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# Supplementary Materials

# Figures

# Mapping Dynamics of Bacterial Communities in a Full-Scale Drinking Water Distribution System using Flow Cytometry

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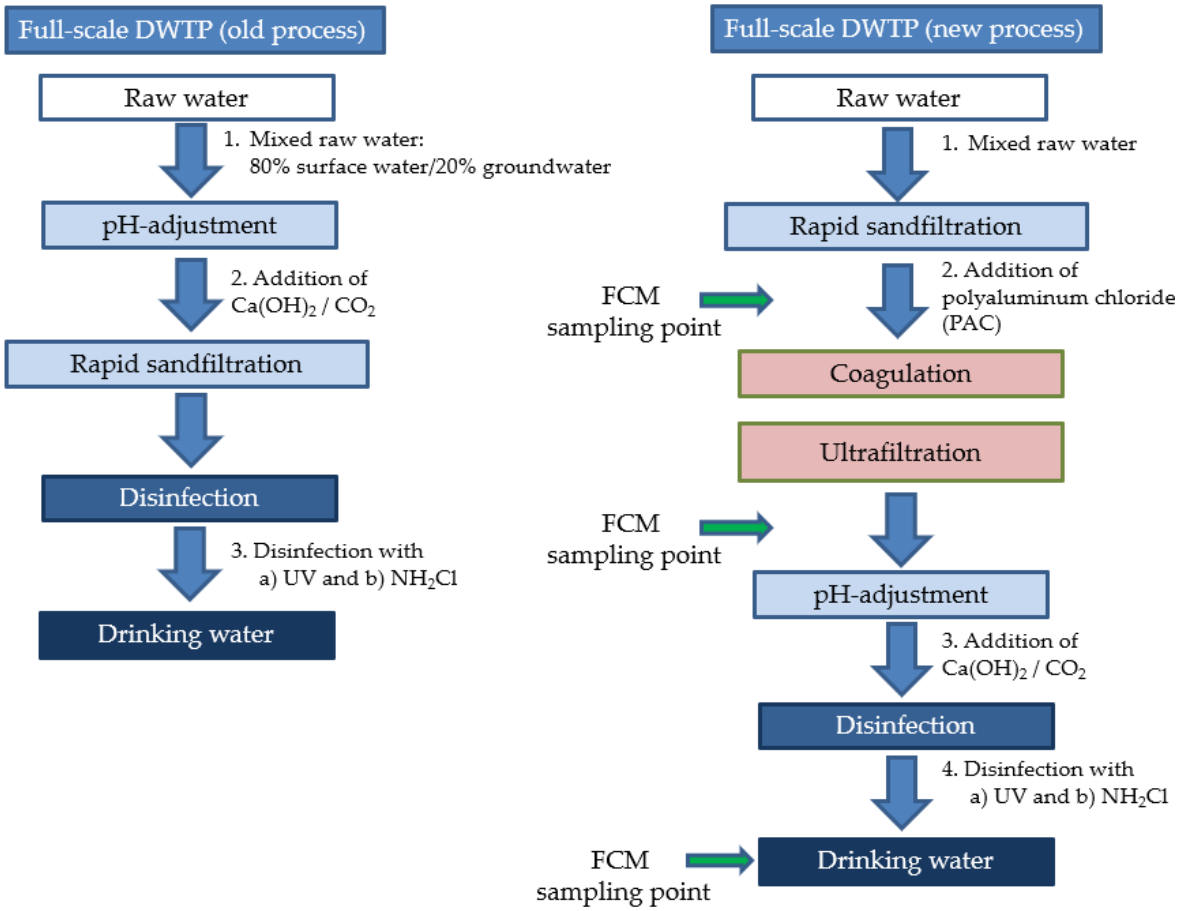
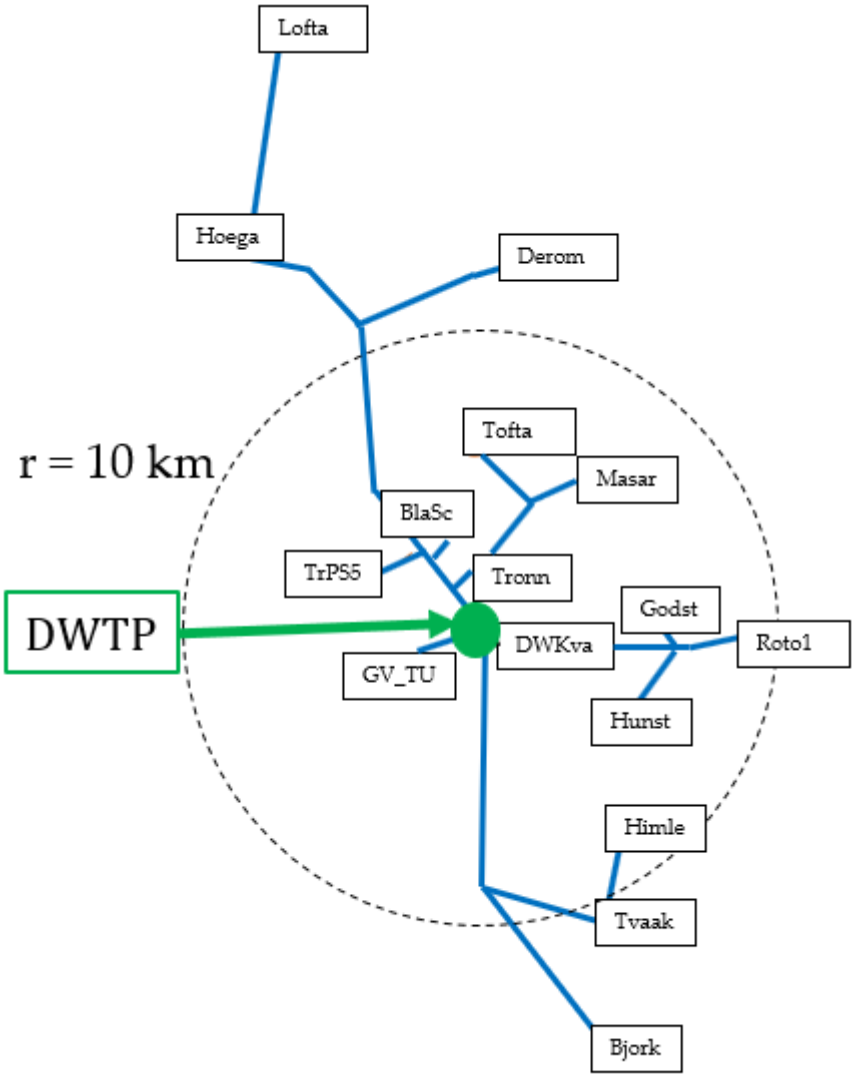
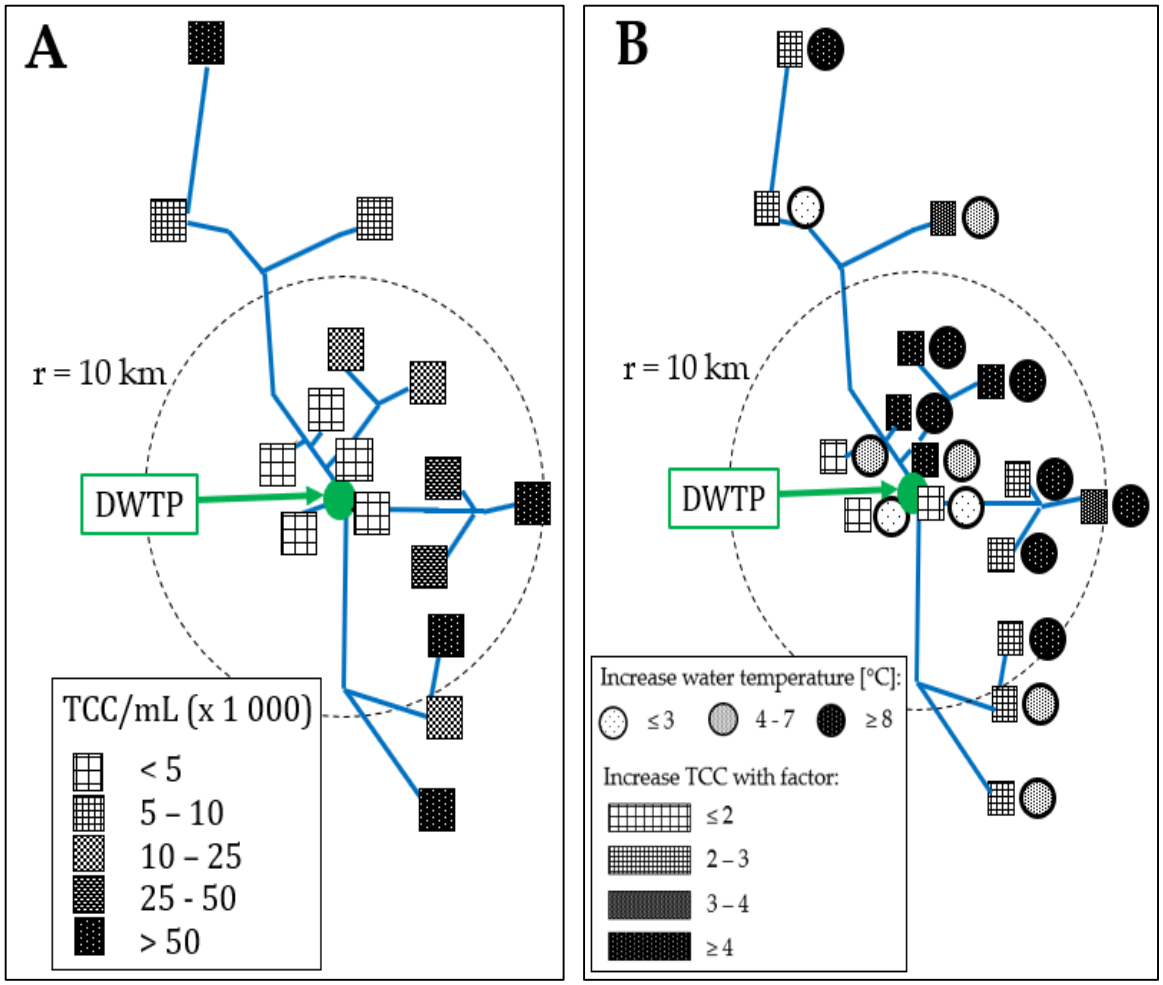


