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# Fixed and Floating Structures

## Potential Environmental Impacts:

As materials degrade or leach contaminants, marina structures themselves may introduce pollutants to the marine environment. Maintenance of these structures can also be a source of pollution. Selection of suitable repair or replacement materials and thoughtful maintenance practices will help reduce this pollution.

## Legal Requirements:

Encapsulate foam floats	<ul style="list-style-type: none"> <li><input type="checkbox"/> All polystyrene or whitebeard foam placed in the water after January 1, 1992, must be encapsulated with concrete, wood, galvanized steel, plastic or fiberglass. A permit for installation is required from the SCDHEC-OCRM.</li> </ul>
OCRM dredge, fill, and construction permits	<ul style="list-style-type: none"> <li><input type="checkbox"/> Dredging, the erection of structures, and the placement of fill, and work incidental thereto, on submerged and submersible land are regulated by the SCDHEC-OCRM. It is necessary to obtain all required authorizations from OCRM prior to conducting work such as dredging (including maintenance dredging), construction or placement of new docks, pilings, ramps, floats, piers, travel lift wells, seawalls, bulkheads, rip rap, stormwater outfall pipes, and/or mooring fields waterward of the high tide line in the tidal, coastal, or navigable waters of the state.</li> </ul>
ACOE dredge, fill, and construction permits	<ul style="list-style-type: none"> <li><input type="checkbox"/> The U.S. Army Corps of Engineers (ACOE) has jurisdiction over the above-listed activities in tidal, coastal, or navigable waters as well, pursuant to Section 10 of the Rivers and Harbors Act of 1899 [33 USC §401 et seq.], and Section 404 of the Clean Water Act [33 USC §1344 et seq.]. Call the ACOE at (866)-329-8187.</li> </ul>

## Best Management Practices:

Routine maintenance	<ul style="list-style-type: none"> <li><input type="checkbox"/> Keep all docks, floats, and bulkheads in good working order by conducting routine maintenance.</li> </ul>
Avoid creosote timber	<ul style="list-style-type: none"> <li><input type="checkbox"/> For construction and replacement of timber, use timber that has been pressure treated with a preservative such as chromated copper arsenate (CCA) instead of creosote-treated materials. Creosote contains PAHs, which can cause cancers in human and are harmful to fish and other aquatic life.</li> </ul>
Use concrete or recycled pilings	<ul style="list-style-type: none"> <li><input type="checkbox"/> For use below the water, concrete pilings or other materials (e.g., plastic, recycled materials) with degradation times greater than 10 years are encouraged.</li> </ul>
Shoreline stabilization: Vegetation Riprap	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use natural vegetation for shoreline stabilization whenever feasible. Maintain this cover in good condition by prompt repair and reseeding of washouts and other losses of vegetation.</li> <li><input type="checkbox"/> If natural vegetation is not a feasible option, riprap revetments are generally encouraged over vertical bulkheads, because sloping riprapped embankments provide greater habitat and reduce wave reflections.</li> </ul>

Scrape, sand, and paint wisely	<input type="checkbox"/> Conduct scraping, sanding, painting, and sandblasting of in-water and landside structures using the same management principles recommended for vessels. <input type="checkbox"/> Where feasible, floating structures should be removed to shoreline facilities for scraping, painting, and major repairs.
Eliminate zinc discharges	<input type="checkbox"/> Galvanized structures release high levels of zinc. Consider using other materials or coat-galvanized areas with epoxy to reduce or eliminate highly concentrated zinc discharges.
Chose alternatives to whitebeard foam	<input type="checkbox"/> Use closed cell foam or alternate flotation methods rather than expanded polystyrene or whitebeard foam. Whitebeard foam harms birds and fish that mistake it for food and degrades water quality.
Used whitebeard foam disposal	<input type="checkbox"/> Reuse whitebeard foam only if it is properly encapsulated. <input type="checkbox"/> Used whitebeard foam should be recycled where facilities exist. <input type="checkbox"/> If neither option is appropriate, used foam must be disposed of at an appropriate upland disposal site.
Marina expansion	<input type="checkbox"/> Design all marina expansions to minimize adverse impacts on basin flushing, water quality, and adjacent coastal resources including shellfish beds, wetlands, and submerged aquatic vegetation.
Permit records	<input type="checkbox"/> Keep copies of all coastal permits in an easily accessible file. As management changes, pass on the information about coastal permits to the incoming marina manager.
Contact OCRM	<input type="checkbox"/> Before doing ANY work that you think might be in the state's permitting jurisdiction, contact the SCDHEC-OCRM to discuss the work that you would like to do or to schedule a pre-application meeting. Some of the maintenance work you want to do may not require any prior authorization or may be eligible for a shortened permit process.

**Relevant Sections and Appendices:**

- ⇒ Abrasive Blasting section.
- ⇒ Paint Spraying section.
- ⇒ Paint Stripping section.
- ⇒ Scraping and Sanding section.

# Stormwater Runoff Management Practices

## Potential Environmental Impacts:

Stormwater runoff from parking lots and other developed surfaces represents a significant mode of pollutant transport from land-based activities to receiving water bodies. The runoff from parking areas, buildings, repair yards, and access roads can carry nutrients, metals, suspended solids, hydrocarbons and other potential pollutants into marina basins. The highest concentration of these surface pollutants occurs in the runoff associated with the first half to one inch of rainfall depending on storm intensity. Stormwater that is treated in some way to remove pollutants before it reaches the marina basin reduces the impact to aquatic and marine life.

