Switzerland (FHNW), Switzerland, (2)University of Applied Sciences and Arts Northwestern Switzerland (FHNW), Switzerland
UV filters are used extensively in sunscreen products, but also in other cosmetic products and industrial goods to reduce the harmful effects of UV radiation. Apart from the direct exposure during swimming activities, UV filters are released into the aquatic environment in large quantities via sewage treatment plants. In this study we investigated the presence of UV filters in small, remote, prealpine and alpine mountain lakes. These lakes are not affected by UV filter inputs from sewage treatment plants, however recreational swimming activities in summer are thought to lead to inputs. Since most of the common UV filters are very lipophilic, we studied the concentrations of UV filters in the surface microlayer of the lakes instead of taking grab samples.

The fate of the UV filters was investigated in four different lakes, three of which are located in the canton of Graubünden and one in the canton of Zurich. The size of the lakes varied between 20'000 and 360'000 square metres. After sampling, the organic UV filters were preconcentrated by Oasis HLB solid phase extraction and afterwards determined on a high performance liquid chromatography coupled to triple quadrupole mass spectrometer.

The studied UV filters were ingredients currently used in sunscreens which were as follows 2-ethylhexylsalicylate (EHS), 2-phenylbenzimidazole-5-sulphonic acid (PMDSA), avobenzone (AB), ethylhexyl methoxycinnamate (EHMC), octocrylene (OC) and oxybenzone (OB).

The concentrations of UV filters reached values of up to 112 µg/L for OC, followed by 3.4 µg/L for AB and 2.4 µg/L for PMDSA. The UV filters EHS and EHMC were found in concentrations ranging from 0.02 to 1.2 µg/L whereas OB was in the range of 0.01 and 0.02 µg/L. The sampling of the surface microlayer showed very high values for OC, which has not been observed in surface waters so far based on previous literature. This is of particular concern as OC has a high potential for bioaccumulation which can lead to high concentrations in biota.

3.04.P-Th157 Assessing the risk of booster biocides for the marine environment: a case study at the Belgian Part of the North Sea

*David Vanavermaete[1], Kris Hostens[2], Gert Everaert[3], Koen Parmentier[4], Colin Janssen[5] and **Bavo De Witte**[6], (1)ILVO, (2)Flanders Research Institute for Agriculture, Fisheries and Food (ILVO), Belgium, (3)Ocean & human health, Flanders Marine Institute (VLIZ), Belgium, (4)Institute of Natural Sciences, Ecosystems Physico-Chemistry (ECOCHEM), Belgium, (5)Blue Growth Research Lab, Ghent University (UGent), Belgium, (6)Marine Research, Institute for Agriculture and Fisheries Research (ILVO), Belgium*

The biofouling of submerged surfaces such as ship hulls is often prevented by using copper-based anti-fouling paints containing booster biocides. These booster biocides enter the water column and may affect non-target organisms. So far, the environmental risks for booster biocides have barely been quantified in the North Sea. In this study, the concentration of five commonly used booster biocides as well as tributyltin has been measured at five dredged spoil disposal sites in the Belgian part of the North Sea and the harbour or ports of Nieuwpoort, Oostende, and Zeebrugge. In four out of five dredged spoil disposal sites, a concentration with a risk characterization ratio (RCR) of more than 1 was observed in 97% of the samples. This indicates that the current ambient booster biocide and tributyltin concentrations may pose a risk to the marine environment. Tributyltin, for example, has been banned since 2008, but was still detected with an RCR of 237 to 546. The contamination observed in a specific harbour or port corresponds to the respective dredged spoil disposal sites and can be linked to the type of traffic. Additionally, different hotspots were observed. For Irgarol, for example, a 55-fold higher concentration has been observed at one sample location in the Port of Oostende compared to the median concentration in that port.

High RCR values detected for booster biocides and tributyltin indicate the importance to monitor these components such that hotspots may be discovered, and that actions can be taken in time if the concentration of a component exceeds the threshold at which unreversible damage to the marine environment may be expected.

3.04.P-Th158 Wide-Range Target Screening of Pharmaceuticals in Serbian Rivers: Occurrence and Seasonal Distribution

***Jelena Živančev**[1], Olga Gómez Navarro[2], Nicola Montemurro[3], Sandra Perez Solsona[2], Igor Antić[4], Maja Buljovčić[4], Dušan Rakić[4] and Natasa Durisic-Mladenovic[4], (1)University of Novi Sad, Serbia, (2)Onhealth, Institute for Environmental Assessment and Water Research, Spanish Research Council (IDAEA-CSIC), Spain, (3)Department of Environmental Chemistry, Institute for Environmental Assessment and Water Research, Spanish Research Council (IDAEA-CSIC), Spain, (4)University of Novi Sad, Faculty of Technology, Serbia*

In recent decades, the impact of anthropogenic activities on water resources, primarily on surface water, has grown significantly due to population growth, and expansion of urban, industrial, mining, and agricultural sectors in both developed and developing countries. Additionally, surface waters are increasingly contaminated because they also serve as recipients of municipal and industrial wastewater containing a wide variety of pollutants, which even after treatment end up in rivers and other water bodies. The number of contaminants of emerging concern that may be present in surface waters is enormous, and their fate and ecological impact are still largely unknown. Among numerous contaminants of emerging concern, pharmaceuticals cause global concern because they contribute to the development of antibiotic-resistant bacteria and threaten the long-term survival of many species. For broad surveillance of these pollutants, a target screening approach is used to help