Biodiversity Challenge Funds Projects
Darwin Initiative, Illegal Wildlife Trade Challenge Fund, and Darwin Plus

Half Year Report

It is expected that this report will be a **maximum of 2-3 pages** in length.

If there is any confidential information within the report that you do not wish to be shared on our website, please ensure you clearly highlight this.

Submission Deadline: 31st October 2024

Please note all projects that were active before 1 October 2024 are required to complete a Half Year Report.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Project reference	*This should be the project reference provided in your offer paperwork and **not** your application number* DPLUS179
Project title	Characterising pelagic biodiversity at South Georgia through novel sampling methods
Country(ies)/territory(ies)	South Georgia and the South Sandwich Islands
Lead Organisation	British Antarctic Survey
Partner(s)	Government of South Georgia and the South Sandwich Islands (GSGSSI) and Marine Biological Association (MBA)
Project leader	Cecilia Liszka
Report date and number (e.g. HYR1)	October 2024, HYR2
Project website/blog/social media	https://www.bas.ac.uk/project/south-georgia-pelagicbiodiversity/

1. Outline progress over the last 6 months (April – September) against the agreed project implementation timetable (if your project started less than 6 months ago, please report on the period since start up to end of September).

Although we are not looking for specific reporting against your indicators, please use this opportunity to consider the appropriateness of your M&E systems (are your indicators still relevant, can you report against any Standard Indicators, do your assumptions still hold true?). The guidance can be found on the resources page of the relevant fund website.

Between April and September 2024, the following progress against the project implementation timetable has been made:

- The final field survey took place in June 2024. This completed a successful year of field surveys. Surveys took place every 4-6 weeks on the MV *Pharos SG*, resulting in 11 surveys over 12 months. During each survey, deployment of the UVP6, miniBongo, CTD, RMT1 and Niskin bottles for eDNA water sampling was successfully carried out. An alternating pattern of sampling locations has been followed throughout the 12

months, with Cumberland Bay East (CBE) being sampled every survey, whilst stations within the Eastern Core Box (ECB) are additionally sampled every other survey.

- Within the current reporting period, surveys were carried out in April (01/04/2024-04/04/2024), May (30/04/24- 06/05/2024) and June (01/06/2024), with deployments following the pattern described above (CBE only in April and June, CBE + ECB in May).
- Previously developed protocols for all deployments have been updated as required and maintained in a shared drive and are accessible to KEP science staff.
- The majority of data and samples collected from July 2023 to June 2024 have been received by the project team based at BAS. This includes preserved RMT1 and miniBongo samples from July 2023 to June 2024, UVP6 data, including images from deployments from July 2023 to May 2024, and eDNA filter papers collected between July 2023 and March 2024. Transport of the remaining data (June 2024) and eDNA filters (April to June 2024) from the Falklands to the UK is currently being arranged.
- Processing of data and samples received at BAS has begun and will continue in line with the project implementation timetable. To date, the following has been carried out:
    - 15 miniBongo and 7 RMT1 samples collected during the 2023/2024 field surveys have been ZooScanned and uploaded to EcoTaxa. Taxonomic classification of the images collected is ongoing.
    - Net samples have been selected to be sent to MBA for microscope taxonomic analysis and are due to be analysed before April 2025. This includes 10 miniBongo samples (6 from CBE and 4 from ECB1) and 10 RMT1 net samples (6 from CBE and 4 from ECB1).
    - All data and images obtained from UVP6 deployments from July 2023 to May 2024 have been uploaded onto EcoPart (an online database of particle information collected through instruments such as the UVP6) and images and associated data have been added to EcoTaxa (a machine assisted web application, which allows plankton images to be taxonomically identified). An initial classification of all images into taxonomic categories has been carried out and secondary verification of the images is underway.
    - DNA extraction from the eDNA filters has begun and techniques are being trialled and refined. DNA has been extracted from 12 filters, using a Qiagen DNeasy blood and tissue kit. Of these 12 filters, polymerase chain reaction (PCR) amplification of extracted DNA has been carried out on 6. Initial results are indicating that low volumes of DNA are being extracted from the filters. The extraction process is currently being reviewed with additional steps being trialled to increase DNA extraction. Once the extraction process has been optimised, the remaining filters will be processed. Once all filters have been processed the extracted and amplified DNA will be sent to be sequenced externally.

