

- U.S. Coast Guard National Response Center (fuel spill): 800-424-8802
- MDE Emergency Response Division (fuel or hazardous material spill): 866-633-4686
- MDE Enforcement (environmental enforcement questions or complaints): 410-631-3400
- Natural Resources Police (boating emergencies or violations of state waterway regulations): 410-260-8888
- Maryland Poison Center: 800-492-2414
- Fire department
- Police department
- Local hospital
- Owner
- Spill response contractors
- Neighboring marinas that have emergency response equipment
- Veterinarian

_____ **Action:** State what action should be taken during an emergency and, based on likely threats, what equipment should be deployed. Include information about what type of equipment is available on site and what its characteristics and capabilities are. Explain how the equipment should be used and disposed.

Refer to sample Emergency Response Plan on next page

ANY PLACE MARINA

1234 Maple Lane ❁ Any Town, MD 12345 ❁ 410-123-4567

Sample Fuel Spill Response Plan

for fuel tanks, pumps and oil recycling tanks

1. Stop the flow

2. Contain the spill (indicate where oil absorbent material is stored)

3. Notify marina manager/owner (include home and cell phone numbers)

4. Call Maryland Department of the Environment's Emergency Response Division at 866-633-4686

5. Call the U.S. Coast Guard's National Response Center at (800) 424-8802

6. Contact spill response company if necessary (include phone number)

Appendix X. Waste Gasoline Haulers

The following companies will collect small quantities of waste gasoline and perhaps other hazardous materials. Neither the Department of Natural Resources nor our partners in the Clean Marina Initiative recommend or endorse any particular company. If you would like to comment on the service provided by any listed company (positive or negative) or suggest other companies for inclusion, please call the Department at 410-260-8773. This list is not comprehensive and is provided for information purposes only. An independent search will produce additional results.

Capitol Environmental Services, Inc.
8229 Boone Blvd., Suite 310
Vienna, VA 22182
703-356-3135
703-356-4198 (fax)

Clean Harbors
1910 Russel Street
Baltimore, MD 21230
800-368-8838
(410) 685-3911
Web: www.cleanharbors.com

Environmental Management Services, Inc.
1684 East Gude Drive, Suite 202
Rockville, MD 20850
301-309-0475
301-309-8052 (fax)

Safety-Kleen
1448 Desoto road
Baltimore, MD 21230
(410) 525-0001
Web: www.safetykleen.com

Appendix XI. Training Guide: Marina Pollution Prevention Policies

Keep Pollutants out of the Water and Off the Ground!

Use this outline to guide your employee training. If you have a General Permit for Discharges from Marinas, you are required to train your employees about the contents of your Stormwater Pollution Prevention Plan twice annually. The Clean Marina Initiative strongly recommends that you also train your staff about your other pollution prevention policies and safety procedures.

The page numbers listed after each item refer to pages in the Maryland Clean Marina Guidebook.

	Dates Reviewed:	Staff Present:
Elements of Stormwater Pollution Prevention Plan:		
Used oil management - pp. 57, 59		
Spent solvent management - pp. 32, 60		
Proper disposal of old paint - pp. 54, 60		
Proper disposal of spent abrasives - pp. 29, 61		
Disposal of vessel waste water - p. 30		
Spill prevention and control - pp. 36-43		
Fueling procedures - p. 38-39		
General good housekeeping - pp. 55-62		
Blasting and painting procedures - pp. 29, 31-32		
Used battery management - p. 61 lkfld		
Disposal of sacrificial anodes (e.g. zinc, aluminum)		
Other Marina Policies:		
Fish scrap disposal - p. 55		
Handling & recycling solid waste - pp. 56-57		
Handling & recycling liquid waste - pp. 56-57		
Containing general maintenance debris - p. 28		
Containing dust from sanding - p. 29		
Reducing environmental impacts from winter lay-up - p. 33		