## Legal Requirements:

Stormwater discharge permit	<ul style="list-style-type: none"> <li><input type="checkbox"/> Any marina or boatyard that performs boat construction or rebuilding and has a defined stormwater outfall needs a stormwater permit [40 CFR 122; DHEC R.61-9.122]</li> <li><input type="checkbox"/> Under the permit, marina operators must develop a stormwater pollution prevention plan and implement best management practices to ensure that stormwater leaving the marina property will not harm the quality of the surrounding waters.</li> <li><input type="checkbox"/> For additional information, contact your local SCDHEC-OCRM.</li> </ul>
Dredge and Fill Permits	<ul style="list-style-type: none"> <li><input type="checkbox"/> Wetland construction or enhancement may require ACOE and SCDHEC-OCRM permits [CWA §401; SCDHEC R.30-12(G)].</li> </ul>

## “Good Housekeeping” Best Management Practices:

Enclose and designate work area	<ul style="list-style-type: none"> <li><input type="checkbox"/> Perform as much boat repair and maintenance as practicable inside work buildings.</li> <li><input type="checkbox"/> Where an inside workspace is not available, perform abrasive blasting and sanding within spray booths or tarp enclosures.</li> <li><input type="checkbox"/> Where buildings or enclosed areas are not available, provide clearly designated land areas as far from the water’s edge as possible for debris-producing maintenance. Collect maintenance debris on tarps, filter fabric, or paved surface.</li> </ul>
Use vacuum sanders	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use vacuum sanders to collect dust and chips while removing paint from hulls.</li> </ul>
Establish “yard rules”	<ul style="list-style-type: none"> <li><input type="checkbox"/> Establish a list of “yard rules” which do-it-yourselfers and contractors must follow when performing debris-producing boat maintenance.</li> </ul>
Clean and sweep areas immediately	<ul style="list-style-type: none"> <li><input type="checkbox"/> Clean hull maintenance areas immediately after any maintenance is done to remove debris, and dispose of collected material properly.</li> <li><input type="checkbox"/> Sweep or vacuum around hull maintenance areas, parking lots, and driveways frequently, where appropriate.</li> </ul>
Capture runoff	<ul style="list-style-type: none"> <li><input type="checkbox"/> Capture pollutants out of runoff water with permeable tarps, screens, and filter cloths.</li> </ul>
Cover pollutants	<ul style="list-style-type: none"> <li><input type="checkbox"/> Store all potential pollutants such as pesticides, used oil containers, detergents, etc. under cover.</li> </ul>

## Structural Best Management Practices:

Vegetated buffer	<ul style="list-style-type: none"> <li><input type="checkbox"/> Plant a vegetated filter strip or buffer between impervious areas and the marina basin. A vegetated filter strip is a densely vegetated strip of land engineered to accept runoff from upstream development as overland sheet flow.</li> </ul>
Wetlands	<ul style="list-style-type: none"> <li><input type="checkbox"/> Construct new or restore former wetlands where feasible and practical. Constructed stormwater wetlands are manmade shallow pools that create growing conditions suitable for wetland vegetation. Contact ACOE and SCDHEC-OCRM regarding permits for wetland construction or restoration</li> </ul>
Minimize impervious surfaces	<ul style="list-style-type: none"> <li><input type="checkbox"/> Minimize impervious areas on marina site by paving only where absolutely necessary. Use porous pavement for parking lots and lightly traveled access roads, or other pervious materials such as gravel or crushed concrete.</li> </ul>
Roof runoff	<ul style="list-style-type: none"> <li><input type="checkbox"/> Direct roof runoff to drywells or position downspouts so that they drain to vegetated areas. Avoid draining to concrete or asphalt. Contact SCDHEC about drywell construction and Underground Injection Control regulations.</li> </ul>
Oil/grit separators	<ul style="list-style-type: none"> <li><input type="checkbox"/> Install oil/grit separators to capture pollutants in runoff. Water from parking lots and other areas likely to have hydrocarbons should be directed through oil/grit separators before entering any other management structure. (Note: this practice requires a lot of maintenance.)</li> </ul>
Sand filters	<ul style="list-style-type: none"> <li><input type="checkbox"/> Install sand filters. Intermittent sand filter facilities are underground vault-like facilities that capture, pre-treat, and filter the first flush of stormwater runoff. In some cases these facilities can include an aboveground storage facility to store the excess volume of runoff from larger storms. Contact DEQ about Underground Injection Control regulations.</li> </ul>
Catch basins	<ul style="list-style-type: none"> <li><input type="checkbox"/> Use catch basins with deep sumps where stormwater flows to the marina basin in large pulses.</li> <li><input type="checkbox"/> Maintain catch basins regularly. Typical maintenance of catch basins includes trash removal if a screen or other debris-capturing device is used, and removal of sediment by a hired contractor or on-site wet-vacuum system. At a minimum, catch basins should be cleaned at the beginning and end of each boating season.</li> </ul>
Maintain sediment traps	<ul style="list-style-type: none"> <li><input type="checkbox"/> All sediment traps and oil/water separators in the stormwater drainage system should be: <ol style="list-style-type: none"> <li>1. Inspected on a monthly basis and after each storm event.</li> <li>2. Cleaned as necessary to ensure the interception and retention of oils and solids entering the drainage system.</li> <li>3. Cleaned immediately when the unit exceeds 50% stored sediment capacity.</li> </ol> </li> <li><input type="checkbox"/> Inspect sediment and grit traps associated with pressure washing after every use to insure that the unit is capturing the solids.</li> <li><input type="checkbox"/> Remove oily sheen with a skimming device or absorbent pads. This oil may be managed as used oil.</li> </ul>
Storm drain filters	<ul style="list-style-type: none"> <li><input type="checkbox"/> Add filters to storm drains that are located near work areas to screen solid materials out of runoff.</li> </ul>
Drain inlets	<ul style="list-style-type: none"> <li><input type="checkbox"/> Place absorbent materials in drain inlets to capture oil and grease.</li> </ul>

### Relevant Sections and Appendices:

⇒ See Appendix F for stormwater general permit information.

