**Supplementary data**

# Microplastic Distribution Characteristics Considering the Marine Environment Based on Surface Seawater Quality Parameters in Southern Sea of Korea, 2019

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**Keywords:** microplastic distribution; water quality parameter; statistical analysis; South Sea of Korea

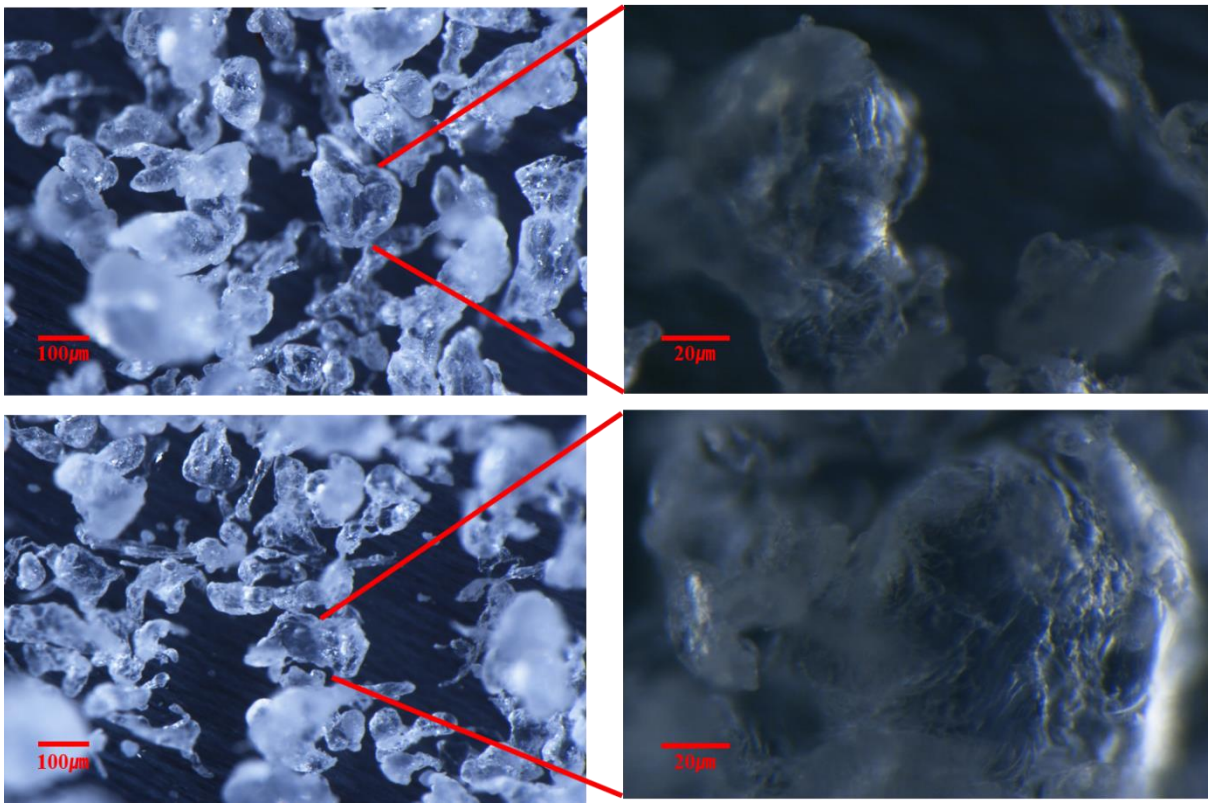



Figure S1. Before (Upper) and after (Down) comparison using SEM on Polyethylene.

