Applicant: **Liszka, Cecilia**
Organisation: **British Antarctic Survey**
Funding Sought: **£336,538.00**

# DPR10S2\1016

**Characterising pelagic biodiversity at South Georgia through novel sampling methods**

The pelagic ecosystem supports fisheries and higher predators. Establishing a pelagic biodiversity baseline at South Georgia is crucial to assess the stability of this system and its response to climate-related changes and species invasions. Monitoring through net sampling alone is costly, time-consuming and misses important fractions of the plankton community. Our project addresses this, developing new legacy methods and indicators to monitor zooplankton and ichthyoplankton biodiversity, invasions and future change, using novel image and molecular analyses, validated by net sampling.

## PRIMARY APPLICANT DETAILS

| | |
|---|---|
| **Title** | Dr |
| **Name** | Cecilia |
| **Surname** | Liszka |
| **Organisation** | British Antarctic Survey |
| **Tel (Work)** | [redacted] |
| **Email (Work)** | [redacted] |
| **Address** | [redacted] |

# Section 1 - Contact Details

## PRIMARY APPLICANT DETAILS

| | |
|---|---|
| **Title** | Dr |
| **Name** | Cecilia |
| **Surname** | Liszka |
| **Organisation** | British Antarctic Survey |
| **Tel (Work)** | [redacted] |
| **Email (Work)** | [redacted] |
| **Address** | [redacted] |

## GMS ORGANISATION

| **Type** | **Organisation** |
|---|---|
| **Name** | British Antarctic Survey |
| **Phone (Work)** | [redacted] |
| **Email (Work)** | [redacted] |
| **Website** | [redacted] |
| **Address** | [redacted] |

# Section 2 - Title, Dates & Budget Summary

### Q3. Project title

Characterising pelagic biodiversity at South Georgia through novel sampling methods

### What was your Stage 1 reference number? e.g. DPR10S1\1123

DPR10S1\1054

### Q4. UKOT(s)

**Which UK Overseas Territory(ies) will your project be working in?**

☑ South Georgia and The South Sandwich Islands (SGSSI)

*** if you have indicated a territory group with an asterisk, please give detail on which territories you are working on here:**

*No Response*

**Q4b. In addition to the UKOTs you have indicated, will your project directly benefit any other Territories or country(ies)?**

⦿ No

## Q5. Project dates

| Start date: | End date: | Duration (e.g. 2 years, 3 months): |
|---|---|---|
| 01 May 2022 | 31 March 2025 | 2 years 11 months |

## Q6. Budget summary

| Year: | 2022/23 | 2023/24 | 2024/25 | Total request |
|---|---|---|---|---|
| **Darwin funding request (Apr - Mar)** | £113,241.00 | £100,091.00 | £123,206.00 | **£** 336,538.00 |

**Q6a. Do you have proposed matched funding arrangements?**

⦿ Yes

**What matched funding arrangements are proposed?**

Match funding has been confirmed from BAS via significantly reduced overheads, the provision of equipment and access to laboratories, and in-kind executive support.
Further matched funding has also been agreed from the Government of South Georgia and the South Sandwich Islands (GSGSSI) through use of the MV Pharos SG to conduct monitoring work and in-kind executive support, as well as from the Marine Biological Association (MBA) through the provision of additional analysis to provide voucher specimens to support taxonomic and image analysis.

**Q6b. Proposed matched funding as % of total project cost (total cost is the Darwin request plus other funding required to run the project).** ■

**Q6c. If you have a significant amount of unconfirmed matched funding, please clarify how you fund the project if you don't manage to secure this?**

All matched funding is confirmed.

# Section 3 - Project Summary and Conventions

## Q7. Summary of Project

**Please provide a brief summary of your project, its aims, and the key activities you plan to undertake. Please note that if you are successful, this wording may be used by Defra in communications.**

**Please write this summary for a non-technical audience.**

The pelagic ecosystem supports fisheries and higher predators. Establishing a pelagic biodiversity baseline at South Georgia is crucial to assess the stability of this system and its response to climate-related changes and species invasions. Monitoring through net sampling alone is costly, time-consuming and misses important fractions of the plankton community. Our project addresses this, developing new legacy methods and indicators to monitor zooplankton and ichthyoplankton biodiversity, invasions and future change, using novel image and molecular analyses, validated by net

sampling.

### Q8. Environmental Conventions, Treaties and Agreements

**Please detail how your project will contribute to the aims of the agreement(s) your project is targeting. What key OT Government priorities and themes will it address and how? You should refer to Articles or Programmes of Work here. You should also consider local, territory specific agreements and action plans here.**

**Letters of support from UKOT Government partners/stakeholders should also make clear reference to the agreements/action plans your project is contributing towards.**

This project will contribute to the management of the South Georgia and South Sandwich Islands Marine Protected Area (SGSSI MPA) by developing methods that enable the future collection and analysis of key biodiversity data, and metrics that will allow the monitoring of under-sampled and invasive taxa. These techniques are able to be implemented at high frequency, low cost and by non-experts. We will feed into the MPA 5 Yearly Review 2023 process by offering an indication of how these methodologies could help monitor the effectiveness of current management measures; the potential they have as early indicators of invasive or non-native species; and their use in developing fish stock hypotheses. The high resolution optical and molecular data acquired from this project will also be contributed to the Data Portal that originated from the 2018 review and previous Darwin Plus funding, to facilitate future reviews of the effectiveness of the MPA.

Related to this, the project will directly contribute to the another output of the 2018 MPA Review, the SGSSI MPA Research and Monitoring Plan 2021. Data obtained will support research needs identified in Theme 2, “Pelagic Ecosystems and Lower Trophic Levels” e.g. by enabling the modelling of pelagic foodwebs and zooplankton community structure in relation to environmental change, and improved understanding of life cycles and distribution of myctophid fish; and Theme 5, “Harvested species – fish” with molecular data in particular supporting improved management of fish stocks e.g. by identifying hitherto unknown fish eggs or larvae. We will contribute to updates of this document by identifying future research needs, and relevant monitoring activities.

Biodiversity is recognised as a global priority by the Convention on Biological Diversity and in National Biodiversity Action Plans (BAP). Our project addresses objectives set out in the SG BAP, specifically Objectives 4 (Develop standardised environmental assessment procedures, which are scalable and commensurate with the potential impact the activity may have on the environment); 5 (Enhance knowledge of the biodiversity and habitats of SGSSI through research, monitoring and review, including the establishment of scientific baselines from which to assess environmental change, including the potential effects of climate change); and 6 (Effectively manage non-native species and work along the entire biosecurity continuum to implement best practice biosecurity protocols, post-border monitoring and emergency response measures).

