Department for Environment Food & Rural Affairs

DARWIN INITIATIVE

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Darwin Initiative Main/Post/D+ Project Half Year Report

(Due 31st October 2018)

Project reference:	Dplus070
Project title:	Oceanographic influences on the St Helena pelagic ecosystem
Country(ies)/territory(ies)	St Helena, South Atlantic Ocean
Lead organisation	St Helena Government (SHG)
Partner(s)	British Antarctic Survey (BAS) South Atlantic Environmental Research Institute (SAERI)
Project leader	Annalea Beard
Report date and number (e.g., HYR3)	HYR2 19/10/2018
Project website/blog/social media etc.	Website: http://www.sainthelena.gov.sh/dplus070-oceanographic-influences-on-the-st-helena-pelagic-ecosystem/ Facebook: https://www.facebook.com/sthelenaconservation/ Project hashtag: #StHelenaPelagicProject

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).

Output 1: Capacity building

Although training has met most reporting requirements already capacity building continues throughout the project as local staff further improve their skills. Undertaking basic data analysis of CTD (conductivity temperature and depth probe) data started in July, one staff member has been trained to undertake basic processing of raw data, and this training will continue as data analysis progresses.

Zooplankton sample analysis, particularly concerning sample processing and preservation has been worked on intensively by two local staff members over the last 6 months who can both work independently at this point. Annalea Beard has been away for the last 6 months so has been unable to progress with training, she is expected back at work part time in October, and so training can continue.

Output 2: Oceanography

Monthly updates to remotely sensed oceanographic data (sea surface temperature, sea surface salinity, chl-a, sea surface height anomaly) are downloaded by BAS each month and delivered to SHG ad hoc when visiting scientist come to the island. This is working well as there are regular scientists sent out from CEFAS under another work programme, which Dplus070 have formed a good working relationship with.

The monthly sampling programme missed one month of sampling in the last 6 months, this was due to equipment having failed in March 2018, which had to be returned to the UK for assessment and repair. CEFAS funded an additional CTD to be delivered to St Helena, which meant sampling could commence again in June. The original CTD has arrived back on the island (28/09/2018) which means the project is much more resilient to any future CTD failures

as there is now a backup. In August only 3 out of 6 monthly monitoring stations were reached as the sea conditions prevented access to the other three.

Analysis of CTD data and satellite data has started and is ongoing. So far data indicates the stratification in the water column (which is key for productivity at the base of the food web) is driven primarily by temperature with a negligible effect from salinity which has remained stable throughout the project.

Output 3: Zooplankton

Zooplankton monthly sampling has been successfully completed every month since sampling programme began in March 2018. As of September 30th 36 samples have been collected and have been analysed. The first 18 samples have been moved from the fixative solution into long term storage solution. Trends have started to be observed in the data, such as eggs being present earlier in the year which are currently extremely scarce in samples.

Output 4: Bait fish

Sampling for bait fish has continued to run monthly with equal fishing effort, quotas for stomach content samples have been successfully reached. Not all species have been caught each month, this is useful because absence is still data. However, the quota of sampling 200 fish per month has been difficult to achieve. This quota target is being carefully monitored and we will contact Darwin if any issues arise that mean we cannot complete our activities for this output.

Staff have been trained to analyse stomach contents. Training was delivered in April by consultant Rachael Shreeve. Stomach sample analysis could not start until training occurred and so a backlog of samples has built up. By analysing 50 stomachs per week the backlog can be cleared as well as new samples being up to date and analysed by March 2019. This target has so far been met with on average 50.5 stomachs being analysed per week. However, with such a tight target to meet, we are closely monitoring this and the resources required to maintain it and will contact Darwin if any further issues arise and there is a chance the target won't be met.

Seasonal patterns have not yet started to be investigated due to the delay in sample analysis commencing.

Output 5: Long term monitoring programme

This is not due to be completed until the end of the project but work on this has begun by generating ideas for monitoring temperature at low cost. CTD and satellite data collected through the project currently indicate that the marine ecosystem in St Helena is a temperature driven system and that salinity changes are negligible. As deploying the CTD is expensive Dplus070 have been looking for alternatives which could monitor temperature more frequently at lower cost, such as using scuba divers dive computers via a citizen science programme. This has been discussed with Darwin as a field test with the dive computers and the CTD would need to be completed to see if this option is viable.

Output 6: Seabirds

The cool season for breeding storm petrels on Egg Island occurred in June. This is a contrasting set of breeding conditions compared to those that breed in the same location during the hot season (December). Adults were tracked with GPS loggers, 10 were deployed and 5 were retrieved. The loggers that were not retrieved were due to the nest failing and the adult bird not being present when the team were able to check them. As regurgitate samples were low in number (3), faecal samples were also collected (33) in order to understand the diet composition of this species as a baseline through stable isotope analysis and how it ties in to the larger ecosystem. These will be analysed by Cardiff University with no additional cost. Preliminary tracks from the GPS loggers deployed over the two seasons suggest that the two breeding populations utilise different foraging grounds (south-west during the hot season, south east during the cool season).

Output 7: Database and GIS system

A GIS database was created for Dplus070 in June. This is hosted on a local server set up by Dplus052. This is a spatial database and has the potential to completely replace the Access database originally designed for the project before the server was set up. Currently access is

limited to local staff (the project officer and the GIS department have administrator rights while other staff have read only rights). Project data will be made available at the end of the project. Seabird tracking data has also been uploaded to the online tracking depository Movebank which is publically available.

Output 8: Summary of seasonal patterns in the St Helena pelagic ecosystem prepared to inform review of Marine Management Plan and MPA.

This is not due until the end of the project although building understanding of the key concepts of the project has already commenced. To that end, public engagement is focused on using Facebook updates with the hash tag #StHelenaPelagicProject and other activities, such as public talks. A talk was given on September 6th in collaboration with Blue Marine Foundation (an international NGO) who were publically showing episodes of blue planet 2. The talk by Dplus070 was paired with the episode 'Green Seas' and approximately 30 people attended.

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 notable problem in the last 6 months was the missed sampling in May while waiting to get a functioning CTD back to the island after the equipment failed. This equipment failing had been identified as a risk to the project and fortunately a conversation had been had between Dplus070 and CEFAS when we were made aware that they may have some funding which could be used to purchase an additional CTD for security. This was a collaborative effort as CEFAS would like to use the CTD for their tuna tagging work on St Helena. When the project was written this was identified as a risk but no mitigation strategy had been put in place. A lesson learnt from this is to have a mitigation strategy in place for any identified risk.

The weather has also been an issue for CTD deployment in August, there is little which Dplus070 can do to mitigate against this except to try and be as flexible as possible with fieldwork dates and to try to sample on the days where the weather creates the most favourable conditions.

Finally, an unexpected financial development was SHG increasing the costs of overheads, IT support and recharges.

These issues had to be considered within the current project and budget and were included in a change request submitted for consideration on 6/10/2018.

An unexpected development was the unfortunate need for the project leader and seabird specialist to depart St Helena sooner than expected for personal reasons, meaning plans for handover and covering workloads were unfortunately not fully in place. The staff member supported from overseas as best possible, and fortunately the project timetable and budget were not effected as the work was successfully covered by other staff; in future a handover plan will be planned further ahead to try and mitigate for unforeseen circumstances.

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
Formal change request submitted:	Yes
Received confirmation of change acceptance	No

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

Yes X **No** ☐ Estimated underspend: £
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?
No, Darwin has been excellent at communicating and working with us whenever we have had any issues.

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 R24 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 send your **completed report by email** to Eilidh Young at 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: 22-035 Darwin Half Year Report**