	Dates Reviewed:	Staff Present:
Other Marina Policies (continued)		
Containing oil and grease associated with engine work - pp. 32-33		
Containing debris from in-water maintenance - p. 33		
Preventing sewage discharges - pp. 49-50		
Maintaining septic system - p. 49-50		
Responding to a fuel spill - p. 43		
Responding to a fire - p. 43-44		
Handling a health emergency - pp. 41-42		
Preparing for a hurricane - pp. 41-42		
Proper use of equipment and chemicals - p. 65		
Watching for inappropriate discharges and how to approach a polluter - pp. 65-66		

Appendix XII: Stormwater Pollution Prevention Plan

This template is available electronically at dnr.maryland.gov/boating/cleanmarina/

This template may help you prepare a Storm Water Pollution Prevention Plan as required by General Discharge Permit No. 10-MA (Effective March 1, 2011 through February 28, 2016)
http://www.mde.maryland.gov/programs/permits/watermanagementpermits/waterdischargepermitapplications/pages/permits/watermanagementpermits/water_applications/marinas.aspx

As explained in the General Discharge Permit for Marinas 10-MA:

1. The permittee (marina) shall implement and maintain a Storm Water Pollution Prevention Plan (SWPPP) for the facility covered by this permit. The SWPPP shall be prepared in accordance with sound engineering practices and identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with eligible activities on the facility property.

2. The SWPPP shall prescribe practices to reduce and/or eliminate pollutants in storm water discharges associated with activities at the facility. The Maryland Department of the Environment provides guidance and hyperlinks to sources that will aid in the creation/revision of an SWPPP (http://www.mde.maryland.gov/programs/permits/watermanagementpermits/waterdischargepermitapplications/pages/permits/watermanagementpermits/water_applications/marinas.aspx). The SWPPP must include a year-round contact.

3. The Discharge Permit also requires quarterly facility inspections by qualified marina staff, to review the effectiveness of the SWPPP. The inspection must be documented and held in a log book on site. Attachment #1 to this template includes a sample log the marina may duplicate and use.

4. The General Discharge Permit for Marinas requires quarterly visual monitoring of storm water discharge, to determine the effectiveness of the control measures outlined in the SWPPP. Once each quarter, the permittee shall collect a storm water sample from each outfall and assess the sample visually. A "visual monitoring form" is included as part of the Discharge Permit and is not included as part of this template.

This template is provided by the Maryland Department of Natural Resources as a guidance tool. Use of this template does not relieve users of their responsibilities to comply with requirements of the General Permit for Marinas in its entirety or the Clean Water Act. I acknowledge that the Maryland Department of Natural Resources and its staff are not responsible and/or liable for any of my actions or for compliance with the above-mentioned permit. In addition, I agree to release and hold harmless the Maryland Department of Natural Resources from any liability in the event of fines, penalties, or prosecution by the Environmental Protection Agency or Maryland Department of the Environment.

Acknowledged by: _____

Date: _____

Element #1 Developing a Site Plan

Completed by:
Title:
Date:

Instructions: Draw a map of your site including a footprint of all buildings, structures, paved areas, and parking lots.

The General Discharge Permit for Marinas requires that you identify the following features on your site map:

- All outfalls and storm water discharge points
- Name of receiving waters (or if through a Municipal Separate Storm Sewer System)
- Hazardous materials storage locations
- Main equipment locations
- Main building locations
- Direction of storm water flow (use arrows)
- Direction of permitted waste water discharges (e.g., pressure wash water)
- Locations of any of the following exposed to precipitation:
- Fuel storage tanks and pumps
- Sewage collection areas (e.g., pumpout, holding tank)

MARINA INFORMATION

Marina name:
Address:

Phone number:
Email:

Element #2 POLLUTION PREVENTION TEAM MEMBER ROSTER

Completed by:
Title:
Date:

Year Round Contact/Team Leader: Title:
Office phone:
Responsibilities:

Members:
1) Title:
Office phone:

Responsibilities:

2) Title:
Office phone:

Responsibilities:

3) Title:
Office phone:
Responsibilities:

Company Authorized Signature: _____

Printed Name: _____

Date: _____

EMPLOYEE TRAINING	Element # 3 Completed by: _____ Title: _____ Date: _____

Instructions: Employees must be trained twice per calendar year on the following topics (as applicable to the facility). Training should be documented using this worksheet (make copies of the original as needed for future use). Also inform independent contractors and customers about pollution prevention measures (e.g., through contracts or signs).

