



Darwin Initiative: Half Year Report

(due 31 October 2014)

Project Ref No	DPLUS001
Project Title	Bermuda Invasive Lionfish Control Initiative
Country(ies)	Bermuda
Lead Organisation	Bermuda Zoological Society
Collaborator(s)	Bermuda Institute of Ocean Sciences, Ocean Support Foundation, Bermuda Government
Project Leader	Dr. Gretchen Goodbody-Gringley
Report date and number (eg HYR3)	Oct. 24, 2014 HYR2
Project website	NA

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:

In the last six months our team has surveyed 58 sites in 5 depth bands from the surface to 200 ft. with only 17 sites remaining to be surveyed (Output 1.1; see attached map). 25 of these surveyed sites were previously surveyed in 2013 (output 1.2). A drop camera was purchased and shipped to Bermuda, however, the screen was cracked during shipping and thus we are waiting on a replacement before conducting drop camera surveys (Output 1.3). We have begun compiling and analysing our data and are in the process of making a distributional map (Output 1.4), which will ultimately result in Output 1.5.

Output 2:

Trap development continued through the summer and, since the lobster season started in September, six local fishermen have been fishing the preferred design in conjunction with their offshore lobster traps.

Output 3:

In the last 6 months we have conducted prey species surveys at 58 sites in 5 depth bands from the surface to 200ft (3.1). Gut contents and gonadal indices were analysed from all fish collected on surveys (3.2 & 3.4). Stable isotope analyses are currently underway (3.3). Light traps were deployed on two nights in September, covering the southeast of the island and north lagoon, however, no juvenile lionfish were collected in the traps (3.5). There are plans for further deployments around the new moon each month, weather permitting, and these will cover the southwest as well as revisiting other areas. DNA extractions and amplifications began in September and are on-going, with anticipated sequence completion expected by the end of December (3.6). As explained in the report at the end of year 1, plans for otolith microchemistry analyses (3.7) were put on hold due to a lack of samples and the funds reallocated. Otolith-based age analysis is currently being conducted on collected samples (3.8). All data will be compiled into a population dynamics model in Q4 (3.9).

Output 4:

All data collected thus far is currently being compiled (4.1), and will be used to complete output

4.2. Results of survey data and the trap study will be presented at the 2014 GCFI conference in Barbados (Nov. 2014) and the Benthic Ecology Meeting in Quebec (March 2015). Several manuscripts for publication are currently being prepared. We anticipate a minimum of 4 – 5 scientific papers resulting from this work (4.4). Outputs 4.3 and 4.4 will occur in Q3 and Q4.

2a. 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.

The most significant problem was the broken drop camera, which has resulted in delays and reduced data. We hope to still try to do a few drop camera surveys, however, this element will be much more minimal than originally anticipated. Scheduling conflicts and weather delays resulted in the team deciding to reduce the overall number of sites surveyed from 100 to 75. We strived greatly to increase our efficiency with the surveys, training an additional technical diver (Goodbody-Gringley) in order to complete the deep sites. We feel that the reduced number of sites will still give a detailed view of the lionfish population here in Bermuda.

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: NO Yes/No

Formal change request submitted: NO Yes/No

Received confirmation of change acceptance NO Yes/No

3a. Do you currently expect to have any significant (eg 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 as it is unlikely that any requests to carry forward funds will be approved this year. 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 and would like to talk to someone about the options available this year, please indicate below when you think you might be in a position to do this and what the reasons might be:

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

No. We have learned a lot through this project on cooperation and communication and feel we work very well together as a team despite being from very different sectors of research and government.

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 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 eg Subject: 20-035 Darwin Half Year Report**

Fig. 1. Sites surveyed and sampled in 2014 for lionfish and preyfish density and diversity at 5 depth bands (10m, 20m, 30m, 45m, 60m) around Bermuda.

