

## Supplementary material: Nanomaterial fate in seawater: A rapid sink or intermittent stabilization?

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**Supplementary Table S1.** Monitoring data from the sampling dates (all data were downloaded from reports of the SMHI – Swedish Meteorological and Hydrological Institute<sup>1</sup>)

Parameter (units)	Winter (February)	Spring (March)	Summer (June)
Chlorophyll-a (mg/m <sup>3</sup> ); average of all depths	1.0	1.3	1.1
Chlorophyll-a (mg/m <sup>3</sup> ); top layer (0 – 1 m depth)	3.0	2.8	1.8
CTD Fluorescence; top layer (0 – 1 m depth)	2.6	1.1	0.9
Water temperature (°C)	2	5	16
Salinity (psu)	23	18	27
Oxygen saturation (%)	100	120	100
PO <sub>4</sub> (μmol/l)	0.6	<0.1	0.1
DIN (μmol/l)	4	<0.5	<0.5
SiO <sub>3</sub> (μmol/l)	8	<0.5	2
Precipitation on the day of sampling (mm/d)	0	0	0
Cumulative precipitation five days prior to sampling (mm/d)	7.3	0	5.9

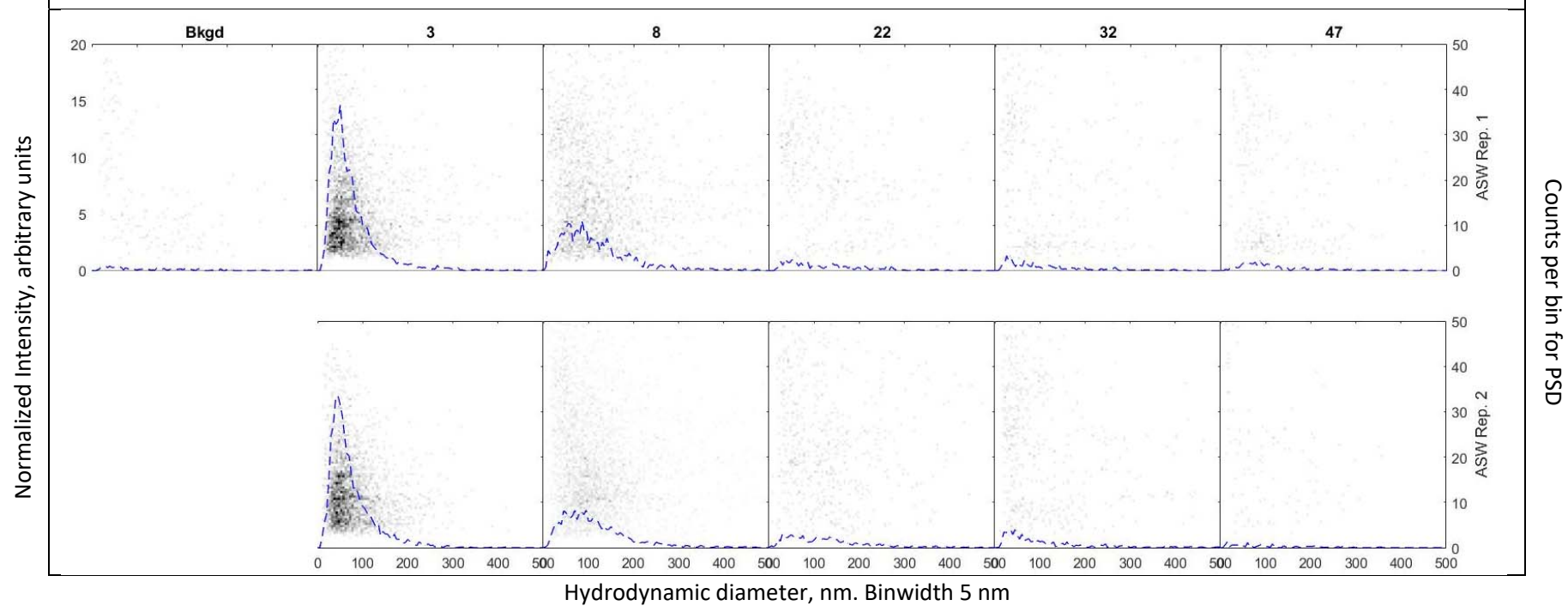
### Additional information for the analysis of NTA data.

