

CIRCULATING COPY

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MANAGING BOAT WASTES



A Guide For Hawai'i Boaters

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UH Sea Grant College Program,
School of Ocean and Earth Science and Technology
Office of Solid Waste Management, Department of Health
Division of Boating and Ocean Recreation,
Department of Land and Natural Resources



EXECUTIVE CHAMBERS
HONOLULU

JOHN WAIHEE
GOVERNOR

Dear Boater:

The decade of the 90's has been unofficially dubbed the "decade of the environment". We who live and work in Hawaii are very much aware of the importance of maintaining the natural beauty that makes Hawaii such an appealing place to visit and reside.

To assist in maintaining Hawaii's beauty, this booklet has two purposes: (1) to inform those who use Hawaiian waters, for commerce or recreation, of the potential negative impacts their activities can have on our sensitive marine environment; and (2) to outline environmentally safe practices to eliminate damage to our waters.

Hawaiians have always been inextricably linked to the ocean that surrounds us. Our future ties will be no less strong. In fact, our future success will greatly depend on maintaining the pristine quality of our waters. I encourage you to take the time to read this booklet, become familiar with the laws and regulations that govern marine pollution, and implement environmentally sound marine operations. Together we can keep Hawaiian waters clean for generations to come.

With kindest regards,

Sincerely,

JOHN WAIHEE

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Alternatives to Toxic Products

Many household cleaning products contain toxic chemicals that, if used improperly, can be dangerous to both the environment and human health. Fortunately, there are safe, environmentally friendly alternatives to household hazardous products. Here are a few of them:

<i>Bleach</i>	Borax or hydrogen peroxide
<i>Detergent & Soap</i>	Elbow grease
<i>Scouring Powders</i>	Baking soda
<i>Floor Cleaner</i>	1 cup of white vinegar in 2 gallons of water
<i>Window Cleaner</i>	1 cup of white vinegar in 1 quart of warm water, rinse and squeegee
<i>General Cleanser</i>	Bicarbonate of soda and vinegar; lemon juice combined with borax paste
<i>Head Cleaner</i>	Pour in baking soda and use brush
<i>Shower Cleaner</i>	Wet surface, sprinkle on baking soda, and scrub
<i>Aluminum Cleaner</i>	2 tablespoons of cream of tartar in 1 quart of hot water
<i>Brass Cleaner</i>	Worcestershire sauce or paste made of equal parts salt, vinegar, and water
<i>Copper Cleaner</i>	Lemon juice and salt
<i>Chrome Cleaner/Polish</i>	Apple cider vinegar to clean/baby oil to polish
<i>Fiberglass Stain Remover</i>	Baking soda paste
<i>Drain Opener</i>	Use plumbers snake or disassemble; substances should not be used in a through-hull drain
<i>Mildew Remover</i>	Paste using equal parts of either lemon juice and salt or vinegar and salt
<i>Furniture Polish</i>	3 parts olive oil and 1 part white vinegar
<i>Wood Polish</i>	Almond or olive oil (interior wood only)
<i>Hand Cleaner</i>	Baby oil or margarine

Do:

- ✓ Use alternatives!! They work — and can save you money!
- ✓ Go to the library for additional recipes. There are many recent publications on alternative household products. See what works best for you.



Don't:

- ⊘ Whenever possible, do not allow hazardous household products to enter the water.



Bilge Water

Do:

- ✓ Prevention! Fix small leaks that allow oil to drip into the bilge.
- ✓ Take extra care when you change your oil.
- ✓ Use oil-absorbent pads to capture surface oil. Dispose of used pads in trash.

Don't:

- ⊘ Don't use dispersants. Dispersants do not remove oil from the water, they only break it down into small, hard to see drops.

