

# Marinas, Boatyards, and Ports

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Photo Credit: Geoff Brosseau

## Description

This category includes marinas, boatyards, shipyards, and ports that provide services for boats and ships – both public and private – including fishing fleets, excursion boats, and private fishing boats. Most of these facilities were required to obtain permit coverage under state and federal Phase I stormwater regulations. This guide sheet is intended to assist these facilities with permit compliance but does not supersede permit requirements. Ports often have the added responsibility of helping regulators ensure that Port tenants adhere to the stormwater regulations. Although tenants of Port facilities are often involved in water-related activities, virtually any kind of business can be operating at a Port so the full gamut of pollutant-generating activities may be of concern. Activities of concern that are unique to this category are:

- Boat and ship painting, cleaning, fueling, maintenance, and breaking
- Vessel operations
- Waterfront or over-water areas management
- Fish handling

Other activities of concern include:

- Vehicle and equipment maintenance, fueling, and washing
- Material and waste handling, storage, and disposal
- Leaks and spills
- Outdoor process equipment operation
- Building and grounds maintenance
- Building construction, repair, and remodeling
- Parking and storage area maintenance



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## Pollutant Sources

The following sources of pollutants are unique to this category or present unique challenges in this situation:

- Boat and Ship Building, Maintenance, Fueling, Repair, and Breaking
  - Wet and dry sanding
  - Sand blasting
  - Painting
  - Boat cleaning
  - Fueling
  - Changing oil and other fluids
  - Cleaning engines and parts
  - Flushing radiators
  - Hull repair products
  - Spills
  - Scrapping operations
  - Dumpster and trash can areas
- Vessel Operations
  - Vessel sewage
  - Bilge water
  - Loading / unloading
  - Waterfront or over-water areas management
  - Dry-docks maintenance
  - Non-Dry-docks containment
  - Collection facilities and recycling
  - Pier deck and floor cleaning
  - Inspections
- Fish Handling

Potential pollutants from these unique activities include:

- Heavy metals (copper, lead, tin, and zinc) - spent abrasive grits, anti-corrosive compounds, paint chips, scrap metal, welding rods
- Hydrocarbons (fuels, oils and grease, PAHs)
- Toxic chemicals (solvents, ethylene glycol, cleaners / detergents, resins, glass fibers)
- PCBs (electrical equipment (e.g., transformers and capacitors), hydraulic fluids, flame retardants, lubricants, paints, dyes, sealants, and plasticizers)

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- Asbestos (insulation)
- Trash
- Fish wastes

## Approach

Minimize exposure of rain and runoff to boat and ship building, maintenance, fueling, and repair areas as well as fish handling areas by using cover and containment. In and around these areas, use good housekeeping to minimize the generation of pollutants. Make stormwater pollution prevention BMPs a part of standard operating procedures and the employee training program. Provide employee education materials in the first language of employees, as necessary.

Pollutant-generating activities at these facilities require extra attention because many of the activities are conducted on boats and ships or on piers, docks, or wharfs directly over waterbodies. Apply good housekeeping, preventive maintenance, and cover and containment in and around work areas.

## Source Control BMPs

The best management practices are listed by activity or area. The focus of this guide sheet is BMPs for the unique areas and activities at marinas, boatyards, shipyards, and ports. Additional source controls for areas and activities that are not unique to these facilities can be found in the facts sheets in Section 3.

### Painting, Blasting, Sanding, and Stripping

#### Site Design and Management

- Conduct ship painting, blasting, sanding, or stripping in specifically designated areas designed to minimize releases.
- Pave work areas, preferably with concrete to allow easier removal of spills or wastes. Slope surface to allow capture of spills. Use catch basins with a valve that allow spills and releases to enter a dead-end sump. Use berms to minimize runoff of stormwater.
- Create a paint / spray booth to prevent residue from being carried into surface waters and into the air. New portable ship paint booths are being tested and may be commercially available soon.

or

- Use temporary controls such as:
- Use wind-blocking tarps to prevent dust and overspray from escaping.
- Use shrouds between the vessel and pier/shore to prevent spillage into the water. Shrouds should be cleaned frequently to prevent material from being blown into the water.
- Use plywood and/or plastic sheeting to cover open areas between decks when sandblasting (scuppers, railings, freeing ports, ladders, and doorways).
- Use drip pans, drop cloths, tarpaulins, or other protective devices in all paint mixing and solvent operations unless carried out in impervious contained and covered areas.
- Prohibit uncontained spray painting, blasting or sanding activities over open water.

