



Caring for Washington's Nearshore Environments

BALANCING AQUATIC LANDS USE WITH PROTECTING VALUABLE ECOSYSTEMS

As steward of Washington's state-owned aquatic lands, the Washington State Department of Natural Resources (DNR) regularly researches and identifies practices that better protect the aquatic environment. As manager of these lands, DNR authorizes more than 70 different kinds of uses. We have updated some of our leasing policies to afford better care for **nearshore habitat**.

Why focus on the nearshore?

The band of habitat between dry land and the deep water is called the "nearshore." This important ecosystem supports unique communities of plants, algae, and animals. Aquatic vegetation such as kelp, seaweed, aquatic grasses, and other plants can grow only where the water is shallow or clear enough for sunlight to reach them. Aquatic plants provide a multitude of species with food, habitat, and refuge from predators. Plants create oxygen, recycle nutrients, and put roots down to hold sediments in place. If the communities of aquatic vegetation are not healthy and abundant, the whole nearshore ecosystem can collapse.

The nearshore, where these plant communities grow, is the same area that people use the most for docks, marinas, mooring buoys, boat ramps, and shellfish farms.



Healthy communities of aquatic plants—such as eelgrass—are important for many species in the nearshore. Photo: King County.

The following describes the five major impacts that human activities can have on the nearshore environment, along with the DNR-required actions that will help reduce the impacts.

Shade

Structures built over the water can cast large, deep shadows that can kill aquatic vegetation by blocking out sunlight. 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 the deeper water. Loss of vegetation means less food and more damage to habitats with increased erosion. Juvenile salmon, rockfish, and other fish migrate along the shore, using the vegetation for shelter from their predators. To reduce these impacts:

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

Water Movement, Waves, and Impacts to Sediments

Armored shorelines (such as bulkheads) 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 the sediments. Too many piers and pilings can slow waves or 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 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 harm to the shoreline.
- Post ‘no wake signs’ to direct boaters to reduce wave heights along the shore.
- Design structures so they minimize obstruction of currents and alteration of sediment transport.
- Locate new facilities further from shore in deeper water.



Activities and development along the nearshore can affect the health of this valuable ecosystem.

Crushing 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 reduce these impacts:

- Move structures to deeper water or design them so they don’t crush the bottom.
- Use embedded anchors and midline floats to prevent or reduce 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 shells for aquaculture beds in an upland location where wash water cannot enter the waterbody.
- Exclude or limit vehicle and foot traffic in intertidal areas, and, if allowed, use designated routes.

Contamination

All the previously mentioned operations, 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. Rainwater runoff can pick up these toxic substances and deposited them into nearby waters where they can pollute the aquatic environment. To 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 underwater activity that removes paint from the boat hull.
- Prohibit refinishing work 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 shells for use in aquaculture beds 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 many operations can traumatize fish, birds, amphibians, and orca causing them to leave the area or abandon their nests or rearing areas. This can cause a loss of foraging opportunities and lead to weight loss. To 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 reduce the effects of noise during vulnerable life stages.
- Limit vehicle or foot traffic in shallow water and intertidal areas and use designated routes.