

## General description of the bathing water in non-technical language

Gräbendorfer See is a lake situated around 16km south west of Cottbus in the Luckau-Calau Basin which stretches out northwards from the Lusatian Border Wall.

The lake is a body of water left over from opencast mining. From 1981 to 1992 lignite was mined here. The lake got its name from the locality which fell victim to the excavations on this spot. With a surface area of 466ha, a maximum depth of 46m, and a volume of 95M m<sup>3</sup>, it is among the medium-sized quarry lakes in Brandenburg. In the southern area there is a large island, which was created from a spoil heap.

As with almost all abandoned lignite quarries in Lusatia, Gräbendorfer See is under threat of acidification. Due to the fact that sulphur & iron compounds in the excavated material oxidise in the air and are then washed out by rising groundwater and rainfall, acid is created which lowers the pH value to below 3.

Gräbendorfer See was the first abandoned lignite quarry in Brandenburg to be completely flooded with river water (in this case the River Spree) after 1990, in order to prevent acidification. In 1997 the lake reached its final water level and an outflow was made operational, so that the River Spree could now flow through the lake, insofar as there was enough water. As the decontamination of the Gräbendorfer See was seen has a model, its development was accompanied by water ecology studies. Indeed, the pH value was able to be raised from the original 2.5 to 6 due to the flooding with external water. However, when little water from the Spree was available during periods of low rainfall, the pH value sank considerably in parts.

As large quantities of nutrient-binding iron hydroxide ("rust") are created during the chemical reaction reactions in acidic quarry lakes, most quarry lakes are, as least at the start of their development, nutrient-poor, clear lakes despite being flooded with nutrient-rich river water, as long as they do not take on a rusty-red colour due to extreme build-up of iron hydroxide. The question as to how these lakes ultimately develop and how the development can be favourably influenced remain big challenges.

Gräbendorfer See is situated on the northern edge of the (planned) "Lausitzer Seenland" ("Lusatian Lakeland") holiday and recreation landscape. By 2018, Europe's largest artificial lake landscape (with a water surface area of more than 140km<sup>2</sup>) will have been created, with beach bathing areas, yachting harbours, floating houses, camping sites, water skiing facilities, seaplane port etc. A quiet recreational use is planned for Gräbendorfer See. The floating diving base on the north-western shore is one of the first two swimming houses which are currently on trial.

Since 2010 Gräbendorfer See has been designated as a bathing area. The former "Laasow" bathing area had to be close because of safeguard (mining law, building measures).

After development of the touristic facilities the bathing area Laasow/Wüstenhain is tested every four weeks by the local office for health as per the Brandenburg Bathing Water Regulations. Microbiological guide and maximum values for water hygiene monitoring are constantly adhered to. Blooms of blue-green algae have not been observed.

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### Sources:

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