Boat Bottom Washing: Regulations and Solutions

Boat maintenance activities include abrasive blasting, pressure washing, hull scraping and sanding, and hull painting. These activities can release paint chips, paint liquids, copper, zinc, lead and a host of other contaminants into surrounding land and waters. Aquatic life may ingest heavy metals, either killing them or allowing the introduction of these contaminants into the food chain. Contaminants that settle into bottom sediments can increase the cost of dredging by making it more difficult to find a suitable disposal site for the dredged material.

The North Carolina Division of Water Quality identifies pressure washwater as industrial (process) wastewater. Therefore, the discharge of pressure washing wastewater to surface waters, a storm sewer, sanitary sewer, or the ground is a regulated activity requiring a permit from the NCDENR, Division of Water Quality.

> State law N.C.G.S. 143-215.1 (a)(6) states that *no person shall cause or permit any waste, directly or indirectly, to be discharged to waters of the State (above or below ground) in violation of water quality standards.*
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> State rule 15A NCAC 7H.0208(b)(5)(N) guides the maintenance activities that take place in boatyards: "*Boat maintenance areas shall be designed so that all scraping, sandblasting, and painting will be done over dry land with adequate containment devices to prevent entry of waste materials into adjacent waters."*

All pressure wash facilities must develop a system to collect wastewater for treatment, recycling or offsite disposal. To meet requirements, significant pretreatment of the wastewater prior to discharge is required, regardless of the chosen discharge option (recycling, treatment or offsite disposal).

All pressure washing waste water must be collected and handled in an acceptable manner. Vessels must be washed over an impervious pad that can collect all wastewater and hull cleaning over the water must be prohibited.

Facilities will need to evaluate the number of boats washed (wastewater volume), site characteristics, sewer availability, cost, staff ability and other factors before selecting one of the following options recommended by the North Carolina Division of Water Quality:

<u>RECYCLE WASHWATER FOR REUSE:</u>

Recycle systems use one of the following methods to treat wastewater for reuse as washwater. The wastewater is collected without discharge through a closed loop recycle/reclamation system. Since the system is closed-loop, it does not require a discharge permit, operational permit or certification. However, a licensed hauler will have to periodically remove residual wastewater and solids. Another concern of recycling systems is odor, which can be controlled by recirculating water through a UV/ozone chamber when the system is not in use.

Note: Overspray must be controlled and is included in the wastewater collection and management requirements described above. This is especially important when using recycling equipment where contamination of the ground or surface waters may occur from spraying contaminated water.

DISCHARGE TREATED WASHWATER TO SEWER SYSTEM

A marina may be able to connect and discharge washwater directly to a sanitary sewer. This requires a permit from the local sewer authority or sewage treatment plant and pretreatment (using any of the above listed methods) before disposal. The sewer authority may require regular discharge monitoring and may require a certified operator to run the treatment system.

The following treatment technologies may be considered for pretreatment prior to hauling or sewer disposal:

Technology	How it works and effectiveness
Electrocoagulation	Wastewater travels through a series of cells which apply an electrical current to the wastewater stream. The resulting electromotive force allows certain compounds to approach a more stable state, which for elements and compounds, is typically a solid form. The solid forms of the contaminants are then removed by settling or filtration. Electrocoagulation systems remove contaminants within a range of influent pollutant concentrations. This process effectively removes emulsified oils and hydrocarbons, suspended solids, and heavy metals.
Filtration	Mechanically separates various pollutants from a waste stream. Filter media and manufacturers vary, and certain media are appropriate for particular compounds, so a marina must choose the most appropriate filter for their needs. For example, activated carbon filter media efficiently remove sediment and volatile organic compounds, but not inorganic compounds like metals. Salts are not removed by physical filtration and will build up over time. Therefore, filter cartridges must be replaced after periods of use and may occasionally need to replace used washwater with fresh water.
Chemical Treatment	Chemicals are added to a waste stream to remove particular pollutants of concern through chemical or mechanical processes. Examples include pH adjustment to neutralize wastewater, pH adjustment to facilitate the precipitation of metals or the addition of flocculants to improve settling of solids. The quantity of chemicals fed into the treatment process may change depending on the strength of pollutants entering the treatment system. Chemical treatment is generally effective; however, it can be cost prohibitive and require properly trained operators. If not recycled, the sludge can be dewatered and disposed as a solid waste following state hazardous materials laws.
Biological Treatment	Biological treatment uses bacteria that feed on organic materials, reducing pollutant load, specifically nutrients, biochemical oxygen demanding (BOD) substances, and oil and grease. Biological treatment is generally used to treat sanitary waste streams and requires a constant source of organic matter and therefore may not be suitable for treatment of wash wastewater.