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- Prohibit outside spray painting, blasting, or sanding activities during windy conditions that render containment ineffective.

## Collection, Cleanup, Storage, Recycling, and Disposal

- Use vacuum sanders that have dust-containment bags to remove paint from hulls and collect paint dust.
- Plug scuppers to contain dust and debris.
- Don't sand underwater or in a strong breeze.
- Wipe down small amounts of sanding dust with a damp rag.
- Clean up stripping wastes immediately to reduce potential releases from wind or stormwater.
- Collect spent abrasives regularly and store under cover to await proper disposal.
- Collect and properly dispose of wash water from washing painted boat hulls. Consider taking the boat to a local boat yard that is equipped to collect and treat wash water.
- Vacuum or sweep paved surfaces regularly.
- Do not hose down area.
- Dispose of empty solvent and paint containers properly.
- Dispose of lead-based paint residues in accordance with local, state, and federal guidelines.
- Do not pour out unused portions on the ground or down the storm drains. Use proper receptacles or disposal facilities for unused portions.
- Reuse blast material where possible.
- For boaters and tenants, provide:
  - Used paint disposal facilities
  - Paint stripping debris disposal area
- All paint and chemical strippers should be labeled and stored properly.
- Where necessary, regularly clean stormwater conveyances of deposits of abrasive blasting debris and paint chips, and dispose of waste properly.

## Waste Minimization

- Minimize volume of paints and chemical strippers purchased and stored to minimize waste.
- Minimize amount of material subject to wind or rain.
- Mix materials away from the water.
- Reuse solvents and thinners.
- Use brush or roller painting, rather than spray painting, where possible.
- Use water-based paints and solvents, where possible.
- Switch to longer lasting, less-toxic antifouling paints where possible.
- Enforce the prohibition on the use of TBT-based paint.

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- Support the use of environmentally compatible products.

## Boat Cleaning

- Do not allow in-water boat cleaning and encourage:
  - Frequent cleaning of hulls to reduce buildup of hard growth
  - Use of phosphate-free soaps and detergents
  - Use of alternative anti-fouling paints
  - Use of “natural” cleansers instead of solvents
- No soaps or detergents of any kind should be used to wash the topsides of boats where the wash water will enter a waterbody.
- Discourage the use of detergents containing ammonia, sodium hypochlorite, chlorinated solvents, petroleum distillates, or lye.
- Detergents and cleaning compounds used for washing boats should be phosphate-free and biodegradable, and amounts used should be kept to a minimum.
- Do not allow in-the-water hull scraping or any process that occurs underwater to remove paint from the boat hull.

(See fact sheet SC21 – Vehicle and Equipment Washing and Steam Cleaning for other information not unique to this business type)

## Fueling

- Have an employee supervise the fuel dock.
- Use automatic shut-off nozzles and promote the use of “whistles” and fuel/air separators on air vents or tank stems of inboard fuel tanks to reduce the amount of fuel spilled into surface waters during fueling of boats.

(See fact sheet SC-20 – Vehicle and Equipment Fueling for other information not unique to this business type)

## Maintenance

### Site design

- Minimize releases to surface water.
  - Provide space for onshore maintenance that is connected to oil/water separator or sanitary sewer.
  - Conduct hull repair and maintenance work in a drydock, whenever possible.
  - Cover work areas.
  - For new drydocks, provide full or moveable covers to prevent stormwater from entering work area.
- Provide adequate stormwater controls.
  - In uncovered drydocks, provide stormwater capture and pumping systems.
  - Pump stormwater to treatment system or sanitary sewer.
- For small vessels, provide and clearly mark designated work areas for outside boat repairs and maintenance. Do not permit work outside designated areas.

