

# Boat Hull Pressure Washing

Best Practices to Minimize Antifoulant Chemical Release

pacific northwest  
POLLUTION PREVENTION  
resource center



## Introduction

Boatyard managers and boat owners are essential to preserving water quality and healthy marine life. By nature and purpose, antifouling paint additives (also called biocides) in hull paint formulations are toxic to certain marine life. The biocides leach from boat bottoms over time, to protect the boat bottoms from fouling, algae, and other marine growth, such as mussels. Therefore, it is crucial to minimize their release to waterways from upland maintenance activities.



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 metal biocides such as copper or zinc pyrithione, while others utilize non-metal biocides such as Ecomea, Irgarol or Seanine. All of these biocide additives are federally regulated pesticides. These are released from the boat bottom while in the water, but also during hull washing and repair. There are also non-biocidal paint formulations which rely on hardness, slick surfaces, and photoactivity to deter fouling.

A series of factsheets provided by Pacific Northwest Pollution Prevention Resource Center (PPRC) and the Clean Boating Foundation provide suggestions to help reduce impacts to marine life and water quality from boat hull maintenance and repair activities. This factsheet covers best management practices (BMPs) for pressure washing, to avoid biocide releases into the water.

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

- Hull Paint Removal
- Do It Yourself (DIY) Tips to Minimize Antifouling Pollution
- Zinc Anode Alternatives and End of Life Management
- Disposal of Antifouling Paint

## Toxicity Concerns of Antifouling Biocides

Copper is one of the most common additives in antifouling paint formulations. Dissolved copper has been found to affect the olfactory system of salmon species, reducing their sense of smell. This impacts behaviors such as homing, foraging and predator avoidance, reducing chance of survival or reproduction.



Zinc ions, which may form when zinc pyrithione is released from the boat hull, especially in saltwater, can be harmful to some marine animals and plants at very low concentrations (NWGC, 2017).

Other active biocide ingredients can also impact marine species and water quality. Marinas are especially sensitive and prone to higher concentrations of biocides due to the number of boats in the water, as well as potential releases when located near a boatyard. In addition to marine toxicity imparted by these biocides, they can present hazards to human health as well.



## Overview of Pressure Washing at Boatyards

In-water scrubbing, scraping, and cleaning of boat hulls is not allowed in Washington State, for boats painted with soft or ablative hull coatings. Some boatyards and marinas prohibit in-water hull washing for all vessels, regardless of the coating. Even for boats with harder bottom coatings, the best practice is to hoist out of the water at a boatyard for pressure washing and capture wastewater and paint solids.

After haul-out, pressure washing removes fouling and any attached marine life on the bottom of the boat, in preparation for storage or maintenance. Washing also removes loose paint chips and antifouling chemicals, especially on hulls with the softer, ablative type antifoulant paint. Thus, it is important to keep overspray and wash water from leaving the wash pad area, and ensure all dissolved chemicals and solids are collected in the wash pit sump.



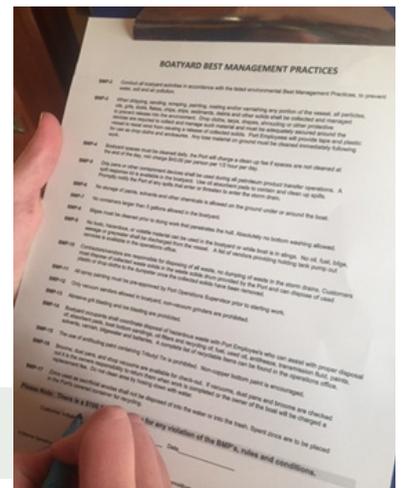
*Federal law requires boatyards have a designated wash area and wastewater and solids treatment. Neither the wash water nor settled sludge can be released to waterways, and must be collected for pretreatment prior to reuse, disposal, or permitted discharge to sanitary sewer. Solids must be tested for hazardous (or in the case of Washington State, "dangerous") constituents and if found, must be properly disposed of by a licensed hazardous/dangerous waste disposal facility.*

## Best Management Practices (BMPs)

### Policies/Procedural

- Require staff, vendors, contractors, and boat owners (if performing DIY work), to read and sign the compliance document.
- Provide brief trainings and a user manual outlining power washing practices to contain water overspray and paint residuals.
- Monitor boat washing and/or only allow trained staff to wash.
- Clearly mark designated pressure wash areas.
- Prohibit washing or rinsing outside the designated wash pad.