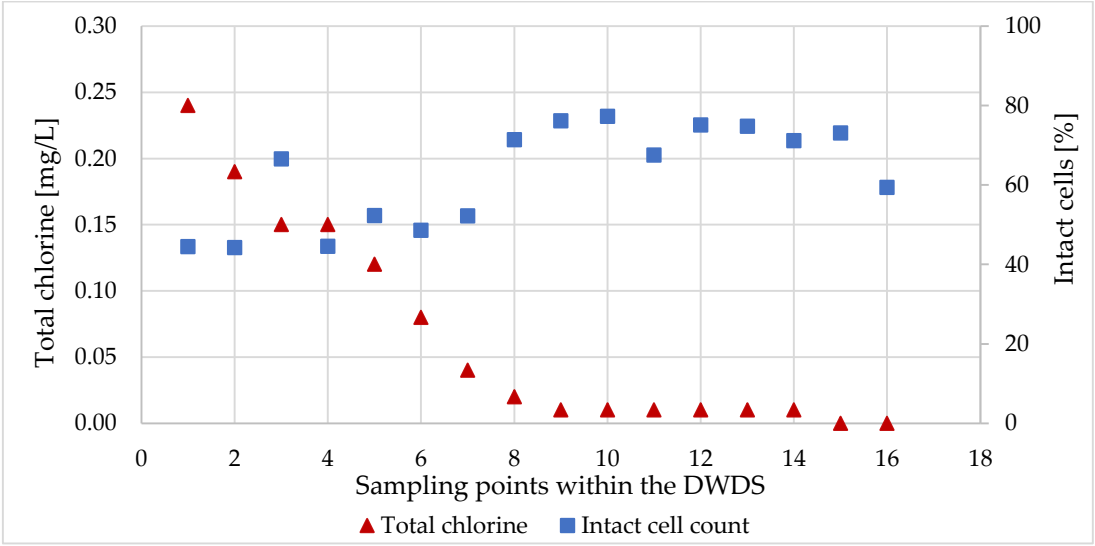

**Supplementary Figure S1.** Treatment process at Kvarnagården DWTP in Varberg, Sweden before (old) and after (new) implementation of a hybrid membrane process (coagulation combined with UF-membrane filtration).