HAUL WASHWATER OFFSITE TO TREATMENT FACILITY

Marinas construct or use existing impervious areas with berms to collect washwater. A licensed wastewater hauler then removes the collected waste for proper disposal in a permitted treatment or disposal facility. Requires an industrial wastewater holding tank that is in compliance with state regulations, which may include constructing a berm or double wall around the tank. May be most cost effective for smaller yards washing few boats.

CEASE THE ACTIVITY

Eliminating the boat washing service to cease the discharge of washwater may be the easiest and most cost-effective option for some marinas. This may depend on the number of boats washed, the amount earned from boat washing or the size of the marina.

OBTAIN A SEPARATE NPDES PERMIT

A marina may apply for a separate NPDES permit from the Division of Water Quality that will authorize the marina's washwater discharge. A marina with a separate NPDES permit will have to limit the mass and/or concentration of discharged pollutants, monitor discharges and submit monitoring reports. Marinas must pay an annual fee based on pollutant load. This is not a recommended option since water will need to have significant treatment in order to meet surface water standards. These discharging wastewater treatment systems require a licensed operator.

CLEAN MARINA BEST MANAGEMENT PRACTICES:

- Prohibit underwater bottom cleaning, hull scraping, or any in-water process that removes paint from the boat bottoms.
- Designate a boat maintenance area designed to minimize pollutant spread by containing all waste and wastewater. Activities restricted to this area should include abrasive blasting, pressure washing, hull scraping and sanding, and hull painting.
- Pressure-wash over a bermed impermeable surface that allows wastewater to be captured and filtered for proper treatment or disposal. Clearly mark designated work and pressure wash areas.
- Cover maintenance area with tarp when not in use to prevent rainwater from entering the area. Berm or curb the area to enclose materials to prevent runoff.
- Prevent overspray by performing abrasive blasting within an enclosure, windbreak or plastic tarp in the designated maintenance area.
- Collect pressure washwater: Do not discharge wash water. Pressure washwater should be collected for pretreatment prior to reuse, permitted discharge, or disposal. Vessels should be washed over an impervious pad that can collect all process wastewater.
- Treat water as industrial wastewater and dispose of properly (see above) or drain to storage tank for further recycling, treatment and disposal.
- Cover storm drains near the work area to prevent waste from entering the water system.
- Use dustless sanders. Encourage boaters and contractors to do the same.
- Collect maintenance debris daily such as sandings, paint chips, fiberglass, and dispose of properly. Clean up designated area prior to rain to avoid stormwater runoff issues.
- Minimize the amount of water used when boats are pressure washed. Use low volume, high pressure washing systems.

IMPORTANT NORTH CAROLINA CONTACTS

North Carolina Division of Water Quality h2o.enr.state.nc.us/	
DWQ Wilmington Regional Office 127 Cardinal Drive Extension Wilmington, NC 28405 910/796-7215	**DWQ Washington Regional Office** 943 Washington Square Mall Washington, NC 27889 252/946-6481

Information Resource:

New England Environmental Protection Agency (EPA) Virtual Tradeshow: Boat Pressure Wash Water
www.epa.gov/region1/assistance/ceitts/bpwvts/index.html