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GROWING OF THE ARCTIC MARINE ECOSYSTEM - FOOD-WEB TRAITS OF THE HIGH LATITUDE SPITSBERGEN FJORDS ECOSYSTEMS WITH CONTRASTING OCEANOGRAPHIC CONDITIONS

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There is little doubt that Arctic ecosystems will continue to face unprecedented change in the coming decades. The identification of food web structures and trophic interactions of these systems is, therefore, a priority.

Here we present the first ecosystem models representing the high latitude West Spitsbergen fjords using the Ecopath with Ecosim modelling approach. The aim of present study is to recognise and compare trophic structures, their linkage and mass balance flows in the two fjords, which are influenced by different oceanographic conditions, representing contrasting Arctic and Atlantic environments. We constructed comparable energy budgets for each ecosystem based on data collected in summer 2013 during 'GAME' project sampling campaign as well as monitoring data collected by IO PAN since 1997.

Our food web model shows immature, young unstable system in Hornsund (Arctic influenced) compared to more balanced Kongsfjorden (Atlantic influenced). The results are discussed in the viewpoint of natural experimental setup, where 'warm' Kongsfjorden today may simulate 'cold' Hornsund after the warming induced change. This 'space for time analogue' approach is employed to predict the potential climate change impact on Arctic fjordic ecosystems function.