It further addresses 4 Darwin Plus R10 priorities: increase effectiveness and condition of protected areas; tackle the threat of non-native species; implementation of National Biodiversity or Environment Action Plans; and climate change mitigation and adaptation, by providing baseline information against which monitoring can be conducted; and 2 priorities in the GSGSSI stewardship framework ‘Protect Sustain Inspire’: Marine Protection and Local Science, Global Impact.

Results will also be presented to appropriate CCAMLR meetings; and contribute to Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) assessments and UN SDG 14 (Life Below Water).

## Section 4 - Project Partners

### Q9. Project Partners

**Please list all the partners involved (including the Lead Partner) and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development.**

**This section should illustrate the capacity of partners to be involved in the project. Please provide Letters of Support for the lead partner and each partner or explain why this has not been included.**

**N.B: There is a file upload button at the bottom of this page for the upload of a cover letter and all letters of support.**

| | |
|---|---|
| **Lead Partner name:** | British Antarctic Survey (BAS) |
| **Website address:** | www.bas.ac.uk |
| **Details (including roles and responsibilities and capacity to engage with the project):** | BAS is a Natural Environment Research Council and UK Research and Innovation (UKRI-NERC) institute. It delivers world-leading research in the Polar Regions and facilitates access for the British and international science communities to UK Polar research operations.<br><br>BAS will lead, deliver and manage the project. Sampling will be carried out by BAS scientists at South Georgia. Most analyses will be carried out at BAS Cambridge, except selected taxonomic and molecular analyses which will be sent off-site. BAS will remain responsible for all samples.<br><br>The team will be led by Dr Cecilia Liszka (Marine Ecologist) who will oversee project management and train KEP field scientists on sampling protocols. A PDRA will be recruited to carry out day-to-day management, analysis and reporting. Prof. Geraint Tarling (Zooplankton Ecologist) and Dr Sophie Fielding (Zooplankton Ecologist & Acoustician) will provide executive advice, support and linkages into wider BAS Ecosystems projects. Dr Ryan Saunders (Fish Ecologist) will provide expertise on larval fish ecology, recruitment and identification; Dr Alison Cleary will provide support on molecular techniques and interpretation; and Prof. Martin Collins and Dr Phil Hollyman will provide links to the wider KEP Science Programme, and expertise on larval fish ecology. |
| **Have you included a Letter of Support from this organisation?** | ⦿ Yes |
| **Have you provided a cover letter to address your Stage 1 feedback?** | ⦿ Yes |

**Do you have partners involved in the Project?**

⦿ Yes

| | |
|---|---|
| **1. Partner Name:** | Government of South Georgia and the South Sandwich Islands (GSGSSI) |
| **Website address:** | www.gov.gs |

| | |
|---|---|
| **Details (including roles and responsibilities and capacity to engage with the project):** | The Government of South Georgia & South Sandwich Islands (GSGSSI) are based in Stanley, Falkland Islands, where they report to the Commissioner (who is also the Governor of the Falklands). GSGSSI has a small team mostly based in Stanley, but with some staff working remotely from the UK. GSGSSI are responsible for the management of the Territory.<br><br>GSGSSI (Mark Belchier, Director of Fisheries & Steve Brown, Director of Operations) will be responsible for the logistical aspects involving the Pharos SG including organising the routine monitoring surveys and installation and testing of new equipment. They will also provide key direction on updates to management and monitoring plans and coordinating relevant stakeholders. |
| **Have you included a Letter of Support from this organisation?** | ⦿ Yes |

| | |
|---|---|
| **2. Partner Name:** | Marine Biological Association (MBA) |
| **Website address:** | www.mba.ac.uk |
| **Details (including roles and responsibilities and capacity to engage with the project):** | The Marine Biological Association (MBA) is one of the world's longest-running societies dedicated to promoting research into our oceans and the life they support. Operating a leading marine biological research laboratory, the MBA hosts 10 research groups, including the CPR Survey. The CPR Survey is the longest running most geographically extensive marine plankton survey in the world. The Survey employs a team of 10 plankton analysts, possessing decades of experience in plankton identification from around the globe. |
| **Have you included a Letter of Support from this organisation?** | ⦿ Yes |

| | |
|---|---|
| **3. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |

| | |
|---|---|
| **Details (including roles and responsibilities and capacity to engage with the project):** | *No Response* |
| **Have you included a Letter of Support from this organisation?** | ◯ Yes<br>◯ No |

| | |
|---|---|
| **4. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |
| **Details (including roles and responsibilities and capacity to engage with the project):** | *No Response* |
| **Have you included a Letter of Support from this organisation?** | ◯ Yes<br>◯ No |

| | |
|---|---|
| **5. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |

| | |
|---|---|
| **Details (including roles and responsibilities and capacity to engage with the project):** | *No Response* |
| **Have you included a Letter of Support from this organisation?** | ○ Yes<br>○ No |

| | |
|---|---|
| **6. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |
| **Details (including roles and responsibilities and capacity to engage with the project):** | *No Response* |
| **Have you included a Letter of Support from this organisation?** | ○ Yes<br>○ No |

**If you require more space to enter details regarding Partners involved in the Project, please use the text field below.**

*No Response*

**Please provide a cover letter responding to feedback received at Stage 1 if applicable and a combined PDF of all Letters of Support.**

Cover Letter_Liszka_Darwin Plus
10/01/2022
23:49:41
pdf 157.37 KB

Combined LoS_Characterising pelagic biodiversity at SG
10/01/2022
23:07:23
pdf 820.12 KB

## Section 5 - Project Staff

## Q10. Project Staff

**Please identify the key staff on this project, their role and what % of their time they will be working on the project. Further information on who should be classified as key project staff can be found in the guidance.**

**Please provide 1 page CVs for these staff, or a 1 page job description or Terms of Reference for roles yet to be filled. These should match the names and roles in the budget spreadsheet. If your team is larger than 12 people please review if they are key project staff, or whether you can merge roles (e.g. 'admin and finance support') below, but provide a full table based on this template in the PDF of CVs you provide.**

| Name (First name, Surname) | Role | Organisation | % time on project | 1 page CV or job description attached? |
|---|---|---|---|---|
| Cecilia Liszka | **Project Leader** | British Antarctic Survey | 38 | Checked |
| Geraint Tarling | Links to wider Ecosystems team work; executive & analytical support | British Antarctic Survey | 3 | Checked |
| Sophie Fielding | Executive & analytical support | British Antarctic Survey | 3 | Checked |
| Ryan Saunders | Plankton & larval fish expertise | British Antarctic Survey | 3 | Checked |

