

# Sewage Handling

## Environmental Concerns

Raw or poorly treated sewage discharged from boats is harmful to human health. Typhoid, hepatitis, cholera, gastroenteritis, and other waterborne diseases may be passed directly to people who swim in contaminated waters. People may also become infected by eating shellfish contaminated with viruses and other microorganisms contained in sewage discharge.

Sewage is also harmful to water quality. The heavy nutrient load in sewage promotes excessive algal growth. As the algae multiply, they prevent life-sustaining sunlight from reaching submerged vegetation. When the algae die, decomposition by bacteria further reduces levels of dissolved oxygen.

## Pertinent Laws and Regulations

### Marine Sanitation Devices

For the reasons stated above, it is illegal to discharge raw sewage from a vessel within U.S. territorial waters, i.e., anywhere other than three or more miles out into the open ocean. The Federal Clean Water Act and New Jersey's Marine Sewage Treatment Act (P.L. 1988, Chapter 117) require that any vessel with an installed toilet be equipped with a certified Type I, Type II, or Type III marine sanitation device (MSD):

- *Type I* systems mechanically cut solids, disinfect the waste with chemical additive or with chlorine disassociated from salt water with an electrical jolt, and discharge the treated sewage overboard. The fecal coliform bacteria count of the effluent cannot exceed 1,000 per 100 milliliters and may not contain any floating solids.
- *Type II* systems and Type I systems are similar except that Type IIs treat the sewage to a higher standard; effluent fecal coliform bacteria levels cannot exceed 200 per 100 milliliters and total suspended solids may not exceed 150 milligrams per liter. Type IIs also require more space and have greater operating energy requirements.
- *Type III* systems do not discharge sewage. The most common form of a Type III system is a holding tank. Other forms include recirculating and incinerating systems.

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

MSD requirements do not apply to vessels with portable toilets. Portable toilets must be emptied ashore. Remember, it is illegal to discharge raw sewage to any state waterway. Most pumpout facilities have wand attachments designed to empty portable toilets. Some marinas have portable toilet dump stations. Ask your marina operator how to dispose of waste from portable toilets.

## Pumpout Stations



The New Jersey Marine Sewage Treatment Act of 1988 requires all publicly owned or operated marinas, which accommodate vessels equipped with marine sanitation devices to provide sewage pumpout facilities and portable toilet emptying receptacles.



Installation of a pumpout system is required for new or expanding marinas as a condition of receiving a Waterfront Development Permit from the NJDEP. NJDEP has required MSD pumpout facilities as a condition of approval for new or expanded marinas of 10 or more slips since February 6, 1986.

## No Discharge Areas

A No Discharge Area (NDA), sometimes referred to as No Discharge Zones, is an area of water that requires greater environmental protection and where even treated sewage may not be discharged from a boat. The Federal Clean Water Act defines all freshwater lakes, reservoirs, and rivers incapable of interstate vessel traffic as No Discharge Areas. With U.S. Environmental Protection Agency approval, states may establish NDAs in other state waters.

Vessels with an installed toilet typically have a “Y” valve or other means to bypass the sanitation system. Within the state’s No Discharge Areas, all pathways for discharge of raw sewage must be secured. The “Y” valve may be secured with a padlock or a non-reusable nylon tie known as a wire tie. Alternatively, the valve handle can be moved to the closed position and removed.

The following rivers are NDAs: Navesink River, Shrewsbury River, Shark River, Manasquan River and Barnegat Bay. As New Jersey continues its efforts to cleanup state waters, certain areas may be considered for NDA designation.

# Best Management Practices to Control Sewage

### Install a Pumpout System.

Help boaters meet legal requirements by providing a convenient, reliable marine pumpout sewage disposal station. As a marina operator, you may benefit from the installation of a pumpout in several ways. The presence of a pumpout promotes public appreciation that you are environmentally responsible. More tangibly, the need to regularly pump holding tanks will draw a steady stream of customers to your dock. Each arriving vessel represents an opportunity to sell fuel, hardware, repair services, etc.

