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Title:

The impact of birds on the Wadden Sea food web

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Abstract: (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 300 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

The Wadden Sea at the western coasts of Germany, Denmark and the Netherlands is one of the globally most important foraging areas for breeding and migrating birds which act at the same time as indicators for the ecological condition of the ecosystem. However, little is known about how the intense predation pressure of birds influences the Wadden Sea food web. The aim of the interdisciplinary project STopP (From Sediment to Top Predator) is to determine the food web structure in different Wadden Sea habitat types in terms of the interaction between the basis of the food web and birds as top predators. Studied habitat types included the most important foraging areas of birds; mussel banks, cockle beds, sand flats, mud flats, seagrass meadows and beds of the immigrant razor clam *Ensis directus* a recently preferred prey item of several bird species. Data were analysed using the Ecological Network Analysis (ENA) that reflects trophic structures within the systems and reveals direct and indirect relations between the lower and the upper trophic levels. Preliminary results show that bird predation increases the complexity of the food web due to an increase in connections and a higher total system throughput. On the other hand the predation has also a destabilizing effect due to a high demand of system's carbon stocks and increased exports out of the tidal system. In addition, analyses show considerable indirect dependencies of birds to lower trophic levels such as sediment POC and phytoplankton.

Future scenarios modelled with ENA shall show how changes within the lower trophic levels would affect foraging birds due to anthropogenic or natural impacts.

Further analysis will focus on the importance of special habitat types for different bird species and the influence of changes in the biomass of key species for the whole ecosystem food web.