

Warmer climate not the cause of oxygen deficiency in the Baltic Sea

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Oxygen deficiency in the Baltic Sea has never been greater than it is now. But it is not an effect of climate change but rather of increased inputs of nutrients and fertilisers. This is the finding of researchers at the University of Gothenburg, Sweden, who have analysed the ocean climate of the Baltic Sea since the 16th century.

85 million people live in the drainage basin of the Baltic Sea. This population has a great impact on the marine environment of the Baltic. This is shown by the researcher Daniel Hansson at the Department of [Earth Sciences](#), who has analysed the ocean [climate](#) of the Baltic Sea since the 16th century using new methods.

In his thesis, Hansson notes that oxygen deficiency and spread of dead seabeds in the Baltic Sea are essentially due to human activity.

"Climate change to date has only had a negligible effect on oxygen deficiency in the Baltic Sea. The principal cause of oxygen deficiency and large areas of dead seabed is that inputs from agriculture and untreated wastewater increased sharply, in particular in conjunction with increased use of commercial fertiliser in the mid-20th century," says Hansson.

By combining new methods to reconstruct the historical climate and modern computer models, Hansson has been able to study in detail changes in water temperature, ice extent, river runoff, salinity and oxygen concentrations in the [Baltic Sea](#) over 500 years. The studies show clearly that the oxygen condition today cannot be compared with any

other period since the 16th century, and that the present-day raised water temperature and limited ice extent are similar to situations that have occurred only twice previously.

"But if the trend towards continued warming persists, we may soon see [climate change](#) outside the variation that has occurred in the past 500 years," says Hansson.

The technique used in the thesis provides very high time resolution. Hansson has, for example, been able to reconstruct how the ice thickened during the turbulent days of January and February 1658, when King Charles X Gustav marched with the Swedish Army across the Little and Great Belt, leading to the annexation of Blekinge, Skåne, Halland and Bohuslän by Sweden.

Source: University of Gothenburg ([news](#) : [web](#))

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