Training Topics	Brief Description of Training Program/Materials, e.g., film, fact sheet, discussion	Schedule for Training (list dates)	Attendees
Used Oil Management			
Spent Solvent & Paint Management			
Disposal of Spent Abrasives			
Disposal of Vessel Wastewater			
Spill Prevention and Control			
Fueling Procedures			
General Good Housekeeping Practices			
Painting and Blasting Procedures			
Used Battery Management			
Disposal of Sacrificial Anodes (e.g. zincs)			

Elements #4 Description of Potential Pollutant Sources

Completed by:
Title:
Date:

Instructions: Describe activities that may reasonably be expected to add significant amounts of pollutants to storm water discharges (e.g., pressure washing, fuel handling, bottom paint removal areas). Include activities that may also result in the discharge of pollutants during dry weather, to waters of the state (e.g. fuel dock operations).

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

Inventoryof exposed materials

Element #5

Completed by: _____
Title: _____
Date: _____

Instructions: List all materials handled, treated, stored, or disposed on site that may potentially be exposed to precipitation. Include materials at the facility from three years prior to the date of coverage under this permit to the present.

Types of Materials Potentially Exposed to Storm Water	Method and Location of on-site Storage or Disposal (e.g., pile, drum)	Description, including location, of best management practices used to minimize contact with storm water run off.	Description of any treatment the storm water receives.
Example: Used Batteries	Single layer, pile	Keep plastic tarp over battery pile at all times.	

List of Significant Spills and Leaks

Element # 5

Completed by: _____

Title:

Date: _____

Directions: Record below all significant spills and leaks of toxic or hazardous pollutants that have occurred at the facility in the three years prior to the effective date of the permit (December 21, 2001).

Definitions: Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities.

1st Year Prior										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventative Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

2nd Year Prior										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventative Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

3rd Year Prior										
Date (month/day/year)	Spill	Leak	Location (as indicated on site map)	Description				Response Procedure		Preventative Measures Taken
				Type of Material	Quantity	Source, If Known	Reason	Amount of Material Recovered	Material No Longer Exposed to Storm Water (True/False)	

Element #7 Best Management Practices, Measures and Controls

Completed by:

Title:

Date:

a. Good Housekeeping and Routine Yard Maintenance Schedule

The General Discharge Permit states: "Permittees must keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals. The Plan must include a schedule for routine yard maintenance and cleanup. Scrap metal, wood, plastic, miscellaneous trash…must be routinely removed from the general yard area."

Instructions: Describe your regular yard maintenance schedule and explain how you dispose of waste such as scrap metal, wood, and trash.

Example: We routinely do a spring clean up in April each year. All scrap metal is recycled and other debris is put in the dumpster or hauled to the dump, depending on size. Any recyclable materials (plastic) are recycled by our regular waste hauler.

b. Maintenance of Storm Water Controls This is addressed in the table below. However please note the General Discharge Permit states that non-structural controls (e.g., spill response supplies, staff training) must also be maintained.

Instructions: Describe your maintenance of non-structural controls below.
Example: Each April staff inspects our spill response materials. We re-stock this kit as needed. Emergency phone numbers are checked each February and the response plans are updated if needed.

ELEMENT #7 Continued

c. Vessel Maintenance Activities—Best Management Practices

The General Discharge Permit states: ["Work areas must be secured each evening to prevent exposure of pollutants to storm water. The facility must contain maintenance activities to prevent abrasives, paint chips and overspray from reaching receiving waters or the storm sewer system.]

Instructions: Describe the storm water management practices or devices that you have selected to control pollutants from the activities noted below.