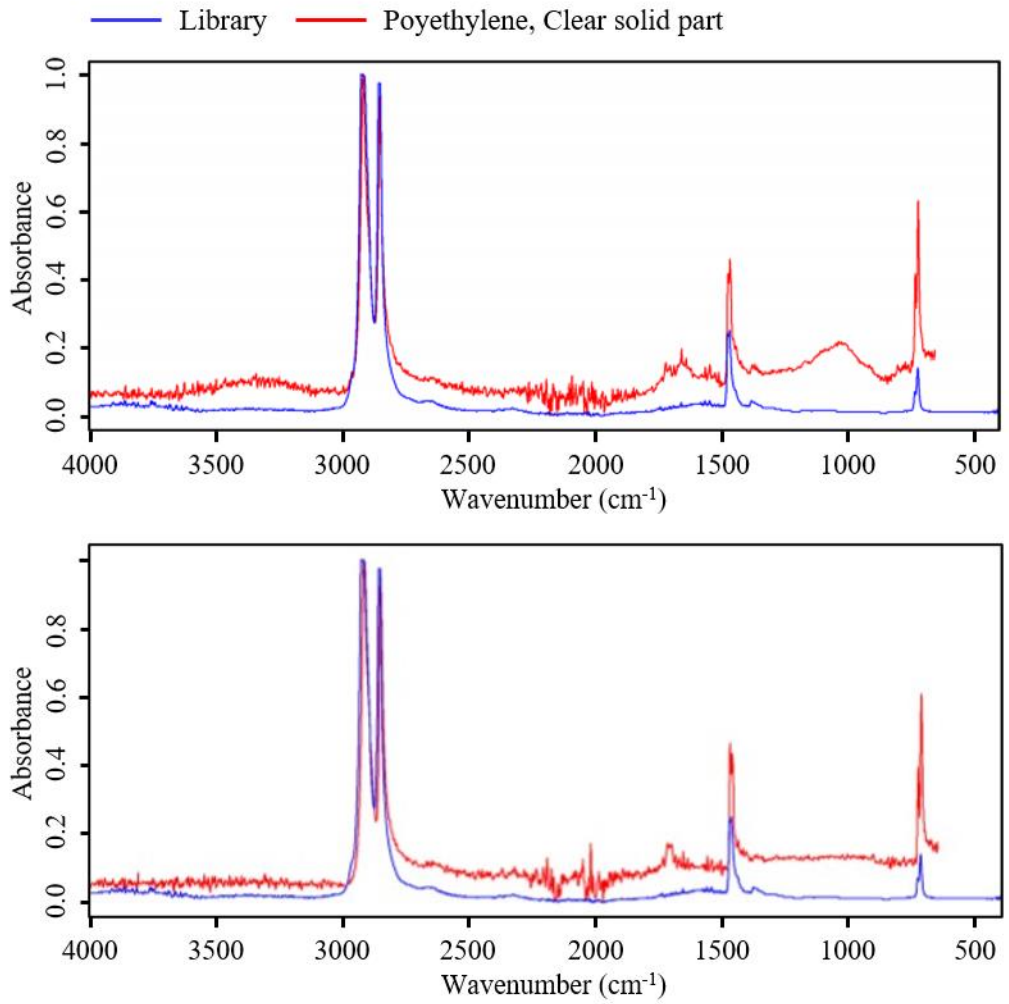



Figure S2. Before (Upper) and after (Down) comparison using ATR FT-IR on Polyethylene.