**Do you require more fields?**

⦿ Yes

| Name (First name, Surname) | Role | Organisation | % time on project | 1 page CV or job description attached? |
|---|---|---|---|---|
| Alison Cleary | eDNA expertise | British Antarctic Survey | 5 | Checked |
| Philip Hollyman | Links to KEP science work and larval fish ID | British Antarctic Survey | 3 | Checked |
| Mark Belchier | Links to GSGSSI Fisheries Management work | GSGSSI | 5 | Checked |
| Steven Brown | Links to GSGSSI Fisheries Management work | GSGSSI | 5 | Checked |
| Marianne Wootton | Zooplankton taxonomic expertise | Marine Biological Association | 5 | Checked |
| PDRA | Project management, sample and data analysis | British Antarctic Survey | 67 | Checked |

| | | | | |
|---|---|---|---|---|
| KEP field assistant | Fieldwork support | British Antarctic Survey | 3 | Checked |
| *No Response* | *No Response* | *No Response* | 0 | Unchecked |

**Please provide 1 page CVs (or job description if yet to be recruited) for the Project staff listed above as a combined PDF.**

**Ensure the file is named clearly, consistent with the named individual and role above.**

Combined CVs_Characterising pelagic biodiversity at SG
10/01/2022
21:13:26
pdf 514.69 KB

**Have you attached all Project staff CVs?**

Yes

# Section 6 - Background & Methodology

## Q11. Problems the project is trying to address

**Please describe the problem your project is trying to address in terms of environment and climate issues in the UKOTs.**

**For example, what are the specific threats to the environment that the project will attempt to address? Why are they relevant, for whom? How did you identify these problems? How will your proposed project help?**

**Please cite the evidence you are using to support your assessment of the problem (references can be listed in your additional attached PDF document which can be uploaded at the bottom of the page).**

The SG plankton community is a critical constituent of the Scotia Sea ecosystem, connecting primary producers and higher trophic levels, and supporting commercial fisheries[1-4]. Zooplankton and ichthyoplankton are key bioindicators of environmental change since they are small, have short life-cycles and respond rapidly to environmental changes [5].

The SGSSI Biodiversity Action Plan (BAP) aims to 'enhance knowledge of the biodiversity and habitats of SGSSI through research, monitoring and review, including establishment of scientific baselines from which to assess environmental change including the potential effects of climate change'[6]. The routine sampling carried out by the SGSSI fishery monitoring programme includes identification of myctophids, krill and Themisto spp. but detailed identification beyond this, particularly zooplankton, is not carried out. It is also limited to the upper 25 m of the water column. As a result, robust baselines of plankton diversity at SG are lacking. This monitoring gap threatens the ability of GSGSSI to fulfil the BAP and limits our ability to recognise new or invasive species.. This blindspot has implications for management of the SG ecosystem, fishery and MPA at a time when threats from climate change and tourism are increasing[7]. Recent years have also seen crashes in predator populations linked to poor krill recruitment, so a wider understanding of the foodweb is required to inform appropriate management.

This lack of baseline is in part due to practical challenges involved in sampling the pelagic environment. Net sampling and analyses are costly, time-consuming and rely on human expertise. Interpretation is obscured by net avoidance, plankton patchiness [8, 9], and error through infrequent and spatially-constrained sampling. Present net sampling techniques are unable to resolve important plankton constituents, e.g. gelatinous or non-native species which remain virtually unquantified[10-12] (the former are delicate and not well preserved, whilst the latter are difficult to detect without frequent, repeated sampling and comparison to historical baselines), or hitherto unidentified fish eggs. Optical and molecular methods offer novel analytical means of filling these gaps and, when combined with machine learning and other automation, can provide high quality information at low human and financial cost. Environmental DNA (eDNA) detected using molecular analysis can resolve taxa able to evade nets, and both approaches are able to observe plankton too small or delicate to be retained or preserved in net sampling. Implementation requires development and validation of these

techniques alongside other traditional methods. Molecular and image-based approaches can provide a more synoptic view of the plankton community, by sampling over greater depth ranges, across the seasonal cycle, and improving our ability to detect invaders.

Our project aims to address this gap by obtaining, at some of the most heavily visited locations on SG (i) a high-resolution baseline of zooplankton and ichthyoplankton abundance, diversity and distribution through three complementary and inter-calibrated methods; (ii) higher spatiotemporal resolution data and understanding of ecosystem structure and variability; and (iii) improved information on under-represented taxa, particularly gelatinous, deeper dwelling, and non-native or invasive species.

## Q12. Methodology

**Describe the methods and approach you will use to achieve your intended Outcome and contribute towards your Impact. Provide information on:**

- **How you have analysed historical and existing initiatives and are building on or taking work already done into account in project design. Please cite evidence where appropriate.**
- **The rationale for carrying out this work and a justification of your proposed methodology.**
- **How you will undertake the work (materials and methods).**
- **How you will manage the work (role and responsibilities, project management tools etc.)**

**(This may be a repeat from Stage 1 but you may update or refine as necessary)**

Historical initiatives and rationale
The proposal will make use of previously collected zooplankton samples from existing sampling initiatives carried out at Rosita Harbour (RH) and Cumberland Bay (CB) at SG as part of the GSSSI long-term monitoring programme (running from ~2002 to present). Currently, larval fish and krill are identified and quantified as part of routine fishery management yet, while zooplankton are collected, they are not routinely analysed. This means that the base of the food chain upon which the fishery depends is not well monitored and early changes to the pelagic ecosystem cannot be easily detected. By utilising these, we will enable continuity and integration of our project with existing management efforts, augment the data available to us to construct a baseline, and enable our methodology to be rigorously tested and improved.

These are two of the most visited locations on SG, where potential for introduction of non-native species is especially high. We will analyse RMT1 samples obtained during these surveys using optical methods and traditional light-microscopy to generate a training image and ID library, and initial validation dataset. Where possible, these samples will also be analysed using DNA metabarcoding to refine the molecular methodology to be used throughout the project, and to provide an initial baseline of community composition and first comparisons with optical and traditional light microscopy results .

Materials and Methods
1. Fieldwork and sample acquisition
Sampling will be conducted from the MV Pharos SG as part of the long-term monitoring programme at RH and CB during project Y1-2. An optical profiler and CTD will be deployed throughout the water column, obtaining images of zooplankton and ichthyoplankton, alongside concurrent oceanographic data. To calibrate against traditional net sampling methods, an RMT1 net with 300 µm mesh will be trawled for ~30 minutes over the top 25 m to collect macrozooplankton samples for taxonomic analysis, and a miniBongo with 100 µm mesh will be deployed to collect mesozooplankton over the same depth. Fish and krill caught in the RMT1 will be identified as part of the existing programme. The remainder of the RMT1 catch, and the entire miniBongo sample will be preserved as quickly as possible. Water samples for eDNA analysis will be collected from at least two depths using GoFlo bottles, kept cold and dark during transport to shore , filtered onto 0.2 µm Sterivex filters and frozen at -80 °C. Pooled water samples will be collected from within the top 25 m to correspond to net sampling, and at depths that correspond to the profile sampled by the optical profiler . All data and samples will be transferred to BAS, Cambridge at appropriate intervals.