Activity/Source	Brief Description of Storm Water Management Practice	Plan for Proper Maintenance of Storm Water Practice (e.g., clean sediment traps, change filters) "Permittees must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in releases (spills, leaks) of pollutants in storm water discharging to receiving waters."
Bottom Washing Area Note: When not in use, prevent any storm water from entering the treatment system for boat bottom washing if you have one.	Example: sweep up wash down pad nightly when boats have been washed.	

Element #7 Coninuted

Activity/Source	Description of Storm Water Management Practice (e.g., filter cloth, tenting, cover with tarps) "Permittees must keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals."	Plan for Proper Maintenance of Storm Water Practice (e.g., replace ground covers when dirty, change filters) "Permittees must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in releases (spills, leaks) of pollutants in storm water discharging to receiving waters."
BOAT MAINTENANCE ACTIVITIES Items i-vi i. Surface Preparation (e.g. sanding, stripping or blasting) and ii. TBT The General Discharge Permit states: "Stripping, burning, or scraping must be conducted over a suitable ground cover." "Paint containing TBT shall be removed only in protected areas. Coatings suspected to contain TBT are not to be burned off." "Soda/Sand Blasting, Sanding or Grinding…[permanent structures or temporary protective measures (i.e. drop cloths and shrouds) shall be secured around the activity to capture airborne debris. A suitable ground cover must be placed under the activity to collect debris.]"		

Element #7 Contiued

Activity/Source	Brief Description of Storm Water Management Practice (e.g., ground cover, tenting) "Permittees must keep clean all exposed areas that are potential sources of pollutants, using such measures as sweeping at regular intervals."	Plan for Proper Maintenance of Storm Water Practice (e.g., maintain supply of filter cloth, replace between jobs)
iii. Painting The General Discharge Permit states: "All paint mixing, solvent transfer, and equipment clean up must be contained and shall not enter storm drains or the environment. Painting bottoms, including touch ups, must be…controlled…and have no exposure to storm water." [Spray painting shall only be performed in an enclosed building or spray booth with a floor covering such as concrete or tarps.] (paraphrased from Permit).		
iv. Waste Disposal The General Discharge Permit States: "Any solid waste generated from boat maintenance activities…shall be collected for disposal at an appropriate facility, in accordance with RCRA, MDE…regulations and any local environmental ordinances/authorities." Containment of the solid waste shall be adequate to prevent any potential discharge from entering surface waters."	Example: Dumpsters are provided for general household waste. Hazardous waste stored in labeled drum and emptied by licensed hauler monthly. Includes x, y, z…	Example: Dumpsters kept closed at all times and checked for leaks. Leaking dumpsters are replaced.

Element #7 Continued

Activity/Source	Brief Description of Storm Water Management Practice (e.g., oil-sorb materials kept nearby) "Permittees must keep clean all exposed areas that are potential sources of pollutants."	Plan for Proper Maintenance of Storm Water Practice "Permittees must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in releases (spills, leaks) of pollutants in storm water discharging to receiving waters."
v. Oil Transfer (recycling tanks, fueling areas) The General Discharge Permit states: "Any co-mingling of storm water with petroleum products is considered an industrial process wastewater…" And "Discharges that contain a visible oil sheen are prohibited." And If bilge water is collected…to prevent the discharge from entering waters of the State, it must be treated prior to discharge into ground or surface waters…The Discharge shall be sampled at the discharge point and be reported…" See Part IV of the Permit for more information.		
vi. Sacrificial Anodes and Mechanical Repair The General Discharge Permit states: "All anodes shall be properly disposed or recycled. All metal removed while vessels is in water shall be taken ashore."		
d. Material storage area The General Discharge Permit states: "Identify materials stored indoors. Ensure containment or enclosure for those stored outdoors. [All chemicals] and waste products including used batteries and lead and copper waste shall be stored under cover on an impervious surface. Cracked batteries must be stored in a covered [water tight] secondary containment."		

