

Tips for Do It Yourself (DIY)

Boat Hull Maintenance to Minimize Marine Pollution

pacific northwest
POLLUTION PREVENTION
resource center



Introduction

Boaters are concerned about the environment and are always looking at ways to keep our water clean and marine life healthy. Many boat hulls are coated with antifouling paints to prevent slime, algae build up, and invasive species attachment to the boat hull. Most antifouling paints contain metals such as copper or zinc pyrithione, or other non-metal chemicals such as Ecomea and Irgarol. These are all federally regulated pesticides. They are released from the boat bottom while in the water, or during hull repair and pressure washing.

Another metal source that can impact marine life is from zinc anodes. Sacrificial anodes protect other underwater metal boat parts from corrosion while in the water. Traditionally, anodes have been made from zinc, with a possible trace amount of cadmium. Both of these metals exhibit high marine toxicity to some marine animals and plant species.



A series of factsheets provided by Pacific Northwest Pollution Prevention Resource Center (PPRC) and the Clean Boating Foundation provide best practice suggestions to help reduce impacts to marine life and water quality from boat hull maintenance and repair activities. This factsheet covers tips for DIY boat owners and boat repair.

The following factsheet and video topics are available [here](#).

- Boat Hull Paint Removal
- Zinc Anode Alternatives and End of Life Management
- Pressure Washing
- Disposing of Antifoulant Paint

Marine Toxicity Concerns

Antifouling paint chemicals, called biocides, and zinc in anodes become especially concerning when many boats are stored in a concentrated area. Like oil drips in a parking lot, these chemicals can build up in boatyard waters and affect other marine life, such as shellfish and plants, which are a critical part of the food chain. Marinas also offer an attractive breeding environment for marine animals. Young marine life can be very sensitive to and harmed by biocides and other pollutants.

Even when hull or anode maintenance is conducted at a home, or at a boatyard, which seems distant from waterways, antifouling dust chemicals can still reach waterways through airborne or stormwater channels if not contained and managed. Zinc comes from spent anodes – if dumped directly into the water after replacement, or stored in outdoor containers that are not rainproof.



Best Management Practices (BMPs)

General/Oversight

- If conducting DIY hull work at a boatyard, read, sign, and abide by their BMP compliance document. Retain and refer to it periodically.
- Ask yard staff for training or advice on any tasks that have potential to release antifouling paint chemicals, such as paint removal, painting, and pressure washing.
- Become familiar with the yard layout and available equipment, especially spill kits, dangerous waste receptacles, and anode recycling.
- Consider upland or dry storage during the off-season to reduce fouling and attachment of aquatic hitchhikers.

Pressure Washing

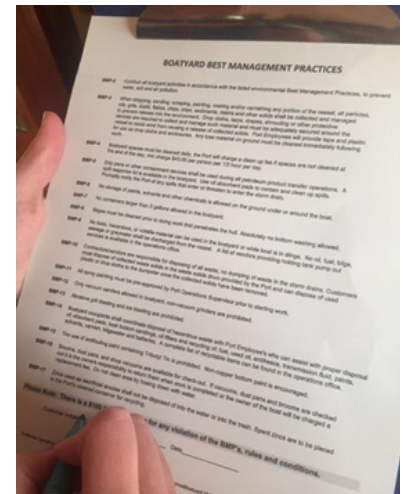
- Pressure wash at a boatyard, on a designated wash down pad with wastewater treatment, instead of at home if possible.
- If pressure washing DIY at a yard:
 - ❑ Consult with yard staff to ensure proper set up including covering storm drains in the wash pad area during washing.
 - ❑ Prevent water overspray and paint chips from landing outside the designated wash pad area. If the wash pad is stationed near a water body, pay close attention to the spray angle to avoid overspray and paint landing in the water.
- Do not use soap or cleaners.
- Never clean or rinse a boat at a boatyard anywhere except over the wash pad.
- If washing outside a boatyard, wash boats at a commercial car wash that recycles or treats the wash water. If a commercial wash is not available, wash it over your lawn. Similar to DIY car washing, always wash over a lawn or greenscape, never over impervious pavement.

Other Hull Cleaning

- For tough stains, use non-toxic methods and wipe down with a cloth instead of rinsing with water. Puget Soundkeepers Alliance suggests a baking-soda paste for stain cleaning.
- Use non-petroleum based hull waxes and buffing agents. Safety Data Sheets (SDS) are available online and section 12 provides help determining marine or eco-toxicity of any ingredients.
- Do not clean (or have divers clean) a boat hull underwater. In-water cleaning of hulls with abrasive antifouling paint is subject to significant fines.

Hull Paint Removal – By Sanding and Other Methods

- Consider having a boatyard perform hull paint removal instead of DIY, with expertise and equipment to ensure compliance with regulations.
- Place an impermeable barrier under the boat, with edges weighted down, and a walk-off mat to clean shoes when leaving work area.
- Use respiratory, eye, and skin protection during sanding and grinding.
- If the boat hull is not shrouded, avoid sanding, grinding, or burnishing outdoors on windy or rainy days.
- Use high-suction dustless vacuums for sanders or grinders, including a one-micron air filter and five-micron containment bag insert. A typical shop vac is inadequate to contain dust. Non-vacuum equipment is not allowed at a boatyard without full shrouding.



- Prior to each work session, inspect the vacuum air filter and bag. Replace as necessary. If antifouling paint dust is collected, keep the dust in the vacuum bag. Close the hole immediately upon removal from the vacuum using the bag's self-closing mechanism (or cover with duct tape), place in a plastic bag and dispose of at local household hazardous waste (HHW) facility or in the boatyard's dangerous waste collection receptacle.



- Keep orbital vacuum sanders flat on the hull surface. While it is tempting to use the edge, this breaks the vacuum seal and reduces dust collection effectiveness. In addition, it can create an uneven surface as well as damaging the bearings in the sander itself.
- At the end of each work session, brush off the clothes or plastic suit onto the tarp, then vacuum or collect all dust and residuals on the tarp.

Antifoulant Coating Selection and Application

- Research the latest bottom paint technologies such as biocide-free technologies, reduced-biocide content paint, or lower-leaching rate biocide paint.
- Use a tarp under the boat, with edges and corners weighted down.
- Limit individual paint or primer container volume to one gallon or less. When open, place the paint container in a tray that can contain the full volume if spilled and/or use a re-sealing paint can lid and spout.
- Avoid over applying.
- Use disposable rollers and trays to avoid solvent or water cleanup, and resulting disposal of those liquids. If clean-up liquids are generated, contain them and place in dangerous waste receptacle at the boatyard or at a HHW facility.

Anode Replacement and Recycling

- When replacing spent anodes, purchase aluminum or magnesium alloys, which offer performance advantages and lower marine toxicity. (See PPRC's Anode Factsheet).
- Never throw end-of-life anodes in the water as a means of disposal. Always recycle. Some boatyards, marinas, or supply stores offer free drop-off, or metal recyclers will pay cash.

References

- Washington State Department of Ecology, 2011. [Boatyard General Permit](#)
- Northwest Green Chemistry (NWGC), 2017. [Boat Paint Alternatives Assessment](#)
- Clean Boating Foundation, 2018 [Clean Boatyard Program Checklist & Standards](#)
- Port of Port Townsend Video: [Haulouts and Pressure Washing](#)
- Puget Soundkeepers Alliance, 2016 – [Soundkeeper – A Boater's Guide](#)

Acknowledgements



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