



Caring for Washington's Aquatic Resources

USING STATE AQUATIC LANDS WHILE PROTECTING THE ENVIRONMENT

As the steward of Washington's state-owned aquatic lands, DNR regularly researches and identifies practices to better protect the aquatic environment. We have recently updated several of our leasing policies that will help afford better care for *nearshore habitat*.

Why should we care?

The nearshore is the band of habitat between dry land and the deep water, which supports unique communities of plants, algae, and animals. Aquatic vegetation like kelp, seaweed, aquatic grasses, and other plants only can grow where the water is shallow or clear enough for sunlight to reach them. If the aquatic ecosystem were a building, the aquatic plants would be the foundation because they provide a multitude of species with food, habitat, and refuge from predators. Plants create oxygen, recycle nutrients and put roots down to hold the sediments in place. Like a building with a crumbling foundation, if the communities of aquatic vegetation are not healthy and abundant, the whole ecosystem can collapse. Unfortunately, the nearshore, where these plant communities grow, is the same area where most activities occur — docks, marinas, mooring buoys, boat ramps, and shellfish farms are almost always located in the nearshore.



Healthy communities of aquatic plants are important for many species.
Photo courtesy of King County.

Following is a description of five major impacts our activities can have on the nearshore environment.

Shade

Structures built over the water can cast large deep shadows that kill aquatic vegetation. The shade can also create a dark migration barrier for juvenile salmon and other fish. When young salmon come to large deep shadows with long straight lines they often swim around them into deeper water. This leaves them more vulnerable to the predators that live in deeper water. Juvenile salmon, rockfish, and other fish migrate along the shore, using nearshore vegetation for shelter from their predators. When vegetation is lost, there is less food and habitat for fish and erosion can also increase. To help reduce these impacts:

- Place overwater structures in deeper water where they will not shade nearshore aquatic vegetation.
- Remove unnecessary overwater structures.
- Modify existing overwater structures in the nearshore so that sunlight can pass through them or under them.

Water Movement, Waves, and Impacts to Sediments

Armored shorelines disrupt the movement of sediment and materials. Many shallow-water communities rely on the movement of sediment to replenish nutrients, bring in food, and carry away wastes. Boat wakes can create unnaturally large or frequent waves that can erode sediments. Too many piers and pilings can slow waves and currents, reducing or stopping the flows of sediment along the shore. In shallow water, boat props can scour the sediment from around the roots of plants or chop them up. To help reduce these impacts:

- Design new docks and other overwater structures and facilities so that shoreline armoring is not necessary.
- Replace existing hard armoring with a system that reduces negative impacts.
- Post 'no wake signs' to direct boaters to reduce wave heights along the shore.

- Design overwater structures so they minimize obstruction of currents and alteration of sediment transport

Crushing the Sediment Habitat

During periods of low water, some floating structures can crush the vegetation and animals that live beneath them. This happens when they repeatedly strike the bottom as they are lifted and lowered by the tide or during periods of low water. Driving vehicles over the sediments can have the same effect. When the sediments are compacted, they may not be able to support aquatic vegetation and the area becomes inhospitable to all but a few species. To help reduce these impacts:



Many human activities occur in the nearshore environment.

- Move structures to deeper water or design them so they cannot “ground out” on the bottom.
- Use embedded anchors and midline floats to minimize dragging of chains and ropes.
- Locate boat landings in areas where boats and barges do not run aground, and propellers do not disturb the sediments or aquatic vegetation.
- Wash gravel or shell that may be applied to the nearshore in an upland location where wash water cannot enter the waterbody.
- Exclude or limit vehicular and foot traffic in intertidal areas, and if allowed, use designated routes.

Contamination

All operations above, on or near the water run the risk of releasing contaminants into the water. Many chemicals, waste products, and even excess nutrients can kill organisms directly, or build up in the ecosystem causing chronic health problems. Often these spills are unintentional but the results are serious. The toxics are picked up by rainwater and deposited into nearby waters where they can pollute the aquatic environment. To help reduce these impacts:

- Design and locate facilities so water can freely flow to prevent the buildup of waste and sediment.
- Limit in-water repair and prohibit in-water hull scraping or any process underwater that removes paint from the boat hull.
- Prohibit refinishing work from on boats and temporary floats unless permitted by a National Pollution Discharge Elimination System (NPDES) permit.
- Use tarps to prevent dust, drips, and spills from entering the water.
- Provide sewage disposal facilities at marinas.
- Prevent contaminated runoff from entering the water.
- Keep sites clean of litter.
- Properly dispose of waste and contaminants.
- Use best management practices to exclude or eliminate pests, so pesticides are unnecessary.
- Wash gravel or shell that may be applied to the nearshore in an upland location where the wash water cannot enter the waterbody.
- Implement practices that prevent bark from rubbing off logs when they are in the water.

Noise

Noises caused by operations can traumatize fish, birds, amphibians, and orca causing them to leave the area or abandon their nests. This can cause a loss of foraging opportunities and lead to weight loss. To help reduce these impacts:

- Locate new facilities in deeper water away from the nearshore environment, and where possible, move existing facilities into deeper water away from the nearshore.
- Observe species work windows to minimize noise impacts at vulnerable life stages.
- Limit vehicular or foot traffic in shallow water and intertidal areas and use designated routes.