DPLR4\1037

Darwin Plus Local - Final Report (1)

Officer: Linzi Ogden

Section 1 - Darwin Plus Local Project Information (Essential)

Project Reference Number

DPL00118

Project Title

No Response

Overseas Territory(ies)

☑ British Indian Ocean Territory (BIOT)

Lead Organisation or Individual

University of Plymouth

Partner Organisation(s)

British Indian Ocean Territory Administration (BIOTA); Zoological Society of London (ZSL).

Value of Darwin Plus Local Grant Award

£49,407.89

Project Start Date

01 October 2024

Project End Date

31 May 2025

Project Leader Name

Nicola Foster

Project Website/Twitter/Blog etc.

No Response

Report Author(s)

Nicola Foster, Clara Diaz

Report Date

30 June 2025

Project Summary

No Response

Project Outcomes

Checked	**Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;**
Checked	**Climate Change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;**
Checked	**Environmental quality: improving the condition and protection of the natural environment;**
Unchecked	**Capability and capacity building: enhancing the capacity within OTs, including through community engagement and awareness, to support the environment in the short- and long-term.**

Section 2 - Project Outcomes (Essential)

On a scale of 1 (high – outcome substantially exceeded) to 5 (low – outcome substantially did not meet expectation), how successful do you think your project has been?

⦿ 2 - Outcome moderately exceeded

Project outcomes and justification for rating above

Our project aimed to assess the ability of corals within mesophotic coral ecosystems to recover from bleaching events as the subsurface thermal regime responds to basin-scale forcing events (negative Indian Ocean Dipole (IOD) event). In late 2023, the IOD index moved towards a strong positive event and our team returned to BIOT in January-February 2024 to survey our previously studied sites (from 2019, 2020, 2022) to establish the extent to which mesophotic coral bleaching occurred following this positive IOD event (in 2019, we observed extensive coral bleaching at depth following a positive IOD event). Coral bleaching was observed at mesophotic depths (60-90 m) once more in early 2024, without concurrent bleaching of corals in surface waters.

During the current project, a reverse negative IOD event occurred in late 2024 and we revisited all our sites in BIOT to assess the health of corals within mesophotic reefs following temperature changes at depth driven by this negative IOD event. The field expedition ran from 26th March 2025 to 26th April 2025. In addition to previous sites, three additional sites were also surveyed, giving a total of ten sites. While the image data needs to be analysed in full, preliminary results suggest that there was limited mortality of corals at mesophotic depths

and evidence that corals had recovered from bleaching observed in early 2024, indicating potential resilience to changing temperatures (achieving our outcome to assess the ability of mesophotic corals to recover from bleaching). These data also document the impact of a negative IOD event on mesophotic coral reef communities.

Long-term data on mesophotic coral ecosystems is also lacking and this project has enabled us to build on our 6-year dataset, providing additional data on the biological and oceanographic conditions within these ecosystems. This outcome has been achieved through this project and will allow us to further our understanding of the impacts of the thermal regime on mesophotic coral ecosystems. These data collected through this project will also contribute to future conservation planning and management strategies for mesophotic coral ecosystems in the region. In addition to providing data on mesophotic coral recovery, we have also provided the first evidence of diverse and healthy mesophotic reefs at three additional sites within BIOT. Furthermore, during the expedition, we were able to test the efficacy and efficiency of using a drop-camera system to survey mesophotic reefs. The drop-camera system is easier to deploy than the ROV, is lighter and more cost-efficient, and will be used to build capacity to monitor mesophotic reefs in UKOTs.

In addition, to the video imagery collected, we also collected light irradiance and temperature profiles over the depth gradient, adding to our existing dataset on the variability of the environmental conditions surrounding mesophotic coral ecosystems. A number of volunteers from the military bases on Diego Garcia also supported the data collection, which enabled them to participate in the surveys and earn points towards achieving their Military Outstanding Volunteer Service Medal.

Supporting Evidence - file(s) upload

Evidence_Healthy_Mesophotic_Reefs-Foster&Diaz
30/06/2025
10:17:48
pdf 756.57 KB

Evidence_Survey_Locations-Foster&Diaz
30/06/2025
10:16:32
docx 2.09 MB

Supporting Evidence - links to published document/online materials

Evidence submitted as files in the previous section.

Project Challenges

The project encountered a significant problem in the timing of the fieldwork. The fieldwork required the use of the British Patrol Vessel and its daughter craft in BIOT. However, the vessel was moved into dry dock for a month during the project, which happened unexpectedly and with little notice. As a consequence, we requested (and were granted) an extension to the project to enable fieldwork to take place in March/April 2025. Unfortunately, due to the changes in the timing of the fieldwork, Nicola Foster was unable to take part. However, an experienced volunteer from the University of Plymouth supported Clara Diaz in the field and Nicola supported both researchers remotely, with daily contact via email, messages and video calls.

