

# Mountains or Molehills?

## The Importance of Topography in an Estuarine Invasion

### Not From Around Here



Introduced Dwarf Eelgrass

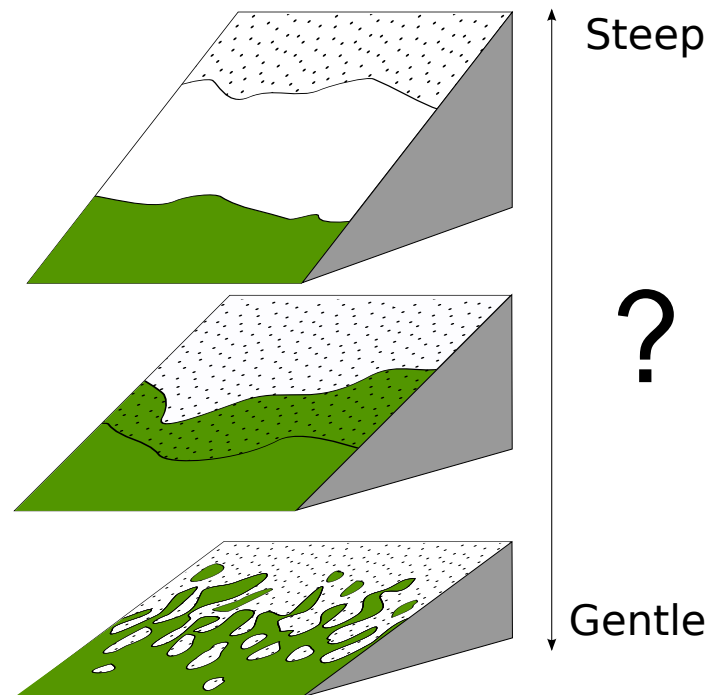
Intertidal mudflats from British Columbia to Northern California have been invaded by dwarf eelgrass, a plant from Asia. It is closely related to our native eelgrass, which is a critical part of the Puget Sound ecosystem. We believe that dwarf eelgrass was accidentally introduced around the beginning of the 20<sup>th</sup> century, with shipments of Pacific Oysters. Natural resource managers are concerned about how this plant will affect the lucrative aquaculture industry in Washington, and whether it will harm our native eelgrass.



Native Eelgrass

### Where Does it Grow?

It depends... Dwarf eelgrass grows on sandy and muddy shorelines and bays, between high and low tide. It tends to grow closer to high tide than our native eelgrass. On some shorelines, the two species are completely segregated at different elevations, but on other shorelines they co-occur at the same elevations. At some locations where they co-occur, the two species are well mixed, but at others they form a segregated patchwork.



Other scientists studying these plants hypothesized that the shape of the shoreline may determine where these plants occur<sup>1</sup>. We are comparing the elevation range of these species to the morphology of the shoreline, so see if topography can explain the different growing elevation patterns.

1. Shafer, D. 2007. Physiological factors affecting the distribution of the non-indigenous seagrass *Zostera japonica* along the Pacific coast of North America. Page 128. University of South Alabama.



### Why the Patchwork?

Where mudflats have enough microtopographic relief to create tidepools, the native eelgrass is found in these pools, and the introduced dwarf eelgrass is found on adjacent mounds that are dry at low tide. By transplanting each species by itself, and with the other, into these pools and mounds, we found that the native eelgrass can outcompete the introduced dwarf eelgrass in tidepools, but it cannot survive for long on mounds. The introduced dwarf eelgrass can survive in either environment, as long as the native is not there.