The figures S1 shows the data of hydrodynamic diameter and intensity per particle obtained from all datasets using NTA as described in the main text.

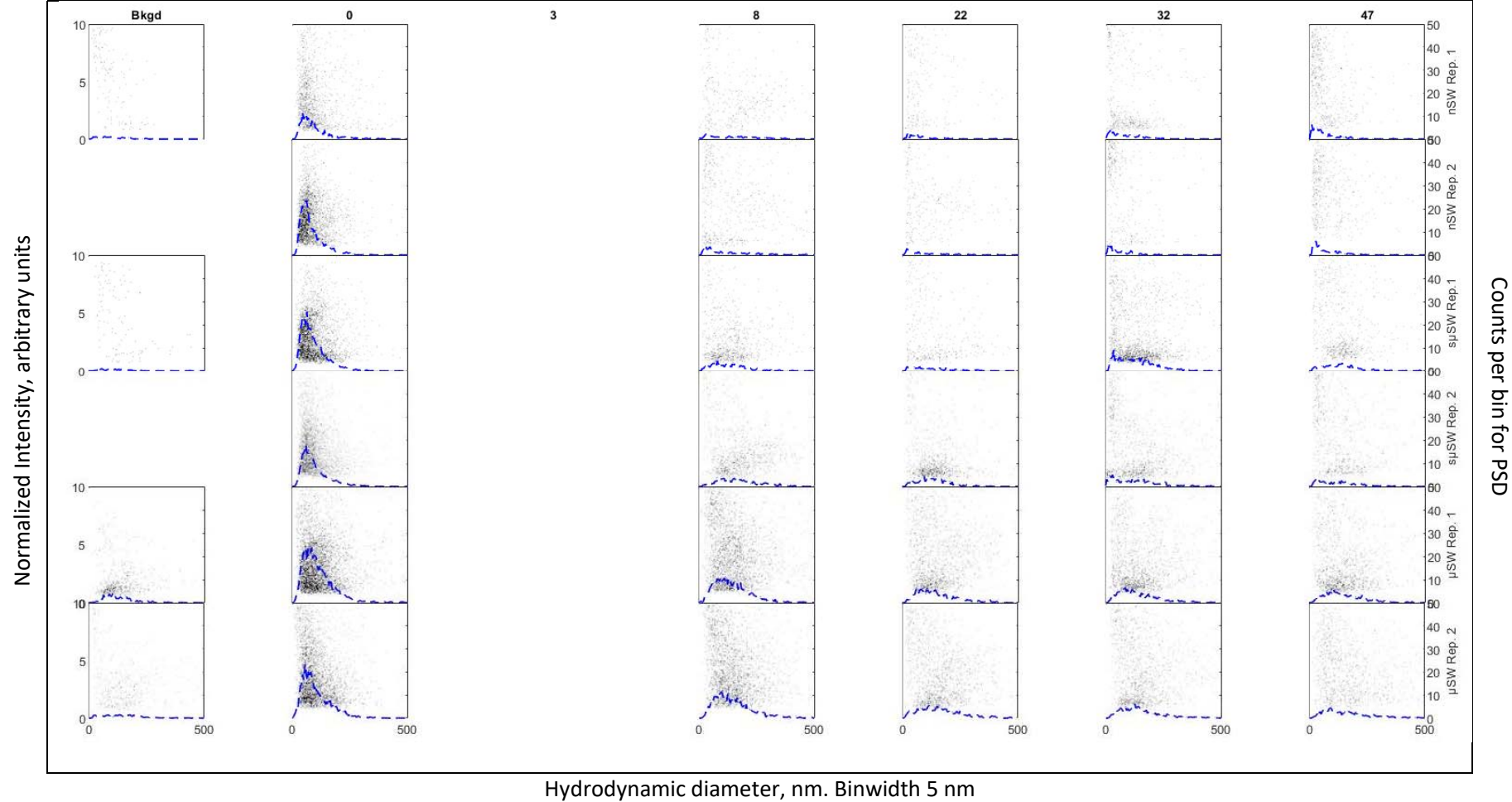
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<sup>1</sup> <https://www.smhi.se/om-webbplatsen/om-smhi-se-lab>

