

## On the track of the effects of colonial seabirds on Arctic coastal communities

**Katarzyna Zmudczyńska-Skarbek**

*Kaja Bałazy, Piotr Bałazy  
Maciej Chełchowski  
Anna Maria Dąbrowska  
Szymon Słomkowski  
Beata Szymczycha  
Maria Włodarska-Kowalczyk  
Adrian Zwolicki*



Photo: Piotr Bałazy

POLAND



University  
of Gdańsk



Institute of Oceanology  
Polish Academy of Sciences



Scientific  
Diving  
TEAM

### Arctic marine ecosystem

- Nutrient rich
- Highly productive
- Perfect feeding grounds for seabirds

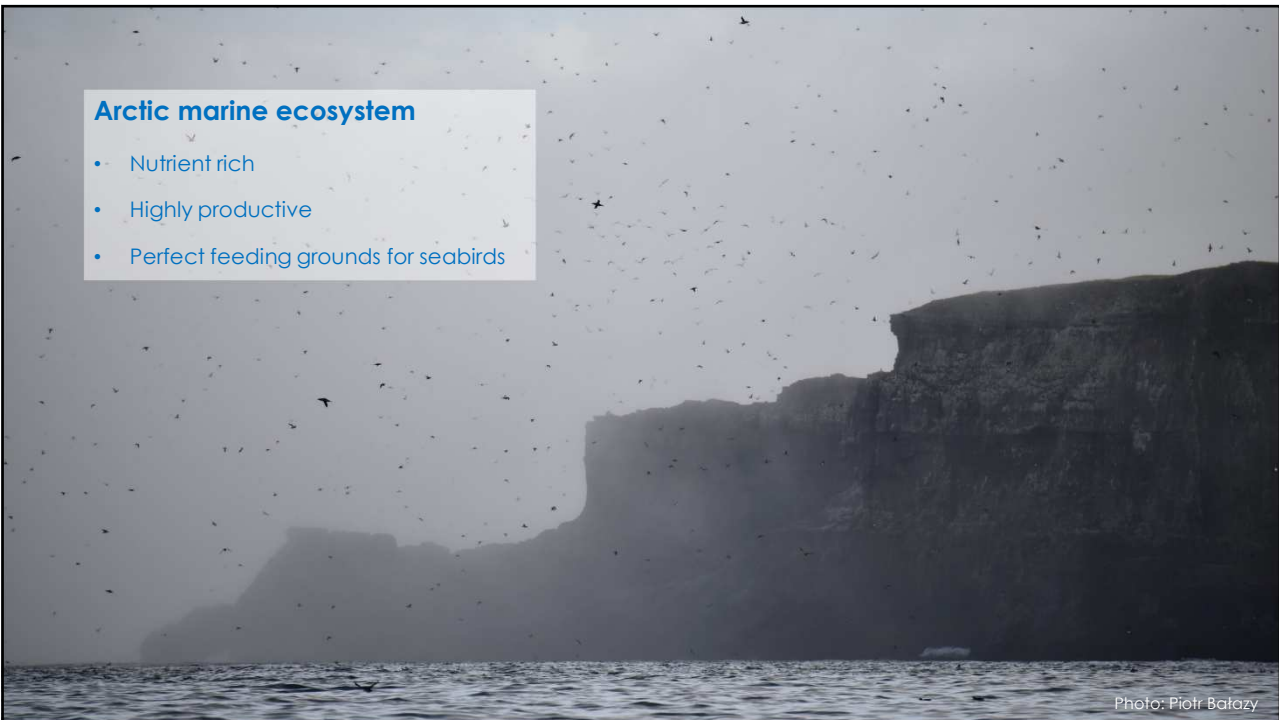


Photo: Piotr Bałazy