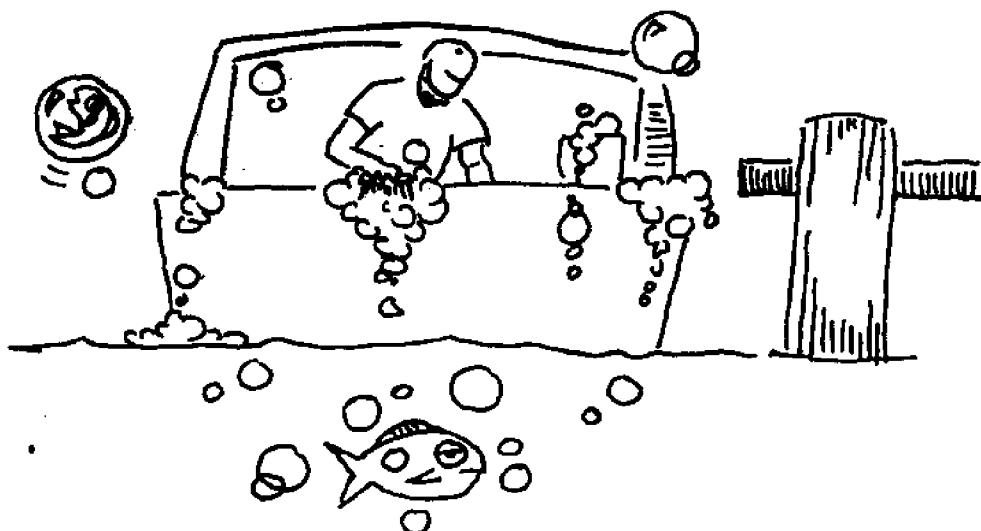
Boat and Deck Washing

Every time we wash our decks with soap, we contribute to water pollution. Many soaps and detergents still contain phosphates. Phosphates promote algae growth which, in turn, robs the water of essential oxygen. Without oxygen, fish cannot survive. In addition, algae growth prevents light from penetrating the water thereby impeding aquatic photosynthesis.

Many soaps and detergents also contain surfactants. The chemical properties that cause surfactants to bind to and remove dirt also cause them to bind to living tissue. When surfactants bind to fish gills, the fish lose their ability to absorb oxygen and therefore suffocate. Detergents can also contain heavy metals that bioaccumulate through the food chain.

Do:

- ✓ Rinse and scrub your boat with a brush after each use. The safest cleaning product available is good, old-fashioned "elbow grease".
- ✓ If you need to use cleaning agents, try to buy alternative products that do not contain phosphates.



Head Sewage

Human sewage from boats is a potentially dangerous source of water pollution that can contain disease-causing organisms that affect shellfish and other sea life. The Federal Water Pollution Control Act requires that recreational boats with installed toilet facilities use Coast Guard certified Marine Sanitation Devices, or MSDs. MSDs, which are designed to prevent the overboard discharge of untreated sewage, come in three types:

1. **Type I MSDs:** Break up and disinfect waste with chemicals to a level of 1,000 fecal coliform bacteria per 100 milliliters of water and no visible floating solids.
2. **Type II MSDs:** Same as I but further reduce bacterial count to 200 per 100 milliliters and suspended solids to no greater than 150 milligrams per liter.
3. **Type III MSDs:** Holding tank equipped with piping to discharge waste when over three miles from shore or, preferably, into fixed or floating pump-out facilities.

Boats longer than 65 feet must use Type II or III, while boats less than 65 feet can use I, II, or III. All installed MSDs must be Coast Guard certified if the boat is to be in compliance.

Boats without installed toilets should use a port-a-potty and:

1. Dispose of the sewage in the sanitary sewer on shore;
2. Use rest rooms/portable toilets ashore whenever possible.

Holding tank additives: Type I and Type II MSDs require holding tank additives. They come in a variety of forms and chemical compositions — some of which may be harmful to parts of your toilet system as well as the environment. Read the label carefully to make sure that the products contain no formaldehyde, formalin, phenol derivatives, ammonia compounds, alcohol bases, or chlorine bleach.

Fuel

The best way to minimize the environmental impact of fuel is to use less! When possible, try to observe the following 12 tips to reduce fuel consumption.

1. *Have sails?* Hoist them when winds are right.
2. *Balance your load.* This enables your boat to get on plane quickly and reach the desired speed without plowing or porpoising.
3. *Watch the weather.* Avoid false starts if prevailing air and sea conditions are questionable. Brisk winds and heavy chop siphon fuel tanks.
4. *Check your propeller.* A damaged prop will waste fuel. Keep propeller blades clean and in good condition. Replace props that have damaged blades. Also, adjust diameter and pitch for the level of activity you use most.
5. *Avoid excess idling.* Whenever you have to stop, turn off the ignition. A warm engine restarts easily without choking.
6. *Slow down.* A wide open throttle can increase fuel consumption by 50 percent or more over mid-range speeds. As you "trim" the boat, maintain RPMs at the level recommended by the manufacturer.
7. *Watch your weight.* The lighter the boat and its load, the less horsepower required to propel it and the greater your fuel economy. Drain the bilges and holding tanks properly before departure. Store unneeded supplies and equipment ashore.
8. *Plan your trip.* A true course is the shortest, and any reduction in running time saves fuel.
9. *Take shorter cruises.*
10. *Check the tides.* Boating against the tide is like running against the wind — it takes more effort. Make the tides and currents work to your advantage. Reduce wind resistance by keeping canvas bow shelters and bimini tops down and furled until needed.
11. *Clean your hull.* The less growth on your hull, the less underwater drag there will be on your boat and the less fuel you will use.
12. *Keep the engine tuned.* Proper ignition timing and clean spark plugs assure extra mileage. Inspect the carburetor for proper float level, correct jetting, and smooth choke operation. Check the fuel and oil filters regularly. Alcohol-based fuel can cause loss of fuel by deteriorating fuel lines. Call your boat manufacturer to find out if your engine can take alcohol-based fuel. Part of engine maintenance should include an inspection of the fuel lines and carburetor gaskets. Replace bad lines with USCG Type A alcohol-resistant fuel line hose.

