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Title of abstract: Behavior-dependent predation risk in marine planktonic copepods: an experimental and modelling approach

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Zooplankton exhibit different motile behaviors related to feeding, swimming and mate searching. These differences in motility may imply different levels of predation risk, which may partially determine the structure of pelagic communities. However, empirical evidence and predictive models on the influence of zooplankton behavior on predation risk are limited. Here, we experimentally test a behavior-dependent encounter model that considers fluid signal generation and perception as well as encounter velocities to predict predation risk in planktonic copepods. We use prey and predator motility characteristics obtained by low and high-speed video-observations as input to the model and conducted bottle incubation predation experiments to determine predation risk associated with i) differences in feeding strategy (active vs. passive feeders) and with ii) gender differences in mate searching behavior. We used the copepods *Centropages typicus*, *Paraeuchaeta norvegica*, *Metridia longa* and *Aetideopsis armatus* as predators on males, females and different life stages of the passive feeding copepod *Oithona nana*, and active feeding *Temora longicornis* and *Centropages hamatus*. Observed predation risk varied significantly with behavior and was well predicted by our model. Specifically, we found higher predation risk for copepods with active compared to passive feeding strategies, and higher predation risk in mate-searching males than in females. The highest gender-difference in predation risk was found in ambush feeding *O. nana*, where the males spend a significant fraction of their time searching for passively feeding females. Overall, our results demonstrate that motile behavior is a key factor affecting predation risk in zooplankton.