

Eelgrass

(*Zostera marina*)



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Overview

Eelgrass (*Zostera marina*) is a marine grass present throughout Puget Sound. Eelgrass communities provide valuable habitat for many marine animal and plant species along the shoreline.

Life history/ecology

Eelgrass is a perennial plant (not a seaweed) that grows submerged or partially floating in salt water. Eelgrass reproduces by spreading rhizomes (roots) and through seed germination. As eelgrass grows it forms large colonies or beds. Eelgrass blooms from June to August. The long slender leaves grow to ½-inch wide and up to 3-feet long. Eelgrass grows on muddy, sandy bottoms in the shallow subtidal zone down to approximately 22 feet. It does particularly well in areas without strong wave action. Eelgrass meadows build up in the spring and summer, then decay in the fall and winter. Dead eelgrass blades often wash up on the beach where their decay adds crucial nutrients to the nearshore environment.

Status

Puget Sound has lost an estimated 33 percent of its eelgrass beds since they were first inventoried. Department of Natural Resources data show the current extent of eelgrass beds along the Puget Sound shoreline.

<http://www.wa.gov/dnr/htdocs/aqr/nshr/>

Eelgrass functions and values

- **Base of the food web**—Eelgrass leaves and meadows provide a habitat and food for many marine species. Waterfowl, snails and urchins eat the leaves directly. Other algae species called “epiphytes” grow on the surface of the leaves. This algae supports a large number of grazing crustaceans such as amphipods, an important food source for juvenile salmon. Bacteria, fungus and detritus (dead animal and plant matter) form a brown coating on dead leaves, which then provides food for small invertebrates (such as worms, sea stars and clams).
- **Protection**—Herring are especially dependent on eelgrass for spawning. They lay eggs on eelgrass leaves and the young are protected within the eelgrass as they mature. During low tides, on tideflats, eelgrass beds hold moisture like a sponge, offering a safe, wet habitat for small creatures. With their extensive, intertwined root mats, eelgrass preserves the highly productive bacteria in the sediments which nourish many invertebrates by holding sediments in place and pumping oxygen below the muddy surface.
- **Erosion Control**—Eelgrass meadows cushion the impact of waves and currents, helping to prevent beach erosion. The ever-growing root mat traps and binds sediment together to stabilize the submerged portions of the beach.
- **Economic**—Fish and shellfish, which depend on eelgrass for all or part of their life cycle, account for a multimillion dollar industry in Puget Sound.
- **Human uses of eelgrass**—Eelgrass has historically been used by humans for food (seeds and roots), animal bedding, insulation, diarrhea medicine, compost and many other uses.

Threats to eelgrass:

Habitat alteration and pollution—Recreational, industrial, commercial and residential development continue to exert pressure on the shallow protected bays and estuaries required for eelgrass growth. Some of the major impacts include:

- **Dredging** intertidal and subtidal lands can destroy eelgrass beds either directly or by suffocation or interrupted light penetration from suspended sediments.
- **Upland erosion and construction activities** can increase sedimentation which can smother eelgrass.
- **Shoreline structures** built over the water prevent eelgrass from getting enough light to grow.
- **Increased water temperature** in rivers can harm or kill eelgrass close to the river mouth.
- **Pollutants such as oil** can cause eelgrass plants to lose their leaves.
- **Excessive nutrients** accelerate algae growth on eelgrass blades, blocking out light.
- **Herbicides** used on land can kill or damage eelgrass.
- **Invasive exotic plants**, such as cordgrass *Spartina spp*, the brown algae *Sargassum muticum* or the Japanese eelgrass *Zostera japonica* crowd and displace native plants.



Photo courtesy of Dept. of Ecology

Protection efforts

- **Regulatory**—Improved and updated environmental laws have slowed the loss of eelgrass, but the pressure of development continues. Since the 1980s, habitat managers have increased protection for eelgrass due to its importance as habitat for fish and wildlife and its vulnerability to shoreline development. Currently, resource managers have adopted a “no net loss” policy for eelgrass.
- **Restoration**—Transplanting eelgrass is being tested. Scientists are learning to construct new eelgrass beds and restore beds in degraded areas.
- **Voluntary**—Alternative construction practices for docks that allow sunlight to reach eelgrass beds are being developed. Many shoreline property owners are minimizing shoreline alterations to preserve natural shoreline conditions. Many local shoreline regulations encourage landowners to share docks to reduce construction.

Sources

- Port Townsend Marine Science Center Eelgrass fact sheet
- Washington Department of Ecology web site, www.ecy.wa.gov
- Plants of the Pacific Northwest Coast, Jim Pojar and Andy MacKinnon, Redmond, WA 1994
- Snohomish County Marine Resource Committee

Much of the text for this fact sheet came from Snoh Co PW, SWM fact sheet