Lead Acid Batteries

Hawai'i Law (Hawai'i Revised Statutes 342I) prohibits the disposal of lead acid batteries in landfills or abandonment on public or private property. Batteries whose electrolyte has been removed will not be accepted for recycling.

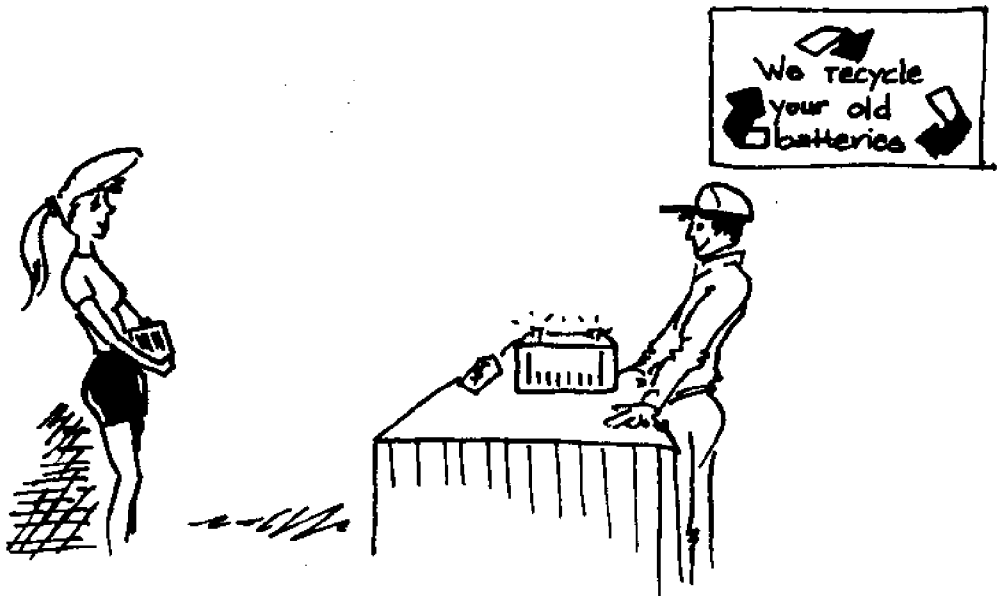
Lead Acid Batteries contain two hazards: lead and acid. When released into the environment, these materials can contaminate the air, water, and soil. Also, lead can be assimilated by animals and plants, and eventually find its way into the food chain and drinking water supply. When ingested or contacted by humans, lead and acid can cause both short- and long-term health problems.

Do:

- ✓ When you buy a new battery, return the old one to your vendor, who is required by law to accept it.
- ✓ Store batteries upright in a secure place and check battery and caps often for leaks.
- ✓ If you have an old battery, contact your local mechanic or parts store. If you have a good relationship — or if they want to win you as a customer — they may take it.

Don't:

- ⊘ Don't dispose of battery in the garbage, at a landfill, or on public or private property.
- ⊘ Don't break open the case and/or remove the acid or lead.
- ⊘ Don't store batteries outside exposed to weather.



Marine Debris

The ocean is not a dump! Marine debris — plastic, nets, fishing lines, six-pack rings, styrofoam, etc. — can kill marine life. When seabirds, whales, and other marine creatures ingest plastic, they often become sick and die. They can also become entangled in nets or six-pack rings and drown.

In 1987, the United States ratified an international treaty addressing the problem of ships dumping their garbage at sea. The treaty, known as Annex V of MARPOL (Marine Pollution Act):

1. Prohibits the disposal of plastics anywhere in the ocean;
2. Restricts the disposal of most other types of refuse materials depending on distance to shore.