**Huge seabird colonies at the coasts – transport marine-produced organic matter to land**

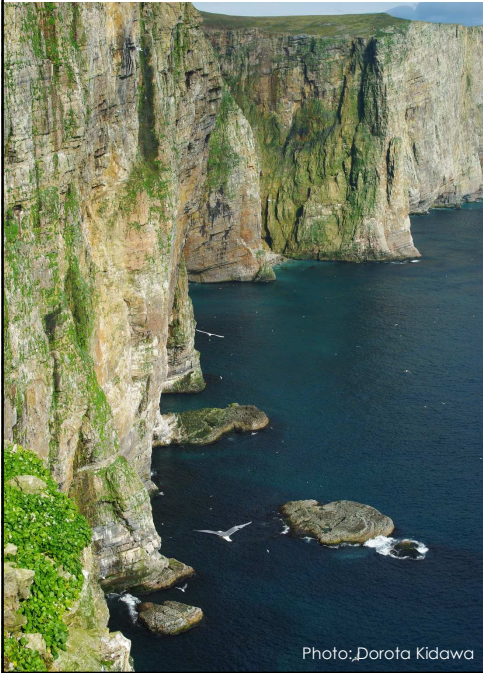


Photo: Dorota Kidawa



Photo: Piotr Bałazy



**Clear ornithogenic effect on land**

Guano deposition

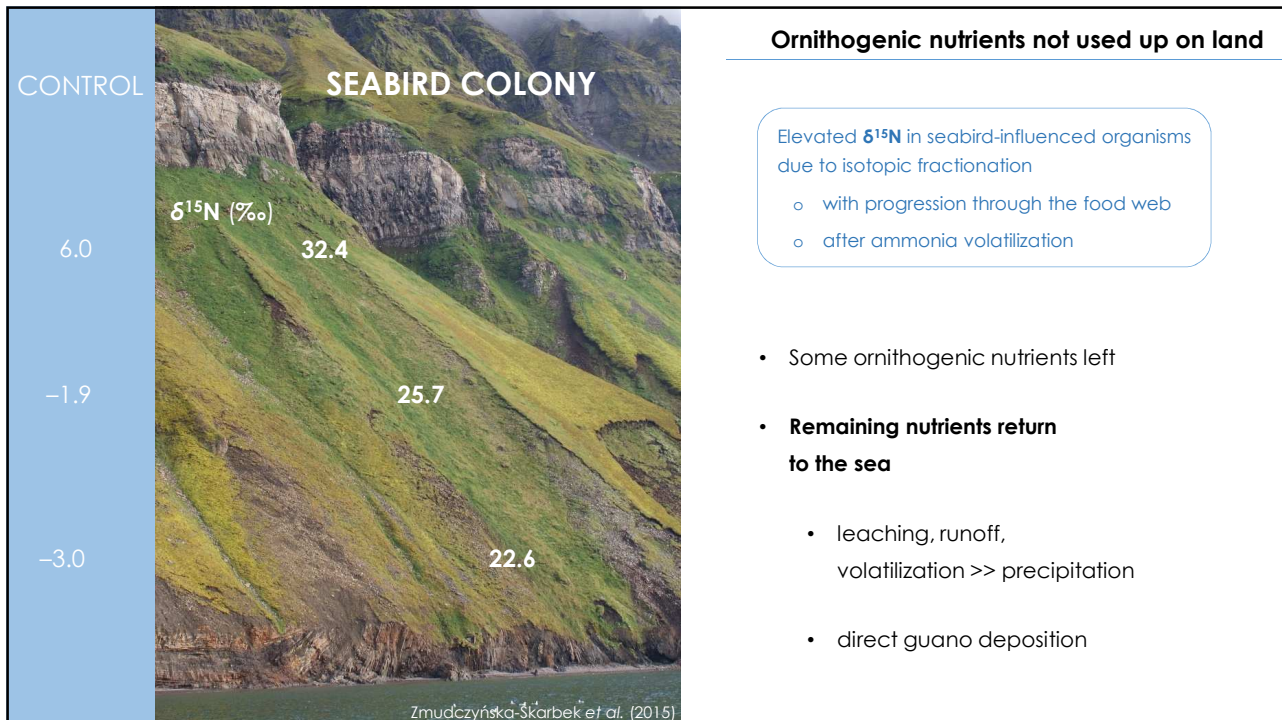


Soil rich in nutrients



Lush vegetation





Project scope

### Effects of Colonial Seabirds on Arctic coastal communities / ECOS

**Svalbard**

**Bjørnøya / Bear Island**

Project scope

### Effects of Colonial Seabirds on Arctic coastal communities / ECOS

- Resources for marine producers  
 $\text{NO}_3^-$ ,  $\text{NO}_2^-$ , and  $\text{PO}_4^{3-}$

