

Benthic foraminifera in moderately polluted environments: a case study from Kiel Bight (SW Baltic Sea)

Principle investigators:

J. Schönfeld (GEOMAR)
S. Schmidt (GEOMAR)
C. Dullo (GEOMAR)
M. Frank (GEOMAR)

Collaborators:

A. Nikulina (Spitsbergen)
L. Numberger (Lux Museum)
I. Polovodova (Univ. Gothenburg)
M. Schweizer (Univ. Angers)

Funding since 2005:

DAAD, Otto Schmid Labor Program "Dynamics of Northern Eurasian Environments", Excellence Cluster "Future Ocean", DFG

We investigate the foraminiferal response to natural and anthropogenic environmental changes in marginal seas. Living benthic foraminifera in Kiel Bight (SW Baltic Sea) face moderate pollution from shipyards, harbours and intense traffic. But the dominant environmental forcings are food supply and salinity variations. A comparison with historical data from the 1940s to 1960s revealed changes in species composition and population densities indicating enforced environmental stress during the past decades.

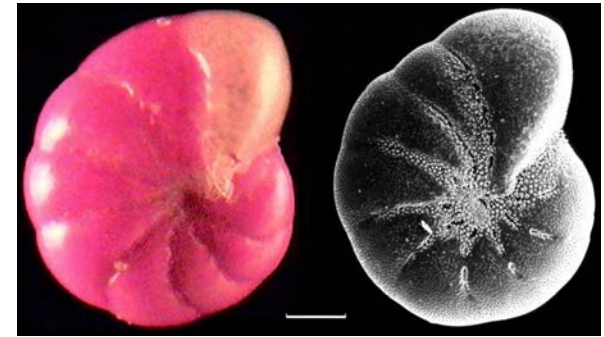


Fig. 1. *Elphidium incertum* from Kiel Bight, 24 m waterdepth, scale bar = 100 micron. This species prefers higher salinities and food supply than other *Elphidium* species. The species invaded Bottsand Lagoon in 2016 (Schönfeld, 2018).

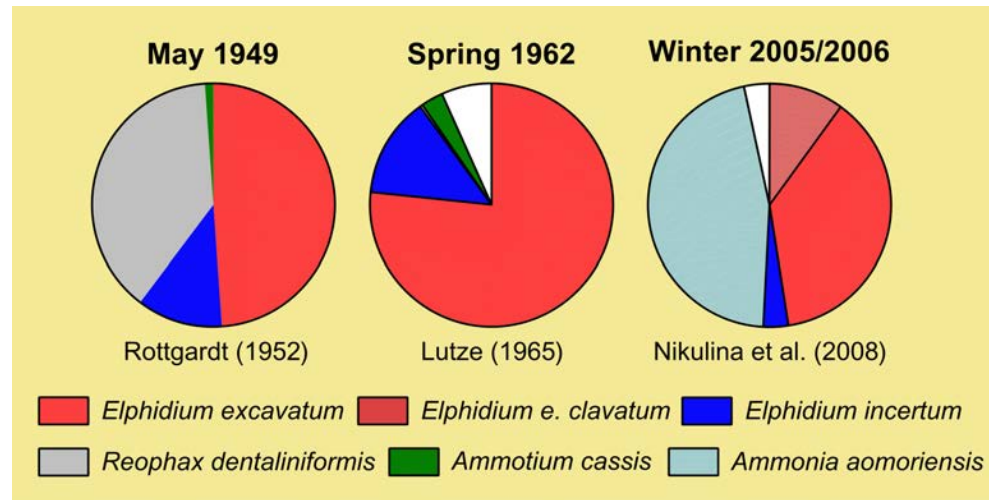


Fig. 2. Historical changes of the average species composition in Kiel Fjord. *Ammotium cassis* has disappeared since the 1990s (Schönfeld and Numberger, 2007), and it was replaced by *Ammonia aomoriensis* (Nikulina et al., 2008; Schweizer et al., 2011).

References: Lutze, G.-F. 1965, *Meyniana*, 15: 75-142.
Nikulina et al. 2008, *eEarth*, 3: 37-49. Rottgardt, D. 1952, *Meyniana*, 1: 169-228. Schönfeld, J. & Numberger, L. 2007, *J. Micropalaeontol.*, 26: 47-60.
Schweizer et al. 2011, *Helgol. Mar. Res.*, 65: 1-10.
Schönfeld, J., 2018, *J. Micropalaeontology*, 37, 383-393.