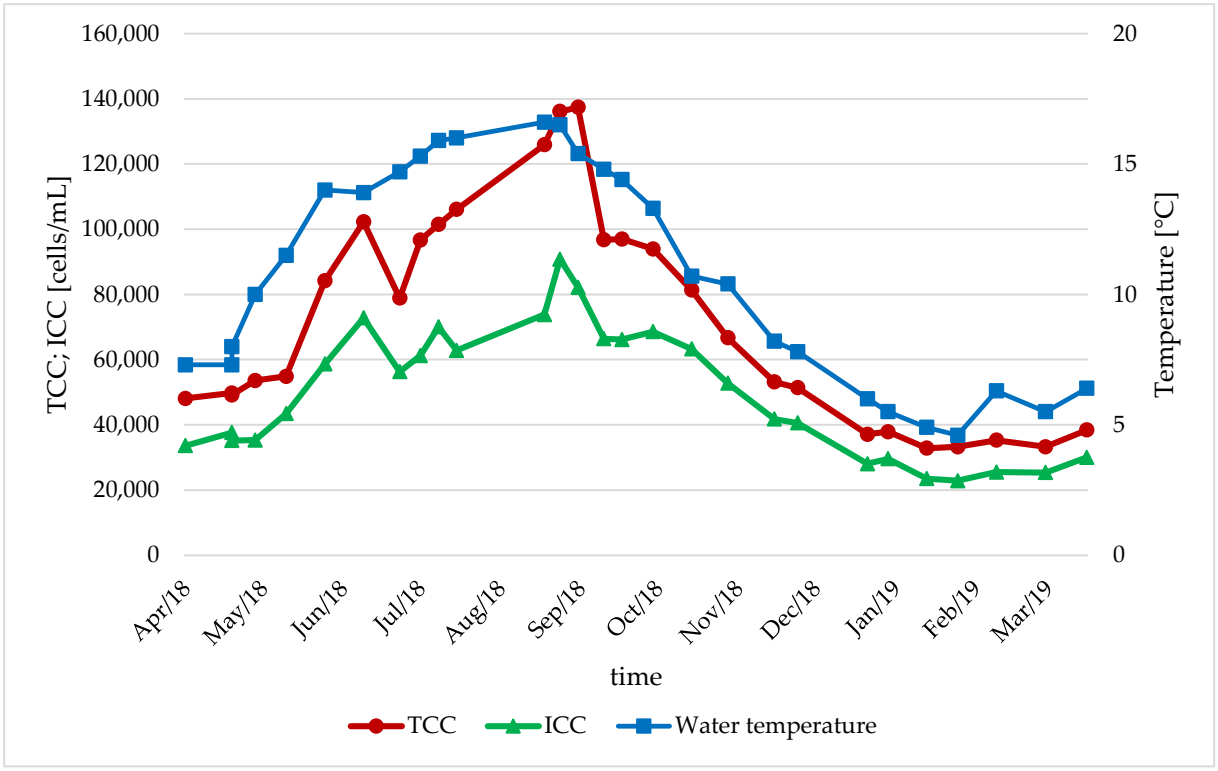

**Supplementary Figure S2.** Schematic illustration of the DWDS and FCM sampling points in Varberg, Sweden.



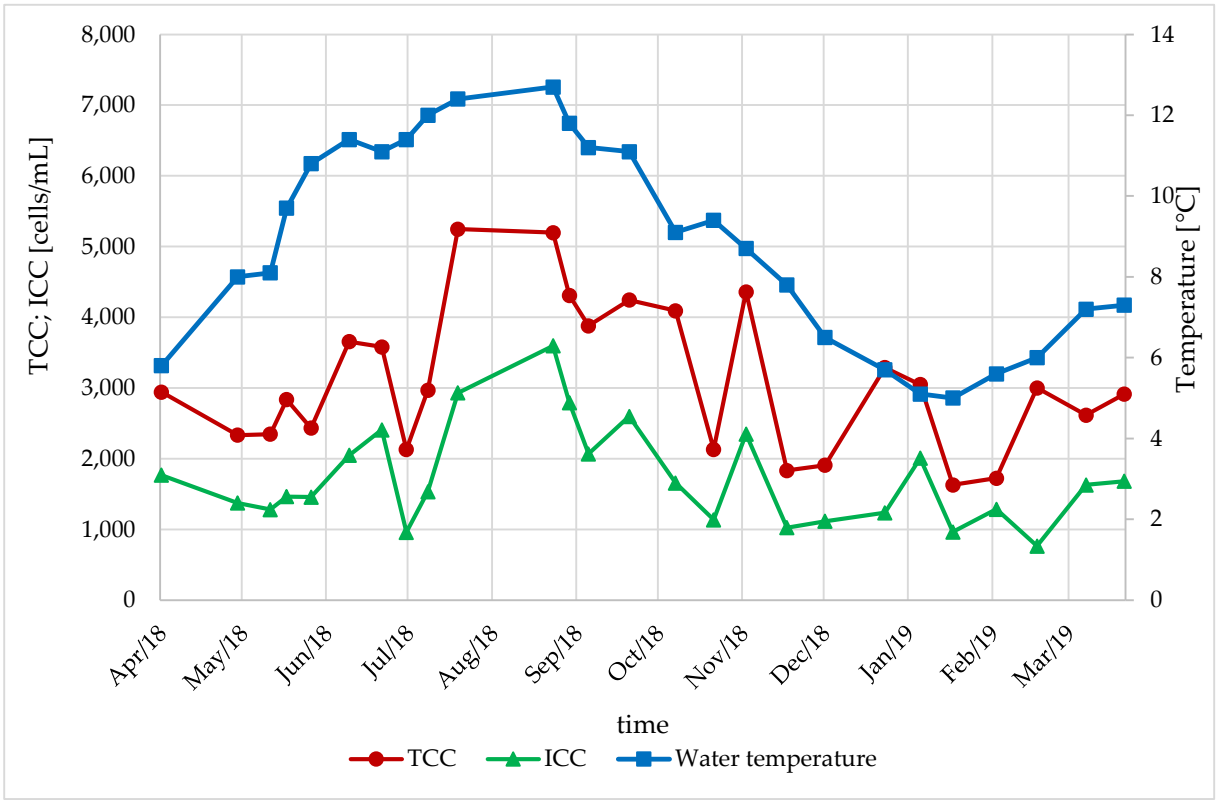

**Supplementary Figure S3.** Schematic illustration of the DWDS and results for A: The total cell concentrations in April 2018 plotted on their sampling points in the DWDS. The samples close to the WTP show a low total cell concentration whereas sampling points at the end of the DWDS show elevated concentrations. B: Increase of TCC (squares) and water temperature (circles) at all sampling points from April 2018 until September 2018.



