The aim of project is verify the hypothesis that climate change, observed in Arctic regions, influence phytoplankton biomass and taxonomy basing on pigments compositions in surface bottom sediments. Sediment samples will origin from different locations in Hornsund and Kongsfjorden, in three consecutive seasons.

Research carried out in the project will concern on analysis of pigments in sediments from two fjords, which differ in hydrology and primary production. Results will be correlated with environmental conditions. Results will allow to estimate and compare primary production and phytoplankton taxonomy in three seasons. The influence of climate change on processes taking place in a basins will be investigated. Pigments (chloropigments and carotenoids) are a group of natural compounds widespread in aquatic environment. They are present mainly in phytoplankton, macroalgae and bacteria but also, together with their derivatives, in detritus sinking through the water column and settling on the seabed. Some pigments are unstable compounds and can degrade both under abiotic and biotic factors - in the presence of light, oxygen, under herbivore grazing and microorganism activity. Determination of pigments in sediments is very important because they provide valuable data on productivity, phytoplankton taxonomy and environmental conditions. The advantage of this study is that samples do not need be collected frequently, like in the case of water collected in summer, when the pigment concentrations are changing in time and space. Pigments recorded in sediments provide averaged information about that what had happened in a basin and do not require continuous measurement.