# Sewage Disposal

## Potential Environmental Impacts:

Generally, marina basins are naturally sheltered and semi-enclosed, which usually means they are not flushed as well as more open waters. Bacteria, chemicals, and nutrients contained in untreated and minimally treated human waste from boats can overload small, poorly flushed waterways and may cause local water quality problems. Disease carrying bacteria, viruses and protozoa can enter waterways through the discharge of untreated or poorly treated boat waste. The nutrients in boat sewage can stimulate algae to grow in such large numbers that their decomposition uses up oxygen necessary for fish to live. Direct threats to human health can arise through consumption of contaminated water, fish, or shellfish. Boat sewage waste is much more concentrated than other domestic waste. Scientists have shown there are more bacteria in the untreated waste discharged by one boat than in the treated wastewater discharged by a city of 10,000 people.

## Legal Requirements:

Sewage dumping restrictions	<ul style="list-style-type: none"> <li><input type="checkbox"/> Discharge of any untreated black water from a boat or vessel in freshwater lakes or reservoirs is prohibited [40 CFR 140.]</li> <li><input type="checkbox"/> S.C. regulations prohibit discharges from marine sanitation devices in freshwater lakes, reservoirs, and flowing streams only in No-Discharge Zones, as designated by U.S. EPA, based on the availability of pumpout facilities. For more information, see the Guide to Marine Sewage Disposal Stations in Coastal South Carolina on SCDNR's website at <a href="http://www.dnr.sc.gov/cleanvesselstationmaps.html">www.dnr.sc.gov/cleanvesselstationmaps.html</a></li> </ul>
Pumpout construction permits	<ul style="list-style-type: none"> <li><input type="checkbox"/> “Standards for Wastewater Facility Construction” require that any wastewater facilities, such as sewer, pump station, treatment facility, and pumpout system be permitted [SC R.61-67].</li> </ul>
Floating buildings sewage connection	<ul style="list-style-type: none"> <li><input type="checkbox"/> For floating buildings, a continuous connection to a SCDHEC-approved sewage system is required for human sewage and gray water (water from sinks, showers, and other fixtures that may release detergents, soaps, oils, and other contaminants into the water.</li> </ul>
Live-a-board and houseboats	<ul style="list-style-type: none"> <li><input type="checkbox"/> It is unlawful for a person to operate or float a houseboat on the freshwaters of this State having a marine toilet unless it discharges only into a holding tank [SC R.48-1-85].</li> </ul>
New marinas	<ul style="list-style-type: none"> <li><input type="checkbox"/> New or proposed marinas must provide facilities for the proper handling of petroleum products, sewage, litter, waste, and other refuse in accordance with Department regulations. [SCDHEC-OCRM R.30-12(E)(1)(t)].</li> </ul>

## Best Management Practices:

Arrange for disposal	<input type="checkbox"/> Marina operators should arrange for sewage disposal and specify to tenants how wastewater is to be handled at the marina.
Sewage collection devices:  Pumpout  Dump station	<input type="checkbox"/> Provide a means to collect and properly dispose of all black water generated from boats. <ol style="list-style-type: none"> <li>1. If your marina services boats with holding tanks, install a pumpout. Select the type of pumpout system that meets the needs of your marina, your customers, and transients. Options include pumpouts: <ol style="list-style-type: none"> <li>a. Permanently fixed to the dock,</li> <li>b. Mobile, hand truck, trailer mounted units, or</li> <li>c. Pumpout boat</li> </ol> </li> <li>2. If your marina services mostly smaller boats without holding tanks, install a portable toilet holding tank waste receptacle (dump station) in a convenient location near small slips and launch ramps.</li> </ol>
Use CVA funds	<input type="checkbox"/> Use Clean Vessel Act (CVA) funds to greatly defray costs of installing and operating a pumpout. Contact SCDNR for more information.
# of collection devices	<input type="checkbox"/> Determine the number of waste collection devices necessary for the number of boats at your marina and then install any more devices needed.
Pumpout locations	<input type="checkbox"/> If the pumpout is permanently fixed, choose an appropriate location that is convenient and accessible to the most number of boats throughout the tidal cycle. Consider whether a gas dock, T-head, or separate bulkhead is most appropriate.
Train staff	<input type="checkbox"/> Train staff to operate the pumpout. Boaters rely on functional pumpout facilities.
Upland holding tanks	<input type="checkbox"/> Upland waste holding tanks, if above ground, should be secured and have a secondary containment area, including a concrete pad. Inspect area regularly.
Bathrooms	<input type="checkbox"/> Provide clean and attractive bathrooms for marina customers. Encourage customers to use them rather than the toilets on their boats. <input type="checkbox"/> The number of restrooms, shower, and washing facilities should be determined according to state or local building code requirements
Prohibit discharge	<input type="checkbox"/> Prohibit discharge of treated or untreated human waste within the marina basin. Incorporate the prohibition into customers' slip contract. This would prohibit boaters from discharging any sewage into the marina basin. For this to work, there must be adequate pumpout services, customers must be educated about how to manage their boat waste, and there must be strict enforcement. <input type="checkbox"/> Support adoption of a federally designated "No Discharge Area" in your region, based on adequate availability of pumpout stations.
Educate boaters	<input type="checkbox"/> Educate marina customers about the impacts of boat sewage and the proper way to manage it. <input type="checkbox"/> Post signs in the marina outlining the rules for proper sewage handling. <input type="checkbox"/> Encourage the boaters at your facility with marine heads to install holding tanks.
Alternative deodorants	<input type="checkbox"/> Provide and promote biodegradable and non-toxic holding tank deodorant. Sell it in the ships store.
Pumpout boats	<input type="checkbox"/> Allow pumpout boats to service customers in your facility.

### Relevant Sections and Appendices:

⇒ See Appendix D for boat sewage collection device information.

# Spills

## Potential Environmental Impacts:

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. According to the EPA, the hydrocarbons in oil harm juvenile fish, upset fish reproduction, and interfere with the growth and reproduction of bottom-dwelling organisms. These little spills and larger spills at the marina should be curtailed before they become spills by using best management practices. The impacts of spills that do occur can be minimized through preparation and efficient response.

