

Darwin Initiative: Half Year Report

(due 31 October 2012)

Project Ref No	<i>EIDCF012</i>
Project Title	<i>Assessing Ascension Islands Shallow Marine Biodiversity</i>
Country(ies)	<i>Ascension Island/Falkland Islands/UK</i>
UK Organisation	
Collaborator(s)	<i>Ascension Island Government, Shallow Marine Surveys Group, South Atlantic Environmental Research Institute, Falkland Islands Government Fisheries Department, British Forces South Atlantic Islands, British Antarctic Survey, National Museums of Northern Ireland, University of Aberdeen and Ascension Island Dive Club.</i>
Project Leader	<i>Dr Paul Brickle</i>
Report date	<i>31st October 2012</i>
Report No. (HYR 1/2/3/4)	<i>1</i>
Project website	<i>http://www.smsg-falklands.org/blog/</i>

1. Outline progress over the last 6 months (April – September) 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).

Background

Ascension Island, an isolated volcanic island in the equatorial waters of the South Atlantic, around 1,600 kilometres from the coast of Africa and 2,250 kilometres from the coast of South America, harbours globally important biodiversity, potentially representing a unique assemblage of western and eastern Atlantic flora and fauna. Previous biodiversity projects focused on sea-turtles, seabirds and plants however, marine biodiversity remains virtually unknown; searches for scientific records show few if any collective studies on the Island's benthic species, habitats or biogeography. A small Conservation Department comprising 3 core staff was created in 2001 and has carried out much work, however, critical work remains. The Island lacks a National Biodiversity Strategy.

Lacking are inventories of marine invertebrates, ichthyofauna and algae. Habitat inventories and mapping are needed to manage coastal zones. Additionally, corals and associated fauna are particularly sensitive to climate change. The status of marine endemic species is absent and redressing these knowledge gaps will drive the formulation of species actions plans. As an initial survey, our objectives are to generate baseline data, thus creating scope for future marine biodiversity conservation and management projects on the Island. We trained local divers and Conservation Professionals in sampling protocols such that the collection of baseline data and monitoring of key marine flora and fauna can continue.

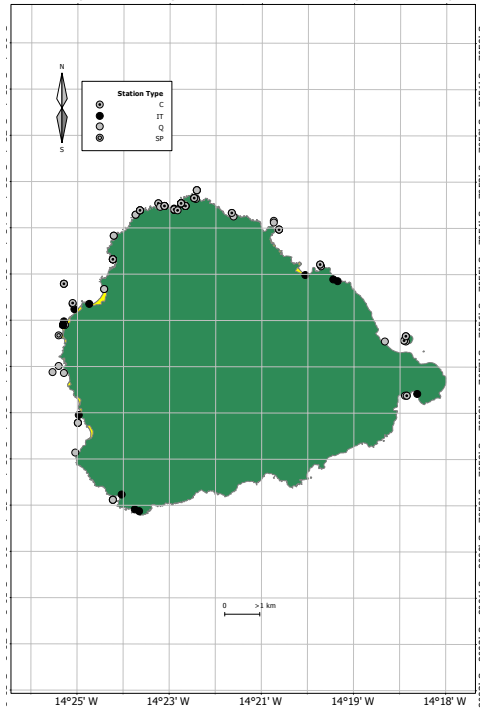
We assembled a team of 24 local and international ecologists, taxonomists and divers. Many of the team have worked successfully together previously as project partners in the Falkland Islands and South Georgia. The logistics of transporting personnel and equipment was developed with British Forces project partners.

The basis of the study was an ambitious three week (21 day) expedition to the Island to survey the intertidal and sub-tidal zones down to 30m depth. We adapted successful protocols from our previous work, (quantitative photo-quadrats, collections, macro-photography) and employed established methods specific to coral reef habitats (belt transects, fish counts) which are proven to be statistically robust and comparative across similar studies carried out in other reef habitats globally.

