



Annual progress report 2019

Purpose of the report

- Is the project advancing according to the initial plan in the application?
- Is the project being managed effectively (how have hurdles and opportunities been addressed)?

PAG are impressed with the
CAO projects.
The science is exciting.

PAG: Programme Advisory Group



Format of report

- ~2000 words in total
- ~400 words per section (excluding Sections 8 and 9)

No need to write to the
maximum word limit

Do include tables,
figures and lists

1. Progress against project deliverables
2. Integration with other CAO projects, and with other UK/German national and international studies
3. Problems encountered and/or deviations from original project plan and budget
4. Plans for 2020
5. Plans for 2021 and further
6. Actions and deliverables from policy maker engagement
7. Actions and deliverables for STEM engagement
8. Updates on submitted/accepted peer-reviewed publications
9. Brief details on students that are supported/involved in the project



Progress Report Sections

1. Progress against project deliverables

- ☞ Provide enough detail to allow the PAG to identify the work completed, and its success/contribution to project goals
- ☞ Reflect on the initial plans in the project application

Were enough data collected to achieve the objective?

How successful were the experiments?

What kinds of data were collected?

1. Tables of information
2. A list of data sets submitted to the relevant data centre

Is the data density enough to address the objective?



Progress Report Sections

2. Integration with other CAO projects, and with other UK/German national and international studies

- ☞ Identify how you collaborate with other CAO project partners
- ☞ Summarise concrete initiatives and provide an indication of effort from the respective projects

Which projects are similar to yours?

How are you collaborating with them?



Progress Report Sections

3. Problems encountered and/or deviations from original project plan and budget

- ☞ Summarise progress in light of the initial project plan
- ☞ Describe any deviations from the initial project plan with a justification/reasoning of why/how the project management adapted to the change
- ☞ Report delays to original project completion date

GANTT Chart!



Progress Report Sections

4. Plans for 2020

- ☞ Provide relevant details

e.g. Going on a cruise
 Who is participating?
 Which data sets will be collected?
 How will these contribute to the
 project's objectives?
 etc.

Added value/benefit of research investment (international collaboration)



Progress Report Sections

5. Plans for 2021 and further

☞ Report about plans to take aspects of your project further

e.g. Future proposals

Have proposals arisen out of your involvement in the project?
Will they involve new collaborations developed because of the project's involvement in CAO?

Added value/benefit of research investment (dual national funding)



Progress Report Sections

6. Actions and deliverables from policy maker engagement

☞ Provide a timeline of achievements and proposed action

What is the project strategy for policy engagement?

- Which policy bodies to be approached?
- When?
- What information to be provided?

Projects are required to engage with policy makers

If the German partners in the project have no planned activity, please indicate this

Policy engagement suggestions in following slides



Progress Report Sections

7. Actions and deliverables for STEM engagement

☞ Provide detailed descriptions about reported engagement

What activities were carried out, and when?

When will STEM materials be ready?

Who was the target audience?

How will they be delivered/promoted?

Are there any metrics of success?



Progress Report Sections

8. Updates on submitted/accepted peer-reviewed publications

☞ List publications resulting from CAO project funding

Papers must identify CAO and NERC/BMBF as the funder(s) in "Acknowledgements"

Only publications resulting from direct CAO funding

9. Brief details on students that are supported/involved in the project



Stakeholder engagement

What is the project strategy for policy engagement?

- Which policy bodies to be approached?
- When?
- What information to be provided?



Potential policy-oriented stakeholders

- Department for Business, Energy and Industrial Strategy (BEIS)
- Department for Transport (DfT)
- Department for Environment, Food and Rural Affairs (Defra)
- Foreign and Commonwealth Office (FCO)
- Ministry of Defence (MoD)
- House of Lords
- Environmental Audit Committee
- All-party parliamentary group (APPG) on Polar Regions
- Government Office for Science (Go Science)
- The Environment Agency
- Met Office
- Royal Navy
- Defence Science and Technology Laboratory (Dstl)
- Joint Nature Conservation Committee (JNCC)
- UK Hadley Centre (part of Met Office)



Areas of interest (knowledge/data to inform on these topics)

