

# Modeling the pathways of Microplastics in the Gulf of Finland, Baltic Sea

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## Aim

- To provide an overview of the pathways and accumulation areas in the Gulf of Finland (GOF) using a multi-year high resolution model.
- To identify the potential Microplastic (MP) accumulation patterns in the surface, water column and sediments.

## Methodology

- Output from hydrodynamic model (GETM) is used to simulate the transport of MP particles.
- Biogeochemical data from ERGOM is used to determine the biofilm growth on particles

Figure 1 - Map of the WWTPs (blue dots) and river (red dots) sources in the GOF catchment.

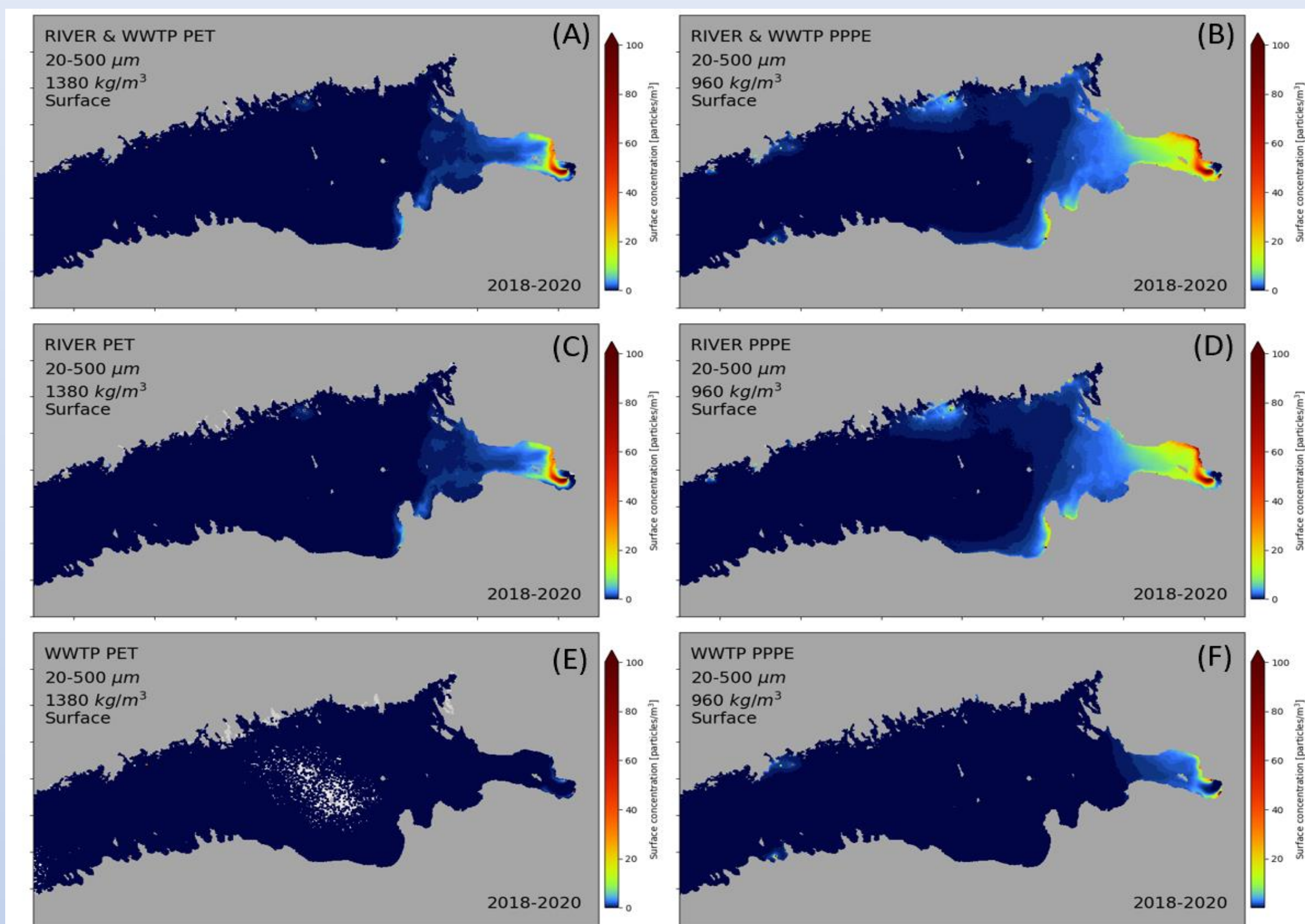
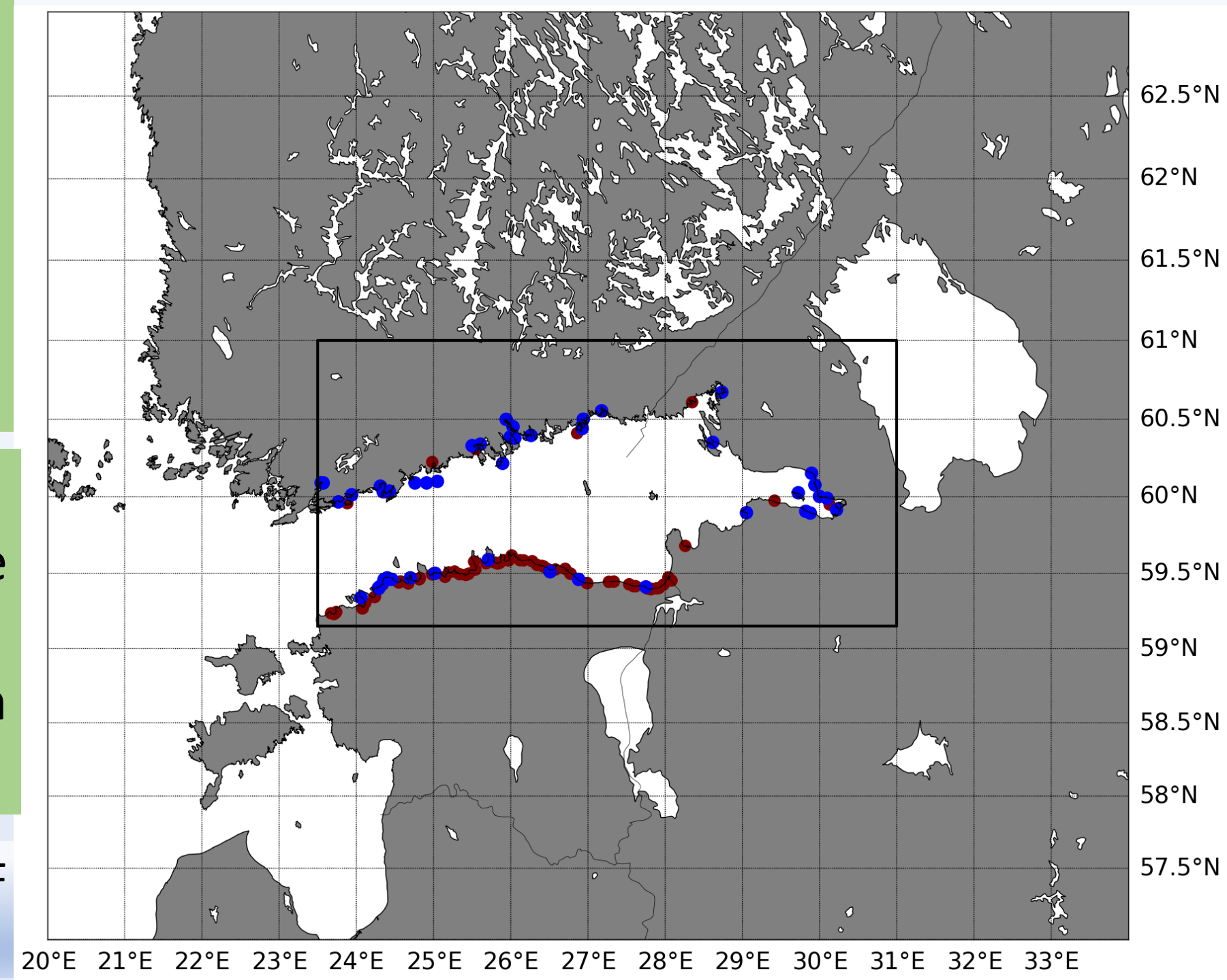


Figure 2 - Mapping the mean spatial concentrations of PET and PP/PE MP particles (20 - 500 μm) in the surface layer of the GOF.

