**Long term in-situ water quality monitoring in the Vantaa River**

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The water quality of the Vantaa River has be monitored on hourly basis with a S:CAN sensor since 2010. Turbidity has varied between 0-500 FTU and nitrate nitrogen concentration has been within the range 0-6,6 mg/L based on the sensor monitoring.

The data has been used in catchment scale nutrient loading model (SWAT and VEMALA) calibration and validation. The performance of the models to simulate riverine nutrient loadings has been shown to improve in case in situ high frequency data is used to calibrate these models. (Kämäri et al. 2019, Piniewski et al. 2019)

The sensor presently monitors parallel three substances i.e. turbidity NO3-N and DOC. Thus, the monitoring data is useful also in studies to detect variability and differences in between the responses of substances to hydrological and seasonal changes (Kämäri et al. 2018).

We are aiming to update the in situ monitoring station in the Vantaa River to be able to continue the long term monitoring in the future with new water quality sensors.

Kämäri M., Tattari S., Lotsari E., Koskiaho J., Lloyd C.E.M. 2018. High-frequency monitoring reveals seasonal and event-scale water quality variation in a temporally frozen river. Journal of Hydrology 564.

Kämäri M., Huttunen I., Valkama P., Huttunen M., Korppoo M., Tattari S., Lotsari E., 2019. Modelling inter- and intra-annual variation of riverine nitrogen/nitrate losses from snowmelt-affected basins under agricultural and mixed land use captured with high-frequency monitoring - CATENA 176:227-244.

Piniewski M., Marcinkowski P., Koskiaho J., Tattari S. 2019. The effect of sampling frequency and strategy on water quality modelling driven by high-frequency monitoring data in a boreal catchment. Journal of Hydrology 579.