

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

Project reference	DPLUS090
Project title	Reducing the impacts of plastic on the BIOT natural environment
Country(ies)/territory(ies)	British Indian Ocean Territory (BIOT)
Lead organisation	Zoological Society of London
Partner(s)	Swansea University, BIOT Administration
Project leader	Rachel Jones
Report date and number (e.g. HYR3)	<i>HYR1</i>
Project website/blog/social media etc.	www.marine.science #BIOTscience

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: Characteristics of plastic waste pollution on BIOT marine turtle nesting beaches, and negative effects on nesting turtles and hatchlings, are understood with appropriate mitigation measures developed and implemented.

- Surveys started on 27/07/19 to record hawksbill and green turtle nesting attempts and those that were aborted/interrupted by (sub-) surface plastic waste on Index Beach on Diego Garcia. Surveys have been conducted every two weeks since then for a total of six completed on index beach. The data are being collected by Nestor Guzman of Diego Garcia's (DG) Public Works Department and logged with Nicole Esteban at Swansea University for analysis.
- Monitoring of incubation temperature at two sites on the Index Beach began in June. At each site, six temperature loggers were buried at two stations: shaded and unshaded. To cover the depth range of hawksbill and green turtle nests, loggers are buried at 30, 50, 70cm depths at each station.
- To assess presence of microplastics in the sand column above turtle nests, five PVC tubes were hammered vertically into the sand to a depth of 60cm at 20% intervals along the Index Beach. Sand cores were shipped to Swansea University from DG and microplastics analysis will take place in the coming year.
- Surface debris on beaches was recorded using a) the NOAA list on the Marine Debris Tracker app along a series of 100m transects, at 400m intervals and b) photo quadrat surveys within 100m² plots. Both surveys were carried out five times on Index beach (DG) and eleven times across Egmont Atoll (both Sudest and Lubine Island complexes, seaward and lagoon sides) in June 2019. An MSc project has been conducted by Victoria Hoare of Swansea University, comparing data from these methods and will be detailed in the full year report.
- Beach waste collected from previous beach cleans on DG and stored at the waste facility, along with that collected during the beach clean on Egmont in June, was sampled in order to categorise items. Where possible, country of origin of plastic water bottles was also recorded (see Appendix 1 for some preliminary results). In addition, we have sourced data

from beach cleans conducted on DG in 2009 and will add these to our analysis of the distribution of plastic waste spatially and temporally.

- As part of the MSc study listed above a comparison of beach clean guidelines has been made and best practice identified for the BIOT environment. A draft set of guidelines will be prepared for testing during beach clean activities in November 2019 once these are confirmed production of updated guidance will commence and be distributed to all volunteer group organisers in early 2020.
- On DG an 'adopt-a-beach' scheme has been started which matches teams of volunteers with a stretch of beach along which they commit to regular beach cleans. Data from these beach cleans (number of people/hours and metres of beach) will be logged by the Environment Officer (EO) for analysis of effort over time. In addition, the EOs will monitor five 100m fixed transects on Index Beach prior to beach cleans, once every two months, to determine in more detail the return of plastic waste to the beach over time.

Output 2: The system of single-use plastics (SUP) on DG is understood, with a proposed strategy developed to reduce SUP in identified priority areas, with pilot completed to reduce SUP water bottles, increase refilling and enhance connection between personnel and the ocean.

- Draft maps of the SUP/drinking water system on DG have been produced by Forum for the Future (see Appendix 2). The team is currently developing these to reveal and analyse both the current barriers to change and the priority intervention points to reduce SUP-use on DG. This work will inform the design of the behavioural change campaign element of the project, planned to begin in 2020.
- The DG EO has been recording all offers of alternative products and services that reduce the use of SUP. For example, the sale of bamboo cutlery and paper plates in the ships store; or plans to replace polystyrene take-away food containers in the galley with metal 'tiffins' - the latter initiative taken when the project team pointed out this system was already in use in the contractor canteen. Once procurement data are received, any changes in the amount of SUP can routinely be calculated.
- The team has received some supply chain data from procurement sources on DG, but it is not in an accessible format and requires further explanation from them e.g. product codes. In addition, the main retail outlet on DG has just changed its recording/ordering system which is creating delay and making this analysis slower than anticipated. We still intend to use these data for this analysis as stated in the log frame, as soon as they become available.
- The team conducted a pilot questionnaire with 43 people on attitudes and behaviours relevant to SUP use during the June visit to DG. Analysis of responses suggested amendments, as well as value in translating surveys into Tagalog for Filipino contractors. This will be completed in November and the final surveys will be distributed, by email to military personnel and as printed copies to contractors, in December 2019 and this will form our baseline against which to measure change.

Output 3: Strategy for recycling DG-generated plastic waste and plastic waste collected during beach cleans developed and recommendations made to BIOT administration.

- In total, 14,261 items of beach debris were recorded by the project team with preliminary results in Appendix 1. 7,256 items of debris were logged on Index Beach on 25 June. Of these, 87% of the items were plastic (n=6,332). 7,005 items of debris were logged on Egmont Atoll on 29 June. Of these, 82% of the items were plastic (n=5,717). A total of 1,771 items from the beach waste pile on DG were categorised and recorded. Of this total 1,374 items (78%) fell into three categories; plastics bottles, polystyrene and flip flops. Further analysis of the specific material make-up of these main items will now be undertaken to identify which waste treatments are relevant.
- A half day 'Plastic waste in the UKOTs' workshop was held after the Blue Belt Symposium at Exeter University (Penryn) on 1st August 2019. A communications group has been created to share experiences, examples and resources between the OTs.

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.

There have been some challenges securing useable procurement data for the analysis required by Output 2 but this will not affect the overall timetable for this activity.

The distribution of the behaviour and attitude survey to personnel across DG has been slightly delayed by the need to factor in translation but will be completed within the next reporting period.

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: £

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.

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

No

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**