2. Sample analysis
Image analysis will be performed with EcoTaxa, an open-access database and analysis package. Zooplankton images from the SO are already available within EcoTaxa and will help with initial image classification prior to manual validation. We will add to this with data collected from SG directly to create a SG-specific image library. We will partner with the MBA who have experience in SO taxonomy and will identify voucher-specimens to improve the machine-learning algorithm. Net samples

will be analysed using traditional taxonomy and semi-automated image analysis with ZooScan/EcoTaxa, using voucher-specimens identified by the MBA to validate image and molecular datasets, and enable comparison to the historical sample dataset. DNA extraction and amplification of target regions e.g. 18S or CoI, from eDNA samples will be conducted in the dedicated molecular lab at BAS. Paired-end Illumina sequencing will be performed by a commercial facility (Novogene) followed by bioinformatic analyses in Qiime2. Sequences will be identified to species using existing reference databases (GenBank/Silva), with sanger sequencing of individual morphologically identified reference organisms to fill in any gaps in these databases.

3. Data analyses
Data generated by all three approaches will be used to develop indices of plankton biodiversity including species composition, abundance and biomass. These indices will be used for comparisons and inter-calibrations of the three methods and analyses of variability of community structure across space and time. Particular attention will be paid to groups which are under-represented in traditional microscopy-based analyses, including gelatinous organisms, potential invasive species, and early life stage organism s.

4. Results dissemination
Outputs will be shared with GSGSSI, CCAMLR and other stakeholders involved in SG ecosystem and fishery management e.g. South Georgia Heritage Trust and IAATO; at relevant conferences and workshops; and published in peer-reviewed journals. We will also build on, and integrate with, existing Antarctic-wide initiatives e.g. SCAR's Antarctic Near-shore and Terrestrial Observation System (ANTOS) Working Group.

**If necessary, please provide supporting documentation e.g. maps, diagrams, and references etc., as a PDF using the File Upload below.**

References
10/01/2022
21:35:26
pdf 35.87 KB

# Section 7 - Stakeholders and Beneficiaries

## Q13. Project Stakeholders

**Who are the stakeholders for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them.**

GSGSSI and MBA are the two principal stakeholders and project partners.

GSGSSI have contributed to project development so that it makes best use of existing resources and adds to our knowledge of the SG ecosystem. GSGSSI will support the project through facilitating access to the KEP science station and Pharos SG for sampling work, including additional deployments beyond their standard survey work. They engaged in discussions around how the work can improve ecosystem understanding and management and how it aligns with their strategic priorities.

The MBA have extensive expertise in the taxonomic analysis of plankton, and application to policy-relevant indicators of ecosystem health and biodiversity. They were engaged in project development and helped shape its design. They will offer additional support in the development of image libraries and improving the resolution of taxonomic identification.

Another important stakeholder is the EcoTaxa team, who we have engaged with regarding the image analysis element of the project, and will engage further to develop a SG-specific library of images. Other stakeholders include organisations with an interest in SG and SO ecology e.g. South Georgia Heritage Trust, WWF, Pew Charitable Trusts, South Georgia Association; and members of scientific research groups including SCAR ANTOS, ICED and Ant-ICON. These groups address key questions related to biodiversity observation, management and conservation in Antarctic marine environments and have extensive networks that we will aim to engage with during our project.

## Q14. Institutional Capacity

**Describe the Lead Partner's capacity (and that of partner organisations where relevant) to deliver the project.**

BAS is a component of the UK Natural Environment Research Council, delivering scientific research on and around the Antarctic continent, and logistics support to UK science in Antarctica and the Southern Ocean (SO). BAS' logistics infrastructure includes the research station and laboratory facilities at King Edward Point (KEP) where the field component of this project will take place. BAS has a long history of ecological research at KEP and South Georgia (SG) so is well positioned to support this project. The Ecosystems team focuses on understanding the combined impacts of global climate-driven change and commercial fishing on polar marine ecosystems, providing fundamental insight into the response of species and ecosystems to changes. This has enabled the creation of a multi-disciplinary team that includes expertise on zooplankton, fish and molecular techniques that will ensure the delivery of all aspects of this project.

The GSGSSI are based in the Falkland Islands and manage SGSSI, working closely with BAS to support and deliver science and logistics. They work closely with BAS to support the management of fisheries and the MPA, including on previous Darwin Plus projects.

The Marine Biological Association (MBA) is one of the world's longest-running societies dedicated to marine research. The MBA hosts 10 research groups, including the CPR Survey - the world's longest-running, most geographically-extensive marine plankton survey. It employs 10 plankton analysts, possessing decades of experience in plankton identification from around the globe, including the SO and has worked with BAS on multiple previous plankton analysis projects.

### Q15. Project beneficiaries

**Who will your project benefit? You should consider the direct benefits as a result of your project as well as the broader indirect benefits which may come about as a result of your project achieving its Outputs and Outcome. The measurement of any benefits should be included in your project logframe.**

A key beneficiary will be GSGSSI via the production of the plankton biodiversity baseline against which future management can be monitored, and development of methods that are easy and cost-effective to implement throughout the year, and to rollout to new areas. GSGSSI will also benefit from the acquisition of the capital items to carry out this work, including the optical profiler which can be deployed from the Pharos SG and other suitable vessels; and eDNA sampling equipment. We will also build capacity within the OT to implement these methods by providing training for staff working at KEP and the Pharos. Indirect benefits will be conferred over the longer term by the production of training resources and protocols for implementation in other OTs.

The Antarctic and wider scientific community e.g. SCAR will benefit through outputs shared at relevant working groups and scientific conferences, publication of peer-reviewed literature, and the development of open access data sets (plankton counts, image libraries, DNA sequence libraries).

CCAMLR will also benefit from information on lower trophic level changes relevant to fishery management, stock assessment and higher predators.

## Section 8 - Gender and Change Expected

### Q16. Gender (optional)

**How is your project working to reduce inequality between persons of different gender? At the very least, you should be able to provide reassurance that your proposed work is not increasing inequality. Have you analysed the context in which you are working to see how gender and other aspects of social inclusion might interact with the work you are proposing?**

Equality, diversity and inclusion (EDI) in all its forms is a core consideration in our project. As the lead partner, BAS has engrained EDI in its cultural values and is part of a community of international polar organisations, national science bodies and leading employer organisations working together to make Polar science more diverse and inclusive. BAS has also been a member of the Athena Swan Charter since 2014 and is proud to hold an Athena Swan Bronze Award.