## Legal Requirements:

SPCC Plan	<input type="checkbox"/> If your facility stores a certain amount of gas, oil, diesel, or kerosene, it may require a Spill Prevention Control and Countermeasure (SPCC) Plan [40 CFR 112].
Report spills	<input type="checkbox"/> Any spill or release of petroleum that results in a sheen on the waters of the state must be reported immediately to the: <ol style="list-style-type: none"> <li>1. SCDHEC at its 24 hour emergency hotline as listed in the Appendix</li> <li>2. National Response Center [Section 311 of the Clean Water Act; 33 USC 1321].</li> </ol>
Hazardous waste	<input type="checkbox"/> A hazardous waste determination must be conducted for any materials used to clean a spill to establish whether or not disposal of the materials is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; DHEC R.61-79.262.11].

## Best Management Practices:

Spill materials	<input type="checkbox"/> Store spill containment and control materials in a clearly marked and easily accessible location. This locker or cabinet should contain: <ol style="list-style-type: none"> <li>1. absorbent pads</li> <li>2. absorbent booms (length =&gt; 3x the length of longest vessel in marina)</li> <li>3. empty sand bags</li> <li>4. sewer pipe plugs</li> <li>5. dry absorbent</li> <li>6. square end shovels</li> <li>7. pry bar</li> <li>8. curtain boom (have enough to boom off a significant release)</li> <li>9. drain covers</li> <li>10. fire extinguishers</li> <li>11. copy of spill contingency plan</li> </ol>
Fuel dock	<input type="checkbox"/> Keep oil absorbent pads and pillows available at the fuel dock for staff and customers to mop up drips and small spills.
Respond immediately	<input type="checkbox"/> If a spill occurs, cleanup efforts should commence immediately, taking precedence over normal work.

If spilled on water	<input type="checkbox"/> If you have an oil, gas, or diesel spill on water: <ol style="list-style-type: none"> <li><b>1. Stop the flow.</b></li> <li><b>2. Contain the spill.</b> <ol style="list-style-type: none"> <li>a. Deploy containment booms to minimize the threat of a release to water or to minimize spread if the spill has reached the water.</li> </ol> </li> <li><b>3. Call:</b> <ol style="list-style-type: none"> <li>a. SCDHEC at and</li> <li>b. The U.S. Coast Guard’s National Response Center.</li> </ol> </li> </ol>
If spilled on land	<input type="checkbox"/> If a spill occurs on land, cover the spill with absorbent material such as kitty litter, sawdust, or oil absorbent pads. Do not use straw.
Waste disposal	<input type="checkbox"/> Properly characterize the cleanup waste and dispose of it to a facility authorized to handle that type of waste.
Sell devices in store	<input type="checkbox"/> Carry vent line whistles, oil absorbent fuel collars, air/fuel separators, and other fuel spill preventative devices in your ships store.

**Relevant Sections and Appendices:**

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management information.
- ⇒ Appendix E for spill plan information and your role in spill response.
- ⇒ Emergency Planning section.
- ⇒ Rags and Oil Absorbent Pads section for disposal of cleanup materials.

# Litter and Recycling

## Potential Environmental Impacts:

Routine marina and boating activities produce a variety of non-hazardous solid wastes. These include bottles, plastic bags, aluminum cans, coffee cups, six-pack rings, disposable diapers, wrapping paper, cigarette filters, and fishing line. This type of debris harms living organisms and their habitats after it enters the water. A litter free facility is more attractive to present and potential customers. Diverting reusable materials out of the waste stream through recycling conserves natural resources, and reduces the amount of waste that must be disposed.

## Legal Requirements:

Provide trash barrels	<input type="checkbox"/> Marina operators must provide areas to collect solid waste from their customers [33 USC 1905(a)(2), 33 CFR 151.05].
No littering	<input type="checkbox"/> Polluting wastes may not be discharged into the waters of the state or placed in a location where it is likely to end up in the waters of the state, except when in compliance with a permit. [SC Code 48-1-90(a)]. <input type="checkbox"/> No one may dispose of garbage except at a permitted disposal site such as a dump station [SC Code 16-11-700(a)(2)].
No burning prohibited materials	<input type="checkbox"/> Open burning is prohibited, except in certain circumstances [DHEC R.61-62.2].

## Best Management Practices:

Trash receptacle location	<input type="checkbox"/> Place covered trash receptacles in convenient locations away from the water for use by marina patrons. <input type="checkbox"/> Do not put trash or recycling containers on docks, as waste can easily blow into the water. <input type="checkbox"/> If trash or recycling containers must be put near water, secure them so they do not topple.								
Post signs	<input type="checkbox"/> Post signs directing patrons to trash receptacles and recycling areas. Signs should clearly spell out rules and note any prohibited wastes.								
Lock receptacles at night	<input type="checkbox"/> If practical, lock trash receptacles at night to prevent “midnight dumping” since marina operators are responsible for the content of dumpsters.								
Pick up trash regularly	<input type="checkbox"/> Train employees to pick up stray trash as a daily practice.								
Encourage leftover exchange	<input type="checkbox"/> Encourage boaters to exchange excess paints, thinners, and varnishes rather than dispose. Provide a bulletin board where boaters can post notices if they have or need a particular substance, or establish a paint and maintenance chemical swap area for customers.								
Recycle:	<input type="checkbox"/> Recycle: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">1. Glass</td> <td style="width: 50%;">5. Cardboard</td> </tr> <tr> <td>2. Metal food containers</td> <td>6. Storage batteries</td> </tr> <tr> <td>3. Aluminum cans</td> <td>7. Newspaper</td> </tr> <tr> <td>4. Plastics</td> <td>8. Scrap metal</td> </tr> </table>	1. Glass	5. Cardboard	2. Metal food containers	6. Storage batteries	3. Aluminum cans	7. Newspaper	4. Plastics	8. Scrap metal
1. Glass	5. Cardboard								
2. Metal food containers	6. Storage batteries								
3. Aluminum cans	7. Newspaper								
4. Plastics	8. Scrap metal								

