

Best Management Practices (BMPs)  
for  
Recreational Boating Facility  
Operation and Maintenance



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## **Introduction**

Normal maintenance activities, including landscape maintenance, cleaning, and repairs associated with operation of boat ramp and dock facilities have the potential to degrade water quality or disturb riparian and aquatic habitat. Modification of riparian vegetation can result in negative short-term and long-term impacts to habitat values. Cutting, mowing, or removal of vegetation and large woody debris are common maintenance activities at some boating facilities.

These activities may alter or destabilize the beds and banks of waterbodies, and can also reduce shade, large wood supply, and other characteristics of riparian vegetation. Modification or loss of vegetation in the riparian area has the potential to destabilize the bank. Bank instability and resulting increases in sedimentation and loss of riparian vegetation can negatively impact the aquatic environment.

Since plants generally enhance soil stabilization, a vegetative buffer should be maintained between the facility and the waterway. This will also enhance habitat conditions by providing food for wildlife. Riparian vegetation outside the facility use area should be avoided and protected from damage.

Cleaning activities may introduce sediment, turbidity, and contaminants into the river. Water quality may be degraded in the short-term as a result of turbidity created by ramp cleaning and sediment removal. Polycyclic aromatic hydrocarbon (PAH) chemicals are commonly found in parking areas as emissions from motor vehicles and have the potential to degrade environmental quality. The presence of PAH in the aquatic environment may affect growth, survival, and reproduction of fish. Water quality may be degraded in the short-term as a result of leachates from concrete or treated wood. Alkaline leachates from uncured concrete can elevate pH in the waterway to levels that are lethal to fish. Toxic wood preservative compounds introduced into the water from treated wood structures can be harmful to aquatic species.

Facility maintenance, as well as dock and ramp repair activities, may add contaminants to the stream. Operation of power equipment requires the use of fuel and lubricants that could injure or kill aquatic organisms if spilled into the water or the riparian zone. Herbicides can enter the water from riparian areas where they are sometimes used to control vegetation. Exposure to herbicides can have detrimental effects on fish. Water contact with uncured concrete can elevate stream pH to toxic levels. All concrete repairs in close proximity to the water should be performed such that uncured concrete does not contact water or runoff. No herbicides should be used for vegetation clearing. No equipment maintenance or refueling activities should occur within or over the waterway.

Accepted best management practices appropriate to the project, including those described below should be incorporated in the operation and maintenance of recreational boating facilities to minimize their potential adverse effects on the waterway.

In spite of the best efforts to minimize operation and maintenance effects, short-term impacts may be unavoidable. In that case, such impacts should be limited in duration; occurring only when and where necessary to maintain the facility in a serviceable condition.

The goal of this document is to provide a reference for operators seeking to improve existing stewardship and maintenance efforts at boat dock and ramp facilities to protect the environment while ensuring the continued usability of the facility and maintaining its intended purpose and character of use.

## Stormwater Management

Runoff from impervious surfaces during rain events can transport oil and gas residue, chemicals, and contaminants, as well as garbage and pet waste runs across these surfaces and into surface waters either directly or through storm drains. At many facilities, boat ramps serve as a conduit to channel runoff into the stream. To protect water quality pollutant laden water should be treated prior to entering the waterway. Some facilities utilize various treatment methods, each of which has unique maintenance requirements. Appropriate BMPs should be employed based on the type of treatment used at the facility.

### General Facility O&M

- Sweep paved parking lots regularly instead of hosing them off.
- Use water-based paints rather than oil-based paints for pavement marking.
- Clean and maintain storm drains regularly.
- Use insect and disease resistant plants to avoid pesticide use.
- Do not apply herbicides or pesticides on windy or rainy days.
- Keep lawns mowed to suppress weeds.

### Swales and Vegetation

Vegetation planted as a buffer along the edge of pavement filters stormwater runoff by removing contaminants and soil particles before they reach surface waters. Facilities with such **vegetated filter strips** require regular maintenance. Reseeding, watering, fertilization and some mowing may be required to maintain the necessary dense growth of vegetation. Annual inspections should be conducted and rills, gullies and channels repaired as soon as possible.

**Infiltration areas** collect runoff so it slowly percolates into the surrounding soil, where pollutants are removed by adsorption, straining, and decomposition by bacteria in the soil. Debris, garbage and weeds should be regulatory removed from the infiltration area.

**Vegetated swales**, or bio swales, combine the functions of the vegetated filters and the infiltration zone. A vegetated channel removes particulates from runoff by trapping, filtering and while allowing infiltration of runoff into the soil. For proper filter function a dense cover of vegetation should be maintained in the swale. Regular watering, mowing, and reseeding, should be performed as needed. Grass and ground cover vegetation should be kept at a height of 4 to 6 inches to promote infiltration. Noxious, invasive, or nuisance vegetation should be removed according to applicable regulations.

Vegetated swales should be kept clean of trash and debris accumulation. Contaminants or pollution such as oil, gasoline, concrete slurries, or paint should be removed and disposed of according to applicable regulations. Inspect outfall pipes to make sure there is no blockage in or at the discharge end of the pipe.

### Storm Drains

**Trench drains, catch basins and oil/grit separators** are underground collection systems designed to remove trash, debris and a portion of the sediment and oil and grease from stormwater runoff. Grease, oil, and sediment trapped in these devices should be periodically removed. **Trapped catch basins** should be inspected periodically for sediment accumulation in the bottom of the basin. In areas with high sediment loads, inlets and basins should be inspected and cleaned after every storm. At minimum, they should be inspected monthly and cleaned four times per year. Accumulated material should be cleaned out of the bottom of the basin when it gets within 8” of the outfall pipe. Use an absorbent bilge pad to remove any evidence of floating hydrocar-

bon pollutants such as gasoline or oil from the basin. Accumulated sediment and hydrocarbons may be considered a hazardous waste in some areas. Check with local officials regarding applicable guidelines and regulations for proper disposal. Verify that the down-turned elbow or tee fittings are in place over the outfall pipe.

