



## **Comparing microbial methane oxidation rates and methane distribution in arctic and boreal estuaries**

Ingeborg Bussmann (1), Alexandra Kraberg (1), Anna Matousu (2), and Roman Osudar (1)

(1) Alfred-Wegener Institute, Shelf Sea Systems Ecology, Helgoland, Germany (ingeborg.bussmann@awi.de), (2) University of South Bohemia & Biology Centre of the Academy of Sciences of the Czech Republic, Ceske Budejovice, Czech Republic

Rivers represent a transition zone between terrestrial and aquatic environments, as well as a transition zone between methane rich and methane poor environments. Methane concentrations in freshwater systems are in general higher than in marine systems. The Elbe River is one of the important rivers draining into the North Sea, as is the Lena River draining into the Laptev Sea. High methane concentrations have been observed within both rivers, and additional hot spots in the Lena Delta. However due to different stratification patterns in the mixing zones, the further fate of methane in the North Sea and the Laptev Sea is different.

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. In this study we want to compare the environmental data obtained in both estuaries with the methane oxidation to elucidate the efficiency of the respective methane oxidizing bacteria.