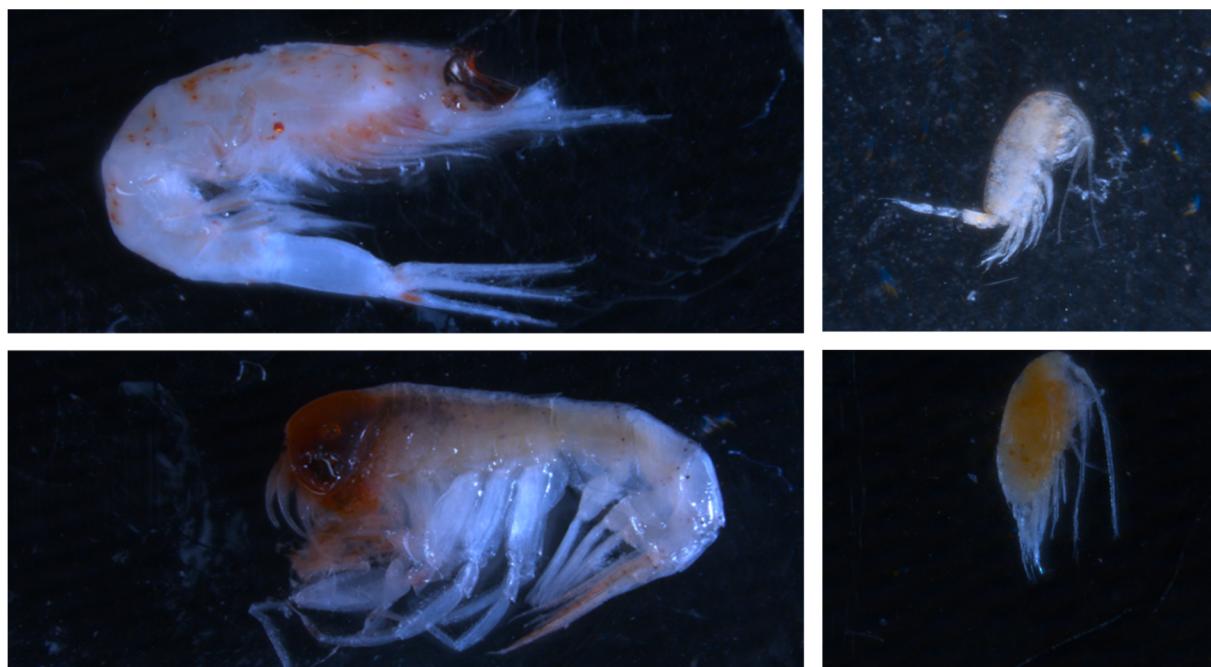


## Have some mesopelagic fish selectivity towards bioluminescent prey?

The mesopelagic (also known as twilight zone) is the region of the ocean between 200 and 1000 m depth (Sutton 2013). Recently, Kaartvedt et al. (2019) suggested an alternative definition considering light conditions, being the region that covers absolute light intensities ranging from  $10^{-9}$  to  $10^{-1}$   $\mu\text{mol quanta m}^{-2} \text{ s}^{-1}$ . As result of the extensive diel migrations, mesopelagic fish play a key role as mediators in the vertical transport of carbon, feeding in surface waters and excreting their feces at mesopelagic depths (Davison et al. 2013; Robinson et al. 2010). However, not all the mesopelagic species migrates at night (see for example Watanabe et al. (1999)). At depths where sunlight never penetrates, a large number of organisms retain functional eyes to detect the bioluminescence (Widder 1999). But it has been suggested that the mesopelagic zone provide conditions for visual foraging at large depths (Kaartvedt et al. 2019).



Zooplankton found in stomachs of mesopelagic fishes.

### Methods

In this Master project, we will hypothesize that mesopelagic fish with small eyes have prey selectivity towards bioluminescent prey. We will test this hypothesis examining the feeding selectivity comparing the composition of the zooplankton population with stomach contents of several mesopelagic fishes with different eye size. Laboratory work will be optional.

**Research environment:** The master project is hosted by the Institute of Marine Research, Bergen with main supervisors there. The student will also be affiliated with the Theoretical

Ecology Group <http://bio.uib.no/te/> at Department of Biological Sciences, University of Bergen.

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