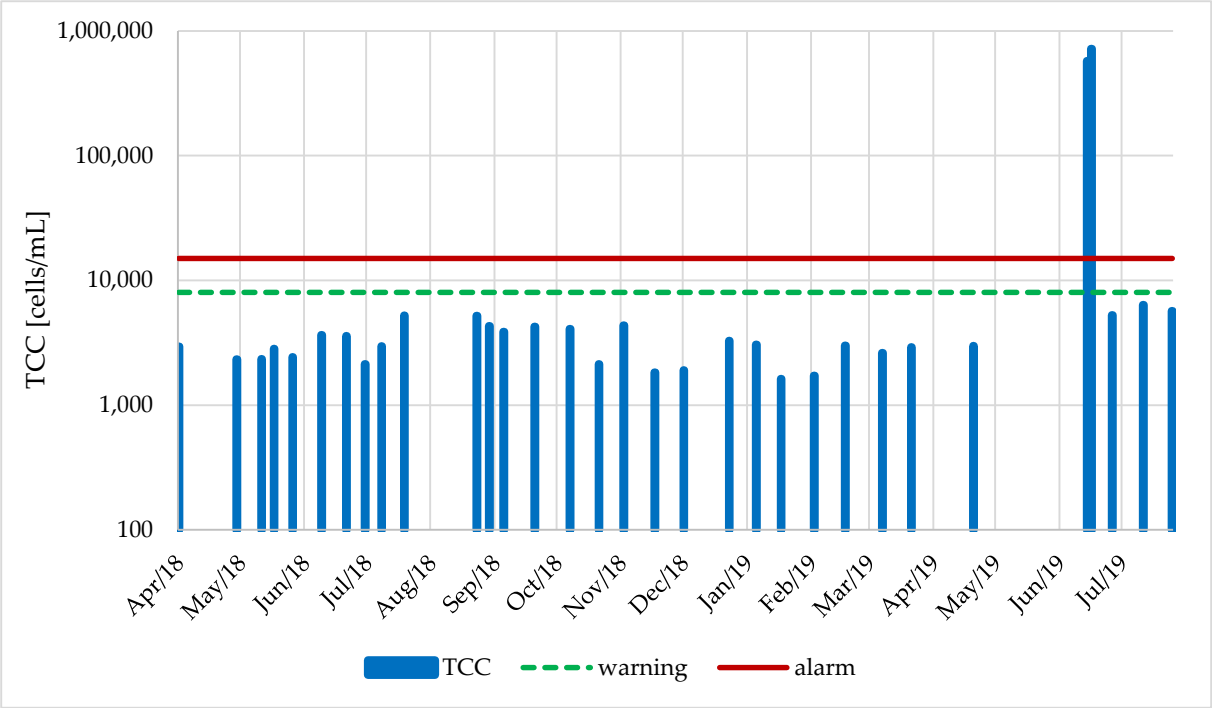

**Supplementary Figure S4.** Intact cell count in connection with residues of chloramine in the DWDS in mg/L. Sampling points are arranged according to the total chlorine concentration (from highest to lowest).



