

# Projekt GAME założenia i cele

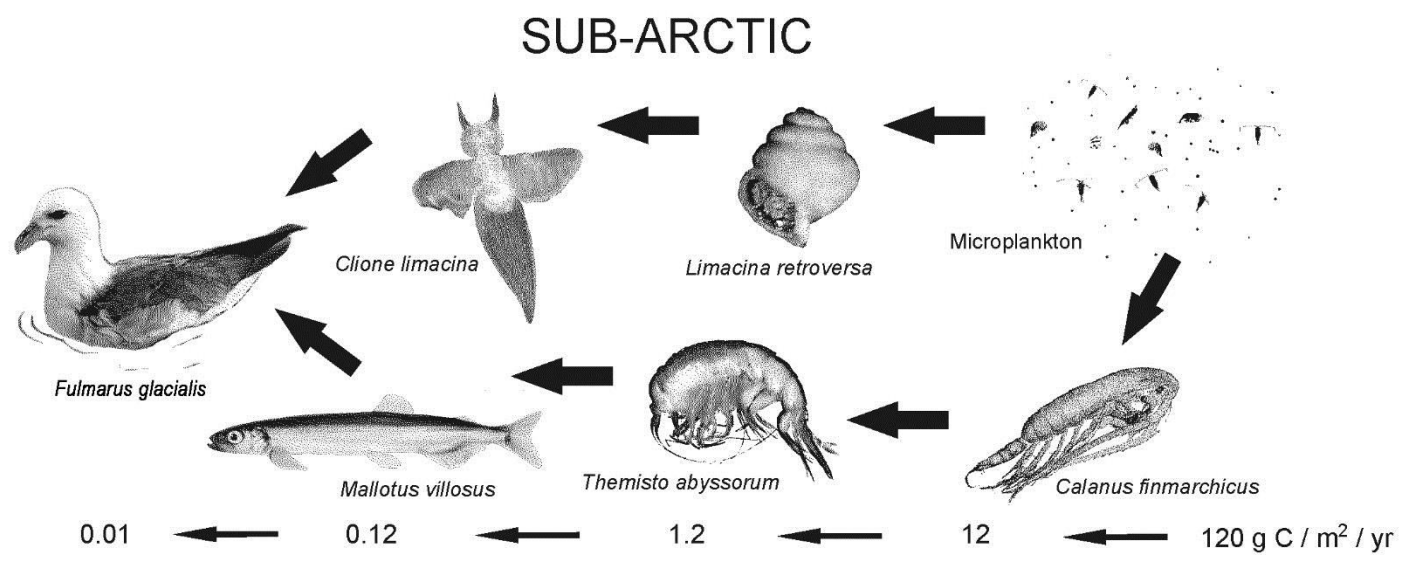
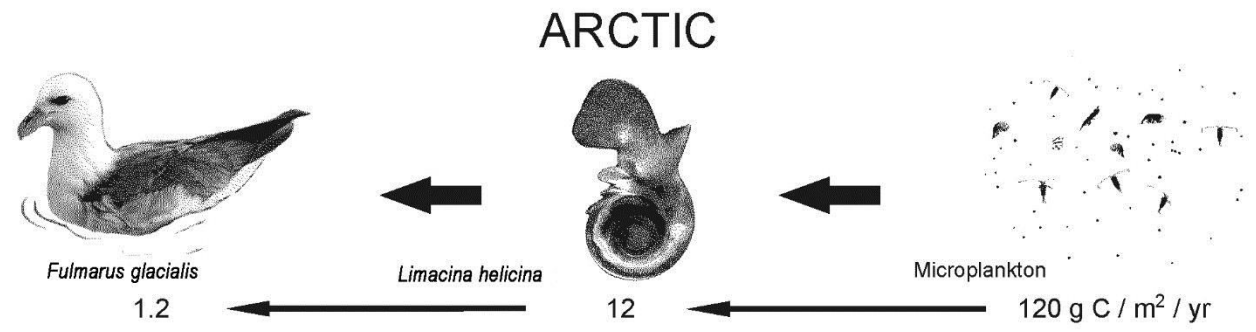
## NCN – Maestro

Centralna hipoteza projektu:

