



Stable isotope signatures and element stoichiometry of *Fucus vesiculosus* as indicators for environmental conditions in the Kiel Bight, Baltic Sea

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In the frame of the BMBF project BIOACID II we aim for an understanding of the natural distribution and variation of isotopic composition and C-N-S stoichiometry in *Fucus vesiculosus* growing around the coast line of the Kiel fjord (part of the Kiel bight). Environmental conditions (aquatic chemistry, temperature, salinity) were monitored, too. Some changes in aquatic chemistry are related to stress factors like human activity (e.g., waste input) and further factors leading to specific changes in the composition of *Fucus vesiculosus*.

Sampling was carried out at different stations at the west and east coast of the Kiel Fjord. For each sampling station the aquatic chemistry (TA, pH, salinity, $\delta^{13}\text{C}(\text{DIC})$, main and trace elements and nutrients) as well as the composition of the *Fucus* organic tissues (stoichiometry and stable isotope composition of carbon, nitrogen) are analysed. The *Fucus* tissue was sampled in three size classes (small, medium, large).

It is shown, that *Fucus vesiculosus* indicates clear differences in the N contents and stable isotopes between the west and the east site of the Kiel Fjord. Stable nitrogen isotope signatures in *Fucus vesiculosus*, are useful proxies to identify the influence factors in the *Fucus* habitat. From the data it is obtained that the influence of human activity (wastewater treatment plant, harbour), small stream and drainage channels, which flow from the near coastal area into the bight, leads to different *Fucus vesiculosus* compositions. In future work, it is intended to extend the investigation to trace element signatures to further estimate environmental impacts.