Clearly mark recycling containers	<input type="checkbox"/> Provide clearly marked, conveniently located recycling containers for customers and staff to use, particularly for plastic, glass and metal food/beverage containers, cardboard, and other recyclables generated at your facility.
Educate employees	<input type="checkbox"/> Educate employees about separation requirements and your recycling program.
Cooperate locally	<input type="checkbox"/> Consider cooperating with other nearby businesses to simplify recycling and reduce costs. Your municipal recycling coordinator may be able to help you find or establish a cooperative business-recycling program.
Purchase recycled products	<input type="checkbox"/> Purchase products made with recycled contents to close the recycling loop (i.e., create a market for the materials you recycle). Buy recycled printing and writing paper, towels, tissue, re-refined motor oil and antifreeze.
Reuse empty drums	<input type="checkbox"/> Reuse or recycle empty drums and containers rather than disposing them. <input type="checkbox"/> If not recycled, drums should be emptied and flattened according to local landfill specs. Residues from the drum should be collected and managed properly.
Pet waste	<input type="checkbox"/> Require patrons to clean up after their pets.

**Relevant Sections and Appendices:**

- ⇒ Appendix B for preferred disposal options for potential hazardous waste streams.
- ⇒ Antifreeze section for disposal options.
- ⇒ Battery Replacement section for disposal options.
- ⇒ Boater Education sample signs section.
- ⇒ Pet Waste section.

# Facility Cleaning

## Potential Environmental Impacts:

Many common cleaning products contain hazardous chemicals that with repeated or excessive contact may lead to lung problems, brain and nerve damage, cancer and even death. Hazardous chemicals can often be found in drain cleaners, floor-care products, window sprays, and bathroom cleaners. These products can enter the water and poison marine life. For example, degreasers dry the natural oils fish need for their gills to take in oxygen. Phosphates can cause excessive algae growth and lead to the depletion of oxygen in the water. Other cleaning agents can cause death, cancer, and other harm to aquatic organisms.

Cleaning products labeled “DANGER” or “POISON” are typically most hazardous. Others may be labeled “CAUTION” or “WARNING” because they are skin or eye irritants. Less hazardous alternatives for common cleaning products are often labeled “non toxic.”

## Legal Requirements:

Hazardous waste	<input type="checkbox"/> There are no legal requirements to use environmentally preferable products. Note that waste-cleaning products must be disposed of in accordance with the hazardous waste disposal requirement.
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## Best Management Practices:

Avoid these ingredients	<input type="checkbox"/> Read product labels. Avoid cleaning products with:		
	<input type="radio"/> alcohol <input type="radio"/> ammonia <input type="radio"/> bleach <input type="radio"/> butyl cellosolve <input type="radio"/> cresol <input type="radio"/> dye <input type="radio"/> ethanol	<input type="radio"/> formaldehyde <input type="radio"/> glycols <input type="radio"/> hydrochloric acid <input type="radio"/> hydrofluoric acid <input type="radio"/> lye <input type="radio"/> naphthalene <input type="radio"/> PDCBs (paradichlorobenzenes)	<input type="radio"/> perchloroethylene <input type="radio"/> petroleum distillates <input type="radio"/> phenol <input type="radio"/> phosphoric acid <input type="radio"/> propellants <input type="radio"/> sulfuric acid <input type="radio"/> TCE (trichloroethylene)
Clean more often with less	<input type="checkbox"/> Depending on the cleaning job, always try cleaning with water and a coarse cloth first. Clean more often with fresh water only. If you must use a cleaner, use the product sparingly.		
Use alternative products	<input type="checkbox"/> Consider non-toxic alternatives for cleaning products. Even non-toxic substances can cause temporary harm to the environment and should therefore be used sparingly. <input type="checkbox"/> Some non-toxic alternatives to typical cleaning products are listed in the table on the next page.		

## Relevant Sections and Appendices:

⇒ Appendix B and Hazardous Waste section for hazardous waste management.

## Alternatives to Toxic Products

Toxic Product	Alternative
All Purpose Cleaner	Mix one cup white vinegar with two gallons water.
Air Freshener	Leave out an open box of baking soda.
Aluminum Cleaner	2 Tablespoons cream of tartar in 1 qt. hot water
Ammonia-Based Cleaners	Vinegar, salt, and water.
Bleach	Borax or hydrogen peroxide
Brass Cleaner	Worcestershire sauce. Or paste made of equal parts of salt, vinegar, and water.
Chrome Cleaner/Polish	Apple cider vinegar to clean; baby oil to polish.
Copper Cleaner	Lemon juice and water. Or paste of lemon juice, salt, and flour.
Drain Opener	Disassemble and replace or use plumber's snake. Or flush with boiling water + 1/4 cup baking soda + 1/4 cup vinegar.
Fiberglass Stain Remover	Baking soda paste.
Floor Cleaner	One cup white vinegar in 2 gallons water.
General Cleaner	Baking soda and vinegar. Or lemon juice combined with borax paste.
Hand Cleaner	Baby oil or margarine.
Head Cleaner	Put in baking soda and use a brush.
Mildew Remover	Paste using equal parts of lemon juice and salt or white vinegar and salt.
Rug/Upholstery Cleaner	Sprinkle on dry cornstarch and then vacuum.
Scouring Powders	Baking soda or salt. Or rub area with one-half lemon dipped in borax, then rinse.
Shower Cleaner	Wet surface, sprinkle with baking soda, rub with scouring cloth.
Stainless Steel Cleaner	Baking soda or mineral oil for polishing, vinegar to remove spots.
Toilet Bowl Cleaner	Use toilet brush and baking soda.
Varnish Cleaner	Wipe with 1/2 cup vinegar and 1/2 cup water solution
Window Cleaner	Mix two tablespoons vinegar in one quart of water or rub glass with newspaper.
Wood Polish	3 parts olive oil and 1 part white vinegar (for interior unvarnished wood only).

