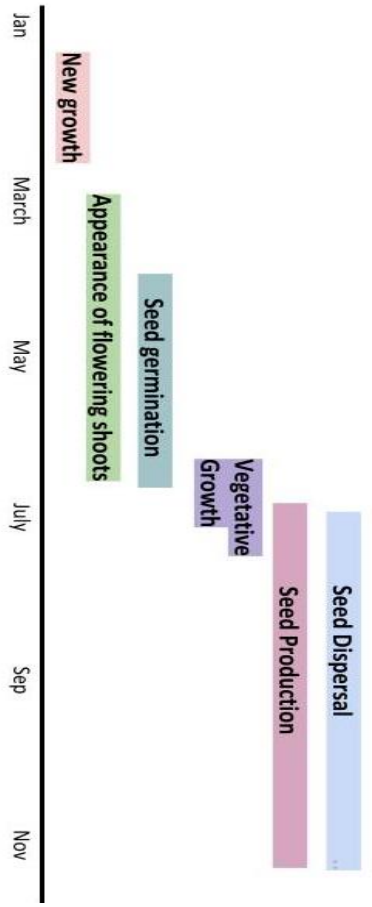
What:

Zostera marina is a marine flowering plant. This means in addition to growing laterally through rhizome expansion it reproduces sexually similar to the way many land plants do through pollination followed by flower, fertilization, and seed development and dispersal. These plants often form dense canopies that are very important to the productivity of the ecosystem. While the leaves are commonly grazed upon by waterfowl, such as the Black Brant. Eelgrass is commonly valued as an ecosystem engineer, meaning it builds habitat for other organisms. Its signature long vertical leaves act as an excellent cover for small fishes and invertebrates. The surface area of these leaves is also home to the other major producers in this habitat, such as *Smithora naiadum* an alga that grows on eelgrass leaves

When:

Like other flowering plants, the time of year determines how they look. Flowering only occurs for a few months of but vegetative growth continues throughout the year.



Zostera marina (eelgrass)

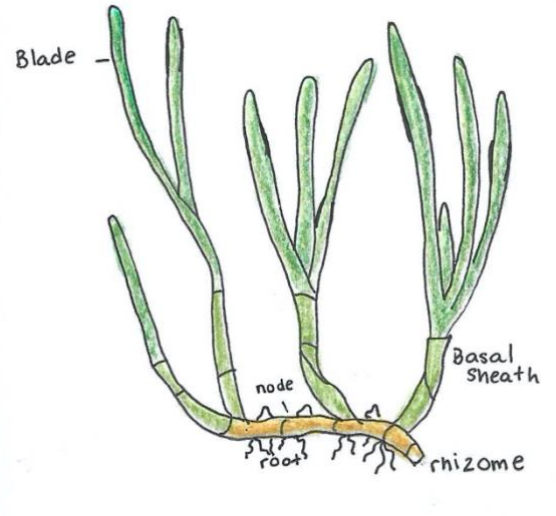


Figure 1. Eelgrass Anatomy

A profile by Isabella Brown

Advised by
Dr. Sandy Wyllie Echeverria

How:

Figure 1 illustrates the different plant parts. As shown in the figure leaves grow vertically from the rhizome into the overlying water and form a dense canopy for nursery, spawning and foraging sites. When the plants flower however, the leaves become more cylindrical in shape and also have branches. Flowering structures or shoots grow within the branches. The flowers have two parts: the anthers that produce pollen and the pistil that receives pollen. The areas that receive pollen then develop into ovules (the structure that protects the seed as it develops). Once seeds develop, they are released into the marine environment, they then settle into the sediment and begin to grow into adult plants themselves.

Our Project:

To work to restore these populations we harvest flowering shoots in early summer from healthy communities. These flowering shoots are then stored in cultures at Friday Harbor Laboratories (FHL) for about 40 days. This gives the seeds time to fully develop and be "dispersed" into the bottom of our culture system. We then collect these seeds and distribute them into the areas we are working to restore.

Why:

Conservation and restoration projects are a huge part of biology and are necessary to restore damaged populations. *Zostera marina,* commonly known as eelgrass populations have decreased in size and density in Westcott and Blind Bays since investigations in 2003. Our objective is to restore eelgrass in these Bays to bring back the important functions such as nursery and spawning sites that were lost. For example: Pacific herring spawn on eelgrass leaves. The eggs and young fish they produce are an important food source for other species, such as juvenile chinook salmon that live in the habitat provided by the eelgrass canopy. Adult Chinook Salmon are important in the diets of the Southern Resident Killer Whale. In sum, preserving the eelgrass ecosystem is important to the health of the Salish Sea.

Where:

Figure 2. Eelgrass Distribution.

on this map of the San Juan Islands the green shows places where eelgrass beds are found.

Eelgrass is an important habitat for North-Pacific coast estuaries. This plant often grows in flat bottomed silty or sandy areas. Here in the San Juan Islands eelgrass beds can be found in many shallow bays. Such as Griffin Bay and Westcott Bay on San Juan Island, and Blind Bay on Shaw Island. However, these plants also grow thorough Northern Hemisphere in coastal waters.