During the fieldwork, one of the lights on the ROV failed and was unable to be repaired onsite. However, torches from the Drop-camera system were attached to the ROV, enabling the surveys to continue.

As we required the support of the British Patrol Vessel to access our surveys sites, we were dependent on the schedule of the crew and so the surveys were somewhat opportunistic in nature. We were aware of this prior to the fieldwork taking place and had used a similar approach in previous years. Despite the issues in coordinating the fieldwork alongside other surveys that the vessel had to undertake, we achieved all of our fieldwork objectives successfully.

Lessons Learned

As we had worked closely with our project partners previously, they were familiar with our work and were able to support us throughout the project, even during the delays caused by the dry dock. The crew of the British Patrol Vessel were also familiar with our work and sites from our expedition in early 2024, thus, they were able to support us much more effectively in achieving our objectives alongside their own deliverables. We were also very lucky to have favourable weather conditions for the majority of the fieldwork.

The funding was only confirmed just before the start of the project, which resulted in delays at the start of the project in terms of booking fieldwork dates in BIOT and purchasing equipment.

For other researchers undertaking similar research, we would recommend planning as early in advance as possible for fieldwork in such remote places. Also, to try to predict as many eventualities as possible and take as much spare kit as you can to enable you to achieve your objectives even if equipment gets damaged or broken.

Section 3 - Project Finance (Essential)

Project Expenditure

Project Spend (indicative)	Total Grant (£)	Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff Costs	[redacted]			
Consultancy Costs				
Overhead Costs				
Travel and Subsistence				
Operating Costs				
Capital Items				

Others	[redacted]		
Total	49,407.89	44,350.29	-10

Please provide a short narrative summary on project finances.

We spent less than was planned on the actual grant for a number of reasons. The operating costs were significantly less as we had budgeted for car hire on Diego Garcia during fieldwork. However, there were no cars available to hire, so this aspect of the budget was not spent. The boat hire costs were also significantly less than anticipated due to the availability of the boats and smaller/cheaper vessels being available. The spend on equipment/consumables was also less than planned due to being able to source items at a cheaper cost. These changes resulted in a lower spend overall than planned but this did not impact the delivery of the project.

Section 4 - Contribution of Project to Darwin Plus Programme Objectives

Please select up to **one** indicator that applies within **each group/indicator list (A, B, C, D)** and report your results for that indicator in the text box underneath. If you do not have relevant results to report for any of the indicators in a particular group, you can leave them blank.

Please also submit some form of evidence (above) to demonstrate any results you list below, where possible.

Group A: Capability and Capacity - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-A01: Number of people from key national and local stakeholder groups completing structured and relevant training.**
Unchecked	**DPLUS-A02: Number of secondments or placements completed by individuals of key local and national stakeholders.**
Unchecked	**DPLUS-A03: Number of local/national organisations with improved capability and capacity as a result of project.**
Unchecked	**DPLUS-A04: Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training.**

Unchecked	**DPLUS-A05: Number of trainers trained reporting to have delivered further training by the end of the project.**

Group A Indicator Results

N/A

Group B: Policies, Practices and Management- Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-B01: Number of new/improved habitat management plans available and endorsed.**
Unchecked	**DPLUS-B02: Number of new/improved species management plans available and endorsed.**
Unchecked	**DPLUS-B03: Number of new/improved community management plans available and endorsed.**
Unchecked	**DPLUS-B04: Number of new/improved sustainable enterprises/ community benefits management plans available and endorsed.**
Unchecked	**DPLUS-B05: Number of people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement).**
Unchecked	**DPLUS-B06: Number of Local Stakeholders and Local Communities (people) with strengthened (recognised/clarified) tenure and/or rights.**

Group B Indicator Results

N/A

Group C: Evidence and Best Practices - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-C01: Number of best practice guides and knowledge products published and endorsed.**
Unchecked	**DPLUS-C02: Number of new conservation or species stock assessments published.**
Unchecked	**DPLUS-C03: New assessments of habitat conservation action needs published.**
Unchecked	**DPLUS-C04: New assessments of community use of biodiversity resources published.**

Unchecked	**DPLUS-C05: Number of projects contributing data, insights, and case studies to national Multilateral Environmental Agreements (MEAs) related reporting processes and calls for evidence.**

Group C Indicator Results

N/A

Group D: Sustainable Benefits to People, Biodiversity and Climate - Core Darwin Plus Standard Indicators (select one)