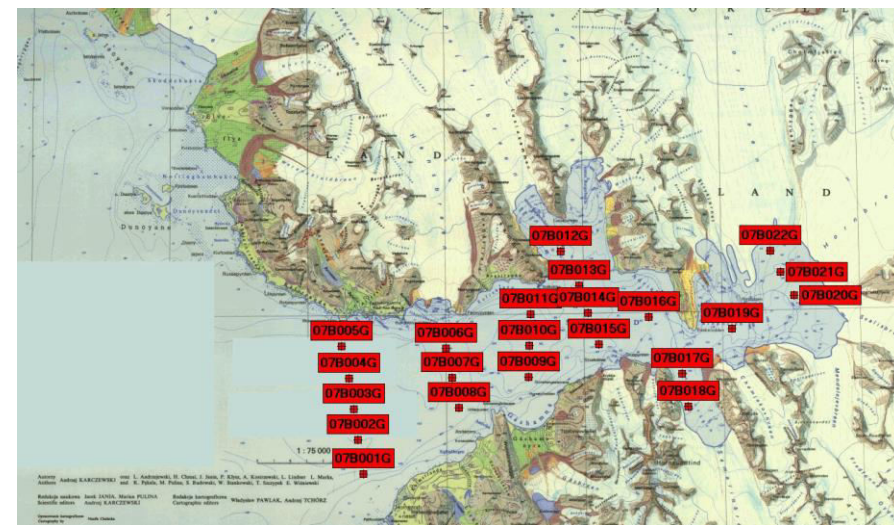
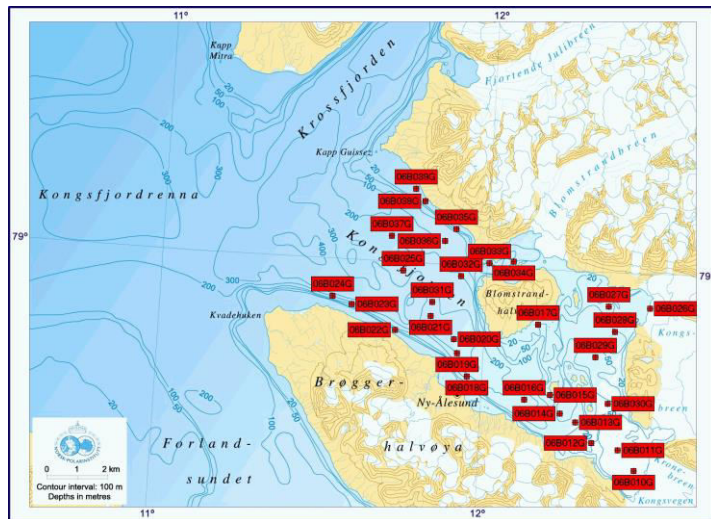
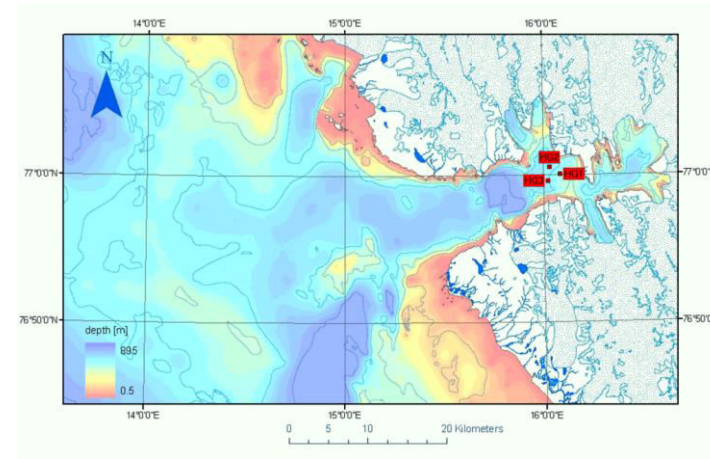
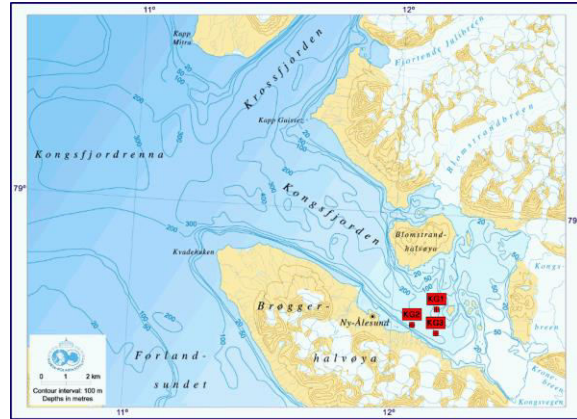
Arktyka dojrzewa jako ekosystem, staje się coraz bardziej różnorodna i wykazuje cechy zbilansowanego systemu. Proces ten można ocenić ilościowo porównując podobne zbiorniki „zimne” i „ciepłe” na Spitsbergenie