Historical samples collected from CBE are also being analysed within this project.

- At the time of writing, 66 historic net samples, spanning years from 2003 to 2023 have been scanned using the ZooScan. These have been uploaded onto EcoTaxa for taxonomic classification and further analysis. Once classified these will aid in providing baseline data on plankton abundance around South Georgia.
- Ten historic samples from 2003 and 2006 have been taxonomically analysed by the MBA. Voucher specimens have also been identified from these samples to aid in the classification of plankton images from the ZooScan.

2. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

1. The project is encountering some issues transporting the remaining frozen filters containing eDNA. All samples collected up until March 2024 were transported back to the UK via the RRS Sir David Attenborough following her last call to the Falkland Islands (FI) in May 2024. However, samples collected after this date required a different route back to the UK, made more challenging due to the need to remain frozen, the limited routes available from FI, and that the usual source of liquid nitrogen (IN2) on the

FI was unavailable. The samples are currently being stored in the BAS Stanley Office awaiting onward transport. A workable route via the MOD (RAF Brize Norton to RAF Mount Pleasant) was identified involving a dry shipper with 21 days 'cold time' charged with lN2 in Cambridge being air-freighted via MOD and carried back by personnel travelling north (to avoid potential delays with cargo clearance). The necessary approvals to support this were obtained in writing. Whilst the transfer has been attempted, inexperience with the dry shipper and unexpected airbridge delays mean this has not yet been successful. Another attempt with additional contingency is being planned. This delay is not expected to affect the project timetable, nor the budget.

2. There have been issues arising from the extraction of eDNA from the filter papers using the Qiagen Blood and Tissue kit. This kit involves several steps to draw DNA from filter papers and suspend in liquid that can be readily amplified, prior to sequencing. However, following this extraction the volume of suspended DNA is lower than expected. Advice is being sought from colleagues experienced in DNA extraction is being sought and amendments to the current protocol are being trialled to optimise the process. These include breaking down the filter papers before DNA extraction, increasing the volume of liquids used to draw the DNA from the filters and additional centrifuge steps to ensure filters remain in liquid throughout the extraction process. This issue is not expected to affect the budget or timetable of the project.

3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?

Discussed with NIRAS:	~~Yes/~~ No
Formal Change Request submitted:	~~Yes/~~ No
Received confirmation of change acceptance:	~~Yes/ No~~ N/A

Change Request reference if known: *If you submitted a financial Change Request, you can find the reference in the email from NIRAS confirming the outcome*

4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2024 – 30 September 2024)

Actual spend:

4b. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this financial year (ending 31 March 2025)?

Yes ☐ **No** ☒

4c. If you expect and underspend, then you should consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a re-budget Change Request as soon as possible. There is no guarantee that Defra will agree a re-budget so please ensure you have enough time to make appropriate changes to your project if necessary. Please DO NOT send these in the same email as your report.

NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.

5. Are there any other issues you wish to raise relating to the project or to BCF management, monitoring, or financial procedures?

No.

6. Please use this section to respond to any feedback provided when your project was confirmed, or from your most recent annual report. If your project was subject to an Overseas Security and Justice Assistance assessment please use this space to comment on any changes to international human rights risks, and to address any additional mitigations outlined in your offer letters. Please provide the comment and then your response. If you have already provided a response, please confirm when.

In general, the feedback from the most recent annual report was positive with the reviewers noting the project was likely to completely achieve the desired outputs. However, the reviewers noted a few areas that have yet to be achieved or not fully reported upon. Whilst they are due to be reported against in the next annual report, we address progress towards them here.