In addition, the U.S. Coast Guard requires:

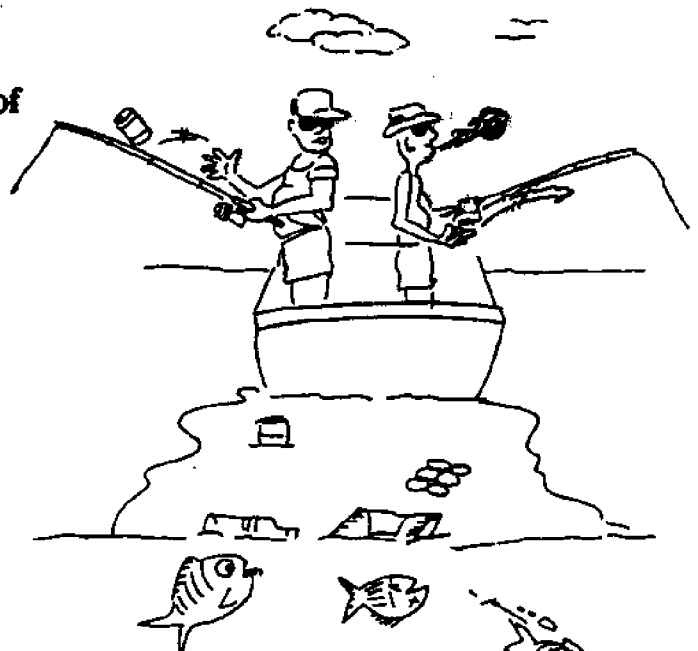
1. Vessels 26 feet and over to prominently display a placard to notify all passengers and crew of Annex V discharge rules and penalties;
2. Vessels 40 feet and over to display the discharge rules placard and prepare a written waste management plan.

Do:

- ✓ Keep all waste on board in proper receptacles. Separate plastics, cans, and glass for recycling.
- ✓ Properly manage your debris so that it will not be blown or washed overboard.
- ✓ Avoid expensive boat engine repairs — keep your trash out of the water! Boat engines can be damaged when propellers or cooling water intakes become entangled with nets and other marine debris.

Don't:

- ⊘ Don't discard any garbage overboard.
- ⊘ Don't buy or use disposable dishes, cups, or flatware. Buy reusable items.



Paints/Varnishes/Epoxies/Etc.

Paints come in two basic forms: water-based and oil-based. Water-based paints are considered less dangerous than oil-based paints, which contain carcinogenic solvents that, if inhaled, ingested, or absorbed through the skin, can impact human health.

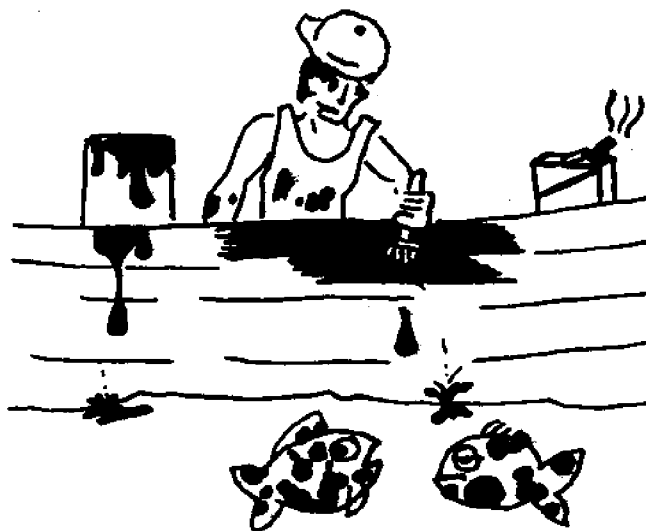
The growth of marine organisms on hulls is a common problem faced by boaters. Many bottom paints are designed to self-slough, i.e., they shed their outer layer and thereby carry away unwanted growth. In addition, many bottom paints contain anti-growth toxins which, when leached into the water, can bioaccumulate in marine organisms. Eventually, these toxins find their way back to us in the fish that we eat.

Do:

- ✓ Buy only what you need! Mix only what you need! Prepare paints over a drop cloth on land, not on the dock.
- ✓ Use, or make sure your boat yard uses, the most environmentally friendly bottom paints available. Ask your vendor to stock "green" products.
- ✓ Scrape and paint your boat away from the water. Plug the scuppers and wipe up any spills or residues.
- ✓ Use drop cloths, pans, containment trays, etc. to catch paint scrapings and drippings. Dispose of wastes in the trash. Allow empty paint cans to dry out before throwing them away.
- ✓ Scrub the hull periodically to extend the useful life of the paint.