*„An understanding of ecological succession provides a basis for resolving man’s conflict with nature”*

E.P. Odum, Science 1969



1. Nowe badania na porównywalnych stacjach w obu fjordach 2013-2015
2. Archiwalne dane z lat 2000- 2013



# Projekt GAME

## podsumowanie i wnioski



http://www.iopan.gda.pl/projects/Game/index.html

The screenshot shows a web browser window with the URL [www.iopan.gda.pl/projects/Game/index.html](http://www.iopan.gda.pl/projects/Game/index.html). The page content includes:

- Navigation Menu:** A grid of buttons for *About the project*, *Participants*, *Project documents*, *Picture gallery and dissemination material*, *Calendar*, *Field work blog*, *References list*, *Useful links*, and *Deliverables*.
- Main Title:** **GAME** Growing of the Arctic Marine Ecosystem
- Section: About the project**

Project financed from the National Science Center funds under the nr DEC-2012/04/A/NZ8/00661

  - 1. Scientific goal of the projects, hypothesis**

The aim of the project is to answer the question: what is the reaction of physically controlled Arctic marine ecosystem to temperature rise. We will verify the hypothesis, that Arctic marine ecosystem is growing up (aging) in the course of the global warming. Evolutionary mature systems are characterized by the balanced, dispersed energy flow with little unused organic matter. Young systems are usually simpler, with less trophic links and excess organic matter deposited. Coastal waters of the European Arctic are world youngest large marine ecosystem, as they were released from the ice sheet 12 thousands years ago. Two most studied European Arctic locations are going to be compared for their usefulness as marine climate change monitoring stations.
  - 2. Methodology**

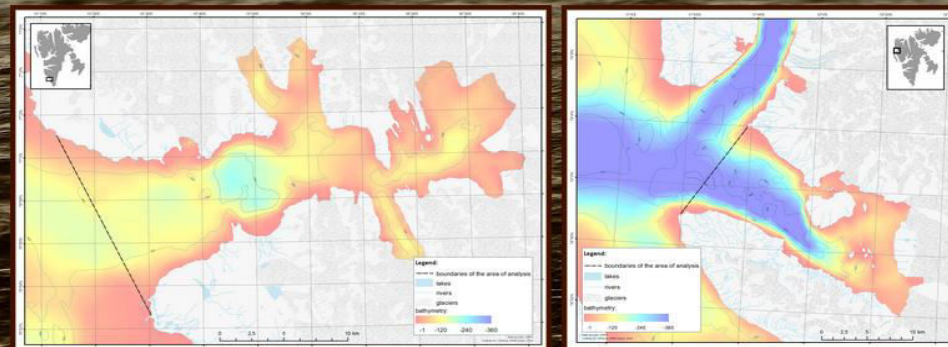
In order to verify our hypothesis, we have selected two well defined areas that are differently exposed for the present climate warming. If our hypothesis is plausible the warmer area will show the features of more mature ecosystem when compared to the colder one. Such approach will help to understand the direction of changes observed all over the Arctic, and prepare better scenarios of the climate change consequences. Two fjords – Homsund and adjacent shelf as “cold” and Kongsfjorden with NW Spitsbergen shelf as the “warm” area were chosen. Integration of efforts and results between disciplines will be achieved by understanding the common goal and performing all the measurements in agreed places, so that physical and chemical data will supply biological observations. Our approach – modelling based on the archival data supplied with new measurements performed both in the water column and in the sediment, and covering wide array of disciplines from physics, chemistry, microbiology to large organisms ecology was not performed so far in Svalbard fjords. We know what we are looking for and where to find it – now we plan to do it in the integrated, multidisciplinary way, using our experience from past years and infrastructure of research vessel OCEANIA and coastal polar stations.
  - 3. The meaning of the project for the development of science, society**