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- If work must be performed on a vessel while it is in the water, a tarp should be placed above the water surface underneath the work area to collect drips, spills, and loose solids.
- Sweep maintenance yard areas, docks, and boat ramps weekly to collect oils, trash, paper, glass, and other loose debris. Do not hose down the area to the water or a storm drain.
- Provide covered containers for solid waste that is generated within the facility to prevent direct discharges of trash into receiving waters.

## Maintenance Policies

- Decide what type and how much maintenance and cleaning (as a percent of boat surface area) will be permitted in slips. Require boaters and tenants to take larger projects to onshore or drydock facilities with proper equipment and pollution controls.
- Prohibit maintenance activities unless appropriate space is available.
- Require that engine parts be washed over a container or in a parts washer, not over water or ground. Dispose of wash water as a hazardous waste.
- Insert language into facility leases and contracts that requires tenants and contractors to use certain areas and techniques when conducting boat maintenance.
- Establish the rule – “Nothing is left on the dock, nothing goes in the water.” If nothing is on the dock, nothing can be knocked or blown over or off of the dock.
- Educate boaters, tenants, employees, and contractors of these policies.

(See fact sheet SC-22 – Vehicle and Equipment Maintenance and Repair for other information not unique to this business type)

## Spill Prevention and Response

- Each facility should have adequate oil spill response equipment that is easily accessible and clearly marked.
- Each facility should develop and maintain an oil spill plan.
- Inform your local harbormaster and fire department about your oil spill recovery plan and equipment.
- In the event of an accidental discharge of oil or hazardous material into the water or onto a deck or pier with a potential for entry into the water, immediately notify the yard, port, or marina owner or manager.

If a spill occurs:

- Stop source of spill immediately and contain liquid.
- If the substance spills near or in the water, use containment booms, as appropriate. Do not use emulsifiers or dispersants.
- As appropriate, cover spill with absorbent material.
- If spill is in an enclosed area, keep the area ventilated.
- Properly dispose of used oil spill response supplies.

(See fact sheet SC-11 - Spill Prevention, Control and Cleanup for other information not unique to this business type)

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## Ship Breaking

### Site design

- Minimize contact of rust or paint stripping debris with surface water.
  - Use drydock facilities whenever possible.
  - At a minimum, use dry-docks for final hull scrapping.
  - Provide shroud between ship and pier to minimize materials spilling into water.
- Cover work areas.
  - Outfit new dry-docks with cover.
  - Place tarp over work area where possible.
- Cover storage areas.
  - Provide covered storage for oily scrap materials.
  - Provide covered storage space for hazardous materials (e.g., PCBs, asbestos, lead-paint, TBT).
- Scrapping and storage areas should be paved where possible.
  - Provide stormwater runoff controls for scrapping and storage areas.
  - For new uncovered dry-docks, provide stormwater capture and pumping system.
  - Install oil/water separators to remove floatables.
  - Maintain oil/water separators.
  - Pump captured stormwater to sanitary sewer or treatment facility.
  - For uncovered scrap storage areas install oil/water separator to remove floatables and detention system to remove sediments and metal particles.
  - Provide berms/dikes around scrapping and storage areas to minimize runoff of stormwater.

### Scrapping Operations

- Cover work areas where possible.
- Provide tarps or solid covers, particularly in areas where fuels, lubricants, and other hazardous materials were used and stored.
- Remove fluids before starting scrapping process.
- Store fluids separately.
- Do not mix fuel, lubricants, and other chemicals together.
- Provide adequate spill response material at scrapping and storage areas.
- Clean up spills of fluids before scrapping.
- Clean up spills during scrapping process as they occur.
- Cover all fluids removed during scrapping operations.
- Cover oily scrap with tarp to eliminate stormwater runoff.
- Encourage operators to keep equipment tuned up and in good working condition.

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- Leaks should be identified and repaired.
- Provide shroud between ship and pier/dock to prevent materials from spilling into surface water.
- Clean shroud frequently to prevent material from being blown into the water.
- Clean work areas frequently.
- Remove dust and spills on a daily basis and before hull is breached.
- Remove asbestos in accordance with local, state, and federal regulations.
- Remove and dispose of sand blast residue in accordance with local, state, and federal guidelines.
- Do not sand blast over open water.
- Provide cover over work area and shroud under work area.
- Remove PCB-containing materials in accordance with federal, state, and local guidelines.
- Provide skin and respiratory protection for affected workers.

