



## PHOSPHORUS REMOVAL IN KINGISEPP, RUSSIA

John Nurminen Foundation has been working with the Baltic Sea for 12 years. During these years, it has reduced the eutrophying nutrient load to the Sea by several thousands of tons with targeted projects focusing on the most cost-effective opportunities for reducing nutrient discharges to the Sea.

Russian municipal wastewater treatment (WWT) plants in the Kaliningrad and Leningrad regions continue to be major sources of nutrients to the Baltic Sea. This is despite the fact that most of the Russian cities have existing WWT infrastructure built during the Soviet era which could be

enhanced with relatively low cost to remove nutrients, especially phosphorus, in an effective way.

During the past few years there have been success stories in the modernization of Russian WWT, namely in St. Petersburg where all treatment plants now treat their wastewaters effectively. Despite the positive advancements in St. Petersburg, medium and small size cities in Russia are still lacking effective phosphorus treatment. As phosphorus is the limiting factor for blue-green algae in the Sea, the measure would reduce especially the massive algal blooms experienced in the most Baltic Sea sub-basins during the summer period.

The fastest and least-cost method to reduce nutrients from municipal effluents is chemical phosphorus removal. Chemical precipitation can be used even when the WWT infrastructure is in relatively poor condition, which is often the case in Russian cities.

Since 2011, after completing the investments in St. Petersburg, the Foundation has worked in medium-sized Russian cities to reduce the load to the Gulf of Finland. After enhancing phosphorus removal in the second and third largest remaining point sources, the municipal WWT plants of Gatchina and Vyborg, the Foundation has now launched a project in the fourth largest source, the WWT plant of Kingisepp. In

the project, the Foundation will procure the equipment needed for enhanced phosphorus removal, and the water utility will construct and operate the treatment system.

Enhancing phosphorus

removal in Kingisepp will reduce up to 13 tons of annual phosphorus load to

Luga river flowing to the Gulf of Finland. The amount is over 50% of the yearly

discharges from the Viikinmäki wastewater treatment plant in Helsinki.

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