

Macroalgae, Pore Water Sulfides and Eelgrass in Yaquina Estuary, Oregon

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Abstract

The hypothesis that relatively high nutrients in estuaries of the Pacific Northwest (PNW) can lead to eutrophication and degradation of critical eelgrass habitat was examined. Yaquina estuary was surveyed for cover and above-ground biomass of benthic macroalgae (*Ulva* spp.) and native eelgrass (*Zostera marina*), and surficial sediment pore water sulfide concentrations were measured. Vegetation extent was measured from aerial photographs. Aquatic vegetation also was surveyed in other coastal estuaries of the PNW. Yaquina estuary had one of the highest levels of macroalgal percent cover and biomass on the coast. Ground surveys conducted between 1999 and 2002 revealed relatively high spatial and temporal variability in both macroalgal abundance and surficial sediment pore water sulfides within Yaquina estuary. Inter-annual variation of peak season macroalgal biomass was high at one site, and correlation to eelgrass biomass there was examined. The importance of sediment condition is emphasized, and possible effects of high pore water sulfides on other benthic taxa (amphipods, shrimp, mollusks) also are discussed. The aerial surveys conducted between 1997 and 2007 revealed no significant change in extent of native eelgrass over the decade. Neither high macroalgal abundances nor pore water sulfides appear to have degraded the native eelgrass population.

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