# Landscaping

## Potential Environmental Impacts:

Excess pesticides and fertilizer that you put on your lawn and plantings can eventually run off into the marina basin and harm marine and aquatic life. Landscaping techniques can be used to reduce environmental impacts on marina basins and can save money by requiring less water and maintenance, while creating an attractive location for customers.

## Legal Requirements:

Hazardous waste determination	<input type="checkbox"/> Before disposing of old or unused lawn additives, particularly pesticides, conduct a hazardous waste determination to establish whether or not their disposal is subject to hazardous waste regulations [DHEC R.61-79.262.11].
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## Best Management Practices:

Avoid invasive plants	<input type="checkbox"/> Avoid planting invasive species. Invasive species multiply rapidly and take over areas very quickly.
Use native plants	<input type="checkbox"/> Use native plants for landscaping. Plants that are native to the region and climate compete well with weeds and other pests. They also require less fertilizer and pest control than non-native plants. Native plants can be purchased at your local nursery. <input type="checkbox"/> For listings of native plants good for landscaping, read Back Yard Buffers: <a href="http://www.clemson.edu/extension">www.clemson.edu/extension</a>
Plant vegetated buffer	<input type="checkbox"/> Plant a vegetated filter strip or buffer between impervious areas and the marina basin. A vegetated filter strip is a densely vegetated strip of land engineered to accept runoff from upstream development as overland sheet flow.
Save water	<input type="checkbox"/> Save water by watering in the early morning or late afternoon. Oscillating sprinklers can lose up to 50% of water to evaporation on hot days.
Minimize fertilizer use	<input type="checkbox"/> Minimize fertilizer use. When it comes to fertilizer, more is not better! The excess nutrients from unused fertilizer will run off into the marina basin and potentially cause an algal bloom. Plus, the more you fertilize, the more frequently you have to mow.
Aerate and leave clippings	<input type="checkbox"/> Aerate the lawn to greatly increase water and nutrient absorption. Leave grass clippings where they fall since they act as a natural organic fertilizer.
Use compost	<input type="checkbox"/> Use compost or composted fish waste as fertilizer for your plants.
Apply fertilizer smartly	<input type="checkbox"/> If you must use fertilizer, apply it in late April and again in September. If a third treatment is needed, apply in late May. Apply only a half-pound of nitrogen per 1,000 square feet of lawn at each application. To figure this out, divide 100 by twice the percentage of nitrogen (N) in the fertilizer. This will give you the application rate in pounds of fertilizer per 1,000 square feet of lawn.

## Relevant Sections and Appendices:

- ⇒ Appendix B and Hazardous Waste section for hazardous waste management.
- ⇒ Fish Waste section.

# Hazardous Waste

## Potential Environmental Impacts:

Marina operators are responsible for determining which materials handled at their facilities is subject to regulation as hazardous materials and hazardous waste. They must also comply with regulations for handling, storage, transportation, and disposal of waste. This section discusses good housekeeping practices for hazardous materials storage to minimize the threat of release.

A listing of potentially hazardous waste streams and disposal recommendations, as well as a much more detailed description of hazardous waste management, is included in Appendix B. Also, check the other sections of this guidebook for description of handling, storage, and disposal of particular types of potential hazardous waste.

## Legal Requirements:

Make a hazardous waste determination	<input type="checkbox"/> A hazardous waste determination must be conducted to establish whether or not disposal of waste solvents and parts washer solutions is subject to hazardous waste regulations [RCRA; 40 CFR 262.11; DHEC R.61-79.262.11].
Determine generator status	<input type="checkbox"/> Determine your hazardous waste generator category and comply with corresponding requirements [RCRA; 40 CFR 262; DHEC R.61-79.262 & 262.]
Storage of quantities of hazardous materials	<input type="checkbox"/> If you store hazardous materials in quantities above certain threshold amounts, you must report storage of that substance under the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) [42 USC 11001, and 42 CFR 355]. <input type="checkbox"/> Keep copies of Material Safety Data Sheets (MSDS) for all hazardous substances used at your facility [Occupational Safety and Health Act of 1970, 29 USC § 657].
Hazardous waste management	<input type="checkbox"/> Keep liquid wastes separate and do not dispose of them into the trash. <input type="checkbox"/> Label the contents of hazardous waste container(s), including the accumulation start dates. <input type="checkbox"/> Manage hazardous waste per regulations. [DHEC R.61-79.262.34].
Employee spill training	<input type="checkbox"/> Personnel working in spill response or cleanup require training in accordance with applicable state and federal regulations [DHEC R.61-79.265.16].
Employee hazardous waste training	<input type="checkbox"/> Employees and contractors who may be exposed to hazardous materials are subject to training and educational requirements under the Occupational Safety and Health Administration (OSHA) Employee Right to Know Program. <input type="checkbox"/> Employees handling used oil and hazardous waste may require training under state and federal hazardous waste regulation [40 CFR 262] DHEC R.61-79.262.34.]