*TIP: Swantown Boatworks in Olympia shuts off all spigots around the yard to prevent washing of boats outside the designated wash pit.*



### Washdown Area Design Considerations (If Not Already in Place)

- Berm or curb the wash area to contain all wash water within wash pad area.
- Ensure area slopes to the wash pit.
- Install a mechanism, such as a valve, drain stops, cover, or other, to divert stormwater from the wash pit when not in use.

### Haul Out

- Review haul out procedures with boat owners and/or those who will wash the vessel beforehand. In addition to minimizing overspray and antifouling chemicals, there are important steps to prevent release of bilge water, oil and maintenance fluids.
- Review the video by Port Townsend on Haulouts and Pressure Washing.



## Pressure Washing

- Review pressure washing procedures with boat owners and/or those who will wash the vessel, and provide signage in the area, on the following:
  - ❑ Techniques to prevent overspray from leaving the wash area;
  - ❑ Closure of storm drains and stormwater sewer during washing; and
  - ❑ Prohibited use of cleaners other than water.
- Cover or close valves to storm sewer entry points prior to beginning. Open valve or cover at the end of each wash.
- If the wash pad is immediately adjacent to a waterway, install a temporary “spray catch shroud” between the boat and any body of water, or use extreme care to not allow overspray or paint chips to reach the body of water.
- Angle the wash wand perpendicular to the boat surface to minimize overspray and debris leaving the wash pad area.
- Clean hoist slings over the wash pad after EVERY hoist to flush antifouling paint residuals (and oil and slime) from the slings. Dirty slings can pollute water and be unsafe when used with boat hulls painted with the non-biocide silicone-based, slicker paints.



## Pressure Washing Wastes and Discharges

Relevant Washington State Boatyard General Permit Language:

1. *The Permittee must not discharge pressure-wash wastewater directly to any surface water of the State through stormwater drainage conveyances or otherwise.*
2. *The Permittee must not introduce into the POTW any pollutant(s) which cause pass through, upset, or interference. In addition, any discharges to a POTW must meet the discharge restrictions.*

- Monitor and maintain the wastewater and solids treatment system.
- If wastewater is not recycled on site, sample and test for determination of “dangerous waste” designation. Send results to the Washington State Department of Ecology according to permit schedule. If test results designate the wastewater as dangerous, have the water hauled away by a licensed dangerous waste hauler. Do NOT dilute, dispose of to surface waters, or discharge to POTW.
- Inspect the solids collection tank on a routine schedule. Solids are likely to have high copper content, possibly zinc pyrithione, and other chemical biocides. When the reservoir is full, have the sludge removed by a Dangerous Waste Transporter and tested. If sampling is done on site and the solids do not designate as dangerous, place them in the regular trash.
- Keep complete records of wastewater maintained/discharged, and solids disposed of.

## Other Hull Cleaning

- At a boatyard, never rinse or wash vessel hulls outside the designated wash pad.
- Conduct compounding and waxing away from the water. Use non-petroleum waxes to avoid releasing petroleum into the water once the boat is launched.
- When removing tough stains, use only as much stain remover as necessary, or use a more abrasive rubbing or polishing compound. Puget Soundkeepers suggests a baking soda paste for stain cleaning. Wipe the remaining residue off with a damp cloth or wipe, rather than rinsing with water.

### Additional Tips for DIY and Do-It-At-Home Boat Owners

- If the boat is not hauled out at a permitted boatyard, wash the hull at a commercial car wash that collects and recycles or treats the wash water, preventing eventual release to water bodies. Similar to car washing at home, never wash a boat on impervious pavement.
  - Consider storing the boat in dry storage or above the water on a lift when not in use.
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### 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](#)

Washington State Department of Ecology, 2016. [Fact Sheet for NPDES and State Waste Discharge General Permit for Boatyards](#)

### Acknowledgment



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