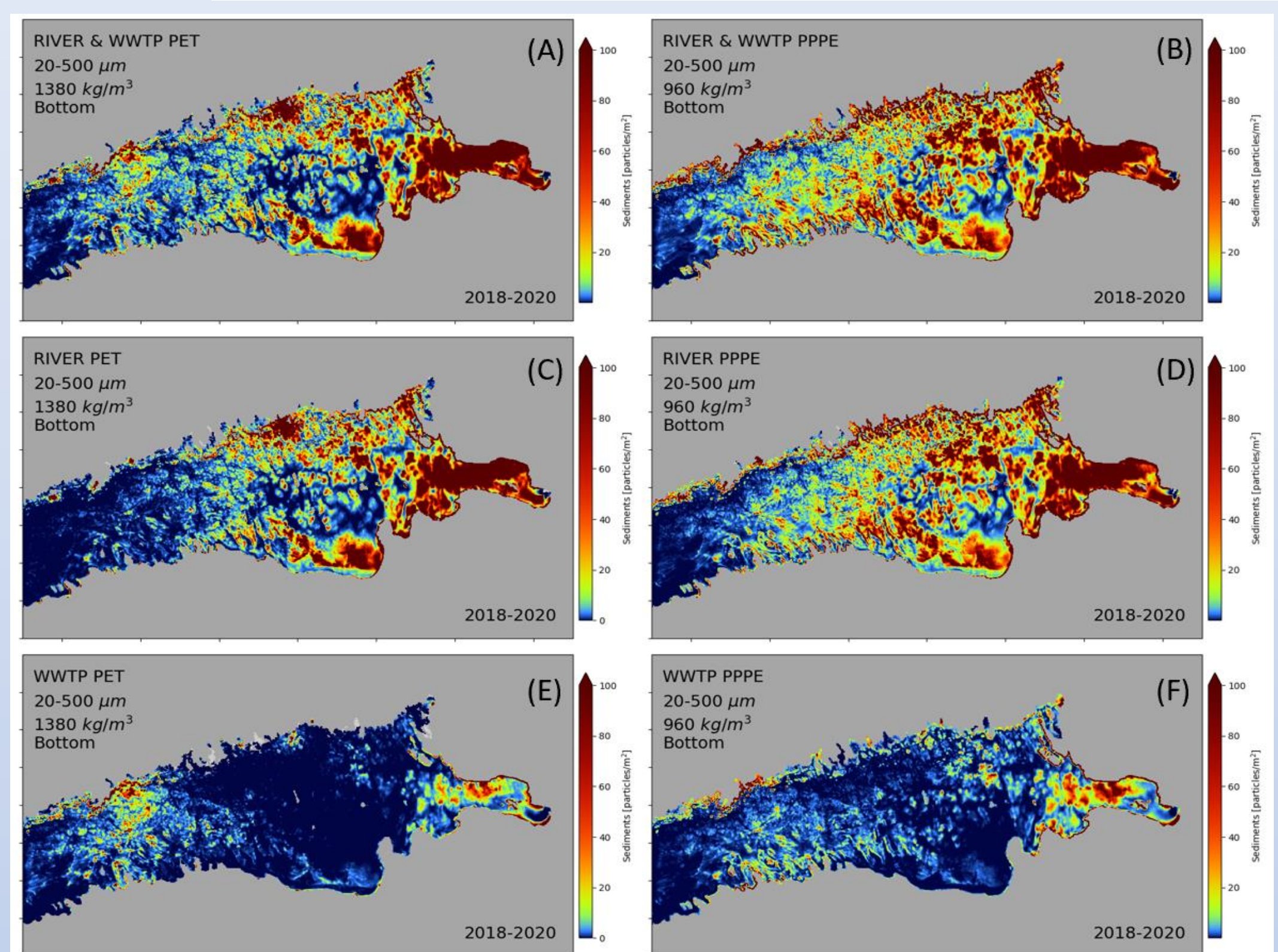


Figure 3 - Mapping the mean spatial concentrations of PET and PP/PE MP particles (20 - 500 μm) in the sediments of the GOF.

