

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 wastes, 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 water body. 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 Delaware 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 Delaware waters is permitted only if it is in accordance with Delaware's Fish Waste Management Policy.

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 Delaware Regulations Governing Hazardous Waste govern the management of hazardous waste in the State of Delaware.

Do you generate "hazardous waste"?

You may without knowing it. "Hazardous waste" is a legal term that means specific types of waste that are ignitable, corrosive, reactive, and/or toxic which are regulated under state and federal law. Parts cleaning, painting, and other activities in your marina can produce wastes that are legally defined as hazardous. Some raw materials, such as oil-based paints, that have expired or that you do not intend to use may also become hazardous waste.

Under Delaware law, if you generate hazardous waste you have “cradle-to-grave liability,” which means you are responsible for your waste even if other companies handle and dispose of it for you. You must determine whether your shop’s wastes are classified as hazardous waste and take responsibility for handling and disposing of your wastes according to the law.

In order to determine your requirements under the Delaware Regulations Governing Hazardous Waste, you first must determine your generator status. In short, the more hazardous waste you generate, the more requirements under the regulations you must meet.

The maximum amount of hazardous waste you generate in any one month, and the total amount of hazardous waste you have accumulated on your property at any one time, are two key factors in determining your hazardous waste generator status. The table below shows you the three generator categories and corresponding maximum amount of hazardous waste generated in any calendar month.

	CESQG*	SQG**	LQG***
Maximum amount of HWG in any calendar month	Less than 25 gallons (220 lbs)	25-300 gallons (220-2,200 lbs)	More than 300 gallons (2,220 lbs)
Amount of Hazardous Waste Accumulated at any one time	Less than 300 gallons (2,220 lbs)	Less than 1,595 gallons (13,000 lbs)	No limit

* Conditionally Exempted Small Quantity Generators

** Small Quantity Generators

*** Large Quantity Generators

The majority of marinas will be a conditionally exempt small quantity generator (CESQG). Your requirements as a CESQG follow:

1. Identify all hazardous waste you generate.
2. Label all hazardous waste containers “Hazardous Waste” or with other words that identify the contents (i.e., Waste Solvents).
3. Keep all hazardous waste containers closed, except to add or remove hazardous waste.
4. Never generate more than 25 gallons (220 pounds) in any calendar month.
5. Never accumulate (store) more than 300 gallons (2,200 pounds) of hazardous waste on your property (does not include used oil or used antifreeze).
6. Send your hazardous waste to an offsite, permitted hazardous waste treatment, storage and disposal facility (TSDF).
7. Keep all proper documentation (manifests, receipts, and/or bills of lading, etc.) for each offsite shipment to a permitted TSDF

For the larger marinas that are small quantity generators or large quantity generators of hazardous waste, please contact the Delaware Department of Natural Resources and Environmental Control, Solid and Hazardous Waste Management Branch for assistance at (302) 739-9403.

Contact DNREC’s Solid and Hazardous Waste Management Branch at (302) 739-9403, or log on to DNREC’s website at <http://www.dnrec.state.de.us/DNREC2000/Divisions/AWM/hw/indexhw.htm>, to determine if a waste is hazardous.



How Do You Know if a Substance is Hazardous?

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

1. It is listed as a hazardous waste in the Delaware Regulations Governing Hazardous Waste.
 2. The waste exhibits one or more of the characteristics of hazardous waste: 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 industrial laboratories.
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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.

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

- ❖ 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.

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 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.
- ❖ 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 the numbers below to schedule a "basic fire inspection." The inspection will determine whether you are meeting the state fire code, including hazardous material storage requirements.
 - Sussex (302) 856-5298
 - Kent (302) 739-4394
 - New Castle (302) 323-5365

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 benzoin*) or mountain laurel (*Kalmia latifolia*).



Educate boaters to remove plastic ice bags before dumping their coolers at the end of the day. This will help prevent clear ice bags from accidentally going into our waterways. See the Delaware Recycler's Directory at http://www.state.de.us/dedo/new_web_site/Green/DERECYC.pdf.



The number in the center of the recycle symbol on the bottom of a plastic container refers to the type of plastic.