Project Progress

The project was initiated in May 2012 with the start of the meta analyses, collection of literature, and the construction of a georeferenced database. This was conducted in collaboration with colleagues at the British Antarctic Survey and established the state of knowledge of the marine biodiversity around Ascension Island prior to our planned expedition to the Island in August/September 2012. This database and literature collection are now complete.

In the weeks leading up to the expedition, all members of the dive survey team were trained in the identification of the known fish and invertebrate fauna. Three members of the expedition arrived in Ascension Island on the 14th August 2012 to make arrangements and prepare for the rest of the survey team who arrived on the 17th and 18th. The team conducted an impressive number of intertidal and sub tidal surveys around most of the Island with the exception of the southern coast (see Figure). This area is very exposed and with the weather conditions at the time was deemed too dangerous to work.



Sampling sites (c – collection; q – quantitative surveys; IT – intertidal surveys; sp – settlement plates)

During the 21 day expedition a total of 130 sampling events were conducted comprising a mixture of quantitative SCUBA surveys involving belt transects for fish and mobile fauna and quadrat photography for sessile fauna. Intertidal surveys and collections and subtidal collections were also carried out. Oceanographic surveys were conducted around the island. A sub expedition was carried out by Prof. Frithjof Kuepper and Dr Kostas Tsiamis on marine algae.



Belt transect



Fish collections

The survey was very successful and surpassed expectations. The marine environment is visually dominated by fish, particularly by one species, the black trigger fish (Melichthys niger). The reefs are completely grazed and predated by fish to such an extent that a significant component of the biodiversity remains hidden to avoid this pressure. A primary goal was to catalogue such "cryptic" species; we found a surprisingly high cryptic diversity that has been particularly poorly documented in the past. Of particular significance are the set of day vs night dive surveys that were carried out where community comparisons are likely to reveal for the first time the importance of cryptic reef species. The surveys yielded many new geographical records and likely candidates for new species.



Typical underwater scene, dominated by fish and coralline algae

*Two climate change sub-projects were undertaken. The first was the experimental examination of thermal tolerance in subtidal invertebrates which will inform on how climate change may effect communities and species in the shallow marine environment around Ascension. The second was the collection of oysters (*Saccostrea cucullata*) and fish otoliths for growth studies and to examine climate signatures in these calcareous structures. Settlement plates were deployed in three locations around the island to monitor for presence of any invasive species and local divers were trained to photograph these at 6-weekly intervals.*

During the expedition we helped with the collection of DNA samples and tagging of Hawksbill turtles as requested by AIG, gave talks to the island's Administrators, the public and Two Boats school. We also contributed articles to the Islander News Paper and to conservation quarterly magazine. Do you want to mention FITV interviews?

Samples have been distributed to taxonomic specialists for further examination and patterns in Ascension Island's biodiversity will be quantitatively examined over the coming months. We also trained local conservation professionals and divers to continue the belt transects for monitoring and to sample the settlement plates that were deployed.

We would like to take this opportunity to extend our deepest gratitude and appreciation to the Ascension Island Government and Administrator, Colin Wells, for their enthusiastic support and keen interest in this ambitious undertaking. Additionally we would also particularly like to thank Ascension Island Conservation Department and the Ascension Island dive club for making their facilities available to us and for being so accommodating and helpful.

2. Give details of any notable problems or unexpected developments 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.

No issues or problems have impacted on the project thus far.

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

N/A

Discussed with LTS: no/yes, in..... (month/yr)

Formal change request submitted: no/yes, in.....(month/yr)

Received confirmation of change acceptance no/yes in.....(month/yr)

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

Yes No

If yes, and you wish to request a carryforward of funds, this should be done as soon as possible. It would help Defra manage Darwin funds more efficiently if you could give an indication of how much you expect this request might be for.

Estimated carryforward request: £

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.

Please note: Any planned modifications to your project schedule/workplan or budget should not be discussed in this report but raised with LTS International directly.

Please send your **completed form by email** to Eilidh Young at Darwin-Projects@ltsi.co.uk . The report should be between 1-2 pages maximum. **Please state your project reference number in the header of your email message eg Subject: 17-075 Darwin Half Year Report**