## Best Management Practices:

Minimize use	<input type="checkbox"/> Where feasible, minimize the use and storage of hazardous materials onsite.
Storage practices: Prevent release Secondary containment Closed containers Separate	<input type="checkbox"/> Storage practices for solid chemicals, chemical solutions, paints, oils, solvents, acids, caustic solutions, and waste materials, including used batteries, should prevent releases to the environment and inadvertent public contact. Use practices that prevent overfilling, tipping, or rupture. <input type="checkbox"/> Observe the following practices: <ol style="list-style-type: none"> <li>1. Place any hazardous liquids that are stored outside on durable impervious surfaces, and within berms or impoundments with containment capacity equal to 110 percent volume of the largest tank or container.</li> <li>2. Liquids should be stored under cover in closed containers. All tanks and drums should be kept closed.</li> <li>3. Store incompatible or reactive materials securely and in separate areas.</li> </ol>
Recycle	<input type="checkbox"/> Spent antifreeze, used oil, fluorescent light tubes, and batteries should be transported to a recycling facility.
Spent solvents	<input type="checkbox"/> Spent solvents, paints, and sandblast residues may be hazardous waste and face additional requirements for proper disposal.
Disposal methods	<input type="checkbox"/> Follow recommended disposal methods for potential hazardous waste streams (see Appendix B).
Ask for assistance	<input type="checkbox"/> Check with your regional SCDHEC office about hazardous waste identification and management. For compliance assistance information, visit <a href="http://www.scdhec.gov/environment.htm">www.scdhec.gov/environment.htm</a> .
Consider fire and local codes	<input type="checkbox"/> Use storage practices that also conform to fire regulations and local codes.
Use BMPs	<input type="checkbox"/> Operate under the BMPs in this manual to prevent release of contaminants and generation of hazardous waste. For example: use drip pans, drop cloths or tarpaulins in painting operations to prevent releases, and work under cover when using hazardous materials or conducting shore side engine repair.
Spill plans	<input type="checkbox"/> Create a spill response plan.

### Relevant Sections and Appendices:

- ⇒ Appendix A for hazardous substance management.
- ⇒ Appendix B for hazardous waste management.
- ⇒ Appendix C for used oil and antifreeze management.
- ⇒ Appendix E for spill reporting and response procedures.
- ⇒ Antifreeze section.

# Floor Drains

## Potential Environmental Impacts:

Repair shop wastewater typically contains chemicals such as oils, degreasers, gasoline, diesel, detergents, heavy metals and antifreeze. In some instances it may contain solvents. If discharged through a dry well or septic system to the ground, these chemicals may render drinking water supplies unfit for human consumption. If discharged directly or indirectly to surface water these chemicals can be toxic to fish and other aquatic life.

## Legal Requirements:

Hazardous waste and used oil	<input type="checkbox"/> Any hazardous waste and used oil, which may end up going down a floor drain, must be managed in compliance with applicable regulations [DHEC R.61-79.262.34].
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## Best Management Practices:

Avoid certain solvents	<input type="checkbox"/> Avoid or minimize the use of any ammoniated, petroleum or chlorinated solvent-based cleaning agents.
Sweep floors	<input type="checkbox"/> Sweep or vacuum floors often and immediately before floor washing.
Contain chemicals	<input type="checkbox"/> Insure that all chemicals used in areas with floor drains are contained.
Spills	<input type="checkbox"/> Clean up fluid spills quickly with absorbent material. <input type="checkbox"/> Cover floor drains if there is a spill. There are inexpensive covers available for this purpose.
Close floor drains	<input type="checkbox"/> Avoid installing floor drains and close any existing floor drains or connect them to the stationary sewer, if available, and never to drain fields. The drains can be permanently sealed with concrete if they do not connect to a sewer or holding tank.

## Relevant Sections and Appendices:

- ⇒ Appendix B for hazardous waste management.
- ⇒ Appendix C for used oil management.
- ⇒ Hazardous Waste section.

# Fish Waste

## Potential Environmental Impacts:

Too much fish waste in a poorly circulated marina basin can lower oxygen levels in the water. As the waste decomposes, it can lead to foul odor and fish kills. Floating fish parts are also an unsightly addition to marina waters.

## Legal Requirements:

Local ordinances	<input type="checkbox"/> Local harbor management ordinances might prohibit the discharge of fish waste within the jurisdiction of the harbor management plan. Check with local harbor management commission, if applicable.
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## Best Management Practices:

Prohibit dumping	<input type="checkbox"/> Prohibit disposal of fish wastes and shellfish carcasses in the marina basin. Post signs displaying the rules.
Prohibit fish cleaning on docks and waters.	<input type="checkbox"/> Do not permit fish cleaning on docks and floats. <input type="checkbox"/> Encourage boaters to clean fish on upland property and not on offshore or inshore waters and dispose of fish wastes as directed below.
Fish cleaning station	<input type="checkbox"/> Install a fish cleaning station at your marina. <input type="checkbox"/> Clearly identify the fish cleaning stations with signs that list the rules and regulations for their use. <input type="checkbox"/> Direct rinse water from fish cleaning areas to a sand filter or sanitary sewer. It should be free of solids. <input type="checkbox"/> On-site septic systems would be quickly overwhelmed and should not be used as a disposal option for fish waste. <input type="checkbox"/> Solids are often too rich in content for loading to small sanitary sewer systems. Fish waste solids should be stored in a holding tank designed for that purpose and managed off-site.
Disposal Alternatives	<input type="checkbox"/> Use one of the following disposal methods: <ol style="list-style-type: none"> <li>1. Compost fish waste where appropriate and use compost on landscaping.</li> <li>2. Encourage boaters to freeze fish parts and reuse them as bait or chum on the next fishing trip.</li> <li>3. Use grinder to make chum out of fish carcasses. Freeze and sell chum at marina store.</li> <li>4. Contact local fish processing plant to see if they will accept fish wastes.</li> <li>5. If composting or freezing is not an option, encourage boaters to double-bag their fish parts and throw out in their regular trash.</li> </ol>

## Relevant Sections and Appendices:

⇒ Landscaping section for use of fish compost on landscaping.

# Pet Waste

## Potential Environmental Impacts:

Pet waste can contain harmful bacteria. If left on marina grounds, it will eventually enter the marina basin and contaminate the water and shellfish beds. The nutrients in pet waste may also encourage weed or algae growth in the marina basin, which may eventually lead to lower oxygen levels in water. Pet waste is also unsightly and may be a source of customer complaints.

