



when

nature

California's Vessel Sewage Guide

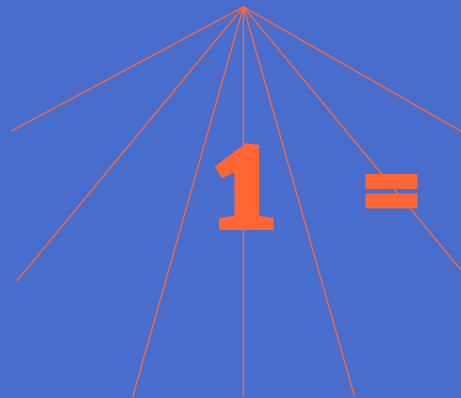
calls



When you gotta go, you gotta go. We've all been there before — it's human nature. While it's best to **use an onshore toilet when available**, properly disposing of boat sewage makes a difference in water quality and protects the big blue playground we all enjoy. Use this guide to **learn how to keep our waterways pristine.**



One toilet flush of untreated sewage from your boat can cause the same environmental impact as 10,000 flushes from your home toilet, where the waste is processed by a sewage treatment facility.
(SAN FRANCISCO REGIONAL WATER QUALITY CONTROL BOARD, 2009)



10,000

DUMPING SEWAGE CREATES ENVIRONMENTAL AND HUMAN HEALTH PROBLEMS

It's against the law to discharge untreated sewage into all navigable U.S. waters, but some boaters still dump raw waste. You might think one boater's contribution to the overall pollution problem is miniscule, but considering there are over **four million recreational boaters in California**, individual discharges add up.

Sewage spreads disease

Human waste contains **bacteria, viruses, and parasites**. Coming in contact with water that has been contaminated by human waste can make you sick. Common symptoms include nausea, stomachache, vomiting, diarrhea, sore throat, cough, runny nose, earache, and respiratory problems. Contact with contaminated water can also cause skin infections and rashes, and affect drinking water quality. Hepatitis, typhoid, dysentery, and cholera are more serious water-borne diseases.

BACTERIA

VIRUSES

PARASITES

Sewage harms aquatic life

When you discharge human waste overboard in shellfish bed areas, sewage reaches the bottom where it is **absorbed by clams, oysters, and mussels**. These shellfish eat bacteria from the sewage along with tiny food particles they normally ingest. Shellfish can transmit virtually all water-borne pathogens to humans. Eating raw or partially cooked contaminated shellfish may make you sick.



Sewage impacts levels of nutrients in the water

It **takes oxygen to decompose sewage** in water. The amount of dissolved oxygen in the water required to decompose organic matter is measured in terms of "Biological Oxygen Demand" or "BOD". Although the volume of waste from a boater is small, it is concentrated, which increases BOD. High BODs are often found in marinas and poorly flushed areas. **Excess phosphorus and nitrogen** from sewage can also contribute to harmful algae blooms (HABs), which block sunlight penetration and also contribute to lower oxygen levels. High BODs and HABs make it difficult for fish and other aquatic life to survive.

HIGH BIOLOGICAL OXYGEN DEMAND (BOD)

O²

O²

O²

Floating sewage is gross

It takes away from our enjoyment on the water, impacting recreational activities and our economy.



A MARINE SANITATION DEVICE PREVENTS POLLUTION

Sewage discharges are preventable! Vessels with an installed toilet must have an operable US Coast Guard approved Marine Sanitation Device (MSD). MSDs are designed to keep untreated sewage out of the water. All boats with marine toilets must have an operable Coast Guard-approved MSD. There are three types:

Type I

Chemically treats sewage so that the **bacteria count is reduced to less than 1,000 per 100 milliliters**
(33 CFR PART 159)

Discharge contains no visible floating solids

Installed on vessels **65 feet or less in length**



Type II

Similar to Type I MSD but the **bacteria count must be below 200 per 100 milliliters**

Suspended solids must be no greater than **150 milligrams per liter**
(33 CFR PART 159)

Installed on vessels of **any length**



Type III

Holding tank. Retains sewage for **shore based disposal** at a pumpout station or for overboard discharge beyond the three-mile territorial limit.

