
Development of hypoxia in the Grevelingenmeer (Netherlands) since the closure in 1971

Frans Jorissen*¹, Anaïs Guihéneuf¹, Dewi Langlet¹, Jassin Petersen², Fatimah Sulu-Gambari³, Christine Barras¹, Karoliina Koho^{4,3}, Lennart De Nooijer⁵, Magali Schweizer¹, Gert-Jan Reichart^{5,3}, Caroline Slomp³, and Filip Meysman⁶

¹LPG-BIAF Bio-Indicateurs Actuels et Fossiles – CNRS : UMR6112, Université d'Angers – 2 Boulevard Lavoisier, 49045 Angers, France

²LPG Nantes – CNRS : UMR6112, Université de Nantes – 2 rue de la Houssinière - BP 92208 44322 Nantes Cedex 3, France

³University of Utrecht, Geoscience Faculty – Budapestlaan 4 3584 CD Utrecht, Pays-Bas

⁴University of Helsinki, Department of Environmental Science – Finlande

⁵Royal Netherlands Institute for Sea Research, Texel – Pays-Bas

⁶Royal Netherlands Institute for Sea Research, Yerseke – Pays-Bas

Résumé

After the closure of this part of the Rhine/Maas estuary in 1971, the deepest areas of the Grevelingenmeer (Netherlands) have been affected by bottom water hypoxia. In order to be able to reconstruct the oxygenation history of the basin, we are developing a range of paleo-oxygenation proxies based on the characteristics of recent benthic foraminifera:

1) Foraminiferal density, diversity and assemblage composition,

2) Benthic foraminiferal pore patterns,

3) Trace metal ratios in benthic foraminiferal tests

Our presentation will concentrate on the very complex observations made in the recent Grevelingenmeer, which seriously complicate the calibration of these proxies. Finally, we will show preliminary results of the application of the newly developed proxies on a 90 cm long sediment record, representing the last 50 years.

*Intervenant