Any public or private marina is eligible to apply for up to \$18,000 in grant funds to install a pumpout station. If more than \$18,000 is needed, applications must be approved by the Clean Vessel Act Steering Committee. To apply for a Pumpout Station Grant, contact the Marine Trades Association (Appendix 1) for an application. The Marine Trades Association will review the application for completeness and forward complete applications to NJDEP for funding. Please be aware that these grants are strictly reimbursable. You must pay for the equipment and installation up front. NJDEP will then reimburse you for pre-approved expenses.

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

If you decide to invest in a pumpout system, follow these recommendations:

- \_\_\_ ✓ (5) Select an Appropriate System. Select a system that best meets the needs of your clients and that can move the expected volume of sewage over the required distance. Ask the manufacturer for a written assurance that their system will operate effectively given the specific conditions at your marina.
  - There are several types of pumpout systems available:
    - ~ systems permanently fixed to a dock,
    - ~ mobile systems mounted on a golf cart or hand truck,
    - ~ direct in slip connections, and
    - ~ pumpout boats.
  - *Choose an Accessible Location.* If you select a fixed pumpout system, carefully consider where it will be located to ensure that the types of boats that frequent your marina will be easily accommodated. A fuel dock is often the best location. Try to situate the pumpout system so that a vessel using the system does not interfere with another boat that is fueling.

- *Dispose of Collected Waste.* The best option for disposing of the collected waste is to connect directly to a public sewer line. If sewer is unavailable in your area, you will need a holding tank. The contents of the tank must be pumped periodically and trucked to a treatment plant.
- *Handle Collected Waste with Care.* Workers should take precautions to avoid coming into direct contact with sewage. Workers should wear rubber gloves and respirators when maintaining or repairing MSDs.
- *Provide Staff to Operate the Pumpout.* It is a good idea to have an attendant operate the pumpout. Install a buzzer or paging system so that boaters at the pumpout station can easily hail the attendant. If the station is unattended, post clear instructions for use.
- *Charge No More than \$5 for a Pumpout.* If a fee is charged, how much will it be? Will tenants and live aboards be charged? Or just transients? Remember, no more than \$5 may be charged if grant funds were accepted for the purchase and/or installation of the system. If the pumpout system is not regularly staffed, make arrangements to collect the fee. Token systems have been successfully used in many locations.
- *Post Signs.* Provide information about use and cost of the pumpout station, hours of operation, and where to call for service if the system is out of order. Also, post signs that are visible from the channel to inform passing boaters of your pumpout. If you do not have a pumpout system, post directions to the closest available pumpout.
- *Maintain the Pumpout System.* Inspect the system regularly and keep a log of your observations. Contact the pumpout manufacturer for specific maintenance and winterization recommendations. During the boating season, test the efficiency of the pump weekly by measuring the length of time required for the system to empty a 5-gallon bucket of water. In order to quickly address any malfunctions, establish a maintenance agreement with a contractor qualified to service and repair pumpout facilities.
- *Do Not Allow Waste to Drain Into the Water.* Do not allow rinse water or residual waste in the hoses to drain into the water. Keep the pump running until it is re-primed with clean water.
- *Educate Staff.* As an incentive to boaters to use your pumpout systems, make the experience as pleasant and convenient as possible. As the manager of a marina with a pumpout, you are demonstrating your commitment to clean water. It is imperative that your staff exhibits this same level of commitment and courtesy.

**(5) Total Points for BMP**

**Total N/A Points**

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### Prohibit Discharge from Type I and Type II MSDs at the Slip or Mooring.

Effluent from legal Type I and Type II systems contains nutrients, possibly toxic chemicals and probably pathogens. While many pass-through systems are capable of much greater sewage treatment, the standard for Type I systems is still a fecal coliform bacteria count of 1,000 per 100 milliliters. Bathing beaches are closed if fecal coliform counts exceed 200 fecal colonies per 100 milliliters. Thus, discharges from Type I and Type II systems in crowded, protected areas, such as marinas pose a real threat to human health and water quality. Adopt the following recommendations to discourage discharge within your marina basin.

- (1) Prohibit discharge of head waste in your marina as a condition of your lease agreements.
- (1) Post signs prohibiting the discharge of head waste and directing people to use shore side restrooms.