Unchecked	**DPLUS-D01 Hectares of habitat under sustainable management practices.**
Unchecked	**DPLUS-D02: Number of people whose disaster/climate resilience has been improved.**
Unchecked	**DPLUS-D03: Number of policies with biodiversity provisions that have been enacted or amended.**

Group D Indicator Results

N/A

Section 5 - Project Partnerships, Wider Impacts and Contributions

Project Partnerships

N/A

Wider Impacts and Decision Making

N/A

Sustainability and Legacy

N/A

Section 6 - Communications & Publicity

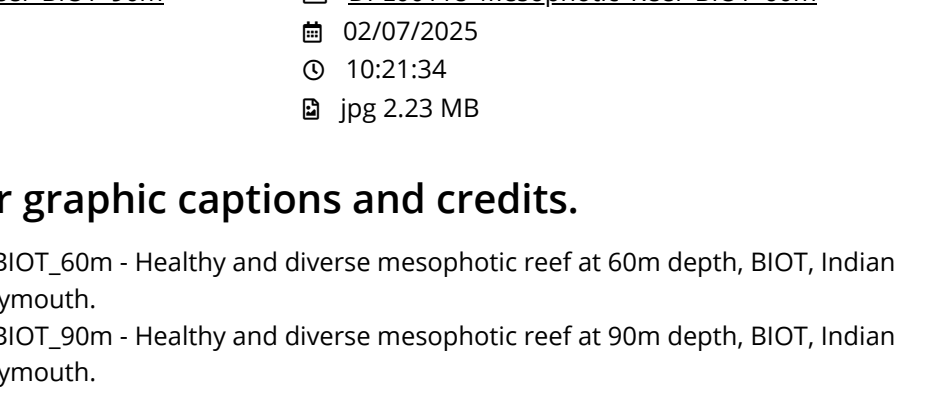
Exceptional Outcomes and Achievements

Our underwater imagery collected during this project demonstrates healthy and diverse mesophotic coral ecosystems within the BIOT MPA, Indian Ocean. These ecosystems have demonstrated resilience to rising sea surface temperatures and warrant continued protection within the MPA.

Photo, video or graphic to be used for publicity and communications.

Please upload at least one relevant and engaging image, video or graphic that you consent to be used alongside the above text in Defra, JNCC or NIRAS communications material.

DPL00118_Mesophotic_Reef_BIOT_90m
02/07/2025
10:21:47
jpg 1.76 MB



DPL00118_Mesophotic_Reef_BIOT_60m
02/07/2025
10:21:34
jpg 2.23 MB

Photo, video, and/or graphic captions and credits.

DPL00118_Mesophotic_Reef_BIOT_60m - Healthy and diverse mesophotic reef at 60m depth, BIOT, Indian Ocean. Credit: University of Plymouth.
DPL00118_Mesophotic_Reef_BIOT_90m - Healthy and diverse mesophotic reef at 90m depth, BIOT, Indian Ocean. Credit: University of Plymouth.

I agree for the Biodiversity Challenge Funds Secretariat, Administrator, and/or JNCC to publish the content of this section.

⊙ Yes, I agree for the BCFs Secretariat and/or JNCC to publish the content of this section.

Please list any accounts that you would like tagged in online posts here. This can include project pages, partners' pages or individuals' accounts for any of the following platforms: LinkedIn, Facebook, Twitter, or Instagram.

www.linkedin.com/in/nicola-l-foster-b795791b
www.linkedin.com/in/clara-diaz-27a87b265/
Twitter: @nicola_foster, @PlymUni, @PlymBioMarSci
Instagram: @dr_nicola_foster; @dr_clara_diaz; @plymuni; @plymbiomarsci
Bluesky: @dr-nicola-foster.bsky.social, @dr-clara-diaz.bsky.social, @plymuni.bsky.social,

Section 7 - Darwin Plus Contacts

Please tick here to confirm that you have read and acknowledge the BCF's Privacy Notice on how contact details will be used and stored and that you have sought agreement from anyone that you are sharing personal details with us on their behalf.

⊙ I confirm I have read the Privacy Notice and have consent to share the following contact details

Project Contact Details

Project Contact Name	Dr Nicola Foster
Role within Darwin Plus Project	Principle Investigator
Email	[redacted]
Phone	
Do you need further sections to provide additional contact details?	⊙ Yes

Additional Project Contact Details

Project Contact Name	Dr Clara Diaz
Role within Darwin Project	Co-Investigator
Email	[redacted]
Phone	
Do you need further sections to provide additional contact details?	⦿ No