The project team has a positive gender balance, with 4 female team members and 2 male team members, all of whom represent diversity in terms of career stage. The science staff that assist the project at KEP will be recruited by BAS, in line

with its policy on being an equal opportunities employer and embracing diversity.

We will also ensure that the recruitment of the PDRA for this project will follow the same policy, including being advertised through a wide range of networks.

## Q17. Change expected

**Detail the expected changed this work will deliver. You should identify what will change and who will benefit a) in short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended). Please describe the changes for the environment and, where relevant, for people in the OTs, and how they are linked.**

This project will deliver direct benefits to GSGSSI and CCAMLR by improving the data available for monitoring and management. It will make use of zooplankton and ichthyoplankton samples that are collected yet not fully utilised, benefitting our understanding of the potential longer-term resilience of the ecosystem to climate change and human activities. It will contribute to considerations on fishery sustainability, providing insights into the ecology of lower trophic levels on which it depends. It further contributes to large-scale ecosystem research, providing a comprehensive, high-resolution, baseline over space and time, against which potential future changes can be assessed. This project will provide wider benefits, trialling and developing semi-automated and low-carbon methodologies, which can be integrated into the routine SG surveys, vessels of opportunity, and rolled out to other OTs.

Short-term
1. Development of optical and molecular methodologies and associated image and molecular barcode libraries specific to the SG ecosystem
2. Baseline estimate of plankton abundance, diversity and distribution using perspectives of biodiversity that go beyond traditional net-based assessments, revealing new information on taxa typically under-sampled with nets, or invasive to the SG ecosystem
3. Higher spatiotemporal resolution plankton data via full-depth water column sampling, and acquisition of a full seasonal perspective on the full plankton community. This includes the winter period that, for zooplankton particularly, is often undersampled, yet is when the krill fishery mainly operates

Long-term
1. Contribute to ongoing management of SG ecosystem, feeding into the MPA review process through provision of data and methodological developments
2. Make the monitoring of SG biodiversity a leading standard that other regions can adopt
3. Develop and refine novel, cost-effective and low-carbon methodologies, that can enable ongoing monitoring e.g. of non-native species, with reduced environmental impact and with less reliance on ship-based net sampling e.g. via ships of opportunity, moorings and gliders

## Q18. Pathway to change

**Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended). Please describe the changes for the environment and, where relevant, for people in the OTs, and how they are linked.**

This project addresses fundamental gaps in our knowledge of the zooplankton and ichthyoplankton biodiversity of the SG region, over spatial and temporal scales, and improves the quality of information available for monitoring, management and conservation purposes. Our integrated approach, combining three different methodologies, will provide a comprehensive assessment of SG biodiversity, shedding light on parts of the ecosystem we currently know little to nothing about, and cross-validating results obtained from each methodology. In addition to data collected throughout the project, historical samples will be retrospectively analysed, providing continuity with the current sampling programme and augmenting its value for fisheries and ecosystem management.

The results of the project will include baseline data and metrics on plankton diversity that will substantially enhance the state of knowledge of the SG ecosystem, providing a leading example of low-cost, low-carbon and high-tech methods for monitoring the marine ecosystem. Technological and institutional capacity will be built within the OT to continue this monitoring into the future. Results and data will feed into GSGSSI fisheries and ecosystem management, including the 5 Yearly MPA review, and CCAMLR conservation and management. We will also forge links with wider networks including SCAR's ANTOS Working Group.

### Q19. Exit strategy

**State how the project will reach a stable and sustainable end point, and explain how the outcomes will be sustained, either through a continuation of activities, funding and support from other sources or because the activities will be mainstreamed in to "business as usual". Where individuals receive advanced training, for example, what will happen should that individual leave?**

By the end of the project, protocols, image libraries, machine-learning algorithms and DNA reference sets will have been developed for two novel technological approaches to monitoring biodiversity around SG that can continue to be implemented as part of the SG fishery management surveys, enabling the continued collection, analysis and monitoring of plankton biodiversity data. Protocols will be written with the purpose of training new staff in the methods so that future success is not reliant on a particular individual. Capital and laboratory equipment procured will be a legacy of the project which will enable the ongoing practical application of these methods. We will also develop a standard format for reporting sampling effort through a direct relationship with the Polar Data Centre (PDC) at BAS. These protocols will be linked with the data generated by the microscope, optical-image and eDNA analyses so that future users of the datasets have a full understanding of the underlying methodology and sampling design. The PDC will oversee curation and access to all data generated by this programme in consultation with GSGSSI.

The partnership between GSGSSI and BAS will also help ensure the integration of these methods into regular survey and monitoring work into the future.

### Q20. Ethics

**Outline your approach to meeting Darwin's key principles for ethics as outlined in the guidance note. Additionally, are there any human rights and/or international humanitarian law risks in relation to your project? If there are, have you carried out an assessment of the impact of those risks, and of measures that may be taken in order to mitigate them?**

There is no permanent resident population on SGSSI. However, the islands are managed by the GSGSSI who are based in the Falkland Islands and will be closely involved in this project. As the lead organisation, BAS already has well-established channels of communication with the GSGSSI and we will maintain these throughout and beyond the lifetime of the project. BAS regularly works in SGSSI and has established processes in place to address environmental, legal and ethical obligations which we will follow. We will work closely with the BAS Environment Team and GSGSSI to ensure that all our activities comply with all relevant environmental and legal requirements and that any necessary permits are obtained, and we will respect the staff supporting this project. This will ensure that we meet all ethical and legal obligations of the SGSSI OT.

There is also an established research station with whom we will work closely and collaboratively to share best practice between all partners, and provide training in new methods that will benefit the OT and its objectives in the longer term.

We will engage with BAS Health & Safety (H&S) leads and Laboratory managers to ensure that the H&S of all participants is appropriately considered, writing risk assessments for all activities and obtaining the appropriate signoff.

We will ensure that all data and results collected or published are credible by publishing in respected journals and databases, complying with all appropriate requirements.