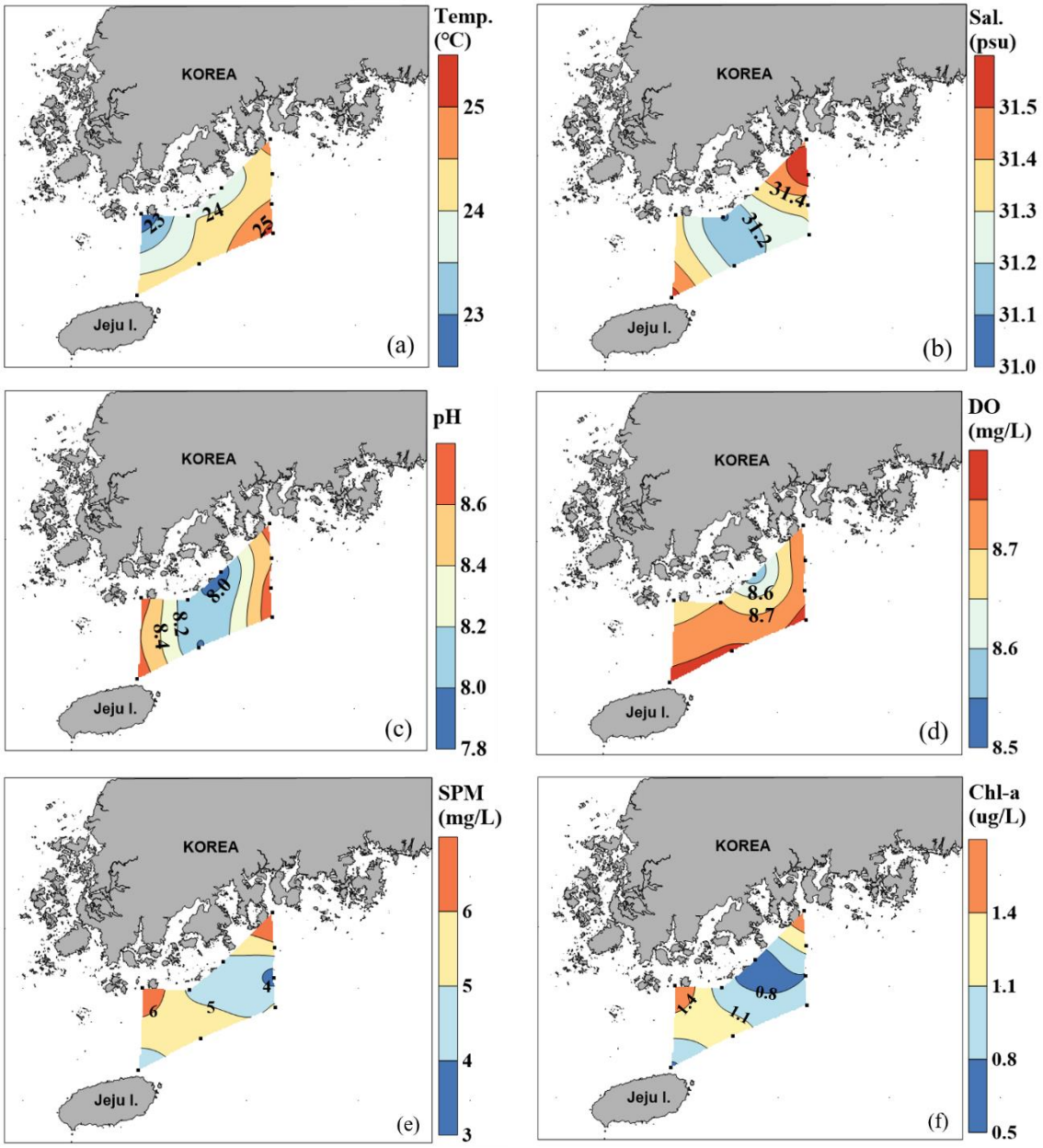



Figure S3. Results of the spatial (a) Water Temperature (Temp.), (b) Salinity (Sal.), (c) pH, (d) Dissolved Oxygen (DO), (e) Suspended Particulate Matter (SPM), (f) Chlorophyll-*a* (Chl-*a*) distributions on the surface water in Southern sea of Korea.

