

4.3.1 *Calanus* composition at the Fugløya-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 2012, have been analyzed for species composition of the two most abundant species *C. finmarchicus*, and *C. glacialis*.

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 that there no marked changes in abundance over time. (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. Also *C. glacialis* is subject to large inter-annual variations, and its abundance during 2008 and 2009 of year is considerably well below what can be considered the log-term mean for the two northernmost localities. For *C. glacialis* there seem to be a decrease in abundance after 2000 (Table 4.3.1.1). The lowest average abundance for *C. hyperboreus* was recorded during 2007-2012 (49 no.m⁻²) compared to 2001-2006 (179 no.m⁻²) and 1995-2000 (108 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 2012.

Periode	<i>C. finmarchicus</i>	<i>C. glacialis</i>	<i>C. hyperboreus</i>
1995-2000	27234	1877	108
2001-2006	20518	517	179
2007-2012	36201	407	49

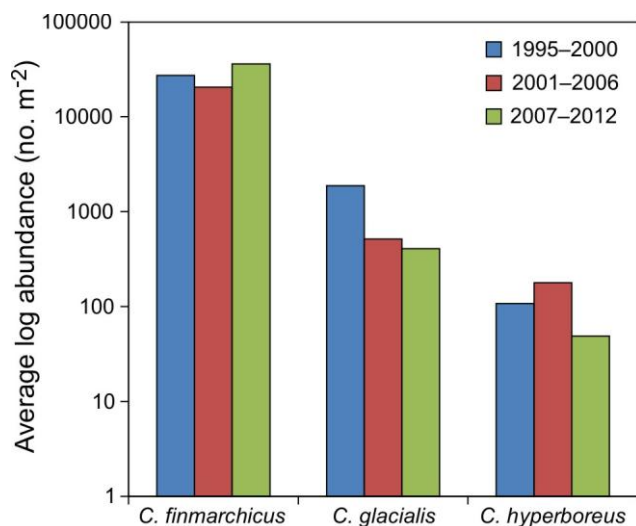


Figure 4.3.1.1. Abundance of *Calanus* species at the FB section during three periods: 1995-2000, 2001-2006 and 2007-2012.

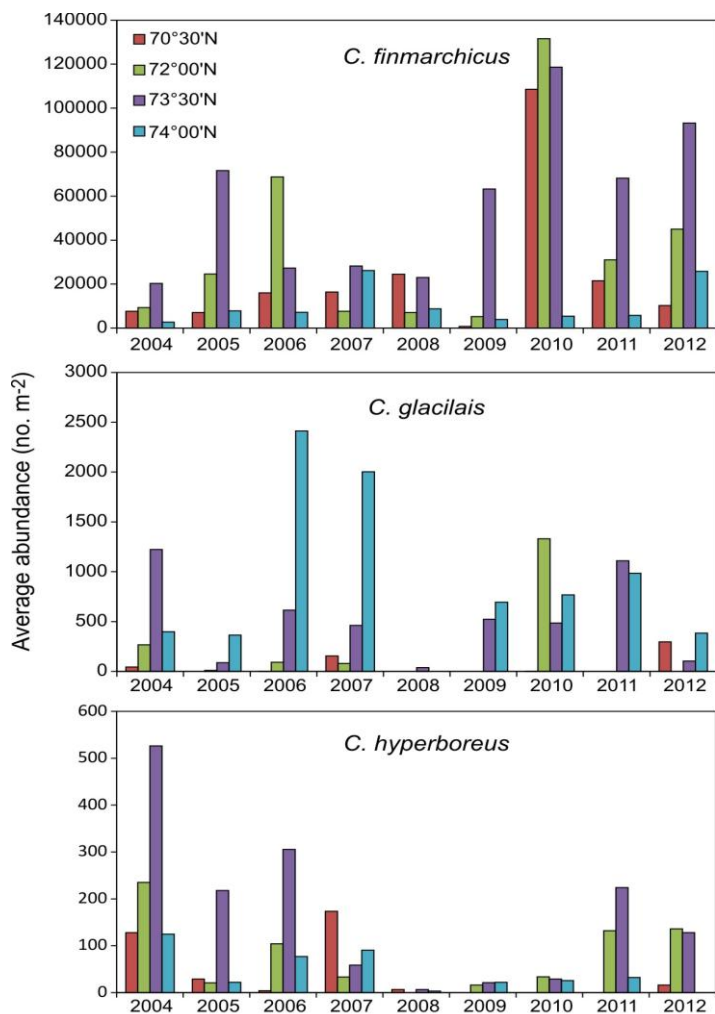


Figure 4.3.1.2. Development of copepod abundance along the FB section during the period 2004 - 2012. On a few occasions, when stations were lacking at a particular position, stations closest to that position were analyzed.