Element #7 Continued

Activity/Source	Brief Description of Storm Water Management Practice (e.g., oil-sorb materials kept nearby)	Plan for Proper Maintenance of Storm Water Practice
e. Material handling area (e.g., fueling, paint mixing) The General Discharge Permit states: "Describe measures that prevent or minimize contamination of storm water runoff from material handling areas."		
f. Engine Maintenance and repair areas The General Discharge Permit states: "Ensure there is no contamination of precipitation or surface runoff from all areas used for engine maintenance and repair." See page 21 of the Permit for more detail if applicable.		
g. Dry Dock The General Discharge Permit states: "Routinely maintain and clean the dry dock to minimize pollutants in storm water runoff." See more on page 22 of the Permit if applicable.		
h. Marine Railway The General Discharge Permit states: "All solids and debris must be removed prior to being submerged to prevent materials from being washed into waters."		

ELEMENT #7 CONTINUED

i. Erosion and Sediment Controls

The General Discharge Permit requires you to stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants. Describe these measures in the table below. If this is not applicable, indicate "N/A."

Identify areas which have high potential for significant soil erosion	**Describe measures in place (e.g., structural, vegetative) to reduce pollutants from storm water discharges.**
Example: Area on the left of the main driveway where the grade is steep.	We installed stones (3-6" diameter) and planted grasses to stabilize this area and prevent wash out.

ELEMENT #7 CONTINUED

j. Spill Prevention and Response Procedures

Instructions: Identify containers exposed to storm water that are susceptible to spills or leaks (e.g., drums holding materials for recycling). Identify plans for effective response to such spills. (e.g., maintaining oil-sorbent materials nearby, having a spill response company identified if needed)

If you have a formal Spill Prevention Control and Countermeasure Plan (SPCC) (required for facilities that can store more than1,320 gallons of petroleum above ground) you may reference it below. See Appendix VIII for more information on SPCC plans.

In the event of a spill on the water, you must notify both the U.S. Coast Guard spill response center at 800-424-8802 and MD Department of the Environment at 866-633-4686.

List containers exposed to storm water and their contents	Spill Response Plan

ATTACHMENT #1
Quarterly Visual Inspection LOG Sheet

Refer to the table in Element #7 when completing your quarterly site inspections.

	1Q 2011	2Q 2011	3Q 2011	4Q 2011
Is site compliant with the Storm water Pollution Prevention Plan and the General Discharge Permit for Marinas 10-MA? Y/N	N/A			
Describe any deficiencies found.	N/A			
Describe any necessary follow up action.	N/A			

Quarterly Visual Inspection LOG Sheet

Refer to the table in Element #7 when completing your quarterly site inspections.

	1Q 2012	2Q 2012	3Q 2012	4Q 2012
Is site compliant with the Storm water Pollution Prevention Plan and the General Discharge Permit for Marinas 10-MA? Y/N				
Describe any deficiencies found.				
Describe any necessary follow up action.				

Quarterly Visual Inspection LOG Sheet

Refer to the table in Element #7 when completing your quarterly site inspections.

	1Q 2013	2Q 2013	3Q 2013	4Q 2013
Is site compliant with the Storm water Pollution Prevention Plan and the General Discharge Permit for Marinas 10-MA? Y/N				
Describe any deficiencies found.				
Describe any necessary follow up action.				

Quarterly Visual Inspection LOG Sheet

Refer to the table in Element #7 when completing your quarterly site inspections.

	1Q 2014	2Q 2014	3Q 2014	4Q 2014
Is site compliant with the Storm water Pollution Prevention Plan and the General Discharge Permit for Marinas 10-MA? Y/N				
Describe any deficiencies found.				
Describe any necessary follow up action.				

Quarterly Visual Inspection LOG Sheet

Refer to the table in Element #7 when completing your quarterly site inspections.

	1Q 2015	2Q 2015	3Q 2015	4Q 2015
Is site compliant with the Storm water Pollution Prevention Plan and the General Discharge Permit for Marinas 10-MA? Y/N				
Describe any deficiencies found.				
Describe any necessary follow up action.				