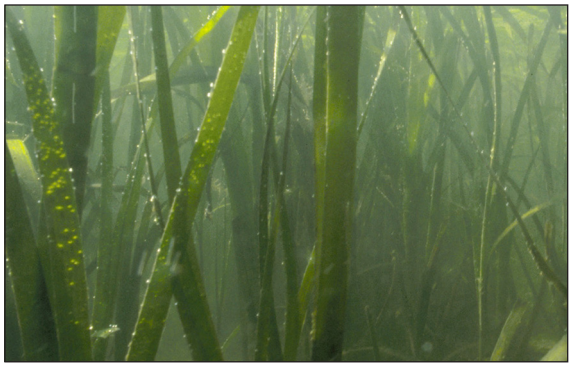
Eelgrass Species in Willapa Bay and Grays Harbor



	Native Eelgrass (*Zostera marina*)	Nonnative Eelgrass (*Zostera japonica*)
Distribution and Habitat	• **West Coast native** with a broad geographic range, including temperate latitudes along the Pacific and Atlantic Oceans • About **16-32% of Willapa Bay** is covered in native eelgrass. • **High subtidal and low intertidal** zones, frequently co-occurring with oyster aquaculture • Some spatial competition with nonnative eelgrass in Willapa Bay	• **Introduced species** historically found from Vietnam to northern Russia that arrived in Washington State in the 1950s • **Class C noxious weed**, which allows for legal removal • About **8-13% of Willapa Bay** is covered in nonnative eelgrass • **High intertidal** zone, frequently co-occurring with clam aquaculture
Conditions	• Tolerant of a wide range of temperatures (0-40°C), but **optimal temperature is 10-20°C** • Tolerant of a wide range of salinities (10-40 ppt), but **optimal salinity is 10-25 ppt** • **Optimal tidal velocity is 3.5 knots** — fast enough to prevent algae growth, but slow enough to prevent uprooting and erosion	• Tolerant of a wide range of temperatures (0-40°C), **but optimal temperature is 18-23°C** • Tolerant of a wide range of salinities (10-40 ppt), **but optimal salinity is 23-31 ppt**
Growth	• **Rapid growth**, especially during spring and summer months • Native eelgrass in Willapa Bay **can grow up to 3% per day** • **Light availability is one of the greatest limiting factors** for growth (not enough light can limit growth and too much light can lead to dessication) • Other environmental factors that affect growth in Willapa Bay, specifically, include currents, wave exposure, dessication, tidal height, and salinity	• **Light availability is one of the greatest limiting factors** for growth (not enough light can limit growth and too much light can lead to dessication • Other environmental factors that can affect growth include currents, wave exposure, temperature, salinity, and desiccation
Reproduction	• **Populations in Willapa Bay can be perennial or annual and can reproduce sexually or asexually through clonal branching** that ramps up in early spring • Asexual reproduction occurs through clonal branching that ramps up in early spring • Sexual reproduction occurs by germinating seedlings and producing flowers in late spring, then releasing new seeds in August	• **Populations tend to be annual in Willapa Bay**, and **reproduce sexually by germinating seedlings** in April **and producing flowers** that peak in August • Some populations are perennials that reproduce asexually through clonal branching
Threats	• **Sedimentation** and increased turbidity that decreases light • **Shading** from overwater structures and/or other organisms • **Mechanical disruption** to plants or sediments • Eelgrass wasting disease (for *Z. marina* specifically)	• **Sedimentation** and increased turbidity that decreases light • **Shading** from overwater structures and/or other organisms • **Mechanical disruption** to plants or sediments

continued

Resilience to Disturbance

- **Annual variability in eelgrass coverage is high, but consistent at the landscape scale** over time in Willapa Bay
- Healthy eelgrass beds **can recover from significant short-term disturbance**, but multiple and/or long-term stressors can cause lasting impacts
- **Shoot removal can lead to increased reproductive effort** in remaining perennial and annual plants; but **damage without full removal decreases productivity until leaves regrow**.
- **High seed production** grants resilience by this species

For more information contact Nicole Naar, Social Science and Education Specialist at Washington Sea Grant at nanaar@uw.edu

Interim funding for the Willapa-Grays Harbor Estuary Collaborative has been provided by the Washington State Department of Commerce and the Washington State Department of Agriculture.

Washington Sea Grant
3716 Brooklyn Ave NE
Seattle, WA 98105
seagrant@uw.edu
wsg.uw.edu
WSG-MR 23-04