

Zooplankton as the basic food source for bi-environmental birds in the warming Arctic

Zooplankton jako podstawowe źródło pożywienia dla dwuśrodowiskowych ptaków w dobie zmian klimatu w Arktyce

Observed in recent decades climate changes are manifested in shifts of life cycles of many organisms, which leads to disturbance in interactions between predators and their prey. Very sensitive for such changes are the keystone species in the Arctic – the little auk. This **predator** focus on energetic-rich **prey** *Calanus glacialis* - strongly associated with cold Arctic waters. The aim of this study is to investigate how climate change might affect phenology of *C. glacialis* in the context of little auks' highest food requirements by testing the match-mismatch hypothesis. Zooplankton samples will be collected in two seasons, three times in each summer in two different regions: Kongsfjorden and Hornsund. The WP2 net 180 µm will be used to study complete development structure of *C. glacialis*. Additionally, optical measurements by Laser Optical Plankton Counter (LOPC) will be provided to map *C. glacialis* distribution together with complementary environmental variables from both regions. Zooplankton samples will be compared with collected simultaneously in little auks' colonies - diet samples. Until now, seawater and diet zooplankton samples from 2015 were successfully collected and partly analyzed. The second sampling campaign is planned for summer 2016. Additionally, historical LOPC data analysis from 5 consecutive summer seasons confirmed decreasing availability of little auk's main prey with increasing depth and the highest availability of *C. glacialis* during colder years.