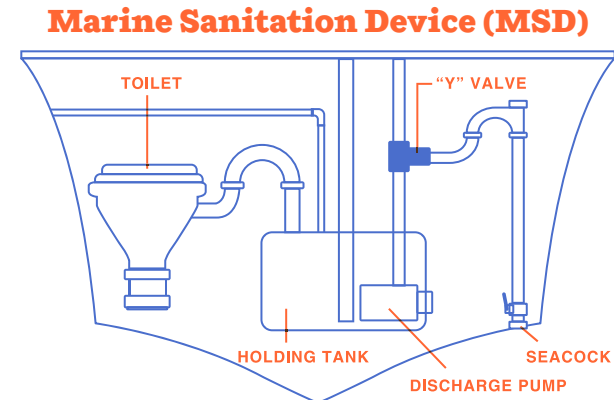
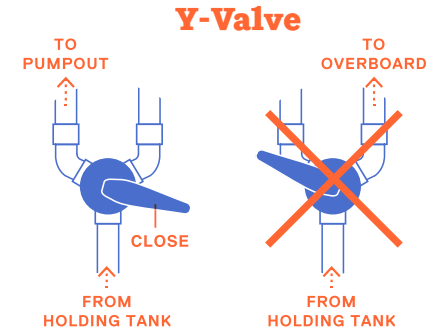


Installed on vessels of **any length**

CHEMICAL ADDITIVES CAN IMPACT AQUATIC LIFE

Many chemical disinfectants and deodorizers used in MSDs contain dangerous chemicals. Chlorine compounds (including sodium hypochlorite), formaldehyde, para-formaldehyde, ammonium compounds, glutaraldehyde, para-dichlorobenzene, or antimicrobials (such as Dovicil or Bronopol) are harmful to aquatic life. It only **takes one-tenth of a part per million of chlorine to hurt or kill aquatic organisms**. Use enzyme and bio-active treatments when possible as these are biodegradable and less toxic. Read labels carefully and use only the recommended amount. See the **Green Solutions** section for more tips.

The Y-Valve is the part of the MSD system that directs waste either overboard, into the holding tank, or to a deck pumpout fitting. If your holding tank (Type III) is equipped with a Y-valve for overboard discharge and you are operating within the three-mile limit, you must secure it in the closed position. Use a wire tie to keep the handle in the closed position OR remove the handle entirely to prevent the possibility of a discharge.



DUMP AT THE PUMP



Look for the national pumpout symbol that marks the location of a pumpout facility. Follow our instructions or ask a marina manager for help. Pumpout only your holding tank. **Pumpouts are not designed to handle bilge water, solid material, or other substances.**

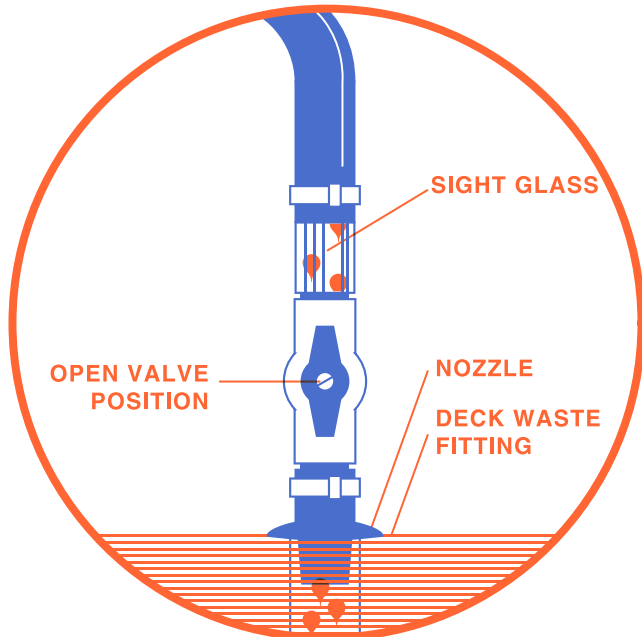


Scan with your smart phone or tablet to watch a video on how to use a pumpout!



For California pumpout locations, visit: www.dbw.parks.ca.gov/pumpouts or **download the free Pumpout Nav app** from your Android or Apple device.

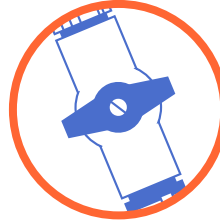
Key Parts of a Pump



HOW-TO STEPS

1

Close nozzle valve on pumpout hose.



2

Remove deck waste fitting cover (attach nozzle guard to deck waste fitting if available) and insert nozzle.



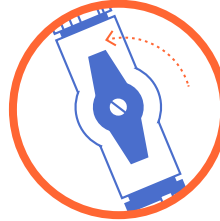
3

Turn on pump.



4

Open nozzle valve. Valves can be tough to turn—be persistent!



5

Check sight glass. If flow does not begin within one minute, place nozzle in water for ten seconds. If there is still no flow, check for an air leak or clog in hose or holding tank air vent.

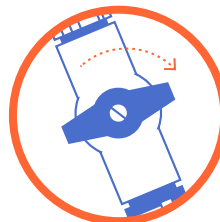
6

When tank is empty, remove nozzle from fitting. Place nozzle in water for 30 seconds to flush the line. Flushing helps prevent clogging and costly pumpout breakdowns.



7

Close nozzle valve.



