



TIDAL GLACIERS

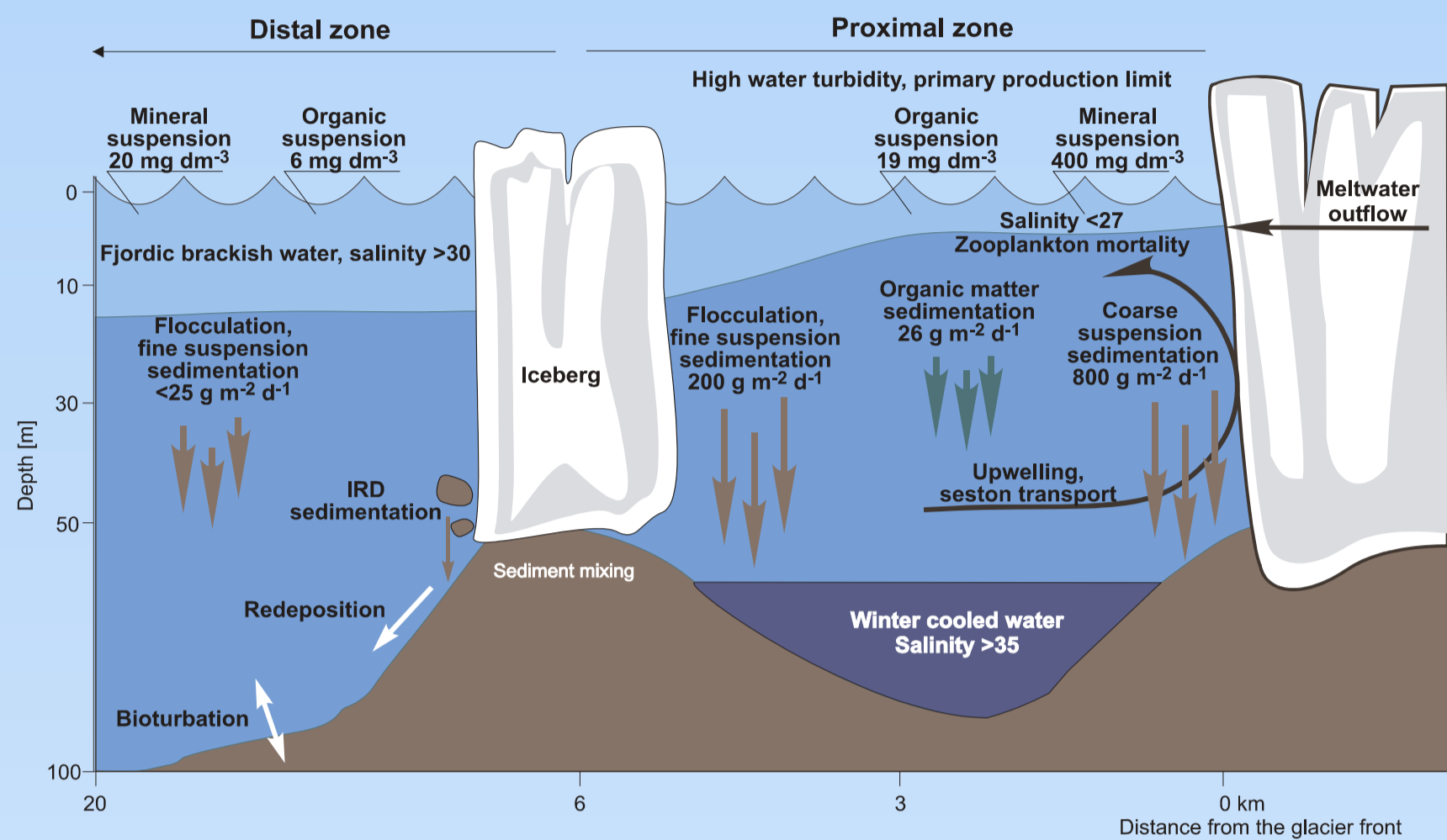
Noah's arc for Arctic marine fauna?



