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Methane distribution and oxidation in the Elbe Estuary

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Rivers represent a transition zone between terrestric and aquatic environments, as well as a transition zone between methane rich and methane poor environments. The Elbe River is one of the important rivers draining into the North Sea. Methane concentrations in freshwater systems are in general higher than in marine systems. Methane consuming bacteria are known from both environments. However, in the transition zone between marine and limnic systems the shift in salinity imposes an osmotic stress for most organisms. We represent data on methane distribution and methane oxidation within the estuary and try to assess which environmental parameters are governing the activity of the methane oxidizing bacteria, such as temperature, turbidity, nutrients or salinity. Thus we will be able to see whether the “biofilter” of methane oxidation functions within estuary