

4.3.1 *Calanus* composition at the Fugløy-Bear Island (FB) transect

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The stations in the FB transect are taken at fixed positions located at the western entrance to the Barents Sea. The numbers of sampled stations are normally 5 to 8 depending on weather conditions. In this report, four stations, representing different water masses (coastal; Atlantic; and mixed Atlantic/Arctic water) from 1995 to 2014, have been analyzed for species composition of the three most abundant species *Calanus finmarchicus*, *C. glacialis* and *C. hyperboreus*. In addition, we have also examined the proportion of *C. finmarchicus* and *C. helgolandicus* (Stage V and adults) in the samples.

C. helgolandicus is quite similar in appearance especially to *C. finmarchicus*, but is a more southerly species with a different spawning period. *C. helgolandicus* has in recent years become more frequent in the North Sea and southern parts of the Norwegian Sea (Svinøy transect), and it is expected that it could potentially increase its abundance in the western part of the Barents Sea in the years to come. Results so far seem to indicate that the abundance of *C. helgolandicus* at the western entrance to the Barents Sea is rather low and has remained more or less unchanged during the study period (not shown).

Though *C. finmarchicus* display inter-annual variations in abundance, comparison of abundance during three periods shows somewhat stable values, with the latter period having a slight increase. (Figure 4.3.1.1, Table 4.3.1.1). The highest abundances of *C. finmarchicus* were recorded in 2010 over the whole transect except for the northernmost locality at 74°00'N, where the abundance was considerably lower (Figure 4.3.1.2). On average over all years since 2004, it is the locality at 73°30'N that shows the highest number of individuals. As expected *C. glacialis* has its highest abundance at the two northernmost stations, localities that are typical of a mixture of Atlantic and Arctic waters. The highest mean abundance (ca 15000 no.m⁻²) was observed for the year 1997(not shown). The most stable occurrence and the highest average abundance are found at the northernmost locality a 74°00'N having a mixture of Atlantic and Arctic water masses. For *C. glacialis* there seem to be a decrease in abundance since 2007 with very low abundances in 2008, and 2012-2014 (Table 4.3.1.1). The lowest average abundance for *C. glacialis* was recorded during 2007-2014 (328 no.m⁻²) compared to 2001-2006 (518no.m⁻²) and 1995-2000 (1890 no.m⁻²). The lowest average abundance for *C. hyperboreus* was recorded during 2007-2014 (49 no.m⁻²) compared to 2001-2006 (177 no.m⁻²) and 1995-2000 (11 no.m⁻²).

Table 4.3.1.1. Average abundance of the 3 *Calanus* species (no.m⁻²) for 3 different periods from 1995 to 2014.

Periode	<i>C. finmarchicus</i>	<i>C. glacialis</i>	<i>C. hyperboreus</i>
1995-2000	27961	1890	110
2001-2006	20421	518	177
2007-2014	35469	328	52

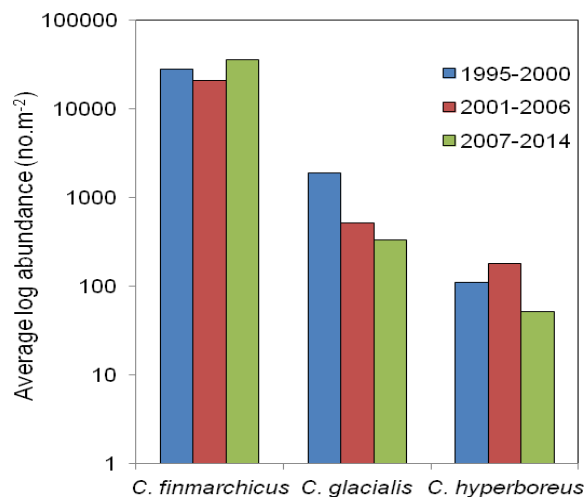


Figure 4.3.1.1. Abundance of *Calanus* species at the FB section during three periods: 1995-2000, 2001-2006 and 2007-2014.

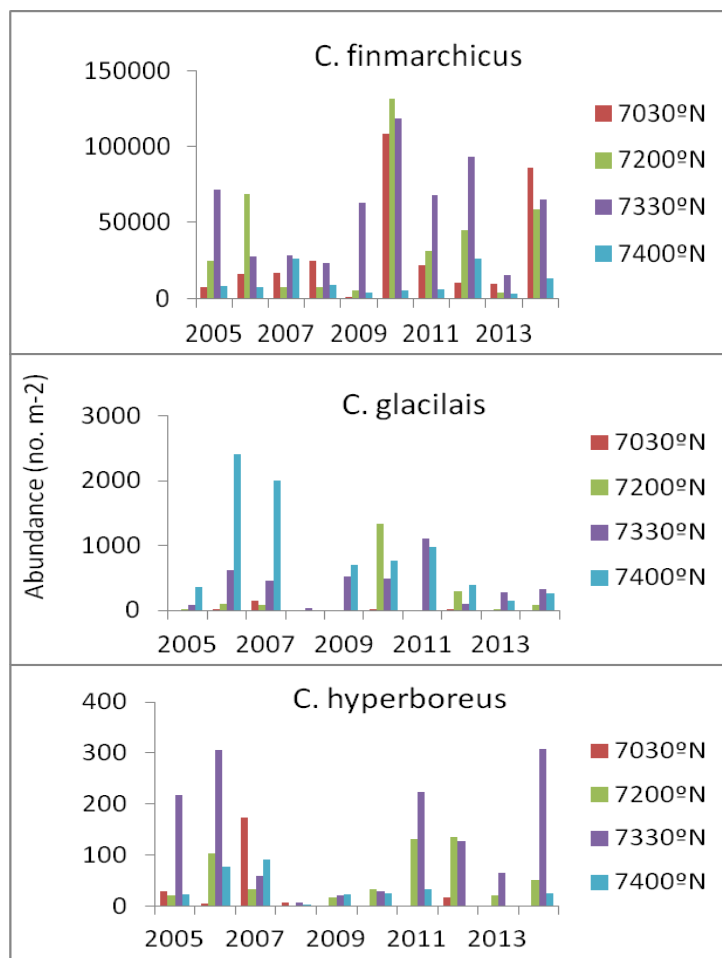


Figure 4.3.1.2. Development of copepod abundance along the FB section during the period 2005 - 2014. On a few occasions, when stations were lacking at a particular position, stations closest to that position were analyzed.