## Section 9 - Budget, Risk Management & Funding

### Q21. Budget

**Please complete the appropriate Excel spreadsheet, which provides the Budget for this application. Some of the questions earlier and below refer to the information in this spreadsheet. Note that there are different budget templates for grant requests under £100,000 and over £100,000.**

- Budget form for projects under £100,000
- Budget form for projects over £100,000

**Please refer to the** Finance Guidance **for more information.**

**Please ensure you include any co-financing figures in the Budget spreadsheet to clarify the full budget required to deliver this project.**

**NB: Please state all costs by financial year (1 April to 31 March) and in GBP. Darwin Plus cannot agree any increase in grants once awarded.**

Budget-over-100K-Dec21-Stage 2_FINAL
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21:39:58
xlsx 68.22 KB

### Q22. Financial Risk Management

**This question considers the financial risks to the project. Explain how you have considered the risks and threats that may be relevant to the successful financial delivery of this project. This includes risks such as fraud, bribery or corruption, but may also include the risk of fluctuating foreign exchange, delays in procurement or recruitment and internal financial processes such as storage of financial data.**

A large proportion of funds associated with this project will be for salaries and associated overheads and so will be controlled through the UKRI Shared Business Services Centre (SBS). Any equipment purchases will be within the strict UK government procurement rules, controlled through the UKRI SBS ordering system, which requires initial quotations and payment of invoices upon receipt of goods, minimising the risk of fraud. Travel and subsistence costs are for staff carrying out fieldwork. These claims will also be made through the SBS system which requires all employee and non-employee claims to be submitted with receipts, minimising the risk of fraud. Travel to and from South Georgia will be organised through BAS operations and logistics, again minimising the risk of fraud.

### Q23. Funding

**Q23a. Is this a new initiative or a development of existing work (funded through any source)?**

⦿ New initiative

**Please provide details:**

This is a new initiative and is not a development of existing work. It will use some zooplankton samples that have been previously collected but never analysed, however the project design and all analysis is entirely novel.

**Q23b. Are you aware of any other individuals/organisations/projects carrying out or applying for funding for similar work?**

⦿ No

## Section 10 - Finance

### Q24. Financial Controls

**Please demonstrate your capacity to manage the level of funds you are requesting. Who is responsible for managing the funds? What experience do they have? What arrangements are in place for auditing expenditure?**

As BAS is a part of NERC, a government body within UKRI, all orders and claims are made and controlled through the Shared Business Centre (UK SBS). A dedicated Finance Department at BAS will manage the budget appropriately and monitor spending throughout the grant's lifecycle; they have experience managing numerous Darwin projects. Funds have

been requested for an audit in the final year of the award.

Day to day management of the budget will be the responsibility of the Project Leader with support from the BAS Finance Team. A new cost code will be created by the Finance Team to manage the project budget. The Project Leader has experience managing other project budgets at BAS and outside.

The last two years of audited accounts are available here: https://www.ukri.org/about-us/what-we-do/annual-report-and-accounts/
Extracts of the relevant Financial Statements are attached as the full files were too large.

## Q25. Balance of budget spend

**Defra are keen to see as much Darwin Plus funding as possible directly benefiting OT communities and economies. While it is appreciated that this is not always possible every effort should be made for funds to remain in territory.**

**Explain the thinking behind your budget in terms of where Darwin Plus funds will be spent. What benefits will the Territory/ies see from your budget? What level of the award do you expect will be spent locally? Please explain the decisions behind any Darwin Plus funding that will not be spent locally and how those costs are important for the project.**

The major capital item purchased through the project (UVP and frame, [redacted]) will become the property of the OT for future use as appropriate.

The SGSSI OT does not have permanent residents. However, a research station is operated at KEP, SG and the fisheries patrol vessel, Pharos SG, is operated out of the Falklands to monitor the fishery. This project will work closely with the staff and crew of KEP and the Pharos, utilising staff locally employed to ensure close alignment with local conservation and management work and achieve cost savings for the project. Training in the optical and molecular methods and equipment will also be provided to station scientists and non-science staff, so that capacity can be built within the OT to continue to monitor the pelagic environment in the absence of specialist kit, people or expertise.

All sample acquisition will be carried out in the OT and the results will directly benefit the future management of the OT. We estimate that ~[redacted] of the requested budget will be spent on staff, fieldwork support or capital in the OT, with ~[redacted] being retained there in the form of capital items upon completion of the project.

## Q26. Capital Items

**If you plan to purchase capital items with Darwin Plus funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.**

With project funds, we intend to purchase an Underwater Vision Profiler (UVP) and protective frame to carry out the optical profiling. At the end of the project the equipment will be retained by the SGSSI OT. The cost of the capital items is [redacted] inc. VAT [redacted]). This means that capital costs equate to [redacted] of the budget being requested from the Darwin Plus funding. The reason this exceeds [redacted] is that the item being purchased is a fixed cost and is a bespoke piece of equipment only available from one manufacturer. It therefore cannot be purchased anywhere else for less and the lowest possible price has already been negotiated. A quote for the item is available on request.

## Q27. Value for Money

**Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.**

This project is centred around data collected as part of routine survey work already carried out by the GSGSSI as part of the fishery management. GSGSSI have agreed that the same routine survey patrols can be used to deploy additional sampling equipment to obtain new samples for this project. This means that additional patrols and fuel are not required to collect the samples for this project, representing a significant cost saving. Furthermore, the majority of the sampling will be carried out by the scientists stationed at KEP, thus not requiring additional human resource.

A portion of the money is for capital items to acquire image and molecular data, and development of methods to obtain zooplankton biodiversity data at substantially reduced cost compared to traditional net and ship-based methods[1]. Both methods offer the potential for automated data acquisition, for example by deployment on moorings or autonomous underwater vehicles[2], to increase the temporal coverage of data with reduced reliance on vessels in the future. eDNA metabarcoding has also been shown to enhance the detection of taxa relative to morphological taxonomy based on net sampling, detecting zooplankton and fish egg species of interest to fisheries[3], those not captured effectively by nets such as gelatinous taxa[4], and to monitor ecosystem health[5].

A large remaining portion of the money is to be spent on staff time. The project team is multi-disciplinary and incorporates people with specific skill-sets that will add value to the project. In-kind support has also been committed which will further add value.

### Q28. Outputs of the project and Open Access

**All outputs from Darwin Plus projects should be made available on-line and free to users whenever possible. Please outline how you will achieve this and detail any specific costs you are seeking from Darwin Plus to fund this.**

All data generated through the project will be made freely available under an Open Access licence and data management will abide by the 'FAIR' principle: Findable, Accessible, Interoperable and Reusable).

The UK Polar Data Centre (PDC) will assign a unique DOI to each of the datasets: i) zooplankton species abundance from net analyses; ii) zooplankton abundance and size spectra from UVP; iii) zooplankton metabarcoding sequence data from eDNA analysis. Zooplankton net data will be accessioned to the UK PDC. Image data collected by the UVP will be uploaded to the EcoTaxa Open Access database to contribute to development of machine learning algorithms, and both raw and processed molecular data will be uploaded to the International Nucleotide Sequence Database Collaboration (INSDC) and the UK PDC will establish cross-references to these data resources. Data outputs will also be made available through the GSGSSI Data Portal (DPLUS069).