## Vessel Operations

### Sewage

- Install pumpout stations to receive sewage from onboard Marine Sanitation Devices (MSDs).
- Install a dump station, possibly located at the end of a pier, to receive sewage from portable or removable toilets (port-a-potty) typical on smaller boats.
- Ensure that pumpout facilities are available on weekend mornings and evenings when demand is high.
- Keep pumpout fees to a minimum to encourage use.
- Inspect pumpout stations routinely enough to ensure that the equipment is functioning properly. If it takes longer than 30-35 seconds to empty a 5-gallon bucket, the station needs servicing.
- Arrange maintenance contracts with contractors competent in the repair and servicing of pumpout facilities.
- Maintain a dedicated fund for the repair and maintenance of marina pumpout stations.
- Add language to slip leasing agreements mandating the use of pumpout facilities and specifying penalties for failure to comply.
- Enforce California's no discharge zone (no discharge of untreated sewage into any lake, river, reservoir, or coastal area) and federal "No Discharge Areas" (significant bays and harbors in California).
- Formally advise the local municipality that there is a pumpout facility available and provide pertinent information, such as times of operation and fees.
- Encourage the local harbormaster to enforce existing state and federal regulations pertaining to Marine Sanitation Devices and the illegal discharge of boat sewage.
- Educate boaters about the state and federal regulations, impacts of discharging untreated sewage, and the availability of pumpout stations.

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- Encourage boaters to use marina restrooms, not boat heads.
- Consider requiring new liveaboard tenants to have adequate holding tanks, not just portable toilets.
- Provide signage marking pumpout station locations, hours of operation, and operation guidance.

## Bilge Water

- Provide bilge pumpout stations connected to oil/water separator and sanitary sewer. Regularly inspect connecting hoses for leaks.
- Inform ship captains, boaters, tenants, and contractors that discharging bilge water contaminated with oil, fuel, or other regulated contaminants is illegal. Post location of the nearest bilge pumpout service, if the marina does not have one.
- Promote the use of oil-absorbing materials in the bilge areas of all boats with inboard engines. Encourage your tenants to examine these materials at least once a year, replace them as necessary, and recycle them if possible or dispose of them in accordance with petroleum disposal regulations.
- Keep low cost or no cost oil absorbent pads available for boaters and tenants to remove oil from bilge water. Dispose the pads as hazardous waste once they are saturated.
- Collect oil contaminated by water, fuel, or engine fluids for proper disposal. If the marina does not collect waste oil, post the location of the nearest collection facility.

## Loading / Unloading Vessels

- Use covered containers for loading / unloading materials and products.
- Cover materials stored outside.
- Use temporary barriers during unloading from vessels to contain runoff from pier deck.

(See fact sheet SC-30 – Outdoor Loading / Unloading of Materials for other information not unique to this business type)

## **Waterfront or Over-water Areas Management**

### Dry Dock Maintenance and Dry Docking

- Hang plastic barriers from flying bridge of the drydock, from bow or stern of vessel, or from temporary structures and place beneath hull and between drydock walls for containment.
- Weight bottom edge of containment tarps during light breeze.
- Cover open areas between decks when sandblasting (railings, scuppers, freeing ports, ladders, doorways, etc.).
- Sweep accessible areas of drydock to remove debris before flooding.
- Clean rest of drydock after vessel is removed and dock raised.
- Collect any wash water used and treat to remove solids and other potential pollutants.

### Non-drydock Containment

- Hang tarps from boat, fixed, or floating platforms and place under boats to reduce wind-blown pollutants and collect waste.

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- Pave or tarp surfaces under marine railways and clean before incoming tide.
- Haul vessels beyond high tide zone before work starts or stop work during high tide.
- Place containment berms around fixed pieces of machinery that use oil and gas within the facility.