Contact the Delaware Solid Waste Authority (DSWA) Recycling Manager at (800) 404-7080 or DNREC's Solid and Hazardous Waste Management Branch at (302) 739-9403 for information on containers for collecting solid waste.

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 to learn what materials are collected in your area. The following materials may be recycled: antifreeze, oil, oil filters, solvents, glass, shrink wrap, type 1 and 2 plastics (e.g., soda bottles, milk jugs), aluminum, steel, tin, lead batteries, newspaper, corrugated cardboard, mixed paper, scrap metal, tires, and white goods (appliances).
- ✧ Post information about local recycling services if you are not able to provide all of the desired services at your facility. Contact the Delaware Solid Waste Authority (DSWA) 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.
- ✧ Make the recycling bins look different from the standard trashcans, 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 with lids 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 used 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 creates a "hazardous waste." The whole tank must be disposed of as hazardous waste: a very expensive undertaking.
- ❖ 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).

- ❖ 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.

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.

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

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

See the Delaware Recyclers Directory at http://www.state.de.us/dedo/new_web_site/Green/DERECYC.pdf for lists of recyclers and hazardous waste haulers.

See DNREC's Solid and Hazardous Waste website, <http://www.dnrec.state.de.us/DNREC2000/Divisions/AWM/hw/hw/faqissues.htm#Antifreeze>, for additional information.

Table 8-1: Recommended Disposal Methods

Waste	Disposal Options If multiple options are listed, the (✓) 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.
Used Oil <ul style="list-style-type: none"> • Engine oil • Transmission fluid • Hydraulic oil • Gear oil • #2 Diesel • Kerosene <i>Contact your waste hauler to confirm that they will accept mixed oil.</i>	✓ Recycle. <ul style="list-style-type: none"> • Small amounts of used oil can be disposed of with the DSWA recycling igloos (contact DSWA at 1-800-404-7080). • Larger amounts should be recycled with a Delaware permitted Used Oil Transporter. Contact the DNREC, Solid and Hazardous Waste Management Branch for a list of permitted transporters at 302-739-9403
Quart Oil Cans	✓ Drain completely and dispose in regular trash. They cannot be recycled.
Used Oil Filters	✓ Used oil filters may be managed through the Delaware Solid Waste Authority Oil Filter Recycling Program at no cost (1-800-404-7080)
Used Fuel Filters	✓ Gasoline Filters - Dispose of as hazardous waste. ✓ Diesel Filters can be managed with the used oil filters
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. A hazardous waste manifest is required.
Kerosene	✓ Filter and reuse for as long as possible then recycle.
Mineral spirits	✓ Reuse as long as possible then recycle. • Dispose of as hazardous waste.
Solvents <ul style="list-style-type: none"> • Paint and engine cleaners such as acetone and methylene chloride 	✓ Reuse as long as possible then recycle. • Dispose of as hazardous waste.
Sludge Recovered from a Solvent	✓ Dispose of as hazardous waste.
Paints and Varnishes <ul style="list-style-type: none"> • Latex • Water-based • Oil-based 	✓ Water-based: Allow to dry completely. Dispose in regular trash. <ul style="list-style-type: none"> • Use leftover material for other projects, <i>i.e.</i>, as an undercover for the next boat. • Encourage tenants to swap unused material. ✓ Oil-based: Dispose of as hazardous waste.
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 and labeled 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.
Used Oil Absorbent Material	✓ If it is saturated with oil or diesel, double bag it in plastic and discard in trash as long as no petroleum is leaking. ✓ If it is saturated with gasoline, dispose of as hazardous waste.

