Global climate change is rapidly reshaping Arctic and functioning of polar ecosystems. The Arctic animals dependent on local environment are especially threatened to negative consequences of climate change. Here we focus on response of Svalbard population of typical Arctic seabird, a zooplanktivorous little auk *Alle alle* on variability of environmental conditions at sea. We aim to compare oceanographic conditions, zooplankton communities composition between the foraging areas of little auks nesting in five breeding colonies located in areas with various environmental conditions at sea. We will also compare foraging trip characteristics of little auks (to answer the question where they forage, how far they can fly and how deep they can dive searching for food.) and chick diet composition (type and size of food and its energy value) between the studied colonies (including historical data). The project will investigate how various oceanographic conditions (especially seawater temperature) and the corresponding differences in availability of various zooplankton size classes affect little auks diet quality and quantity, and breeding performance (i.e. chick growth rate and survival). The collected data will be used to create model of energy budget showing how costly for little auks it is to provide chicks with particular types of food in different environmental conditions characterized by various prey size and energy value; the model will incorporate environmental data from foraging grounds, detailed prey characteristics and little auk foraging performance (distance from the colony, trip duration, depth of dives) to predict their various responses to climatic oscillations. We expect that birds breeding in locations characterized by 'warmer' water conditions will have to face the worse feeding conditions resulting in either worse food (smaller, less caloric prey items) or/and harder work on finding preferred food type. We assume that despite potential little auk foraging flexibility, strength of ongoing climate amelioration in the most southern colonies may result in lower breeding success and lower chick body mass compared to more 'Arctic' colonies. We predict that little auks searching for food will focus on the size rather than on the species and select for the largest zooplankton available on the foraging ground. The proposed project will use: 1) reliable methods of little auk food identification based on DNA analysis, 2) energy assessment (bomb calorimetry) of main food types, 3) modern techniques of studying little auk foraging (miniature loggers recording of GPS positions and temperature and depth during diving) and conditions in the feeding areas (laser optical plankton counter, satellite pictures with water temperature). Cooperation of specialists from various fields of science (oceanographers, zooplankton and seabirds ecologists) would give an additional multidisciplinary perspective for interpretation of results and for comprehensive prediction of future conditions for living organisms. Results of this project will help to better understand the life of Arctic organisms in the era of global changes. The little auk is the most abundant seabird in the north Atlantic and thus plays an important role in food webs. Recently recognized problems with the species identification of its main food, zooplanktonic crustaceans, have created urgent need to reanalyse little auk food preferences. This knowledge is crucial for creating reliable scenarios of consequences of climate change for little auks, and many other Arctic marine and terrestrial organisms.