



Darwin Initiative/D+ Project Half Year Report (due 31st October 2019)

Project reference	DPLUS093
Project title	HOT: Hadal zones of our Overseas Territories
Country(ies)/territory(ies)	South Georgia and The South Sandwich Islands (SGSSI)
Lead organisation	British Geological Survey
Partner(s)	Newcastle University
Project leader	Heather Stewart
Report date and number	HYR1 31 st October 2019
Project website/blog/social media etc.	In progress

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

The project started in April 2019, and we successfully acquired ~15,000 km² of multibeam echosounder data covering water depths between 3920 and 8266 m within the South Sandwich Trench (SST) area of the Marine Protected Area (MPA) (Output 2.1/Activity 2.1). Unfortunately due to technical issues and weather downtime we were unsuccessful in collecting physical geological samples. However, unprecedented biological samples were acquired and inclusion of these into this Project were the subject of a successful Change Request (see details in Section 2).

Dr Susie Grant and Dr Martin Collins have agreed to participate in the Stakeholder Group (Activity 1.1). Following their agreement to engage with this project a meeting has been set for Thursday 14th November (Annex A) to be attended by:

- Dr Martin Collins (British Antarctic Survey) prepared the MPA management plan whilst at the Government of SGSSI. Dr Collins brings a lot of expertise in the MPA and marine ecosystems across the region to this project.
- Dr Susie Grant (British Antarctic Survey) contributed to the MPA management plan and was an Advisory Group member for the 2018 SGSSI MPA 5-year Review Workshop. Dr Grant is also PI on DPLUS069 *Building Data Resources for Managing the SGSSI Marine Protected Area*. Dr Grant's project will shortly deliver a data portal for the MPA this project will look to utilise (Activity 3.4). Dr Grant is also developing a research and monitoring plan for the MPA that highlights the importance of further research in the SST hadal zone (discussion as part of Output/Activity 3.2). Dr Grant's participation is invaluable. Dr Grant also brings expertise in the biodiversity, conservation and management of the Antarctic region to this project.
- Dr Alan Jamieson (Newcastle University), a world leader in hadal research, leads the biological analyses during this project.
- Ms Heather Stewart (British Geological Survey), marine geologist, is Darwin project lead and lead on geological interpretation during this project.

This meeting is key in developing the Knowledge Transfer and Project Dissemination Plan (Activity 1.3) and facilitating data access and delivery (Activity 3.4). Furthermore the Stakeholders we have engaged with are in a position to best advise for Outputs 3.2 and 3.5

whereby this project feeds directly back into the MPA process (next review 2022/23) and Biodiversity Action Plan.

The following key activities have been completed, which form the foundation for the future analysis:

- Data acquisition and processing (Activity 2.1), with derived layers produced for subsequent analyses (Activity 2.3 and 2.4). These data have been delivered to partners at NU (Activity 2.5).

Work in progress during the last 6 months:

- Two project board meetings (Activity 1.4) attended by Alan Jamieson (NU), David McInroy (BGS) and Heather Stewart (BGS) to monitor the progress of the project thus far with reference to the logframe and deliverables.
- Collaborators at Newcastle University took receipt of the biological samples from the Five Deeps Expedition and are in preparatory stages for RAD-seq analysis of amphipods from the SST (Activity 2.4). To date, the PhD student with the project (Johanna Weston, NU) has completed a data-specific analysis course through PR Informatics and DNA extractions methods are being optimized for the samples. The specific RAD-seq protocol has been selected and collaborations have been established with Dr. Michael Miller's laboratory at the University of California at Davis to execute the protocol (this group developed the original protocol). Laboratory work is scheduled for late January to February 2020 in-keeping with the project timetable.
- Working GIS with all relevant data compiled for upcoming work on seafloor substrate and geomorphological analysis (Activity 2.6).
- An abstract summarising the project aims and objectives has been submitted to the 2019 SAGES conference (November 2019). This was an opportunity to gain some feedback on the aspirations of the project at this early stage (Annex B; Activity 3.2).

2a. 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.

A change request was submitted following completion of our fieldwork campaign. In summary we acquired all the acoustic data necessary to satisfy the activities of this project, none of the geological samples we planned for, but we acquired an unprecedented volume of biological material, analysis of which was the main object of the change request.

As a result we revised the logframe and scope of the project to remove analysis and reporting on geological samples, and requested to redirect that budget to analysis and reporting of biological samples. The overall grant expenditure did not alter and no movement of budget between FY was requested. Please see the approved change request form for further details.

Had we been unsuccessful in our change request, we will be severely hampered in our ability to support the existing MPA and fill in the significant knowledge gap acknowledged, during the last MPA review, to exist within the South Sandwich Trench part of the MPA.

Unfortunately submission of our change request was coincident with a busy period for applications at LTS International. Therefore it took 2-3 months to receive notification that the request had been successful. This delayed us convening the Stakeholder Group as the agenda for that meeting would be dependent on whether biological analyses were included or not. However, no delay to the overall project timetable has been experienced as in work progressed on other aspects of the project as summarised in Section 1.

2b. Have any of these issues been discussed with LTS International and if so, have changes been made to the original agreement?

Discussed with LTS:	Yes/No
Formal change request submitted:	Yes/No
Received confirmation of change acceptance	Yes/No

3a. Do you currently expect to have any significant (e.g., more than £5,000) underspend in your budget for this year?

Yes No Estimated underspend: £0

3b. If yes, then you need to 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 rebudget Change Request as soon as possible. There is no guarantee that Defra will agree a rebudget so please ensure you have enough time to make appropriate changes if necessary.

4. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

N/A

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document. Additionally, if you were funded under R25 and asked to provide further information by your first half year report, please attach your response as a separate document.

Please note: Any planned modifications to your project schedule/workplan can be discussed in this report but **should also** be raised with LTS International through a Change Request. **Please DO NOT send these in the same email.**

Please send your **completed report by email** to Darwin-Projects@ltsi.co.uk. The report should be between 2-3 pages maximum. **Please state your project reference number in the header of your email message e.g. Subject: 25-035 Darwin Half Year Report**