WASHINGTON STATE DEPARTMENT OF
Natural Resources
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Why Eelgrass and Eelgrass Monitoring are Important

Why are Eelgrass Beds Important?

Eelgrass beds are important habitats in marine and estuarine waters because they are home to many small organisms that are food for larger species and they provide protective cover for migrating salmon, other fish, and many other kinds of marine life. Eelgrass supplies organic material to nearshore areas and its roots stabilize the sediments.

Why Monitor Eelgrass?

Eelgrass and other seagrass species are used as an indicator of estuary health throughout the world because they respond to many natural and human caused environmental variables. Changes in abundance or distribution of this resource are likely to affect other species that depend on eelgrass habitat. Abundance describes the total amount of resource and it is measured by calculating percent cover within a bed, or basal area coverage. Vertical distribution is best characterized by measuring maximum water depth of eelgrass beds, which is an integrative measure of light quantity and quality available to the plants. Tracking changes in both these parameters over time will help us capture how this resource is changing.

What affects eelgrass beds?

Eelgrass, like other plants, needs light, nutrients, and the appropriate substrate to grow and thrive. Light availability and quality is one of the most important factors controlling growth and distribution of eelgrass beds. Light in the water column is a function of the amount of sunlight available and the water clarity and quality. People's actions, climate changes, and extreme weather events can affect water quality. Two main factors that control light in the water column are nutrients and suspended sediments; both have marine as well as land based sources. The relationship between nutrients in marine waters and eelgrass is complicated. Eelgrass primarily uses nutrients in the substrate for growth. However, excess nutrients in the water column, (often due to runoff of excess fertilizer) can spur the growth of algae on eelgrass leaves and in the water column. This presence of algae can limit eelgrass growth by reducing the amount light that reaches eelgrass leaves. In Puget Sound suspended solids such as silt and other particles in the water column also reduce light availability. Suspended solids come from erosion runoff, dredging activities, rivers, and storms. Bottom type, wave energy, and other environmental conditions also determine the amount and distribution of eelgrass in Puget Sound. One recent concern is physical alteration of the shoreline to protect or support shoreline property developments (see related indicator. The resulting structures can increase wave energy and alter bottom type creating nearshore areas less able to support eelgrass beds.

STATUS

Based on the first year of a new eelgrass (Zostera marina) monitoring project, the state Department of Natural Resources estimates that there are approximately 26,000 acres (nearly 41 square miles) of eelgrass in Puget Sound.

Eelgrass beds are divided into two habitat types. A significant amount of eelgrass occurs in "flats", which can be large shallow embayments or small pocket beaches. Close to one fifth of all the eelgrass in Puget Sound grows in one large flat, Padilla Bay.

Eelgrass also occurs in narrow fringing beds along steeper shorelines. These fringing beds can be corridors for migrating salmon and other wildlife. About one-half of all eelgrass in Puget Sound occurs in these fringing beds. In Puget Sound the maximum depth to which eelgrass grows can be as shallow as 2.5 feet below the low tide line (MLLW) to greater than 30 feet deep. Much of the eelgrass in Puget Sound is subtidal; half of the 67 areas sampled for this monitoring program had eelgrass extending to depths greater than 10 feet below the low tide line.