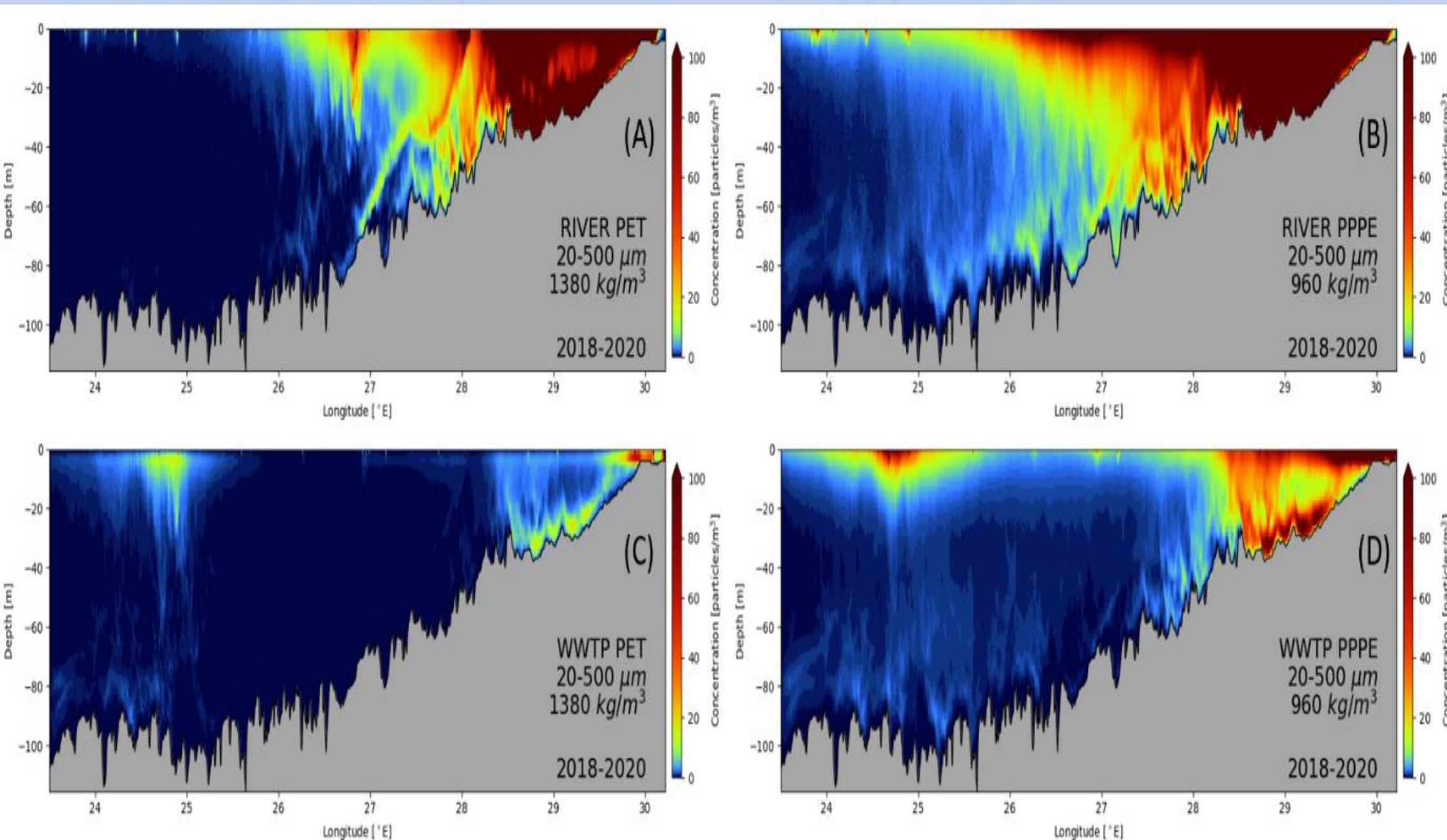


Figure 4 - Mapping the mean spatial concentration of PET and PP/PE MP particles (20 - 500 μm) in the water column of the GOF.

## Conclusions –

- Average concentrations of PET and PP/PE particles in the surface layer are 0.57 and 1.49 particles/m<sup>3</sup>.
- In water column, MP concentration is higher in the vicinity of the Neva river, and in the sediments, MPs are found near source locations and in relatively shallow areas near the coast.
- PET and PP/PE particles have an average residence time of 4 and 19 days, respectively, in the surface layer of the GOF.