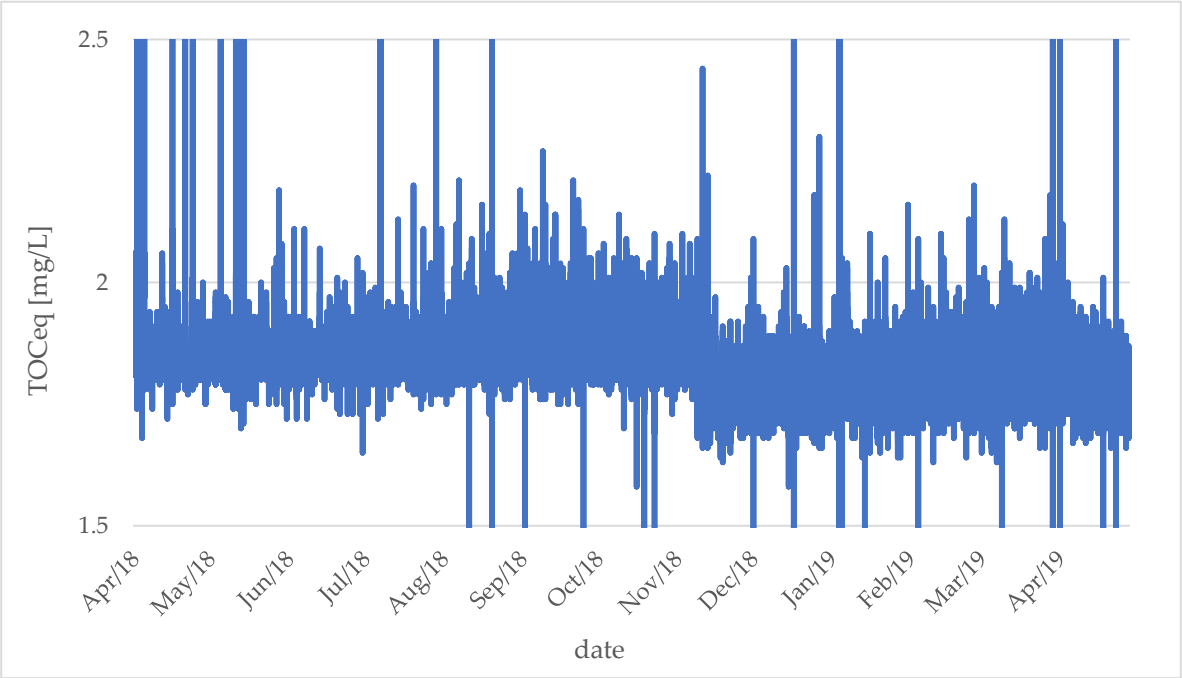

**Supplementary Figure S5.** Changes in TCC (red line, circles), ICC (green line, triangles) and water temperature (blue line; squares) at sampling point Hunst.




**Supplementary Figure S6.** Changes in TCC (red line, circles), ICC (green line, triangles) and water temperature (blue line; squares) at sampling point TrPS5.




**Supplementary Figure S7.** Increase in TCC (blue bars) at sampling point TrPS5 in late June 2019 due to a closed valve. The green doted line indicates the warning limit for TCC (9000 cells/mL) and the red line indicates the alarm limit for TCC (15,000 cells/mL).




**Supplementary Figure S8.** TOCeq measured in the permeate of the UF membrane from April 2018 to April 2019.

# Tables

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72 **Supplementary Table S1.** Flow cytometry results and environmental parameters for different
73 sampling points (three datasets each).