**(2) Total Points for BMP**

**Total N/A Points**

### Provide Onshore Restrooms.

- (5) Provide clean, functional restrooms for use by patrons.
- (1) Make restrooms available 24 hours a day.
- (1) Install a security system on restroom doors so people will feel safe using them, particularly late at night.
- (1) Provide air conditioning and heating.

**(8) Total Points for BMP**

**Total N/A Points**

### Provide Accommodations for Emptying Portable Toilets.

- (5) Provide at least one portable toilet-emptying receptacle. A wand attachment, a receptacle device or a designated restroom facility may serve this purpose.

**(5) Total Points for BMP**

**Total N/A Points**

### Safeguard and Maintain Septic Systems to Protect Water Quality and Public Health.

If you have a septic system, be alert for signs of trouble: wet areas or standing water above the absorption field, toilets that run slowly or back up, and odor. Septic failures can contaminate drinking water and shellfish. The following tips will help you to avoid the health risks and nuisance associated with an overburdened system:

- (5) Post signs in the restrooms informing patrons not to place paper towels, tissues, cigarette butts, disposable diapers, or feminine hygiene products in the toilets. These items can clog the septic system.

- (1) Post signs in the laundry room encouraging patrons to use minimal amounts of detergents and bleaches.
- (1) Do not dump solvents such as paint thinner or pesticides down the drain and post signs prohibiting customers from doing the same.
- (1) Do not pour fats and oils down drains.
- (1) Do not use a garbage disposal. Disposals increase the amount of solids entering the system. Capacity is reached more quickly. As a result, more frequent pumping is necessary.
- (1) Use small amounts of drain cleaners, household cleaners, and other similar products.
- (1) Do not use “starter enzyme” or yeast. These products can damage the system by causing the infiltration bed to become clogged with solids that have been flushed from the septic tank.
- (1) Direct downspouts and runoff away from the septic field in order to avoid saturating the area with excess water. For stormwater management reasons, do not direct the flow toward paved areas.
- (1) Do not compact the soil by driving or parking over the infiltration area.
- (5) Have a licensed septic inspector inspect your system yearly. The inspector can help you determine the pumping frequency your tank requires. Hire a licensed professional to pump the tank at least every 3 years.
- (5) Convert from septic to sewer if available in your area.

**(23) Total Points for BMP****Total N/A Points**

### Provide Live Aboard Facilities.

Boaters who stay aboard moored vessels for extended periods pose a particular problem. You can not expect that they will always use on shore restrooms or regularly untie in order to use a fixed pumpout. Furthermore, it is undesirable to allow a resident population to discharge Type I or II systems. Your obligation as marina owner/manager is to provide a convenient sewage disposal system for live aboards while maintaining good water quality. Choose from the following options to meet this challenge. Keep in mind that most live aboards expect and will pay a premium for extra service and more convenient slips.

- (5) Provide a portable pumpout system and direct live aboards to use it as necessary.
- (5) Require live aboards to contract with a mobile pumpout service.
- (1) Reserve slips closest to on shore restrooms for live aboards. Be sure that the dock and route to the bathhouse are well lit at night.
- (1) Stipulate in the lease agreement that vessels used as homes may not discharge any sewage.

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- (1) Offer to board their vessels and demonstrate the proper way to secure the “Y” valve.
- (1) As a condition of the lease agreement, require that live aboards place dye tablets in holding tanks to make any discharge clearly visible.
- (5) Install direct sewer hookups for live aboards.

(19) **Total Points for BMP**       **Total N/A Points**

### Offer MSD Inspections.

- (5) Service patrons’ MSDs annually to ensure that their Type I and II systems function properly.
- (1) Encourage boaters to run dye tablets through their Type I or Type II systems outside of the marina. If a system is operating properly, no dye will be visible. Maintenance is required if dye can be seen in the discharge.

(6) **Total Points for BMP**       **Total N/A Points**

### Encourage Compliance.

- (5) Include information about MSD requirements and sewage laws in contracts for slips rentals, transients, and live aboards.
- (1) State that failure to comply with the MSD laws and marina policy will result in expulsion from the marina and forfeiture of fees. If a customer fails to observe the law or honor your contract: 1) discuss the matter with him or her, 2) mail a written notice asking that the offending practice stop immediately and keep a copy for your records, and 3) evict the boater.
- (1) If a tenant discharges raw sewage, report him or her to the local county health department. Provide as much information as possible: name of owner, vessel, location, date and time of last discharge, etc.
- (1) Provide free pumpouts to tenants or cover the pumpout fee in the slip rental.