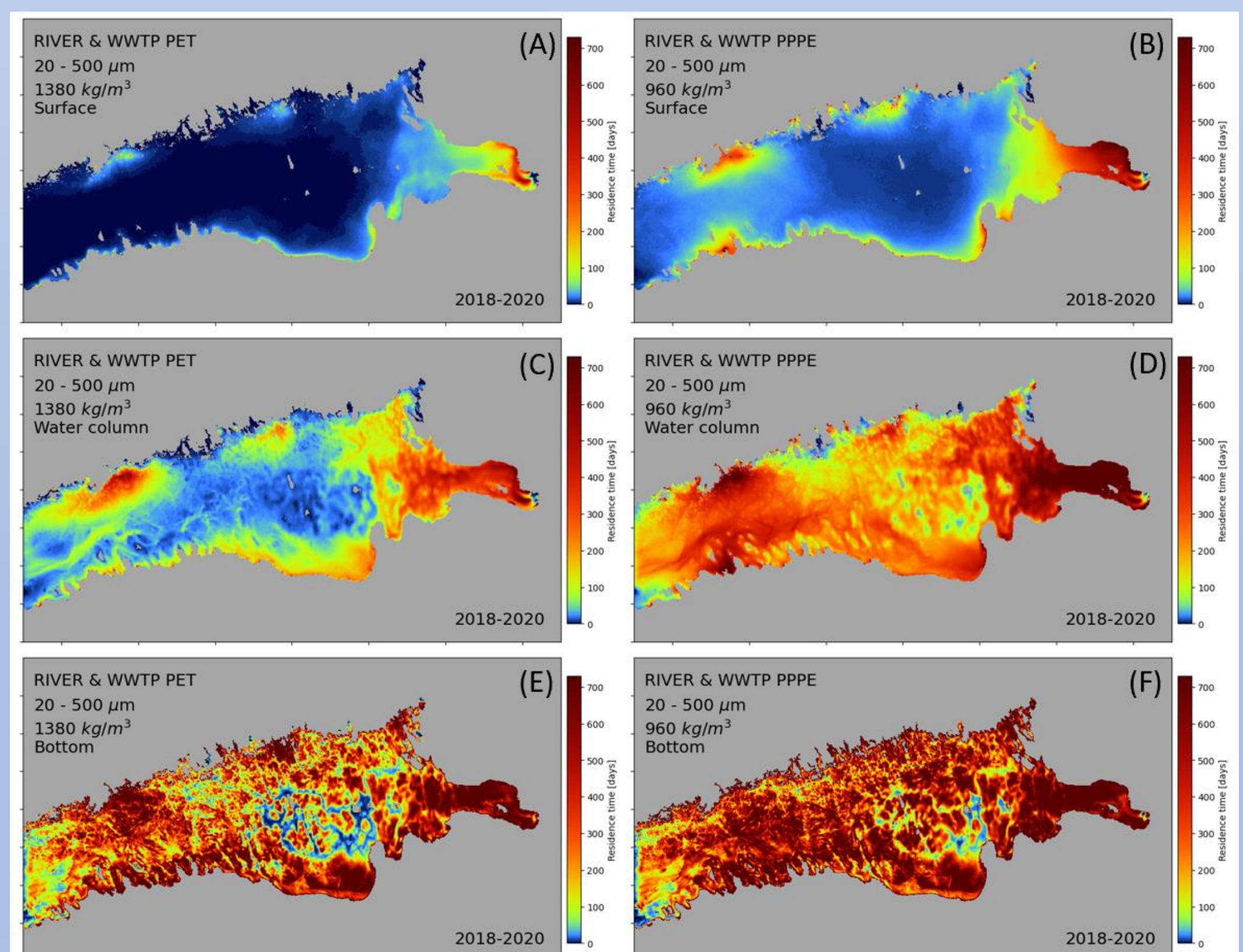


Figure 5 - Mapping the residence time of PET and PP/PE MP particles (20 - 500 μm) sourced from both rivers and WWTPs in different layers of the GOF

## Acknowledgements

This work has been undertaken as part of the PRG602 and JPI Oceans Response project specially supported with funding from the Ministry of the Environment of the Estonian Republic (MoE) and the Estonian Research Council (ETag).