Costs of [redacted] have been assigned to Y3 of the budget to cover data management at the end of the project.

In addition, costs for 2 manuscripts to be published in peer-reviewed journals under Open Access licence are covered by matched funding by BAS (estimated at [redacted]). These will be published as soon as possible after the end of the project.

## Section 11 - Safeguarding

### Q29. Safeguarding

**Projects funded through Darwin Plus must fully protect vulnerable people all of the time, wherever they work. In order to provide assurance of this, projects are required to have appropriate safeguarding polices in place. Please confirm the lead organisation has the following policies in place and that these are available on request:**

**Please upload the lead partner's Safeguarding Policy as a PDF on the certification page.**

| | |
|---|---|
| **We have a safeguarding policy, which includes a statement of our commitment to safeguarding and a zero tolerance statement on bullying, harassment and sexual exploitation and abuse** | Checked |
| **We have attached a copy of our safeguarding policy to this application** | Checked |
| **We keep a detailed register of safeguarding issues raised and how they were dealt with** | Checked |
| **We have clear investigation and disciplinary procedures to use when allegations and complaints are made, and have clear processes in place for when a disclosure is made** | Checked |

| | |
|---|---|
| **We share our safeguarding policy with downstream partners** | Checked |
| **We have a whistle-blowing policy which protects whistle-blowers from reprisals and includes clear processes for dealing with concerns raised** | Checked |
| **We have a Code of Conduct in place for staff and volunteers that sets out clear expectations of behaviors - inside and outside of the work place - and make clear what will happen in the event of non-compliance or breach of these standards** | Checked |

**Please outline how you will implement your policies in practice and ensure that downstream partners apply the same standards as the lead organisation.**

As BAS is a part of UKRI we will adhere to the UKRI Safeguarding Policy found at Safeguarding Policy (ukri.org). This policy and guidance will be shared with all partners at the start of the project and embedded in all practices.

## Section 12 - Logical Framework

**Q30. Logical Framework**

Darwin Plus projects will be required to monitor (and report against) their progress towards their expected Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you expect to measure progress against these and how we can verify this.

- Stage 2 Logframe Template

Please complete your full logframe in the separate Word template and upload as a PDF using the file upload below – **please do not edit the template structure other than adding additional Outputs if needed as a logframe submitted in a different format may make your application ineligible**. Copy your Impact, Outcome and Output statements and your activities below - these should be the same as in your uploaded logframe.

**Please upload your logframe as a PDF document.**

R10-DPlus-St2-Logical-Framework-Template-FINAL
10/01/2022
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pdf 90.47 KB

**Impact:**

Improved management and climate change resilience of the SG MPA through improved technological and institutional capacity to monitor the SG pelagic community, and improved cost- and carbon-efficiency of biodiversity monitoring

**Outcome:**

Improved effectiveness of MPA management via development of technical and analytical tools for comprehensive zooplankton biodiversity and non-native species monitoring through three synergistic methods, and input into GSGSSI management activities.

### Project Outputs

**Output 1:**

Capacity created for improved sensitivity and cost-effectiveness of zooplankton biodiversity monitoring at SG

**Output 2:**

Acquisition of data on lower trophic level biodiversity and distribution, including zooplankton, ichthyoplankton and non-native taxa or parasites

**Output 3:**

New zooplankton and ichthyoplankton data and bioindicator assessment tools developed for direct application to monitoring and management

**Output 4:**

Updates to SGSSI monitoring and management activities to improve consideration of zooplankton and ichthyoplankton biodiversity and community composition as bioindicators (e.g. differences in species dominance) and to incorporate invasive or non-native species monitoring

**Output 5:**

Publication and dissemination of results

**Do you require more Output fields?**

**It is advised to have less than 6 Outputs since this level of detail can be provided at the Activity level.**

⦿ No

**Activities**

**Each activity is numbered according to the Output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1.**

1.1 Recruitment of PDRA by end of Y1Q2
1.2 Optical profiler, protective sampling frame, miniBongo net and GoFlo bottles for eDNA sampling purchased and sent to the OT by end of Y1Q3
1.3 Mounting and testing of deployment of profiler and sampling bottles on the Pharos SG by end of Y1Q4
1.4 Science staff trained on use and deployment of the optical profiler and the collection and storage of samples obtained from net-based, optical and eDNA methods by end of Y1Q42.1
1.5 Participation in routine monitoring patrols on Pharos SG at 4-6 weekly intervals to collect a full year of samples by the end of Y2Q4
2.2 Taxonomic identification and quantification of historical and newly collected net samples, using light-microscopy and bench-top image analysis by end of Y3Q1
2.3 Classification and taxonomic analysis of images obtained with the optical profiler
2.4 Extraction, amplification and sequencing of eDNA metabarcodes from at the same sampling opportunities and comparison against published databases
3.1 Baseline zooplankton and ichthyoplankton biodiversity data (e.g. lowest taxonomic name, abundance, diversity, size-spectra) from the three methods (optical, net-based and molecular) cross-checked, calibrated and submitted to the UK Polar Data Centre (UK PDC) and the GSGSSI Data Portal (DPLUS069) by end Y3Q3
3.2 Development and refinement of novel optical methodology that can augment current net based monitoring capabilities by end Y3Q3
3.3 Development and refinement of eDNA methodology as ‘early warning’ system to detect non-native species and poorly sampled or other hitherto unknown species including fish eggs, by end Y3Q3
4.1 SGSSI MPA Research and Monitoring Plan (RMP) (Theme 2 specifically and others e.g. Themes 6 and 8 as appropriate) updated to incorporate ongoing plankton monitoring as a research need, and be reflected in relevant projects/ activities by end Y3Q4
4.2 Engagement with 2023 MPA 5 Year Review assessment by end Y2Q3
4.3 Contribute to GSGSSI priority activities on biosecurity and non-native species monitoring in partnership with SAERI by end Y3Q4
5.1 Preparation of papers for publication in peer-reviewed journals: submission by end of Y3Q4; publication within 1 year of project completion
5.2 Accession of all data to image libraries, OA databases and the BAS PDC by end of Y3Q4
5.3 Workshop held to share outputs and learnings with partners, relevant stakeholders e.g. Dissemination of results at relevant GSGSSI and CCAMLR, other OTs meetings, and wider networks e.g. SCAR ANTOS (Antarctic Near-shore and Terrestrial Observation System) Working Groups, as appropriate at end of Y3Q4

## Section 13 - Implementation Timetable

### Q31. Provide a project implementation timetable that shows the key milestones in project activities

**Provide a project implementation timetable that shows the key milestones in project activities. Complete the Word template as appropriate to describe the intended workplan for your project, and upload as a PDF.**

Implementation Timetable Template

**Please add/remove columns to reflect the length of your project. For each activity (add/remove rows as appropriate) indicate the number of months it will last, and fill/shade only the quarters in which an activity will be carried out.**

- R10-DPlus-Implementation-Timetable-Template-FINAL
- 10/01/2022
- 22:23:40
- pdf 141.98 KB

## Section 14 - Monitoring and Evaluation

### Q32. Monitoring and evaluation (M&E)

**Describe, referring to the Indicators, how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.**

**Darwin Initiative projects are expected to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see Finance Guidance).**

A Steering Group will be established at the start of the project to oversee monitoring and evaluation and track progress against milestones. The Steering Group will include team members from all project partners and will be chaired by the Project Leader, with support from the PDRA, once recruited.

