Pisaster Disaster: Population Infection Dynamics of Sea-Star Wasting Disease in Pisaster ochraceus

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Pisaster ochraceus is a keystone-predator of coastal pacific North America. Over the past two years it has undergone an outbreak of sea star wasting disease (SSWD) caused by sea star associated densovirus (Hewson et. al. 2014). The aim of this study was to determine if there was a relationship between 2012 Pisaster ochraceus densities and prevalence of SSWD. Furthermore, the study tested the hypothesis that the three color morphs of Pisaster ochraceus are differentially susceptible to the disease. Nine sampling points at five different sites on the Oregon Coast were relocated using GPS coordinates. Color and disease class of all Pisaster ochraceus individuals within two meters of each 50-meter transect was recorded. 2014 data about disease class and color morphs was compared with data collected two years ago, prior to the outbreak of SSWD. Locations that had higher densities of sea stars in 2012 had higher rates of infection and greater declines of healthy sea stars in 2014, supporting the hypothesis that the pathogen's transmission is dependent on host density. While the percent composition of orange and brown color morphs did not change significantly between 2012 and 2014, purple color morphs declined 50% from an average prevalence of 6.0% in 2012 to 3.0% in 2014 ($p<0.01$ paired sample T-test). These observations suggest that color morphs may have different susceptibilities to SSWD.

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