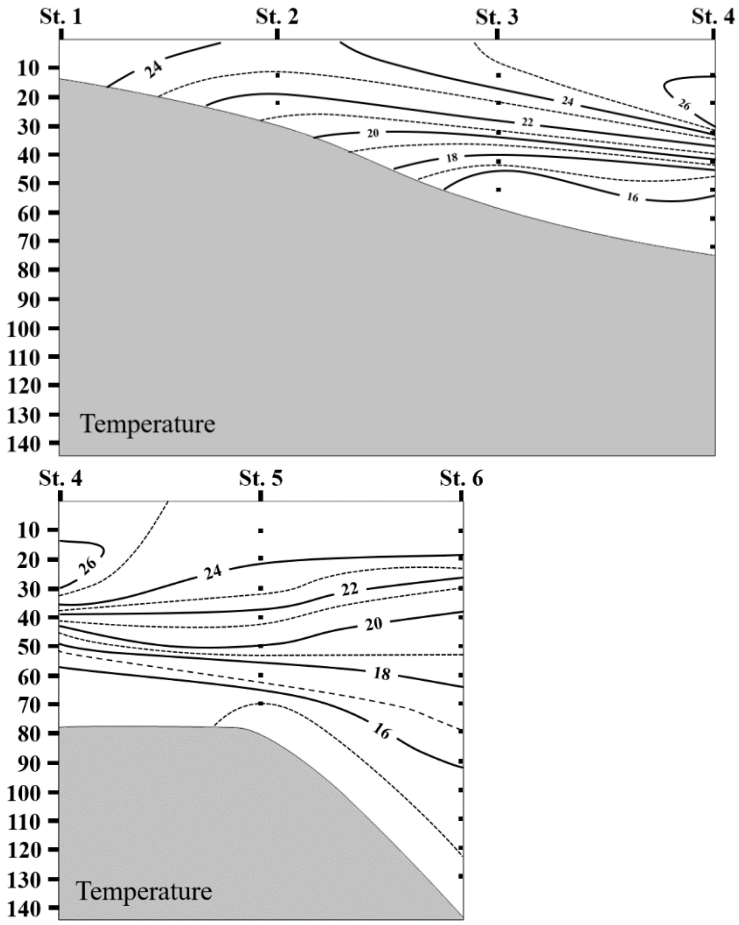



Figure S4. Water temperature as a function of depth at and around sampling point 4.

Table S1. Coordinates of the sampling point.

| Station | Latitude | Longitude |
|---|---|---|
| SS01 | 34º41'53"N | 127º51'12"E |
| SS02 | 34º27'16"N | 127º52'57"E |
| SS03 | 34º12'53"N | 127º54'05"E |
| SS04 | 33º58'51"N | 127º52'01"E |
| SS05 | 33º51'37"N | 127º14'23"E |
| SS06 | 33º37'55"N | 126º47'37"E |
| SS07 | 34º05'15"N | 126º52'24"E |
| SS08 | 34º05'55"N | 127º07'16"E |
| SS09 | 34º19'50"N | 127º32'34"E |

Table S2. Results of eigen value, proportion and accumulative proportion of Principal Component Analysis (PCA).

| Component | Eigen value | Proportion (%) | Accumulative Proportion (%) |
|---|---|---|---|
| 1st | 2.147 | 35.781 | 35.781 |
| 2nd | 2.136 | 35.601 | 71.382 |

| parameter | Eigen Vector | | Loading Factor | |
|---|---|---|---|---|
| | 1st | 2nd | 1st | 2nd |
| Temp. | 0.702 | - 0.480 | 0.342 | - 0.246 |
| pH | 0.807 | 0.266 | 0.367 | 0.102 |
| Sal. | 0.536 | 0.234 | 0.244 | 0.095 |
| DO | 0.832 | - 0.069 | 0.397 | - 0.056 |
| SPM | 0.019 | 0.942 | - 0.018 | 0.442 |
| Chl-*a* | 0.180 | 0.942 | 0.057 | 0.437 |

Table S3. Descriptive statistics of water quality parameter.

| Station | Temp. | pH | Sal. | DO | SPM | Chl-*a* |
|---|---|---|---|---|---|---|
| SS01 | 24.92 | 8.73 | 31.46 | 8.73 | 7.43 | 1.75 |
| SS02 | 24.20 | 8.59 | 31.63 | 8.76 | 5.86 | 1.29 |
| SS03 | 24.56 | 8.73 | 31.33 | 8.73 | 3.43 | 0.80 |
| SS04 | 25.22 | 8.77 | 31.29 | 8.77 | 5.14 | 0.92 |
| SS05 | 24.17 | 7.98 | 31.18 | 8.76 | 5.80 | 1.30 |
| SS06 | 24.42 | 8.73 | 31.53 | 8.76 | 4.29 | 0.75 |
| SS07 | 22.43 | 8.73 | 31.33 | 8.66 | 7.14 | 1.78 |
| SS08 | 23.95 | 8.06 | 31.08 | 8.70 | 4.71 | 0.89 |
| SS09 | 23.60 | 7.88 | 31.37 | 8.55 | 4.86 | 0.59 |
| Min | 22.43 | 7.88 | 31.08 | 8.55 | 3.43 | 0.59 |
| Max | 25.22 | 8.77 | 31.63 | 8.77 | 7.43 | 1.78 |
| Average | 24.16 | 8.47 | 31.36 | 8.71 | 5.41 | 1.12 |
| SD | 0.81 | 0.38 | 0.17 | 0.07 | 1.30 | 0.43 |