O'Regan, M., et al., 2020, Calcareous nannofossils anchor chronologies for Arctic Ocean sediments back to 500 ka: Geology, v. 48, https://doi.org/10.1130/G47479.1

Supplementary Information for: **"Calcareous nannofossils anchor chronologies for Arctic Ocean sediments back to 500 ka"**

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Supplementary Figure

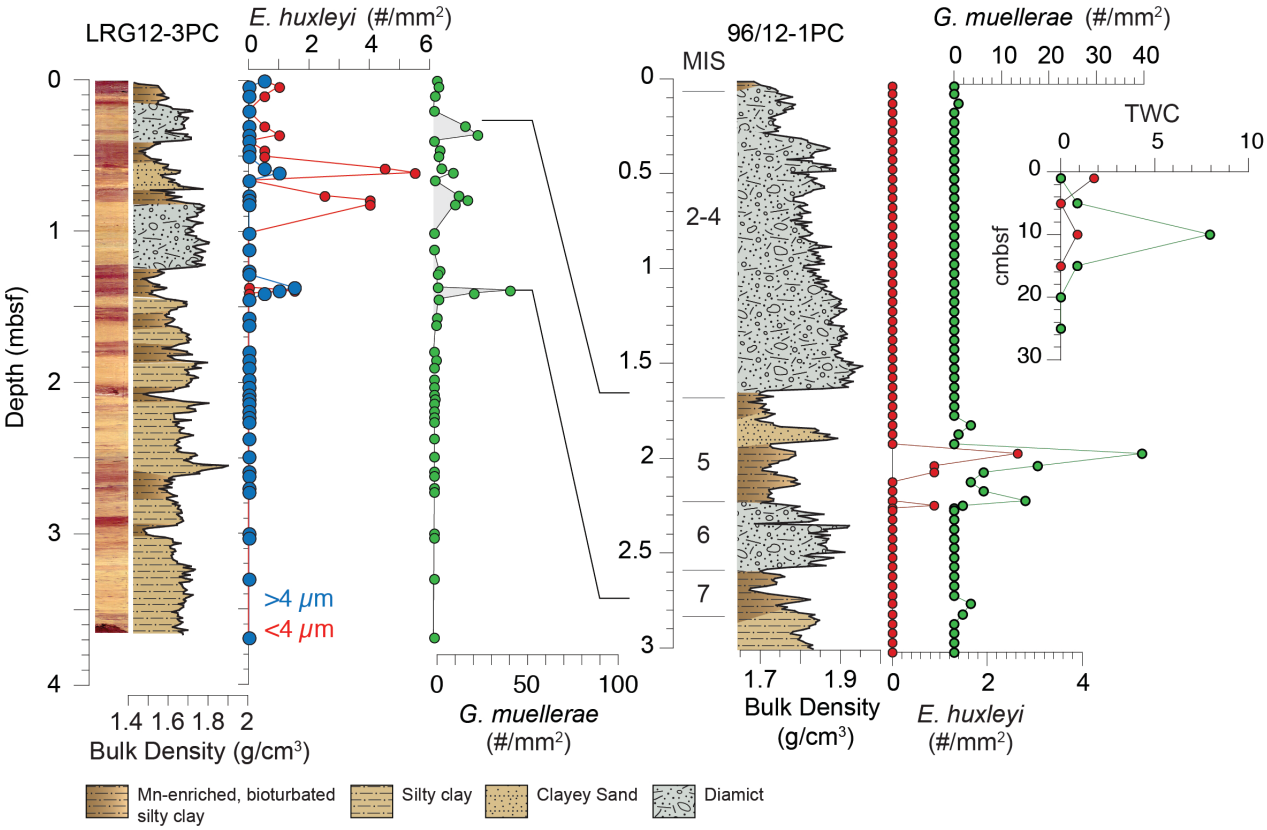

Figure S1. Comparison of generalized lithology and abundances of *E. huxleyi* and *G. muellerae* in core LRG12-3PC and the previously published record from AO96/12-1PC (Jakobsson et al., 2001). The MIS boundaries proposed by Jakobsson et al (2001) are shown. Both records contain *E. huxleyi* and *G. muellerae* in stratigraphically equivalent interval dated to MIS 5, but only LRG12-3PC has *E. huxleyi* in MIS 7. Therefore, our new records support the placement of MIS 5 proposed by Jakobsson et al. (2001), but illustrate that *E. huxleyi* existed in the Arctic during MIS 7 (shortly after its global evolution in MIS 8). It was simply not present in the low abundance MIS 7 assemblage found in AO96/12-1PC. The inset displays abundances of *E. huxleyi* and *G. muellerae* in the trigger weight core (TWC) of 96/12-1PC that recovered Holocene material missing in the longer piston core.

Caption

Table SI: Number of calcareous nannofossil specimens found in samples from LRG12-3PC. Each sample was scanned using 100 fields of view at 1600X magnification. To convert the numbers of specimens found to specimens/mm^2, these numbers should be multiplied by 0.5. VSG = very small *Gephyrocapsa* (≤2 μm). Relative abundances of Detrital Carbonate (DC), R=Rare (<1 % of total sediment particles), F=Few (1-10 %), C=Common (10-50 %), A=Abundant (>50 %).

Methods

Photomicrographs: Images were acquired using a MicroPublisher 3.3 Real Time View (RTV) camera by Teledyne Imaging. The camera sensor has a 3.3-million-pixel sensor. The captured images were post-processed in Photoshop where a shake reduction filter was applied followed by adjustment of the image tone curve in order to bring forward details.

Taxonomic Notes: On the basis of biometric subdivisions, we distinguished within *E. huxleyi* and the *Gephyrocapsa* spp. group, the following morphotypes:

- *E. huxleyi* ≤4 μm and *E. huxleyi* ≥4 μm are separated into two categories following Colmenero-Hidalgo et al. (2002).
- *Gephyrocapsids* <2 μm are referred to as very small *Gephyrocapsa* spp. (VSG).
- *Gephyrocapsids* having an open central area and a distal shield length >3 μm are referred to as *Gephyrocapsa muellerae*.
- *Gephyrocapsids* with a distinct bridge, but an almost closed central area and a distal shield length >3 μm are referred to as *Gephyrocapsa caribbeanica*.
- *Pseudoemiliania lacunosa* is referred to the elliptical morphotype with size ranging from 4 μm to 6.5 μm following de Kaenel et al (1999; *P. lacunosa* var. *ovata*).

References

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