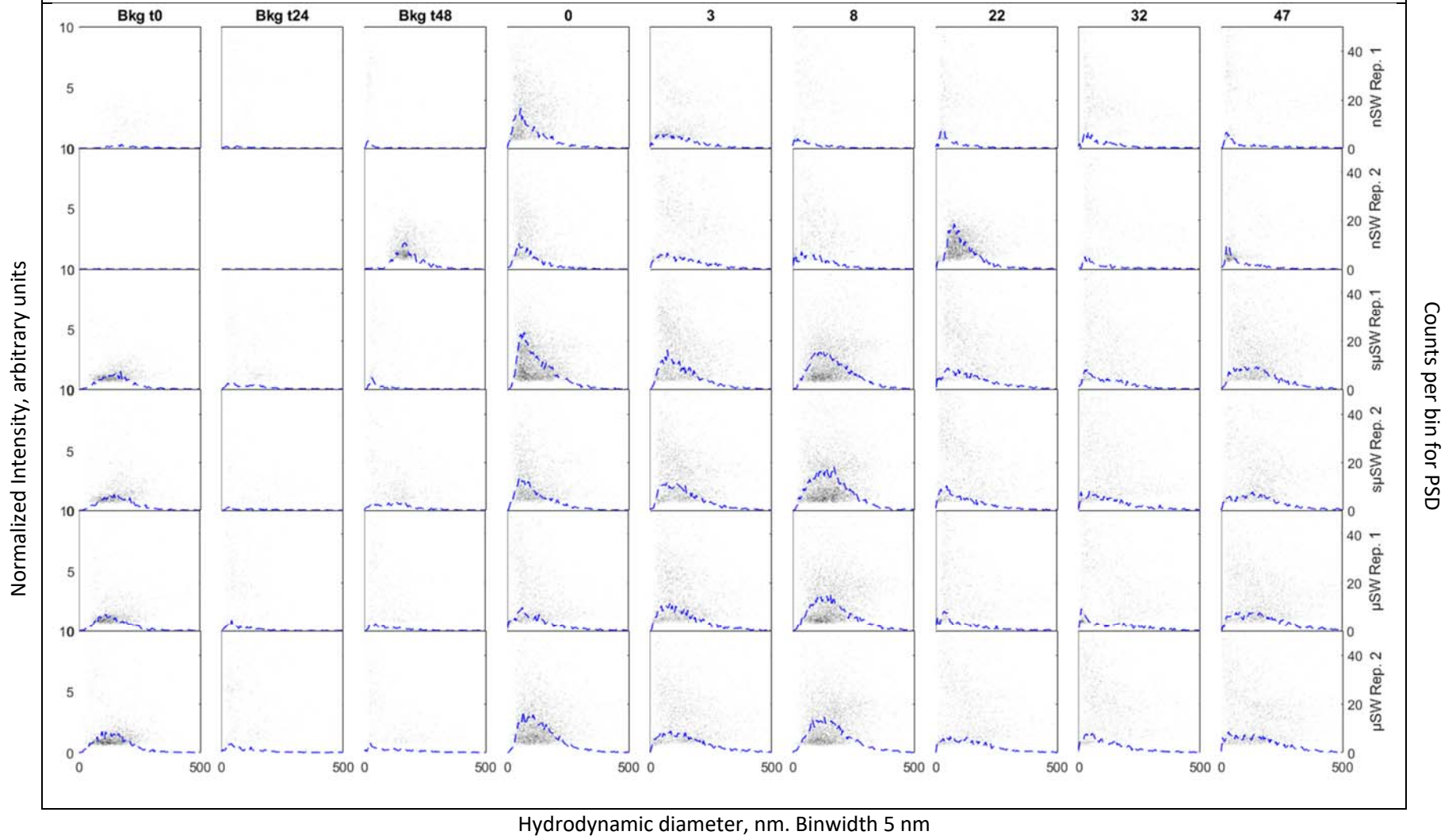
### A) ARTIFICIAL SEAWATER



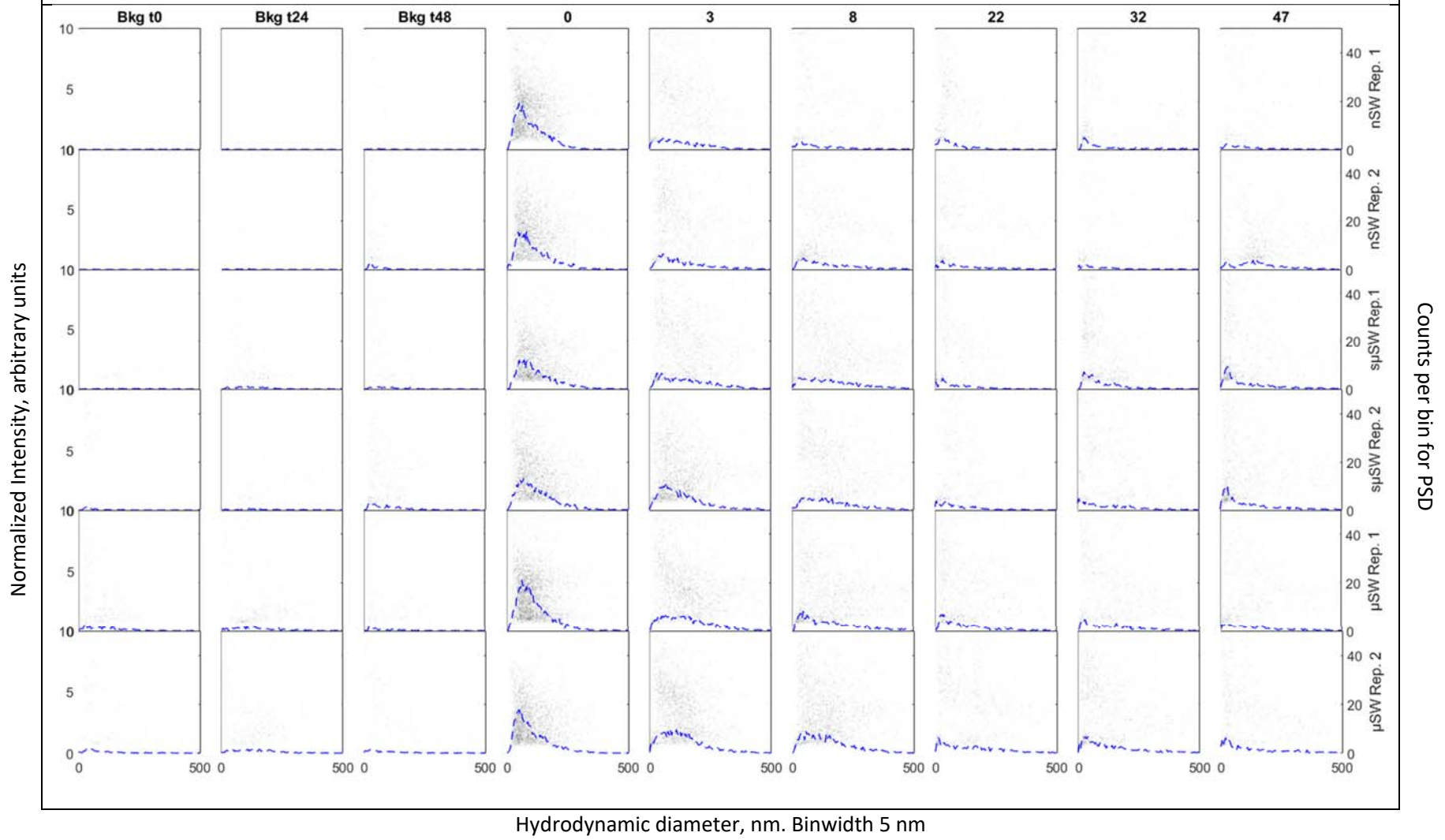
### B) SPRING



C) SUMMER



**D) WINTER**



**Supplementary Figure S1.** Cloud plots of particle hydrodynamic diameter (x-axis) and scattered intensity (left y-axis) frequency distribution of AuNP in the different seawater samples obtained with nanoparticle tracking analysis for different sampling times and water filtration treatment as explained in the main article. **(A)** Artificial seawater (ASW), **(B)** Spring sample, **(C)** Summer sample and **(D)** Winter sample. Generally, 6-9 videos of 1 minute were recorded and analyzed with Nanosight 2.3 using automatic settings (gain 7, detection threshold automatic at level 18 and automatic track length). The estimated hydrodynamic diameter and averaged scattering intensities for all particles identified by the software were collated in a dataset and included in the 2D histograms. Size class width is 5 nm and intensity class width is 0.1 units; the gray intensity in the cloud plot corresponds to number of particles per minute from 0 to 1. The dashed blue line corresponds to the particle size distribution in the secondary y-axis with units of number of particles identified in each cluster size (bin size of 5 nm) per minute.