Supplementary Material

**Microplastics in the Arctic; A transect through the Barents Sea**

H Emberson-Marl, RL Coppock \*, M Cole, BJ Godley, N Mimpriss, SE Nelms & PK Lindeque

**\* Correspondence:** Corresponding Author: [rac@pml.ac.uk](mailto:rac@pml.ac.uk)

**Table S1.** Sampling information of each transect during research cruise JR17007 on board RRS James Clark Ross, July 2018.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Date (UTC)** | **Aprox Transit** | **Time (mins)** | **Vol filtered (m3)** | **Start Lat/Long** | **End Lat/Long** |
| 12/07/2018 | Tromsø to B03 | 288 | 2500 | N71°17.77' E20°12.78' | N72°18.99' E19°28.28' |
| 13/07/2018 | B03 to B13 | 465 | 3694 | N72°41.55' E19°34.47' | N73°29.47' E24°02.63' |
| 13/07/2018 | B03 to B13 | 491 | 3537 | N73°36.48' E24°42.95' | N74°30.01' E29°59.99' |
| 15/07/2018 | B13 to B15 | 1273 | 4258 | N74°43.16' E30°00.09' | N78°15.17' E30°00.22' |
| 17/07/2018 | B15 to B17 | 431 | 3875 | N78°28.20' E30°20.18' | N79°31.40' E30°04.01' |
| 19/07/2018 | B17 to ice | 366 | 2883 | N81°19.58' E29°19.72' | N82°08.29' E29°00.66' |

**Table S2.** R packages used and referenced

|  |  |  |  |
| --- | --- | --- | --- |
| R package | Version | In text citation | Reference |
| tidyverse | 1.3.2 | Wickham et al., 2019 | Wickham, Hadley., Averick, Mara., Bryan, Jennifer., Chang, Winston., D'Agostino McGowan., 2019. Welocme to the {tidyverse}. Journal of Open Source Software, 4(43). Available at: <https://doi.org/10.21105/joss.01686>. |
| readxl | 1.4.0 | Wickham and Bryan., 2022 | Wickham, Hadley., Bryan, Jennifer., 2022.\_readxl: Read Excel Files\_. Rpackage wersion 1.4.0. Available at: <https://CRAN.R-project.org/package=readxl>. |
| ggplot2 | 3.3.6 | Wickham, 2016 | Wickham, Hadley., 2016. ggplot2: Elegent Graphics for Data Analysis. Springer-Verlag New York. |
| dplyr | 1.0.9 | Wickham et al., 2022 | Wickham, Hadley., Francois, Romain., Henry, Lionel., Muller, Kirill., 2022. \_dplyr: A Grammar of Data Manipulation\_. R package version 1.0.9. Available at: <https://CRAN.R-project.org/package=dplyr> |
| tidycensus | 1.2.2 | Walker and Herman, 2022 | Walker, Kyle., Herman, Matt., 2022. \_tidycensus: Load US Census Boundary and Attribute Data as 'tidyverse' and 'sf'-Ready Data Frames\_. R package version 1.2.2. Available at: <https://CRAN.R-project.org/package=tidycensus>. |
| MASS | 7.3.58.1 | Venables and Ripley, 2002 | Venables, W. N., Ripley, B. D., 2002. ModernaPPLIED Statistics with S. Fourth Edition. Springer, New York. ISBN 0-387-95457-0. |

**Table S3.** Calculation of contamination from boat control sample and air control sample

|  |  |  |
| --- | --- | --- |
| **Contamination control** | |  |
| **Mesh size (µm)** | **MP boat control** | **MP air control** |
| 22 | 4 | 0 |
| 65 | 1 | 0 |
| 65 | 4 | 0 |
| 300 | 2 | 0 |
| 65 | 1 | 0 |
| 22 | 2 | 0 |
|  |  |  |
| **Average contamination per size class** | | |
| **Mesh size (µm)** | **Average #MP** |  |
| 22 | 3 |  |
| 65 | 2 |  |
| 300 | 2 |  |

**Table S4.** Correction controls for all samples of different filter sizes taken during each transect

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Filter size | | | | | | | | | | |
| Transect | 20µm | Contamination Correction | Corrected MP value |  | 50µm | Contamination correction | Corrected MP value |  | 200µm | Contamination correction | Corrected MP value |
| T1 | 3 | 0.444 | 7 |  | 2 | 0.444 | 7 |  | 2 | 0.543 | 24 |
| T2 (a) | 3 | 0.438 | 6 |  | 2 | 0.625 | 9 |  | 2 | 0.692 | 8 |
| T2 (b) | 3 | 0.722 | 11 |  | 2 | 0.692 | 8 |  | 2 | 0.909 | 8 |
| T3 | 3 | 0.5 | 10 |  | 2 | 0.545 | 4 |  | 2 | 0.805 | 15 |
| T4 | 3 | 0.563 | 16 |  | 2 | 0.667 | 9 |  | 2 | 0.75 | 10.5 |
| T5 | 3 | 0.545 | 16 |  | 2 | 0.611 | 10 |  | 2 | 0.75 | 17 |