<u>The project provides a link to two informative reports which is appreciated by the reviewer. However, the annual report would have benefited from evidence relating to the training provided, and in future it would be interesting to see evidence of the analysis of historical samples.</u>
Initial training within the project took place in the form of training staff and project members to use the equipment deployed on fieldwork. This took place through a formal training course on the use of the UVP6 (invoices for this can be provided with the next annual report) and informal training from peers on the use of all other equipment. Training of those on the MV *Paros SG* on the use of the field equipment has continued through informal processes, resulting in a number of crew, scientists and SGSSI government staff having a knowledge of the equipment. Evidence of this training is effectively demonstrated through the KEP Science staff continuing to collect samples for the project and successful completion of the full year of sampling; this was the goal of training provided by the BAS project team scientists during the July 2023 survey. Elements of this sampling (miniBongo and UVP) have also been integrated into ongoing KEP monitoring, providing further indirect evidence of successful training. The protocols we have developed and refined throughout the project will be available to any interested parties at the end of the project, allowing project training to have a greater reach. These can also be uploaded onto the project website for more transparency. This will enable the project to achieve the criteria of sharing effectiveness, reproducibility and scalability that were not evidenced within the recent annual report. Analysis of the historical samples is underway and initial analysis of these will be reported against in the next annual report.

<u>The project notes that a presentation was given at the GSGSSI MPA Review in June 2023 and that engagement with GSGSSI and SAERI continues, but the nature of its contribution could be expanded in the next annual report.</u>
Specifically, reviewers noted that the contribution the project is making to the management of the MPA was not well addressed. The project did feed into the 5 Year MPA review but was at a very early stage when this took place. The project lead maintains good communication with the GSGSSI who both manage the MPA and are a partner on the project. Whilst the most recent 5 Year Review is now complete, our activities are closely aligned with research needs identified in the associated Research and Monitoring Plan (RMP), particularly Themes 2 (Pelagic Ecosystems – Lower Trophic Levels) and 9 (Climate Change). Any relevant papers submitted to CCAMLR or for peer-review will be contributed to future reviews. We are also in contact with SAERI and discussing a potential collaboration in regards to invasive species around SG.

<u>The project comments on continued monitoring beyond the life of the project, but it is not clear at this stage how this will be funded and achieved, and how the project team will be involved.</u>
This relates to the integration of elements of our project (miniBongo and UVP) into the KEP Science Plan, core activities of which are funded between GSGSSI, FCDO and BAS. Future analysis of samples will be carried out in conjunction with the BAS Ecosystems team under ongoing workstreams, and new projects that would seek additional funding.

The final comments referred to the M&E narrative and discrepancies in the total grant and budget lines. Reviewers are correct that the M&E narrative remains the same as presented

previously. In terms of the budget, it is not clear which CR the reviewers refer to. The total values were correct in the December 2023 CR which should have been the CR approved before submission of our report. The latest approved CR has the same values.

Checklist for submission

For New Projects (i.e. starting after 1st April 2024)	
Have you **responded to any additional feedback** (other than caveats) received in the letter you received to say your application was successful which requested response at HYR (including safeguarding points)? You should respond in section 6, annexes other requested materials as appropriate.	
If not already submitted, have you attached your **risk register**?	
For Existing Projects (i.e. started before 1st April 2024)	
Have you responded to **feedback from your latest Annual Report Review?** You should respond in section 6, annexes other requested materials as appropriate.	Y
For All Projects	
Include your **project reference** in the subject line of submission email.	Y
Submit to **BCFs-Report@niras.com**.	Y
Have you **clearly highlighted any confidential information** within the report that you do not wish to be shared on our website?	Y
Have you reported against the most **up to date information for your project?**	Y
Please ensure claim forms and other communications for your project are not included with this report.	Y