Don't:

- ⊗ Don't let your extra paint harden or go bad. Give it to someone who can use it — another boat owner, the local boat yard, or a friend.
- ⊗ Don't work on your boat unprotected! Wear protective clothing, gloves, goggles, and a proper respirator for particulate and/or fumes.



Solvents

Most solvents are hazardous because they are flammable and/or toxic. They are, however, commonly used in many boat maintenance products such as resin, paint, paint remover, varnish, shellac, and thinner. When working with solvents, avoid skin contact and vapor inhalation.

Do:

- ✓ Use alternative products! Ask your vendor to stock environmentally friendly alternatives!
- ✓ Recycle your own solvent! Let the spent solvent settle until it clears. Decant the liquid portion through a filter. Dispose of the filter in the trash.
- ✓ Keep spent solvent in separate, labelled containers.

Don't:

- ⊗ Don't mix solvents with used oil!
- ⊗ Don't let solvents drain to septic tanks, storm drains, or sewers.

Used Oil

Hawai'i law (Hawai'i Revised Statutes 342 N) prohibits used oil from entering into streams, the ocean, storm drains, sewers, or the ground. Also, if used oil is contaminated with a hazardous waste, the mixture becomes a hazardous waste.

If improperly managed, used oil is a dangerous pollutant. Just one quart of oil can contaminate 250,000 gallons of water, and can injure fish, birds, and other aquatic life. In addition, used oil contains toxic constituents that can cause cancer and other diseases in humans.

Do:

- ✓ Store your oil in a clean, air tight container.
- ✓ When you change your oil, use oil absorbent products to contain any accidental spills.
- ✓ Bring your uncontaminated used oil to a collection facility or recycling center. Contaminated used oil will not be accepted.

Don't:

- ⊗ Don't mix used oil with
solvents
thinner
paint
anti-freeze
fuel
other hazardous substances.

Used Oil Filters

Do:

- ✓ Drain filters into your used oil.
- ✓ Drain at an angle, for 24 hours, while oil is still hot.
- ✓ Dispose of empty oil filters in trash.

Don't:

- ⊘ Don't throw away undrained filters — drain them first!



This publication is a joint effort of the UH Sea Grant College Program, School of Ocean and Earth Science and Technology; the Department of Health, Office of Solid Waste Management; and the Department of Land and Natural Resources, Division of Boating and Ocean Recreation.

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Soundwatch: An Environmental Guide for Boaters (1993), published by 48° North, The Sailing Magazine;

The California Department of Boating and Waterways

Managing Hazardous Wastes, produced by Thurston County Public Works in cooperation with the Washington State Department of Ecology.

Environmental Guide for New England Mariners (1989), produced by the Coalition for Buzzards Bay.

Boaters Guide to Clean Water and Good Times (1988), published by Washington State Parks and Recreation Commission.

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If you have any comments or questions, please contact the Department Land and Natural Resources, Boating Division, 587-1963.

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Useful Phone Numbers

O'ahu numbers given (unless otherwise noted).

Abandoned Boats/Boating Registration

DLNR Div. of Boating & Ocean Recreation (DOBOR)

O'ahu District: 587-1970

Kaua'i District: 245-6996

Maui District: 244-7041

Hawai'i District: 329-4215

Boating Mishaps Involving Injury

Fire Dept: 911; Marine Patrol: 548-4216 (24 hrs); Channel 16 VHF

Debris or Litter Issues

State Litter Control: 973-9700

EMERGENCY Hazardous Material Spill or Leak

Fire Dept: 911; U.S. Coast Guard: 541-2450 or 1-800-552-6458 (both 24 hours)

Fuel and Oil Spills

National Response Center: 1-800-424-8802; U.S. Coast Guard-Marine Safety Office: 541-2068

Hazards to Navigation

U.S. Coast Guard: 541-2450; Marine Patrol: 548-4216

Injured/Stranded Marine Mammals, Sea Turtles, Sea Birds

Dept. of Land & Natural Resources (DLNR) - Div. of Conservation And Resource Enforcement (DOCARE): 587-0077; Marine Patrol: 548-4216;

National Marine Fisheries Service (NMFS): 955-8831 (mammals), 943-1240 (turtles)

Ocean Dumping of Plastic, Garbage, Paper, and other marine debris

U.S. Coast Guard: 541-2450; Marine Patrol: 548-4216

Sewage Spill/Infectious Waste

Department of Health - Hazardous Evaluation and Emergency Response Office (HEER): 586-4249 or 226-3799 (after hrs); Honolulu City & County - Waste Water Management: 527-3037