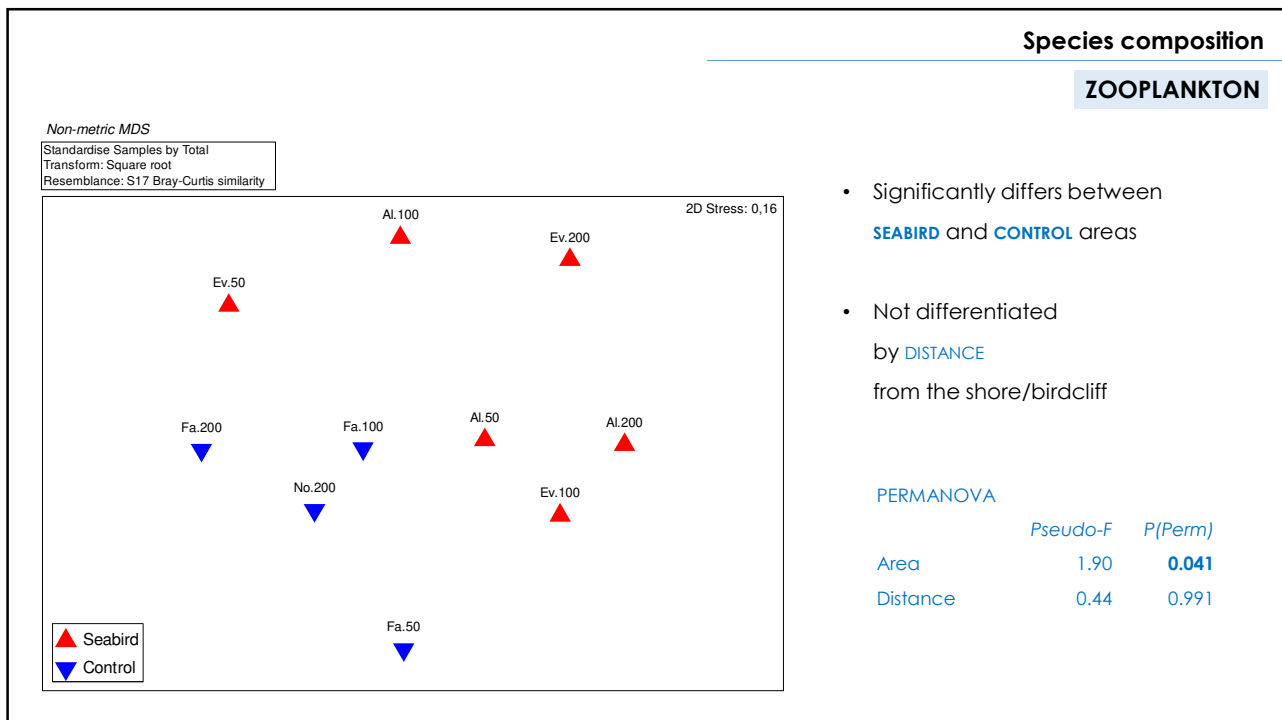
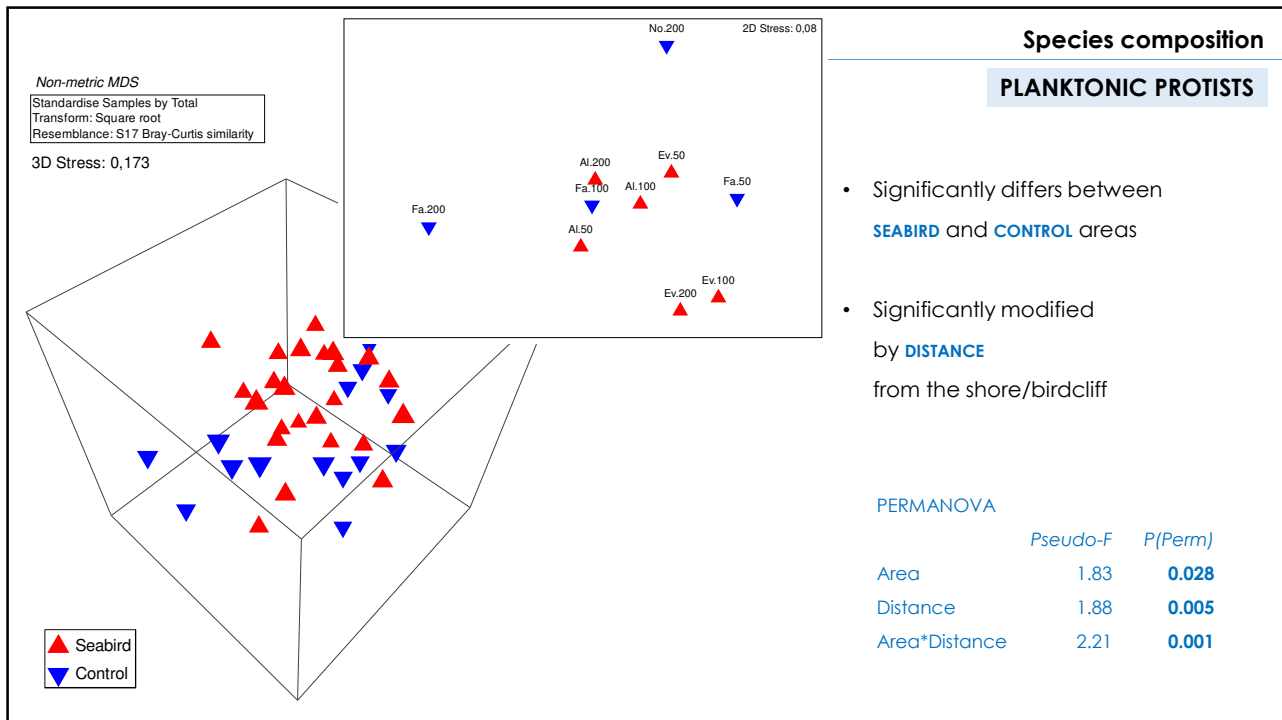
- Contribution of ornithogenic nutrients ( $\delta^{15}\text{N}$ )
  - suspended POM
  - sedimentary POM
  - benthic food web

- Species composition of
  - planktonic protists
  - zooplankton

**No changes**

**Data not ready yet**

Areas:  
2 SEABIRD  
2 CONTROL





Bjørnøya



Photo: Dorota Kidawa