| Sampling point | Retention time [h] | TCC [cells/mL] | pH | HNA [%] | ICC [%] | Contact area with biofilm [$cm^2$/mL] |
|---|---|---|---|---|---|---|
| **Bj_Va 1** | 168 | 141 980 | 7.84 | 40 | 71 | 0.34 |
| **Bj_Va 2** | 168 | 126 880 | 8.04 | 45 | 70 | 0.34 |
| **Bj_Va 3** | 168 | 129 640 | 7.95 | 44 | 72 | 0.34 |
| **BlaSc 1** | 15 | 3 580 | 8.06 | 83 | 47 | 0.03 |
| **BlaSc 2** | 15 | 1 740 | 8.25 | 67 | 46 | 0.03 |
| **BlaSc 3** | 15 | 2 907 | 8.08 | 61 | 34 | 0.03 |
| **Derom 1** | 20.7 | 7 320 | 8.04 | 71 | 40 | 0.2 |
| **Derom 2** | 20.7 | 6 140 | 8.31 | 70 | 48 | 0.2 |
| **Derom 3** | 20.7 | 12 480 | 8.11 | 62 | 38 | 0.2 |
| **DWKva 1** | 1 | 324 | 8.08 | 74 | 28 | 0.01 |
| **DWKva 2** | 1 | 308 | 8.11 | 78 | 47 | 0.01 |
| **DWKva 3** | 1 | 308 | 8 | 77 | 48 | 0.01 |
| **Godst 1** | 32.1 | 27 980 | 8.1 | 74 | 64 | 0.13 |
| **Godst 2** | 32.1 | 25 300 | 8.25 | 75 | 61 | 0.13 |
| **Godst 3** | 32.1 | 26 540 | 8.13 | 76 | 61 | 0.13 |
| **GV_TU 1** | 12.3 | 876 | 8.06 | 84 | 43 | 0.05 |
| **GV_TU 2** | 12.3 | 1 860 | 8.34 | 71 | 31 | 0.05 |
| **GV_TU 3** | 12.3 | 2 308 | 8.12 | 54 | 18 | 0.05 |
| **Himle 1** | 163.6 | 71 900 | 7.95 | 59 | 60 | 0.36 |
| **Himle 2** | 163.6 | 59 160 | 8.06 | 57 | 53 | 0.36 |
| **Himle 3** | 163.6 | 48 880 | 7.95 | 59 | 62 | 0.36 |
| **Hoega 1** | 21.9 | 3 810 | 8.04 | 81 | 51 | 0.11 |
| **Hoega 2** | 21.9 | 3 670 | 8.39 | 77 | 43 | 0.11 |
| **Hoega 3** | 21.9 | 8 270 | 8.2 | 70 | 35 | 0.11 |
| **Hunst 1** | 33.7 | 32 840 | 8.03 | 73 | 71 | 0.16 |
| **Hunst 2** | 33.7 | 33 240 | 8.18 | 73 | 69 | 0.16 |
| **Hunst 3** | 33.7 | 35 280 | 8.08 | 72 | 72 | 0.16 |
| **Lofta 1** | 79.5 | 51 360 | 8.05 | 55 | 70 | 0.28 |
| **Lofta 2** | 79.5 | 47 500 | 8.14 | 57 | 70 | 0.28 |
| **Lofta 3** | 79.5 | 38 160 | 8.03 | 65 | 73 | 0.28 |
| **Masar 1** | 16.6 | 12 100 | 8.11 | 88 | 70 | 0.22 |
| **Masar 2** | 16.6 | 11 140 | 8.59 | 84 | 87 | 0.22 |
| **Masar 3** | 16.6 | 15 140 | 8.2 | 87 | 66 | 0.22 |
| **Roto1 1** | 63.2 | 40 520 | 8.11 | 65 | 77 | 0.13 |
| **Roto1 2** | 63.2 | 56 520 | 8.22 | 62 | 72 | 0.13 |
| **Roto1 3** | 63.2 | 32 800 | 8.14 | 67 | 72 | 0.13 |
| **Tofta 1** | 15.9 | 12 440 | 8.19 | 76 | 83 | 0.16 |
| **Tofta 2** | 15.9 | 11 420 | 8.63 | 77 | 73 | 0.16 |
| **Tofta 3** | 15.9 | 14 760 | 8.33 | 82 | 57 | 0.16 |
| **Tronn 1** | 15.7 | 1 700 | 8.14 | 77 | 37 | 0.04 |
| **Tronn 2** | 15.7 | 2 647 | 8.35 | 79 | 41 | 0.04 |
| **Tronn 3** | 15.7 | 3887 | 8.18 | 84 | 41 | 0.04 |
| **TrPS5 1** | 17.1 | 1 628 | 8.05 | 75 | 59 | 0.06 |
| **TrPS5 2** | 17.1 | 1 724 | 8.23 | 76 | 74 | 0.06 |
| **TrPS5 3** | 17.1 | 3 000 | 7.98 | 63 | 25 | 0.06 |
| **Tvaak 1** | 37.9 | 9 820 | 8.01 | 80 | 68 | 0.21 |
| **Tvaak 2** | 37.9 | 6 720 | 8.13 | 80 | 70 | 0.21 |
| **Tvaak 3** | 37.9 | 8 420 | 8.08 | 80 | 66 | 0.21 |

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