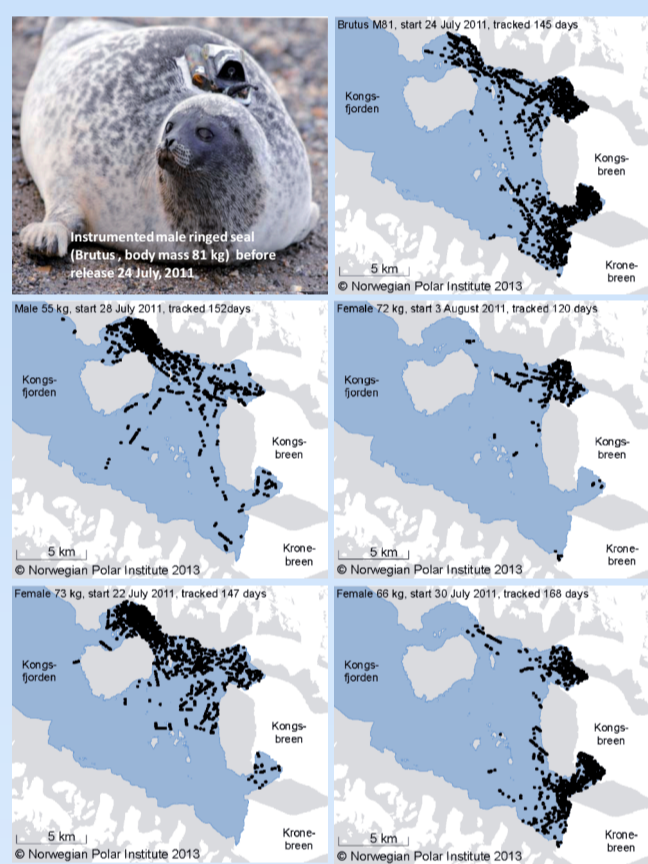
J.M. Węśławski¹, C.Lydersen², H. Steen², M. Włodarska-Kowalczyk¹, J. Berge³, J. Urbański⁴, L. Stempniewicz⁴, D.Fey⁵
¹Institute of Oceanology PAN, ²Norsk Polar Institutt, ³University of Tromsø, ⁴University of Gdańsk, ⁵Sea Fisheries Institute



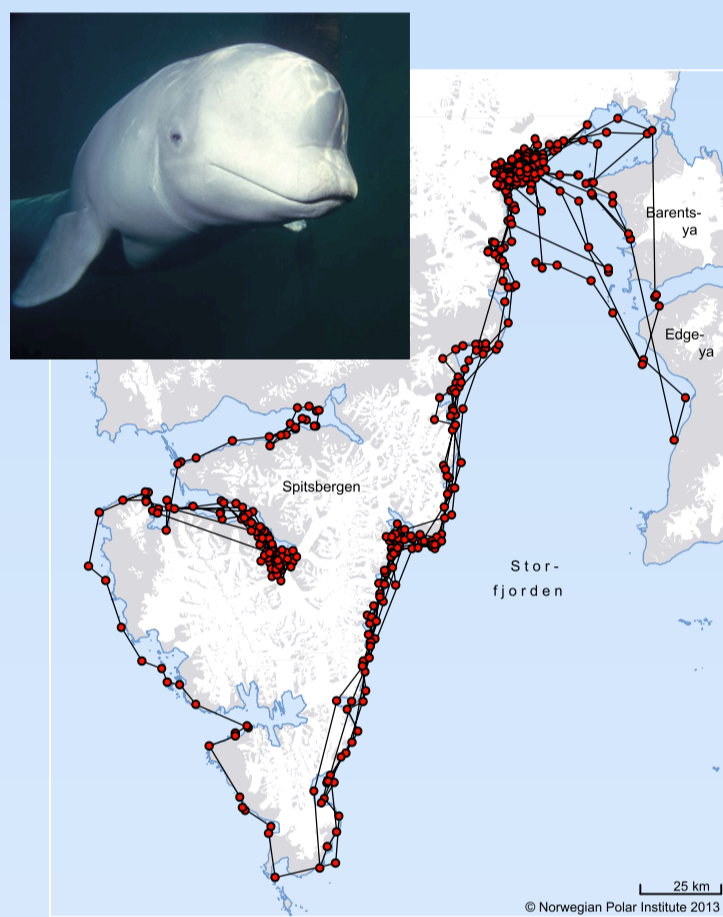
Tidal glaciers fronts on Svalbard, European Arctic archipelago at 77- 80°N



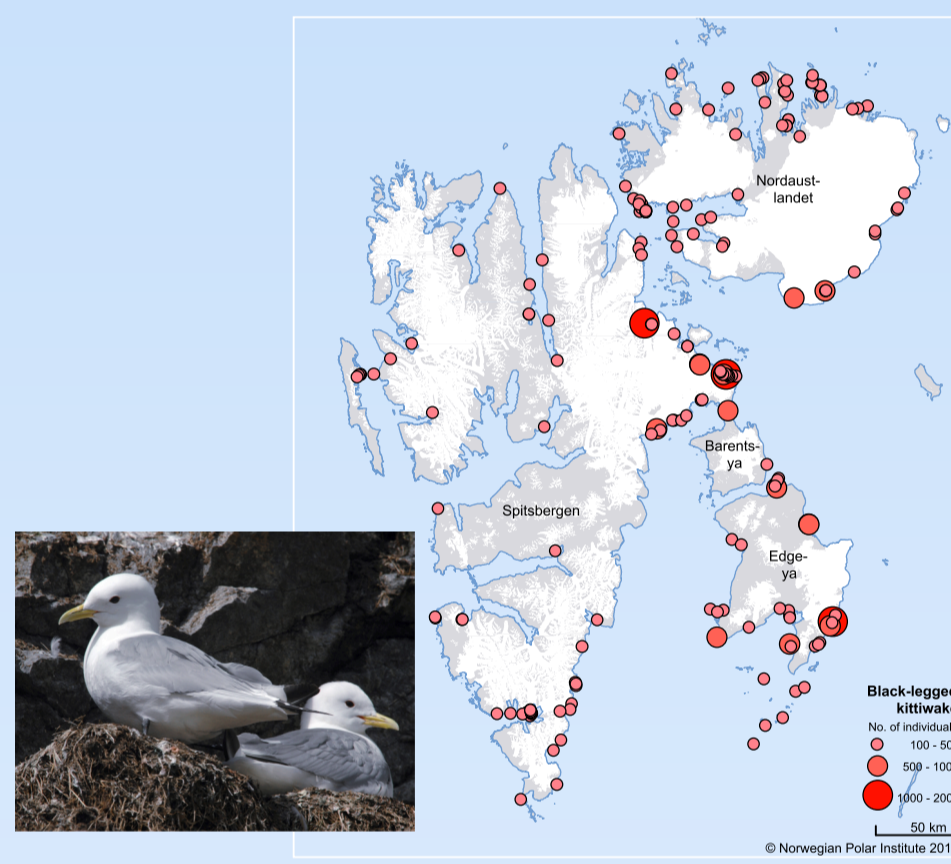
Scheme of the processes associated with meltwater outflow from tidal glacier



