Seasonal lipid dynamics of herring and sprat in the Baltic Sea and possible implications for cod reproduction - DTU Orbit (06/08/2016)

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The Baltic Sea experienced a regime shift in the 1980ies with major changes in food webdynamics. These ecosystem alterations were related to climatic driven changes inhydrographic conditions affecting phyto- and zooplankton assemblage and hence the foodavailability for clupeids. Sprat abundance increased dramatically in the early 1990ies. Thechanges in plankton communities in combination with increased competition resulted indeclined condition of clupeids. Polyunsaturated fatty acids originate from phytoplankton andare transmitted through the food web. The present study investigates if the seasonalvariation in lipid composition of herring and sprat reflects the changes in plankton. Fish weresampled five times over a year and the lipid composition of different size groups wasanalyzed. Significant seasonal variation in average lipid content in sprat was found: 14.00%in November, 11.26% in January, 7.47% in March and 9.60% in June. The lipid content inherring also varied within season but was lower than sprat: 7.42% in November, 6.71% inJanuary and 4.70% in March. The seasonal lipid dynamic was reflected in variation of specific fatty acids. Clupeids are the major prey of Baltic cod so deficiencies of essential fattyacids could be a limiting factor for cod reproduction

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