

Long-term trends and seasonal patterns for *Calanus finmarchicus* and *Calanus helgolandicus* in the Coastal Water off southwest Norway during 1996-2012

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Calanus finmarchicus and *Calanus helgolandicus* are dominant copepod species in Norwegian coastal waters, playing a key role in the ecosystem by channeling energy from primary producers to organisms on higher trophic levels. Along with a warming of the ocean, the spatial distribution of the temperate *C. helgolandicus* is believed to expand northward into the Norwegian Sea, while that of the sub-polar *C. finmarchicus* is believed to retreat in the same direction. The objective of the project Effects of climate change on the *Calanus* complex (ECCO) is to improve our understanding of and to quantify the dynamics of the *Calanus* species under climate change. As a part of this project we investigate a 17-year time series (1996-2012) collected from 3 stations located at about 62 °N in the Coastal Current off southwestern Norway. In this study we focus on copepodite stage 5 (CV) and adult females (CVIf) of both *Calanus* species. We extract and present long term trends, seasonal cycles and possible variations in the seasonal development of both species. These results are relevant considering the importance of *C. finmarchicus* as food for planktivorous predators in the Norwegian coastal area, in particular larvae of herring and cod, which appear to have suffered recruitment failure further south due to shifts in the zooplankton community.

Keywords: *Calanus finmarchicus*, *Calanus helgolandicus*, Norwegian Coastal Water, long term trend, seasonal cycle

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