## **Docks and Pilings**

In the last century many of these structures were built with materials containing wood preservatives, which are toxic to aquatic life. Introduction of toxic compounds into the water degrades water quality and should be avoided. Use caution when removing, repairing or modifying structures containing wood treated with preservatives. Contain, collect and remove from the waterway all sawdust, drill cuttings, splinters, or pieces of wood removed during maintenance and dispose of it properly. Chemically treated wood may be classed as a hazardous material; therefore, dispose of the wood remnants in accordance with applicable waste disposal laws.

## **Flotation Materials**

Expanded polystyrene (EPS) foam is typically used for floatation in docks at all public boating facilities in Oregon. Damaged or degraded docks can expose floatation materials resulting in further degradation of the floatation materials and water pollution as well as loss of dock buoyancy. Repair or replace damaged docks as soon as possible. Contain loose foam particles and remove them from the waterway.

## **Deck Maintenance**

Modern docks are constructed of concrete or use composite decking materials; however, many older docks, which were constructed with wooden decking materials, are still in service. Though some facility operators apply paint or stain in an attempt to prolong the use of the old deck boards, research suggests that painting or staining do not significantly increase the service life of the materials. Since paints and stains can spill, drip, or leach toxic materials into the waterway, their use should be avoided when maintaining walkways and floats. Replace wooden decking with composite decking material as soon as the wood decking has reached the end of its service life.

## **Dock Cleaning**

Some facilities have docks and pilings where birds congregate, which leads to concentrations of excrement on the dock. Guano contains fecal coliform as well as high levels of ammonia, phosphorus, and nitrogen. Docks are often washed to remove the guano; however, the washing of docks to remove guano may degrade water quality. Introduction of contaminated wash water into the waterway may violate water quality standards and pollution laws.

Install and maintain pile caps and other anti-perching devices to minimize bird presence at the facility. If fewer birds spend less time at the site, there will be less feces fouling the dock. In lieu of washing the deck, employ sanitizing options, which posing little or no water quality threat, such as spraying feces with diluted hydrogen peroxide to kill bacteria.

## **Pumpout / Dump Station**

Inspect and maintain pumpouts regularly. To avoid sewage spills, if any unit exhibits leaks remove the unit from service until repaired. Post instructional signs illustrating proper pumpout use, including safe handling of sewage. When cleaning pumpouts, dump stations, and surrounding areas, contain and collect all wash water to prevent sewage from entering the waterbody. If pumpouts are not provided at the facility, post the location of the nearest pumpout facility.

## **Launch Ramp**

### **Boat Ramp Cleaning**

Normal operation and maintenance of public boat launching facilities in Oregon often includes the regular cleaning or removal of sediment deposits from the ramp. Allowing sediment deposits to accumulate on boat ramps limits the usefulness of the ramp and creates a public safety hazard. Only woody debris and recently deposited sediments will be removed during ramp cleaning. Large woody debris removed from the ramp may be used in habitat restoration projects when appropriate and practicable.

Removal of sediments will be kept to the minimum amount necessary to remove recently deposited materials. Additional channel widening or deepening and removal of existing woody vegetation will be avoided. All reasonable attempts should be made to perform the work using land based equipment. Water will not be used to remove sediment and excess sediment will not be allowed to enter the waterway. In accordance with the recommendations from NOAA Fisheries, all sediment and naturally occurring debris removed for access maintenance will be sidecast or returned to the water downstream from the structure where it will continue to provide aquatic habitat function. Other spoils and waste materials will all be placed above the bank line and not in any wetland area, in a Federal Emergency Management Agency designated floodway, or in any actively eroding area.

### **Floating Restroom Cleaning**

Proper and consistent maintenance activities should be employed to ensure that the restroom is clean, safe, and usable for boaters. This should include regular cleaning of the restroom, both inside and out. Fixtures and walls (bulkheads) should be washed and the floor/deck should be swept and mopped. Sweepings and wash water may contain trash, cleaning chemicals, sewage residue, or other potential contaminants that could degrade water quality and should not enter the waterway. Contain and collect all debris and wash water to prevent pollutants from entering the waterbody.

### **Transportation & Placement**

Normal operation and maintenance of floating restrooms often includes the periodic or seasonal removal of barge from the anchor site for maintenance, repairs, or winter storage. Allowing the barge to contact the lakebed or streambed at any time may destroy benthic habitat or resuspend sediments that could degrade water quality. The barge should never be stored or moored where the floating restroom would ground out on the bed or bank of the waterway. When the floating restroom must be removed from the waterway, it should be removed at a hard surface ramp using an appropriate transport trailer designed for launch, retrieval, and storage of the barge.

### **Additional Information**

Department of Environmental Quality

[Best Management Practices for Oregon Marinas](#)

<http://www.deq.state.or.us/wq/pubs/bmps/marinas.pdf>

Oregon State Marine Board

[Clean Marina Guidebook](#)

[http://cms.oregon.gov/OSMB/Clean/docs/entire\\_clean\\_marina\\_guidebook.pdf](http://cms.oregon.gov/OSMB/Clean/docs/entire_clean_marina_guidebook.pdf)

[Maintenance Assistance Program Manual](#)

<http://cms.oregon.gov/OSMB/BoatFac/Pages/docs/mapmanual/MapManualMain.aspx>