

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.

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.

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

- ❖ 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 benzoin*) 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 <ul style="list-style-type: none"> • Propylene glycol • Ethylene glycol <i>Contact your waste hauler to confirm that they will accept mixed antifreeze.</i>	√ Recycle. <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Engine oil • Transmission fluid • Hydraulic oil • Gear oil • #2 Kiesel • Kerosene <i>Contact your waste hauler to confirm that they will accept mixed oil.</i>	√ Recycle. Use waste oil for space heating (subject to regulations under COMAR 26.13 and 26.11). <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Paint and engine cleaners such as acetone and methylene chloride 	✓ Reuse as long as possible and then recycle. <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Latex • Water-based • Oil-based 	✓ Allow to dry completely. Dispose in regular trash. <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • Paint cans • Buckets • Spent caulking tubes • Aerosol cans 	√ May be put in trash can as long as: <ul style="list-style-type: none"> • 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.
Residue 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. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • Encourage boaters to bring to local fire department or household hazardous waste collection day.
Scrap Metal	√ Recycle.
Light Bulbs <ul style="list-style-type: none"> • Fluorescent bulbs • Mercury vapor lamps • High-pressure sodium vapor lamps • Metal halide lamps • CFLs 	√ Recycle. <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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