- Climate change
- Contribution to IPCC
- Sea level
- Weather patterns
- Weather and climate risks
- Forecasting of extreme weather events
- Ocean acidification
- Industry and development
- Polar Code for shipping
- Arctic shipping
- High risk oil and gas development
- Oil spills
- Environmental protection
- Sustainable use of mineral and natural resources
- Deep sea mining
- Large scale extraction of offshore energy
- Resource Exploration and Development
- Environmental impact of emerging sectors
- Sustainable development
- Transportation and access
- New global trade routes
- Pollution
- Pollutants in shelf sea areas
- Hazardous waste
- Marine traffic systems
- Marine litter
- Telecommunications industry
- Species and biodiversity
- Fisheries (moratorium, MSC certification, etc.)
- Changes in the distribution of fish stocks
- Marine spatial planning
- Arctic MPA network
- Conservation of Arctic biodiversity
- Ensure the sustainability of the Arctic's living resources
- Human health
- Cultural heritage



Initiatives

Exploiting existing connections to international Arctic community and national policy centres

- Participation in forums (e.g. FAMOS)
- Provide input to scientific working groups
- Use own membership of international expert groups to contribute project outputs to future reporting by group
- Represent UK in national/international Arctic forums

Briefing notes and presentations to stakeholders

- Targeted briefing notes (<1500 words; e.g. POST Notes)
- Infographics
- "Brown-bag" lunches (presentations) to science teams in UK gov depts/other organisations
- Policy briefing sessions at programme level
- Contribute written material to stakeholder newsletters and websites (e.g. WWF "The Circle")

Other initiatives:

- Pairing schemes with UK members of parliament
- UK and German Arctic Offices
- Project-hosted impact workshop
- Policy-orientation CAO document

For any of these initiatives, provide key details:

- Who
- When
- What



CAO policy briefing session

Programme-level opportunity

- Policy briefing session hosted by BEIS
 - 2-3 hours, London, **second half of 2020**
- Other relevant policy bodies invited to attend
 - DEFRA, FCO, Met Office, etc.
- Interested CAO projects to attend
 - Synergy to having all projects involved
 - Time efficient for policy people
- Supported by CAO policy-orientation document
 - 20 page A4 booklet

For those projects that do participate:

- Short oral presentation
- Supported by
- Poster presentation
- Project-specific hand-out
- CAO policy orientation

Benefits:

- REF2021 impact case studies
- Contacts for future proposals



CAO policy-orientation document

Contact

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Policy Orientation

The Changing Arctic Ocean is funded by the UK's Natural Environment Research Council (NERC) and the German Federal Ministry of Education and Research (BMBWF).


supported by the
 UK Research Councils
 Natural Environment Research Council

January 2020



Policy orientation document

- 1 project per page
- Needs input from each project
- Project description (~500 characters)
- Policy relevant outputs (~800 characters)
- Project leaders + investigators



Effects of ice stressors and pollutants on the Arctic marine cryosphere

EISPAC

Chemical contaminants and plastic debris appear to accumulate in sea ice. In a warmer Arctic the behaviour of these pollutants in single season ice and the timing and extent of exposure for ice-associated biota is unknown but will be investigated.

- Atmosphere or ocean? – where do chemicals and plastics present in sea ice come from and can we measure the exposure to ice-associated organisms?
- Is ice melt critical to the delivery of both nutrients and contaminants to marine surface waters, especially during the Arctic spring when biological activity in the surface ocean increases?

The aim of EISPAC is to assess the importance of ice-associated pollutants and nutrients on ice habitat functioning.

Project leaders

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Policy-relevant outputs

A key science output are future projections of change in Arctic ecosystems during the 21st century. These projections quantify the impact of the emerging influence of the new Arctic physical state on marine ecosystems. The projections contribute to the UK Earth System Modelling programme, with the aim of significantly reducing uncertainty in future predictions of ocean circulation and biogeochemistry in climate assessments.

The principal beneficiaries are:

- climate research and forecasting centres (UK Met Office),
- climate research (IPCC),
- policy makers (DEFRA, FCS),
- international independent advisory organisations (Arctic Council, Arctic Economic Council),
- off-shore and shipping industries,
- environmental monitoring bodies (Arctic Monitoring and Assessment Programme).

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www.changing-arctic-ocean.ac.uk/project/eispac



Microbes to megafauna modelling of Arctic Seas

MiMeMo

Shrinking sea ice cover in the Arctic Ocean is already causing increased primary production, but the scope for this to affect higher trophic levels and charismatic megafauna such as whales, seals and polar bears, is extremely uncertain and hard to predict.

In this project we will employ mathematics and computer science to predict the likely flows of nutrients through the marine food web, from microbes to megafauna, as the physical environment in the Atlantic Arctic changes.

A key objective is to examine trade-offs between the harvesting of fish and invertebrates in order to sustain Arctic communities, and cultural values (populations, tourism) arising from the abundance of marine megafauna in the pristine Arctic environment.

Project leaders

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