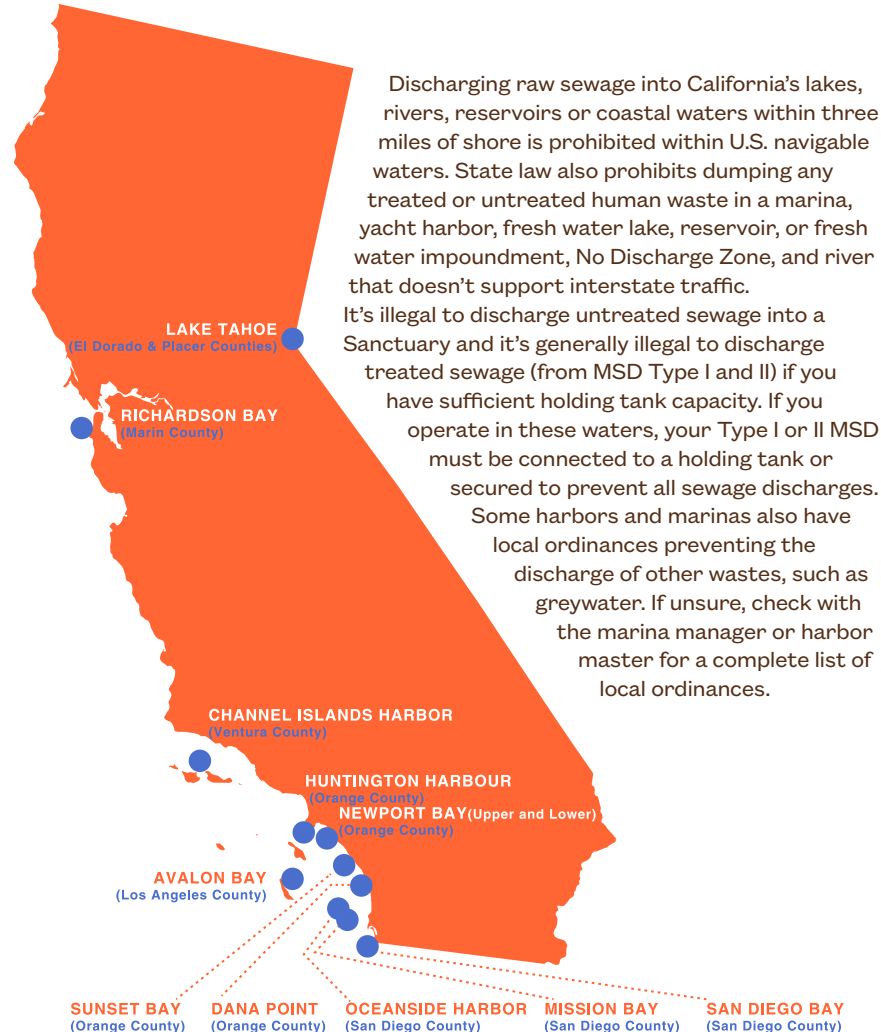
8

Turn off pump and return hose so it's ready for the next boater.



NO DISCHARGE ZONES & RESTRICTED WATERBODIES

Federally designated NO DISCHARGE ZONES in California:



Discharging raw sewage into California's lakes, rivers, reservoirs or coastal waters within three miles of shore is prohibited within U.S. navigable waters. State law also prohibits dumping any treated or untreated human waste in a marina, yacht harbor, fresh water lake, reservoir, or fresh water impoundment, No Discharge Zone, and river that doesn't support interstate traffic.

It's illegal to discharge untreated sewage into a Sanctuary and it's generally illegal to discharge treated sewage (from MSD Type I and II) if you have sufficient holding tank capacity. If you operate in these waters, your Type I or II MSD must be connected to a holding tank or secured to prevent all sewage discharges. Some harbors and marinas also have local ordinances preventing the discharge of other wastes, such as greywater. If unsure, check with the marina manager or harbor master for a complete list of local ordinances.

THE LAW

Can I discharge untreated sewage in lakes, rivers, reservoirs, or California coastal waters within the three-mile territorial limit?

No. It is against federal and state law. Fines of up to **\$2,000** can be imposed for illegal discharge (33 CFR 140.3, 33 USC 1251 ET SEQ.).

Can I discharge untreated or treated sewage into a No Discharge Zone?

No. It is against federal and state law. Fines of up to **\$2,000** can be imposed for illegal discharge (33 CFR 140.3, 33 USC 1251 ET SEQ.).

Am I required to have an installed marine toilet on my boat?

No, but if there is one, it must be connected to a US Coast Guard-approved MSD. Violators are subject to fines from **\$375 to \$6,500** (33CFR, PART 159, CWA §312).

My boat is less than 65 feet. What type of MSD am I required to use?

Vessels 65 feet and under may use Type I, II, or III MSD.

Is there a certification label I should look for when purchasing an MSD?