Table 8-1. Recommended Disposal Methods (continued)

Waste	Disposal Options If multiple options are listed, the (✓) is the preferred method
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	✓ Make a hazardous waste determination. If hazardous, dispose of as a hazardous waste. If not, contact the Delaware Solid Waste Authority to receive approval to dispose of trash.
Glue and Liquid Adhesives	✓ Make a hazardous waste determination. If hazardous, dispose of as a hazardous waste. If not, contact the Delaware Solid Waste Authority to receive approval to dispose of trash.
Containers <ul style="list-style-type: none"> • Paint cans • Buckets • Spent caulking tubes 	<ul style="list-style-type: none"> ✓ May be put in trash cans 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 gas are at atmospheric pressure. • Containers that held acute hazardous waste have been triple rinsed with solvent. Properly dispose of the solvent.
Used (empty) Aerosol Cans	<ul style="list-style-type: none"> ✓ The Delaware Solid Waste Authority (DSWA) will accept your used aerosol cans for scrap metal recycling, at no charge. The DSWA has 144 brightly-colored recycling centers throughout the State. Three ways to find a center near you: 1) Look in the phone book (last page of the yellow pages) under "Recycle Delaware Drop Off-Centers"; 2) Call the DSWA at 1-800-404-7080; or 3) visit www.dswa.com. • If not managed as a scrap steel, must be disposed of as a hazardous waste
Residue from Sanding, Scraping, and Blasting	✓ Make a hazardous waste determination. If hazardous, dispose of as a hazardous waste. If not, contact the Delaware Solid Waste Authority to receive approval to dispose of trash.
Residue from Pressure Washing	✓ Make a hazardous waste determination. If hazardous, dispose of as a hazardous waste. If not, contact the Delaware Solid Waste Authority to receive approval to dispose of trash.
Lead Batteries	✓ Recycle or sell to scrap dealers. Store on an impervious surface, under cover. Protect from freezing. Check frequently for leakage.
Expired Distress Flares	<ul style="list-style-type: none"> ✓ Encourage boaters to keep onboard as extras. ✓ Store in well-marked, fire safe container. Use expired flares to demonstrate to boaters how they are used. Be sure to notify the fire department and Coast Guard ahead of time – especially if using aerial flares. Conduct the demonstration over water. • Encourage boaters to bring to local fire department or household hazardous waste collection day.
Scrap Metal	✓ Recycle.
Light Bulbs <ul style="list-style-type: none"> • Fluorescent bulbs • Mercury vapor lamps • High-pressure sodium vapor lamps • Low-pressure sodium vapor pressure lamps • Metal halide lamps 	<ul style="list-style-type: none"> ✓ Recycle. ✓ Traditional Fluorescent lamps often exceed the regulatory limit for mercury and must be disposed of as a hazardous waste. ✓ Most major lamp manufactures now offer low mercury fluorescent lamps that are reported to be below the regulatory limit for mercury. Non hazardous waste fluorescent lamps (those with a green end cap) may be disposed in the trash with approval from the Delaware Solid Waste Authority (1-800-404-7080).
Refrigerants	<ul style="list-style-type: none"> ✓ 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 AC and electric chillers), HCFC-123 (replaces CFC-11), HFC-134A (replaces CFC-12).

Information Sources

Appendix I

BoatU.S. Foundation
(703) 823-9550 x3200

Delaware Department of
Natural Resources and
Environmental Control

- Enforcement
Section/Emergency
Response Team
(800) 622-8802
- Solid and Hazardous
Waste Management
Branch
(302) 739-9403
- Pollution Prevention and
Compliance Assistance
Program
(302) 739-9909
- Recycling Office
(302) 739-9403

Delaware Solid Waste
Authority
(800) 404-7080

Minnesota Sea Grant
College Program
(218) 726-8106

The Ocean Conservancy
(202) 429-5609

State Fire Marshal's Office

- Kent County
(302) 739-4394
- New Castle County
(302) 323-5365
- Sussex County
(302) 856-5298

Table 8-1. Recommended Disposal Methods (continued)

Waste	Disposal Options If multiple options are listed, the (✓) is the preferred method
Monofilament fishing line	✓ Recycle through a manufacturer or tackle shop.
Scrap Tires	✓ Recycle Store according to National Fire Protection Association Standards.
Pesticides	✓ Dispose of as hazardous waste.
Plastic Shrink Wrap	✓ Recycle
Fish Waste	✓ Prohibit disposal of fish waste into confined marina waters. Establish a fish cleaning station 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. • 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 Guidebook (after Chapter 11) 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.
- ✧ Post "Stash Your Trash" posters, available from the BoatU.S. Foundation.

Pollution Report and Action Log

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