

The Arctic is the fastest changing environment on the planet. These changes are affecting biological processes at every level and in ways that are not yet fully understood.

The programme focuses on quantifying the impacts of climate change on the Arctic Ocean.

The programme's research contributes to refining numerical model predictions of the consequences of climate change on, for example, surface ocean productivity, food webs, and ecosystem services.

#### Research Challenges

- The controls on the spatial and temporal structure and functioning of Arctic ecosystems and biogeochemical cycles.
- The impacts of multiple stressors on Arctic species, biogeochemical cycles and ecosystem structure.

#### Scientific output of relevance to stakeholders

- Projection of climate change impacts on ecosystem services
- Conservation and management of marine mammals
- Management of commercially important fish species
- Solutions and management strategies for environmental protection
- Detailed information on Arctic seafloor conditions

#### Further information:

Dr Kirsty Crocket, Science Coordinator, University of Edinburgh, UK  
Email [k.crocket@ed.ac.uk](mailto:k.crocket@ed.ac.uk)

Website [www.changing-arctic-ocean.ac.uk](http://www.changing-arctic-ocean.ac.uk) Twitter @NERC\_CAO  
[www.fona.de/de/arktis-im-wandel](http://www.fona.de/de/arktis-im-wandel)

## 32 PROJECT PARTNERS in the UK and Germany



[www.changing-arctic-ocean.ac.uk](http://www.changing-arctic-ocean.ac.uk)

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**Changing  
Arctic  
Ocean** NERC

£20 million, 5-year programme (2017-2022) to understand the effects of climate change on the ecosystems, biology and biogeochemistry of the Arctic Ocean.



Photo by Johan Faust

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The Changing Arctic Ocean is funded by the UKRI Natural Environment Research Council (NERC) and the German Federal Ministry of Education and Research (BMBF)

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### APEAR

How does the exchange of Atlantic and Pacific waters impact Arctic marine ecosystems?



**Dr Yevgeny Aksenov**  
NOC,  
UK



**Dr Benjamin Rabe**  
Alfred Wegener  
Institute, DE



### CACOON

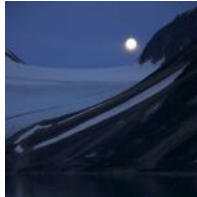
How will the Arctic Ocean respond to freshwater and ancient carbon delivery from land?



**Dr Paul Mann**  
Northumbria  
University, UK



**Dr Jens Strauss**  
Alfred Wegener  
Institute, DE



### CHASE

What is the role of the biological clock in a changing Arctic Ocean?



**Dr Kim Last**  
SAMS,  
UK



**Prof Bettina Mayer**  
Alfred Wegener  
Institute, DE



### Coldfish

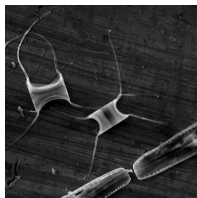
How do key Arctic fish species respond to declining sea ice and warming?



**Prof Nick Polunin**  
Newcastle  
University, UK



**Dr Hauke Flores**  
Alfred Wegener  
Institute, DE



### Diatom-ARCTIC

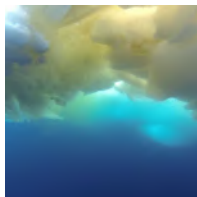
How do sea ice diatoms respond to environmental variability and climate change?



**Prof Martyn Tranter**  
University of  
Bristol, UK



**Dr Marcel Nicolaus**  
Alfred Wegener  
Institute, DE



### Eco-Light

What is the influence of changing sea ice and snow conditions on Arctic Ocean ecosystems?



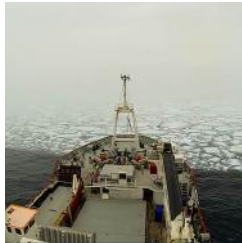
**Dr Jeremy Wilkinson**  
British Antarctic  
Survey, UK



**Dr Giulia Castellani**  
Alfred Wegener  
Institute, DE

# 16 PROJECTS

The programme has 4 large, NERC-funded projects that started in February 2017. A further 12 projects joined in July 2018, co-funded by NERC and the BMBF.



### Arctic PRIZE

How does seasonal sea ice control Arctic productivity?



**Prof Finlo Cottier**  
Scottish Association for  
Marine Science, UK



### ARISE

Are food webs sensitive to Arctic change? How will they respond to future change?



**Prof Claire Mahaffey**  
University of Liverpool,  
UK



### ChAOS

How do changes in the surface ocean affect seafloor processes? Will carbon sequestration change?



**Dr Christian März**  
University of Leeds,  
UK



### DIAPOD

How does Arctic change affect Calanus, a key Arctic food source?



**Prof David Pond**  
University of Stirling,  
UK



**Dr Crispin Halsall**  
University of  
Lancaster,  
UK



**Dr Kirstin Dähnke**  
Helmholtz-  
Zentrum  
Geesthacht, DE



### EISPAC

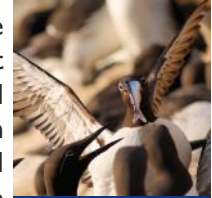
How do pollutants and plastic debris affect the base of the Arctic foodweb?



**Dr Norman Ratcliffe**  
BAS,  
UK



**Dr Patrick Roberts**  
Max Planck  
Institute, DE



### LOMVIA

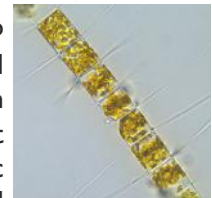
How does climate change affect competition and species distribution in Arctic and temperate seabirds?



**Dr Michael Cunliffe**  
Marine  
Biological  
Association, UK



**Prof Anja Engel**  
GEOMAR,  
DE

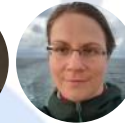


### Micro-ARC

How do seasonal and climate-driven changes impact Arctic pelagic microbial ecosystems?



**Prof Mike Heath**  
University of  
Strathclyde,  
UK



**Dr Ute Daewel**  
Helmholtz-  
Zentrum  
Geesthacht, DE



### MiMeMo

How will climate change affect potential fishery yields from the Atlantic Arctic?



**Dr Yueng-Djern Lenn**  
Bangor  
University, UK



**Dr Markus Janout**  
Alfred  
Wegener  
Institute, DE

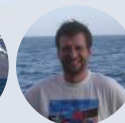


### PEANUTS

How do changes in circulation affect nutrients and productivity in Arctic surface waters?



**Dr Andrew Rees**  
Plymouth  
Marine  
Laboratory, UK



**Prof Hermann Bange**  
GEOMAR,  
DE



### PETRA

How will Arctic warming, sea ice retreat and acidification affect production of climate-active gases?