Yes. Make sure that your Type I or II MSD meets Coast Guard requirements by looking for a certification label. A Type III MSD is not required to have a label if it simply stores sewage at ambient pressure and temperature.

Is there a fine for the illegal discharge of sewage?

Yes. The Coast Guard can issue fines of up to **\$2,000** for the illegal discharge of sewage (CWA §312 (J)).

PHOTO: AVALON HARBOR, JOHN HOLLENBECK



GREEN SOLUTIONS



Get equipped

Get a U.S. Coast Guard-approved MSD for your boat and use pumpout and dump stations, or consider using a port-a-potty.

Use shoreside facilities

Use restroom facilities before and after your outings or at locations along the way. Type I or II discharges, although treated, add chemicals and organic matter to the aquatic environment.

Don't discharge in sensitive areas

Never discharge treated or untreated waste into small bays, harbors, marinas, areas with low tidal flushing, or near recreational swimming, fishing, and shellfish bed areas.

Read labels

Buy holding tank deodorizers and disinfectants that do not contain chlorine compounds that can harm aquatic life. Use only the specified amount.

Use enzyme and bioactive treatments

They are biodegradable and less toxic than chemical additives, effectively break down solids, and reduce odor.

Buy the right toilet tissue

Choose rapidly dissolving toilet tissue, which helps prevent potential clogging in your boat's sewage system. Recycled paper options are available.

Empty your holding tank regularly

Full and overfull tanks are difficult and dangerous to drain. Use a pumpout log to keep track of your holding tank capacity.

Periodically rinse the entire system with water

Connect a hose to the deck fitting for the holding tank and fill the tank with fresh water. Use the pumpout to pump the water out. Repeat if necessary.

Clean with a vinegar solution

Before you add any holding tank treatment, use a vinegar solution immediately after a tank has been emptied. This reduces scale buildup, keeps the walls of the hose clean, and extends the life of the hose.

Clean and deodorize with borax and baking soda

Use a mix of ½ cup borax per 1 gallon of water. Clean frequently with a solution of baking soda and water, and sprinkle baking soda around the rim.

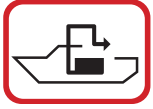
Change hoses when needed

Over time, system hoses absorb the sewage smell. Wet a rag with hot water and put it around the hoses for a few minutes. Remove the rag. If the rag has a bad odor it may mean the odor is permeating through the hose and it's time to change it.

CLEAN VESSEL ACT

California pumpout locations

Download the free Pumpout Nav app from you Android or Apple devise
www.dbw.parks.ca.gov/pumpouts



Don't want to pump the tank yourself?

Call a mobile pumpout service!

For a list of mobile pumpout services, visit:
www.dbw.parks.ca.gov/pdf/cleangreen/marinaoilsewage.pdf

Your marina doesn't have a pumpout station?

They may be eligible for a Clean Vessel Act grant!

For more information, contact:
California State Parks
Division of Boating and Waterways
at One Capitol Mall, Suite 500,
Sacramento, CA 95814,
call 1-888-326-2822,
or visit www.dbw.parks.ca.gov

PHOTO: CLEANER WATERS FOR GENERATIONS,
© CARISSA RANFARO



PHOTO: ABALONE COVE SHORELINE PARK, © YUJU YEO

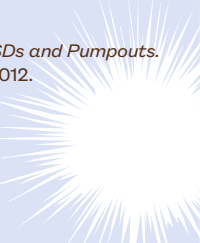
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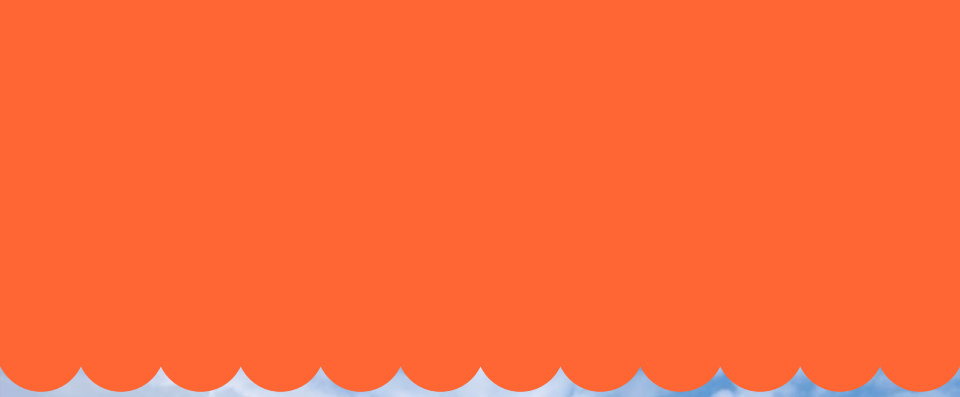
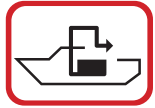


PHOTO: ANGELS' GATE, JOHN HOLLENBECK



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