Monthly meetings will be scheduled to take place via Zoom in order to accommodate project partners and members of the team based in South Georgia. Meetings will be used to obtain updates from team members, and to assess progress against project milestones and budget. Minutes and actions will be circulated to all members and will be shared via Microsoft Teams or another suitable means that is accessible to all partners. Where issues are identified, these meetings will provide a first opportunity to address them.

Six-monthly progress reports will be shared with all interested stakeholders and published on partner websites.

The budget will be managed on a day-to-day basis by the Project Leader, with support from the BAS Finance Team. This will ensure that spending against the agreed budget is on track. BAS Finance Office will have overall control of budgets and spend, and the project will be subject to external audit for which funds of £[redacted] have been allocated in the budget.

Any requests to make changes to the project timeline or budget will be raised with Darwin Plus/ LTS as soon as the need is identified.

The principal costs associated with M&E are staff time (project team and BAS Finance) and audit costs.

| | |
|---|---|
| **Total project budget for M&E in GBP (this may include Staff, Travel and Subsistence costs)** | [redacted] |
| **Number of days planned for M&E** | [redacted] |
| **Percentage of total project budget set aside for M&E (%)** | [redacted] |

## Section 15 - Lead Partner Track Record

### Q33. Lead Partner track record

**Has your organisation been awarded a Darwin Initiative award before (for the purposes of this question, being a partner does not count)?**

⦿ Yes

**If yes, please provide details of the most recent awards (up to 6 examples).**

| Reference No | Project Leader | Title |
|---|---|---|
| DPLUS149 | Collins, Martin | Resolving ecosystem effects of the South Georgia winter krill fishery |
| DPLUS132 | Fretwell, Peter | Monitoring albatrosses using very high resolution satellites and citizen science |
| DPLUS120 | Warwick-Evans, Victoria | Spatial segregation and bycatch risk of seabirds at South Georgia |
| DPLUS109 | Trathan, Phil | Initiating monitoring support for the SGSSI-MPA Research and Monitoring Plan |
| DPLUS092 | Phillips, Richard | Seabird sentinels: mapping potential bycatch risk using bird-borne radar |
| DPLUS072 | Trathan, Phil | Developing the risk assessment framework for the Antarctic krill fishery |

**Have you provided the requested signed audited/independently examined accounts?**

**If yes, please upload these on the certification page. Note that this is not required from Government Agencies.**

⦿ Yes

## Section 16 - Certification

### Certification

**On behalf of the**

company

**of**

British Antarctic Survey

**I apply for a grant of**

[redacted]

**I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.**

**(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)**

- **I have enclosed CVs for project key project personnel, letters of support, budget and project implementation timetable (uploaded at appropriate points in application).**
- **Our last two sets of signed audited/independently verified accounts and annual report are also enclosed.**

Checked

| | |
|---|---|
| **Name** | Margaret Clark |
| **Position in the organisation** | Head of Finance |
| **Signature (please upload e-signature)** | FINAL R10 DPlus St2 Application Form Certification<br>10/01/2022<br>21:41:59<br>pdf 24.66 KB |
| **Date** | 10 January 2022 |

**Please upload the Lead Partner's Safeguarding Policy as a PDF.**

UKRI-081020-SafeguardingPolicy
10/01/2022
21:42:32
pdf 111.65 KB

**Please attach the requested signed audited/independently examined accounts.**

UKRI-200721-AnnualReport2020-2021_extract
10/01/2022
22:14:54
pdf 983.96 KB

UKRI-050920-AnnualReport2019-2020_extract
10/01/2022
22:14:54
pdf 1.05 MB

## Section 17 - Submission Checklist

### Checklist for submission

| | Check |
|---|---|
| **I have read the Guidance documents, including the "Guidance Notes for Applicants" and "Finance Guidance".** | Checked |
| **I have read, and can meet, the current** Terms and Conditions **for this fund.** | Checked |

| | |
|---|---|
| **I have provided actual start and end dates for this proposed project.** | Checked |
| **I have provided a budget based on UK government financial years i.e. 1 April – 31 March and in GBP.** | Checked |
| **I have checked that the budget is complete, correctly adds up and I have included the correct final total at the start of the application.** | Checked |
| **The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).** | Checked |
| **I have attached my completed logframe and timeline as a PDF using the templates provided.** | Checked |
| **I have included a 1 page CV or job description for all the Project staff identified at Question 11, including the Project Leader, or provided an explanation of why not.** | Checked |
| **I have included a letter of support from the Lead Partner and main partner organisation(s) identified at Question 10, or an explanation of why not.** | Checked |
| **I have included a cover letter from the Lead Partner, outlining how any feedback at Stage 1 has been addressed where relevant.** | Checked |
| **I have included a signed copy of the last 2 years annual report and accounts for the Lead Partner, or provided an explanation if not.** | Checked |
| **I have checked the** Darwin Plus website **immediately prior to submission to ensure there are no late updates.** | Checked |
| **I have read and understood the Privacy Notice on the** Darwin Plus website. | Checked |

**We would like to keep in touch!**

**Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under the Darwin Initiative, Darwin Plus and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. You are free to unsubscribe at any time.**

Checked

**Data protection and use of personal data**

Information supplied in this application form, including personal data, will be used by Defra as set out in the latest copy of the Privacy Notice for Darwin, Darwin Plus and the Illegal Wildlife Trade Challenge Fund available here. This Privacy Notice must be provided to all individuals whose personal data is supplied in the application form. Some information, but not personal data, may be used when publicising the Darwin Initiative including project details (usually title, lead partner, location, and total grant value) on the GOV.UK and other websites.

Information relating to the project or its results may also be released on request, including under the 2004 Environmental Information Regulations and the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality nor will we act in contravention of our obligations under the General Data Protection Regulation (Regulation (EU) 2016/679).