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A Comparison of the Ecology and Effects of Two Species of Thalassinidean Shrimps on Oyster Aquaculture Operations in the Eastern North Pacific

Two species of thalassinidean shrimps, the mud shrimp *Upogebia pugettensis* and the ghost shrimp *Neotrypaea californiensis*, inhabit intertidal areas in estuaries along the west coast of North America where commercial aquaculture of the pacific oyster *Crassostrea gigas* also occurs. Despite their important ecological role in estuaries, both species are treated equally as “pests” by the shellfish industry due to their general ability to disrupt and cover oysters with sediment. We found distinct differences in their life history characteristics and amount of sediment produced that should be considered in the control plan that the shellfish industry implements.

U. pugettensis is a filter feeder, builds a well defined mucous lined burrow, produces only a moderate amount of sediment (4.1g/shrimp/day) and reproduces during the winter releasing larvae into the water column in the spring. *N. californiensis* is a deposit feeder, produces a much more expansive but less defined burrow as it feeds, and therefore more sediment (49.1g/shrimp/day) and reproduces during the late spring releasing larvae in summer which recruit to the estuary after control operations have occurred. Results of experiments confirmed that *N. californiensis* is therefore a much more significant threat to oyster aquaculture operations than *U. pugettensis*, and less susceptible to control via the current pesticide application program. We also present data on long term recruitment of both species to Willapa Bay, Washington (where over 50% of the states oyster aquaculture takes place) and suggest strategies to be incorporated in the control program.