

TRUST ALUM

DISCOVER THE JOURNEY



Interreg
Baltic Sea Region



Co-funded by
the European Union

SUSTAINABLE WATERS

TRUST ALUM



The TRUST ALUM project

The Interreg Baltic Sea Region TRUST ALUM project addresses one of the major challenges in water management in the Baltic Sea Region – **eutrophication**, that leads to excessive algal blooms, which in turn may harm ecosystems and human health. Many lakes in the region still suffer from **high phosphorus loads** due to past mismanagement. If not addressed, these phosphorus hot spots will continue to **harm the Baltic Sea**.

Our solution to this issue was to promote **ALUM treatment** – an effective, yet misunderstood lake restoration method – in the Baltic States. In a collaborative effort involving **nine project partners** from Latvia, Sweden, Lithuania, and Estonia, the project successfully demonstrated the **effectiveness and safety** of ALUM treatment through a pilot treatment of **Lake Velnezers**, located in Riga, Latvia. The pilot treatment yielded promising results and valuable insights for **future lake restoration efforts**.

What is ALUM treatment?

ALUM treatment uses **aluminium-based compounds** to bind phosphorus into insoluble minerals. Phosphorus gets **trapped in the lake sediment** and thereby is **removed from circulation**. ALUM treatment is safe, fast and lake water quality improvement can be observed **within days**. Its positive effects can last for **years**.

The aluminum-based compounds are added into the water or directly into the sediment using a boat. During the treatment of Lake Velnezers, we used **poly-aluminum chloride (PAC)** to inject the top 10 cm of the lakes' sediment.

Lake Velnezers – a lake restoration pioneer

Although this method has been **safely and successfully** applied worldwide for over **60 years**, the treatment of Lake Velnezers was the **first ALUM lake treatment in the Baltic States**. The success of the treatment strongly depends on systematic lake monitoring, careful planning and precise dose calculation. The **TRUST ALUM team** joined forces to ensure that all **necessary preparation works** have been carried out.

10 facts about the treatment of Lake Velnezers

1 The boat has the capacity to hold 4 tonnes of PAC. It required 4 refills to treat the entire lake.

6 Limestone sludge was also added to the lake to increase lake alkalinity and control water pH.

2 The treatment of the entire 3.5 ha area of Lake Velnezers took 3 days.

7 The boat travelled over 1000 km from Sweden on a truck and a ferry.

3 PAC was pumped into the boat from containers on land. It took 25 min to pump each container into the boat.

8 Water parameters such as pH and alkalinity were measured every hour of the treatment.

4 PAC was distributed approximately 10 cm deep into the lake sediments.

9 Over 400 members of the local community visited the TRUST ALUM informative tent set up during the treatment week.

5 It took over a year and 15 sampling trips to collect data used to model the PAC dose for Lake Velnezers.

10 As a result of the treatment Lake Velnezers transparency increased from 0.9 m in November 2023 to 2.6 m in November 2024.



How did the treatment go?

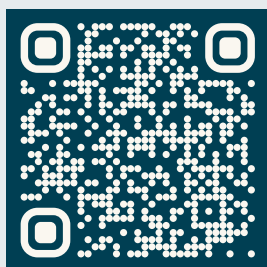
The treatment of **Lake Velnezers** took place in October 2024. The aim was to mitigate the effects of decades of **phosphorus pollution** caused by agriculture and later urbanization. Our experts ensured a safe and successful execution of the treatment throughout the entire treatment week.

The treatment event generated a lot of **interest from the local community**. Many asked about the **safety** of swimming, fishing or pets, and learned that they could soon enjoy their favorite activities again. Some were unsure at first, but **conversations with scientists** from the Latvian Institute of Aquatic Ecology helped to address their concerns. The event got coverage in national media, and bringing **experts, locals, and stakeholders** together to talk about the importance of lake ecosystem health and the **ALUM treatment method** as a tool to achieve it.

What did we achieve?

The treatment led to **significant improvements** of lake water parameters. Early results of post-treatment monitoring show a **massive drop in phosphorus content** in the water, improved water transparency and aluminium concentrations remaining **below the limit** acceptable for drinking water. These results suggest changes towards a **healthier lake environment** and create a strong foundation for long-term ecological recovery. Continued monitoring will show how the **lake's biodiversity** responds over time.

More information on the TRUST ALUM project:



interreg-baltic.eu/project/trust-alum
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Interreg Baltic Sea Region 2021-2027 Programme's funded project «Building trust in target groups for ALUM treatment – an effective, yet misunderstood method for water quality improvement» TRUST ALUM.