

Does a Non-native Seagrass Modify its Environment?

What is Japanese Eelgrass?



Native Eelgrass

Japanese Eelgrass (*Zostera japonica*) is a seagrass - a rooted, marine flowering plant. It is a member of the same genus as our most common native seagrass, eelgrass (*Zostera marina*). Japanese Eelgrass is native to Asia, and was likely introduced to the Pacific Northwest with oyster aquaculture.

Both the native and introduced eelgrasses inhabit sandy and muddy sediments in the Puget Sound. Japanese Eelgrass is smaller than our native eelgrass, and tends to live at higher tidal elevations.



Japanese Eelgrass

How would a Seagrass Modify its Environment?

Seagrass leaves tend to slow down the flow of water, which can lead to increased settlement of particles in the water column, decreased erosion, and locally increased elevation. These changes may in turn affect the growth of the seagrass and other organisms.

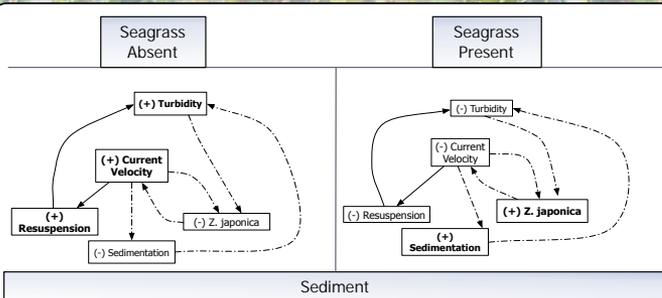


Figure 1: Adapted from Madsen, et al. 2001. Conceptual model of the impacts of seagrasses on physical processes. Solid lines indicate positive interactions and broken lines indicate negative interactions.

Hypotheses:

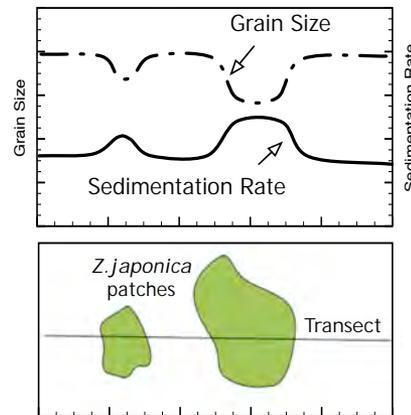
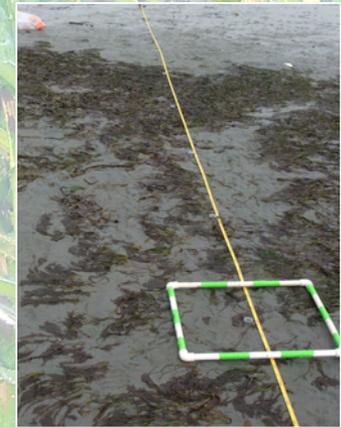


Figure 2: Bottom panel shows an aerial view of two vegetated patches intersected by a transect. Top panel shows predicted variation of grain size and sedimentation rates along that transect.



My Objectives

Determine whether or not Japanese Eelgrass influences the topography and spatial distribution of sediments in the nearshore environment.

My Approach

- Compare sedimentation rates inside and outside of patches of Japanese Eelgrass.
- Compare the grain size of sediments inside and outside of patches of Japanese Eelgrass.
- Compare changes in elevation during the growing season in vegetated patches to changes in denuded patches.

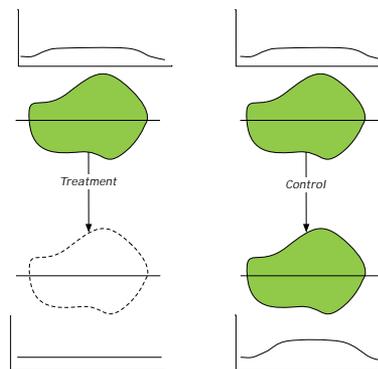
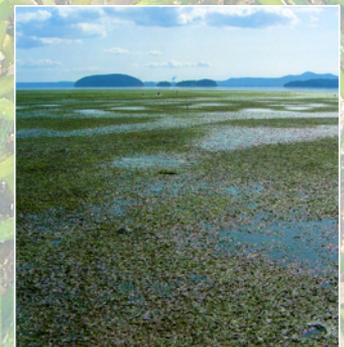


Figure 3. Expected impact of experimental seagrass removals on the topography of Japanese Eelgrass patches. Line graphs represent an elevation profile along the transect shown in aerial views.



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