Ringed seals radioed in fjords, spend most of their time near glacier fronts



White whales telemetry shows substantial time spent near the glaciers



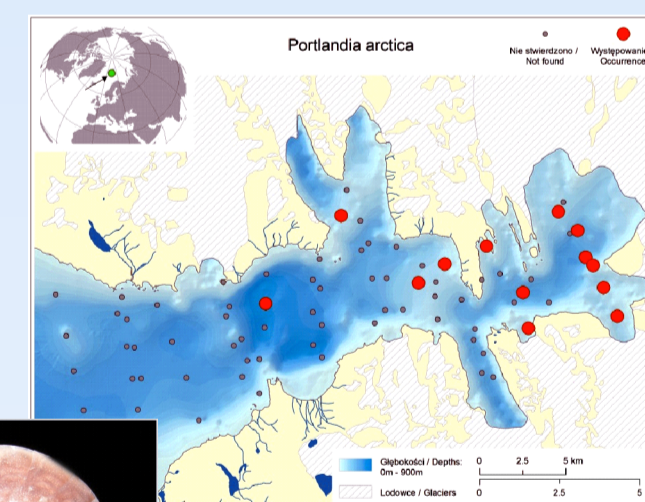
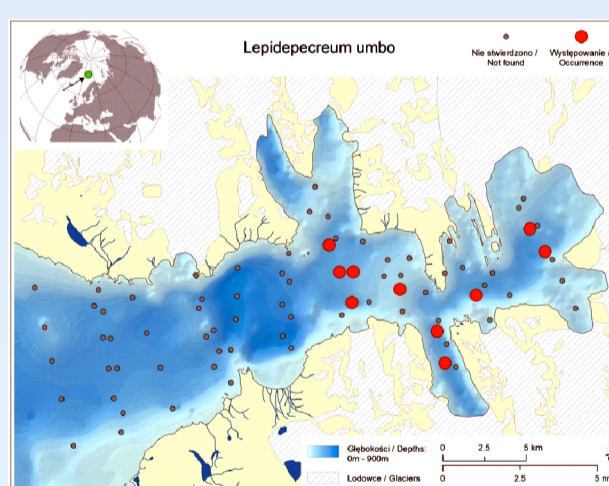
Black legged kittiwakes are among most typical birds feeding near glaciers fronts



Besides macroplankton concentrations, shoals of polar cod are very common at glacier fronts



Onisimus caricus – necrophagic amphipod specialized in feeding on sinking copepods at the glacier fronts



With the advance of warm atlantic water from the Norwegian Sea, cold water, Arctic species are retreating to pockets of cold, saline water in the innermost fjord basins

The GLAERE (Glaciers as Arctic Ecosystem Refugia) project will assess the importance of glacial bays as foraging areas for selected top predators and as habitats for cold water fauna in a quantitative manner. This assessment will be based on a combination of archival and new data collected during 2014- 2016. In this assessment, ecosystem functioning scenarios in relation to the predicted fate of the tidal glaciers hotspots will be addressed, in addition to possible compensatory effects via the influences of river mouths and mudflats in areas where glaciers retreat onto land.

References:

Lydersen Christian, Philipp Assmy, Stig Falk-Petersen, Jack Kohler, Kit M. Kovacs, Marit Reigstad, Harald Steen, Hallvard Strøm, Arild Sundfjord, Øystein Varpe, Waldek Walczowski, Jan Marcin Węśławski, Marek Zajaczkowski. 2014 The importance of tidewater glaciers for marine mammals and seabirds in Svalbard, Norway. Journal of Marine Systems 129 (2014) 452–471