## Collection facilities and recycling

- Provide receptacles for recycling used oil and oil filters.
- Provide proper and easily accessible trash disposal facilities to marina patrons. Because of the tendency for windy conditions in nearshore areas, covered dumpsters or other covered receptacles are preferred.
- Provide facilities for the eventual recycling of appropriate materials, such as glass, aluminum, plastic, trash, newspapers, and batteries.
- Clearly mark receptacles to minimize disposal of hazardous waste such as paints and solvents.
- Develop information packets for ship captains and boaters:
  - Identify solid waste facilities.
  - Prescribe acceptable waste handling procedures.
- Educate ship captains, boaters, employees, and contractors of the following requirements (MARPOL treaty):
  - No discharge of garbage (food wastes), plastics, trash (non-plastic), packaging, line, nets, or fish cleaning wastes within 3 nautical miles of United States coastline.
  - Boats over 26 feet must display MARPOL placard in a visible location
  - Boats over 40 feet must display the placard plus have a written waste management plan on board.
- Empty solid waste receptacles as often as necessary to keep up with disposal.

(See fact sheet SC-34 – Waste Handling and Disposal for other information not unique to this business type)

## Pier Deck and Floor Cleaning

- Monitor outdoor areas for dirt and debris.
- Clean regularly all accessible work, service, and storage areas to remove debris, spent sandblasting material, and any other potential stormwater pollutants.
- Do not dump or sweep debris and wastes into outdoor drains, between planking, or over the side of piers.
- Sweep and pickup rather than hosing down. If hosing is unavoidable dry sweep thoroughly first to collect potential pollutants prior to rinsing.
- Do not use soap or chemicals when rinsing down areas that drain into outdoor drains, between planking, or over the side of piers.
- Do not wash vehicles or equipment with soap or cleaners on pier decks or valleys that do not drain to the sewer system.
- Do not rinse fish wastes to outdoor drains or off the premises.

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- Immediately repair or replace leaking connections, valves, pipes, hoses and equipment that causes the pollution of stormwater.
- Immediately clean up any spillage on dock, boat, or ship deck areas and dispose of the wastes properly.

(See business guide sheet – Mobile Cleaning - Surface Cleaning for other information not unique to this business type)

## Inspections

- Conduct routine inspections of all work areas to ensure releases are minimized.
- Regularly inspect stormwater management devices such as traps and screens and remove captured spent abrasives, paint chips, and solids to ensure that these wastes do not get flushed into stormwater or receiving water.

## Fish Handling

- Clean fish offshore where the fish are caught and dispose fish waste at sea.
- Dispose of unwanted bait at sea or freeze and use on the next trip.
- Establish designated fish cleaning stations at the marina and boat launching sites and require fishermen to only use these sites to clean fish.
- Ensure that fish cleaning areas have ample covered receptacles for waste and are hooked up to the sewer system. Clean the stations frequently and make sure the collected waste is disposed of regularly and properly.
- Compost fish waste when possible. Contact a local extension service for information on locally applicable composting procedures and equipment and where supplies can be purchased.

## Education

- Provide information to marina tenants on collection and recycling programs for oil, oil-absorbing pads, and oil filters.
- Direct marina patrons to the proper disposal of all used hydrocarbon products through the use of signs, mailings, and other means.
- Insert language into facility contract that recommends tenants use fuel/air separators and oil absorption materials.
- Educate boaters, tenants, and employees about these best management practices.

## Treatment Control BMPs

- Direct deck drainage to a collection system sump for settling and/or additional treatment.
- For activities with high pollutant-generating potential, conduct the activity in a dedicated, self-contained area and direct the wastewater to the sanitary sewer (with the permission of the local wastewater authority).

For information on inspecting and maintaining treatment controls, see Section 4 of this handbook.

For information on designing treatment controls, see Section 5 of the New Development and Redevelopment Planning Handbook.

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## More Information

### Facility Owners and Operators

American Association of Port Authorities, 1998. Environmental Management Handbook, Section 6: Environmental Management Practices fact sheets ([http://www.aapa-ports.org/govrelations/env\\_mgmt\\_hb.htm](http://www.aapa-ports.org/govrelations/env_mgmt_hb.htm)).

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