## Legal Requirements:

Don't pollute	<input type="checkbox"/> All efforts should be taken to ensure that pet waste is not discharged or left in a manner that will enter into waters of the State.
Local ordinances	<input type="checkbox"/> Local ordinances may prohibit the leaving of pet waste on private property. Check with your municipality.

## Best Management Practices:

Dog walking area	<input type="checkbox"/> Provide a dog walking area that is identifiable by signs.
Provide pick up bags	<input type="checkbox"/> Require customers to clean up after their pets. Provide bags for boaters to scoop up waste and dispose of in trash.
Pet waste rules	<input type="checkbox"/> Specify pet waste rules in marina slip contract.
Cats	<input type="checkbox"/> Encourage cat owners to maintain a litter box on their boat.

Visit SCDHEC-OCRM's website to learn more about the "Scoop the Poop" campaign:  
<http://www.scdhec.gov/environment/ocrm/scoop.htm>

# Dredging

## Potential Environmental Impacts:

Maintenance dredging is another source of pollutants at marinas. Dredging temporarily disturbs bottom habitat communities, increases turbidity, and may re-suspend contaminated bottom sediments. Improper disposal of dredge spoils may adversely affect marine environment and human health.

## Legal Requirements:

OCRM dredge, fill, and construction permits	<input type="checkbox"/> Dredging, the erection of structures, and the placement of fill, and work incidental thereto, in the tidal, coastal, or navigable waters of the state waterward of the high tide line are regulated by the SCDHEC-OCRM. It is necessary to obtain all required authorizations from OCRM prior to conducting work such as dredging (including maintenance dredging), construction or placement of new docks, pilings, ramps, floats, piers, travel lift wells, seawalls, bulkheads, rip rap, stormwater outfall pipes, and/or mooring fields waterward of the high tide line in the tidal, coastal, or navigable waters of the state. [SCDHEC R.30-12-15].
ACOE dredge, fill, and construction permits	<input type="checkbox"/> The U.S. Army Corps of Engineers (ACOE) has jurisdiction over the above-listed activities in tidal, coastal, or navigable waters as well, pursuant to Section 10 of the Rivers and Harbors Act of 1899 [33 USC §401 et seq.], and Section 404 of the Clean Water Act [33 USC §1344 et seq.]. Call the ACOE at 1-866-329-8187 for more information.
Timing	<input type="checkbox"/> The Endangered Species Act (ESA) and other laws prohibit dredging during critical migration or spawning periods of important species of finfish, shellfish, and wildlife. Contact the U. S. Fish and Wildlife regarding the set periods when in-stream work can occur.
Fill requirements	<input type="checkbox"/> Comply with local, state and federal fill requirements [CWA §401; SCDHEC R. 30-12(G)]: <ol style="list-style-type: none"> <li>1. Do not manage dredge spoils in a wetland or within a flood plain.</li> <li>2. Store dredge spoils such that rain will not wash sediments back into the water.</li> <li>3. Testing of the sediments is required prior to any maintenance dredging. Only clean sediments can be used as fill.</li> </ol>

## Best Management Practices:

Use alternatives	<input type="checkbox"/> Marinas requiring maintenance dredging more frequently than once every four years should investigate practicable alternatives to increase circulation or reduce sediment accumulation.
Upland disposal	<input type="checkbox"/> When upland disposal is planned (permits may be required): <ol style="list-style-type: none"> <li>1. Use appropriate measures to minimize water quality impacts, reduce turbidity from return waters, and assess any potential impacts to ground water quality.</li> <li>2. Use technical documents prepared by the US Corps of Engineers when designing containment facilities.</li> <li>3. Provide appropriate setbacks between the toe of the slope and marine waters, wetlands, and intertidal flats.</li> <li>4. Employ sediment and erosion control techniques that prevent erosion of containment dikes and deposition of sediments into wetlands and waters.</li> </ol>
Test sediments	<input type="checkbox"/> Conduct appropriate testing of sediments to be dredged in order to evaluate potential impacts from return waters, leachate, and runoff and for selecting an appropriate disposal site and containment design.
Contact OCRM	<input type="checkbox"/> Before doing ANY work that you think might be in the state's permitting jurisdiction, contact SCDHEC-OCRM to discuss the work that you would like to do or to schedule a pre-application meeting. Some of the maintenance work you want to do may not require any prior authorization or may be eligible for a shortened permit process.

# Compressor Blowdowns

## Potential Environmental Impacts:

Air compressor blowdown water commonly contains lubricating oil or other potential pollutants. These hydrocarbons can contaminate surface and groundwater when improperly managed.

## Legal Requirements:

Manage used oil	<input type="checkbox"/> Waste compressor oil, filters and oil/water separator waste must be managed as used oil [40 CFR 279; SCDHEC R.61-107.279].
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## Best Management Practices:

Discharge to sanitary sewer	<input type="checkbox"/> Either discharge air compressor blowdown water to sanitary sewer or contain it in a holding tank. Do not discharge this wastewater into a septic system.
Remove oil	<input type="checkbox"/> Remove or retain any floating layer of oil prior to discharge.
Check for leaks	<input type="checkbox"/> Visually inspect the exterior of air compressor equipment for the presence of oil leaks on a regular basis.
Maintenance schedule	<input type="checkbox"/> Establish a preventative maintenance program which includes, but is not limited to, a schedule for cleaning parts, replacing oil, and replacing filters for the air compressor equipment as recommended in the manufacturer's specifications.
Dehumidifying system	<input type="checkbox"/> Evaluate the need for installing a dehumidifying system in the air compressor that would reduce the moisture content of the compressed air and therefore the volume of wastewater generated. This practice may also prolong the life of the compressor by reducing loss of lubrication and rusting.
Oil-free compressor	<input type="checkbox"/> Investigate purchase of an oil-free air compressor that would eliminate oil from the blowdown water.

## Related Sections and Appendices:

⇒ Appendix C for used oil management.

