

## **Population density, den choice and prey preference made by red octopus, *Octopus rubescens*, collected from Admiralty Bay, Washington, in July 2011**

There is limited baseline information on population densities and natural habitat/prey choices for many species of octopus, organisms that may be key indicator species regarding future climate change. This study provides answers to the following questions: 1) what is the density of a specific population of *Octopus rubescens* in Admiralty Bay, WA; 2) do individual *O. rubescens* show preference for the 'home' bottle (den) they were collected in; 3) do individual *O. rubescens* show a preference for dark or clear bottles in a laboratory setting; and finally, 4) do *O. rubescens* show a prey preference for locally available crab (*Hemigrapsus oregonensis*) or shrimp (*Pandalus* spp.). A transect system facilitated the 2D mapping of bottle dens in the field via scuba, while the remaining experiments were conducted in a laboratory setting. The population survey indicated the density of the octopus were 0.04 octopus m<sup>-2</sup> (1 octopus 26.3 m<sup>-2</sup>). Food preference tests indicate that there was no significant preference for the crabs or shrimp. There was a significant preference for both 'home' bottles and dark bottles in laboratory tests. However, field observations during the density survey at this location indicate there is no discernable preference for dark or clear bottles. These results provide additional information towards understanding the biology and ecology (densities, food and habitat preference) of a very popular marine organism in the Pacific Northwest. Such information may be integral to the survival and protection of this species along with its management and conservation.

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