# VISUAL COMPANION TO SVALBARD FJORDS

based on the GAME project financed from the National Science Center funds under the nr DEC-2012/04/A/NZ8/00661

## HORNSUND

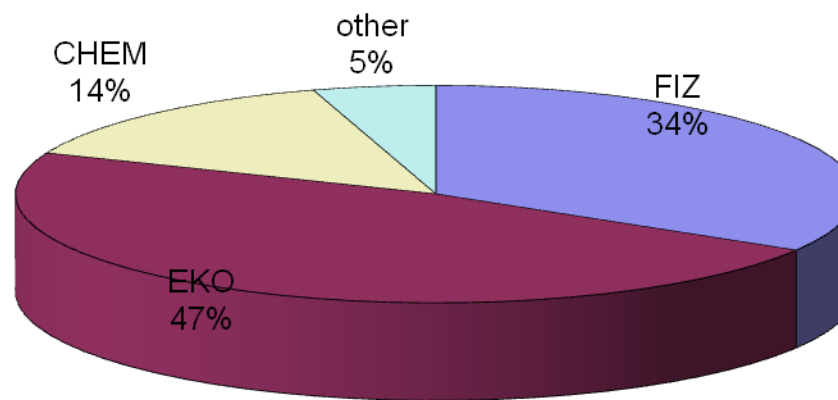
## KONGSFJORD



Bathymetry of the fjords. Joanna Pardus, archive IO PAN

BATHYM.	DEPTH	SEABED	STATIONS	WIND ROSE	RADIATIONS	AREAS	VOLUMES	SEABED	AIR TEMP.
SALINITY	WATER TEMP.	TEMP./SAL.	ANNUAL TEMP.	SEAS. TEMP.	CHLOROP.	PLANKTON	GLACIERS	ZOOP. ABUN.	ZOOP. CUMUL.
ZOOP. BIOM.	POC vs DEPTH	$\delta^{13}C_{org}$ vs DEPTH	ORGAN. vs DEPTH	LIPIDS vs DEPTH	$\delta^{13}C_{org}$ - SUSP.	$\delta^{13}C_{org}$ - SEDIM.	SEDIM. ACCUM.	CARBON BUR.	PARTICLES
FISH TS DISTR.	TS vs DEPTH	BACT. NUMBER	BACT. BIOMASS	CELL VOLUME	OXYGEN CONS.	BENT. BIOMASS			

zadanie	szef zespołu	środki 2013-2015
WP11,12,13	Dynamika - hydrologia	260
WP25	Bentos	253
WP41,42	Modelowanie hydrodynamiczne	216
WP32	Meiofauna i respiracja	210
WP23	Chemia osadów	203
WP26	Zooplankton	161
WP14, 21	Optyka morza	148
WP27	hydroakustyka	126
WP31a	Mikroplankton	116
WP22	Chemia toni wodnej	112
WP43	Model sieci troficznej	106
WP52	Baza danych	105
WP28	Analizy pokarmowe	57
WP33	Koordinacja i rozpowszechnianie	54
WP29	Genetyka populacji	51
WP24	sedymetologia	51



## Publikacje wydrukowane lub zaakceptowane

- A. Drewnik et al.. Polar Biology 2016
- K. Grzelak et al.. Biological indicators 2016
- J. Wiktor et al.. Oceanologia 2016
- Duarte et al.. Advances in Polar Ecology 2016
- Głuchowska et al.. Polar Biology 2016

## Publikacje złożone, w recenzjach

Zaborska et al.. – Progress in Oceanography

Włodarska et al.. – MEPS

Węslawski et al. - Journal of Marine Systems

Weslawski et al.. – Advances in Polar Ecology

Petelski et al.. – Meteorology

Drewnik et al.. – Oceanologia

Smola et al.. Polish Polar Research

Deja et al.. – Polish Polar Research