



Late summer community composition and abundance of photosynthetic picoeukaryotes in Norwegian and Barents seas

Not, Fabrice, Ramon Massana, Mikel Latasa, Dominique Marie, Céline Colson, Wenche Eikrem, Carlos Pedrós-Alió, Daniel Vaultot, Nathalie Simon

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ABSTRACT: We investigated marine picoeukaryotic diversity (cells $<3 \mu\text{m}$) in samples collected in late summer 2002 at the boundary between the Norwegian, Greenland, and Barents Seas. The two main Arctic and Atlantic water masses in this region are separated by the polar front. We combined total counts of picoeukaryotes assemblages by flow cytometry and epifluorescence microscopy with taxa detection by tyramide signal amplification-fluorescent in situ hybridization (TSAFISH) and high performance liquid chromatography (HPLC) pigment analyses. The picoeukaryotic community was primarily composed of photoautotrophs (75% of the cells on average). Members of the division Chlorophyta, in particular the species *Micromonas pusilla* (Butcher) Manton and Parke, were the major components in truly Arctic waters (32% of the picoeukaryotes, maximum 3,200 cells ml^{-1}). *M. pusilla* was also well represented in coastal waters and at the polar front (25% of the picoeukaryotes, maximum 9,100 cells ml^{-1}). Haptophyta were prominent in more typical Atlantic waters (up to 35% of the picoeukaryotes, maximum 4,500 cells ml^{-1}). Quantification of haptophyte biomass by HPLC pigment analyses and CHEMTAX, and haptophyte abundances by TSA-FISH were in good agreement. This confirms previous studies, which suggested that *M. pusilla* is a dominant contributor of picoeukaryotic communities in both coastal and nutrient rich environments, whereas haptophytes seem to be more important in open seawaters.

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