(8) **Total Points for BMP**       **Total N/A Points**

### Educate Boaters.

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

- (1) Photocopy the following Clean Boating Tip Sheet and distribute it to your tenants. There is room to add your marina's name and logo.

(1) Total Points for BMP

Total N/A Points

**Chapter Total:**

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**Chapter Total N/A Points:**

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# Vessel Sewage

## IS SEWAGE A PROBLEM?

Raw or poorly treated sewage is harmful to human health and water quality. Typhoid, hepatitis, cholera, gastroenteritis, and other waterborne diseases may infect people who swim in contaminated waters. People may also become ill by eating shellfish contaminated with viruses and other microorganisms contained in sewage discharge.

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

## WHAT CAN YOU DO?

### HOLDING TANKS

Install a holding tank. Visit the New Jersey Clean Marina website at [www.njcleanmarina.org](http://www.njcleanmarina.org) to obtain information about installing a sewage holding tank.

Use good plumbing to control holding tank odor. Fiberglass and metal tanks are highly impermeable, as are specially labeled flexible "sanitation hoses" and PVC piping. Hose runs should be as short and as straight as possible. Wherever practical, use rigid pipe below the level of the holding tank and in other areas where sewage tends to accumulate. Keep the number of connections to a minimum and ensure that seals are tight.



## What Does the Law Say?

**According to federal and state law, it is illegal to discharge raw sewage into the water.**

All vessels with installed toilets must have a Marine Sanitation Device (MSD):

- **Type I systems** mechanically cut solids and disinfect waste before they are discharged into the water. The treated discharge must meet a standard for bacteria count and must not contain visible solids. Type I Systems must bear a U.S. Coast Guard certification label.
- **Type II systems** treat sewage to a higher standard and generally require more space and energy. Type II systems must also have a Coast Guard certification label.
- **Type III systems** do not discharge sewage. Holding tanks are the most common Type III system. Incinerating systems are another option. A Coast Guard label is not required.

*Vessels 65 feet and under may have any of these three types of MSDs. Vessels over 65 feet must have a Type II or III system.*

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# Vessel Sewage

## HOLDING TANKS (Cont'd.)

Use enzyme-based products in your holding tank to further control odor. Enzymatic products use biological processes, rather than harsh chemicals, to break down sewage. Be sure to pump and rinse your holding tank prior to initial use of an enzyme product if you have used chemical-based odor control additives in the past.

Chemical residues may interfere with the effectiveness of enzyme-based products. Avoid holding tank products that contain quaternary ammonium compounds (QACS) and formaldehyde. These products may disrupt sewage treatment plants.

## TYPE I AND II MSDS

Maintain your Type I or II MSD. Establish a regular maintenance schedule based on your owner's manual to determine when chemicals need to be added, electrodes need to be cleaned, etc.

Do not discharge your Type I or II MSD while in a marina, in a swimming area, over an oyster bar, or in a poorly flushed area.

Effluent from legal Type I and Type II systems contain nutrients and possibly toxic chemicals. It may contain pathogens as well.



Use onshore restrooms when in port.

## PUMPOUT LOCATIONS

Use the *NJ Boater's Pumpout Guide* to identify a pumpout location near you. For an interactive mapping version of the *Pumpout Guide*, visit

<http://ims.rutgers.edu/Pumpout/>

Additional information is available by visiting [www.NJfishandwildlife.com/cvahome.htm](http://www.NJfishandwildlife.com/cvahome.htm)

## NO DISCHARGE ZONES

State law prohibits the discharge of sewage in designated No Discharge Zones. When boating within the state's No Discharge Zones, all pathways for discharge of raw sewage must be secured.

The following waterbodies have been designated No Discharge Zones: Navesink River, Shrewsbury River, Shark River, Manasquan River and Barnegat Bay (southern entrance to the Point Pleasant Canal south to Beach Haven Inlet).

**For more information  
about the  
Clean Marina Program  
visit**

[www.njcleanmarina.org](http://www.njcleanmarina.org)