

## **Darwin Plus: Overseas Territories Environment and Climate Fund Annual Report**

To be completed with reference to the "Project Reporting Information Note"  
(<https://dplus.darwininitiative.org.uk/resources/information-notes/>).

It is expected that this report will be a **maximum** of 20 pages in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2022**

### **Darwin Plus Project Information**

Project reference	DPLUS140
Project title	<b>Assessment and conservation of Cayman Islands' deep-water reefs and fishes</b>
Territory(ies)	Cayman Islands
Lead organisation	Heriot-Watt University (HWU)
Partner institutions	Marine Conservation International (MCI / HWU), Beneath the Waves (BTW) and Cayman Islands Dept. of Environment (DoE)
Grant value	£207,681.00
Start/end dates of project	01/10/2022 to 30/09/2023
Reporting period (e.g. Apr 2020-Mar 2021) and number (e.g. Annual Report 1, 2)	Oct 2021 to Mar 2023 Annual Report 1
Project Leader name	Mauvis Gore & Austin Gallagher
Project website/blog/social media	See Annex 3
Report author(s) and date	Mauvis Gore & Austin Gallagher, 30/04/2022

## **1. Project summary**

The Cayman Islands lie adjacent to deep ocean trenches, yet little is known of its marine life below 50m, or whether its deep reefs offer a refuge from climate change. The project will undertake surveys of Cayman seabed habitats down to 2000m and evaluate connectivity between shallow-water and deep-reef communities. The work focuses on threatened and commercial fish species, including sharks, and map the distribution of deep-water coral and other biotopes with a view to designating additional protected areas.

Project leaders from MCI and BTW have remained positively engaged together and with the lead organization, HWU, throughout the planning and execution of fieldwork and activities in year 1. Similarly, collaboration with project partner DoE has been positive and professional, providing necessary connectivity at the outset of the project. Given their long-standing history, network, and expertise in Cayman, MCI assumed a heightened leadership role within the organization, which has been especially helpful for BTW and HWU.

Cayman embraced relatively strict social restrictions and quarantine policies for their response to COVID-19, making partnership activities challenging outside of virtual planning between groups throughout most of FY2021. This in turn also limited the degree to which project partners could engage with external stakeholders when fieldwork eventually began in March 2022.

Despite these issues, which were completely out of our control, we are proud of the demonstrated ability of project partners across 3 countries to come together and begin the project in earnest.

## **2. Project stakeholders/partners**

During the one month of the project to date, the UK PI and the project officer were both provided with space to work in within the main local partner, the Cayman Islands Department of Environment (DoE), as well as DoE boats and other facilities were used almost daily during the fieldwork campaign. This re-established the very close working relationship developed between the UK participants and the local partner during a previous Darwin Plus project.

The project proposal largely stemmed from discussions with the DoE (host territory partner). They were able to input at every stage of project development and planning and were similarly involved in day-to-day logistical support.

No particular challenges were encountered aside from delays in project funds being paid and delays due to COVID-19. Broadly speaking the involvement and commitment of the local partner could not have been greater, though this naturally depends on the attitude of UK staff being fully egalitarian and supportive.

Among other local stakeholders, the island brewery “Caybrew” has provided support for the project. During the one month operational period to-date, discussions were held with Caybrew about options for a mixed advertising / public awareness campaign. In addition, two Caymanian sports fishers have participated in survey work, providing helpful local knowledge.

## **3. Project progress**

### **3.1 Progress in carrying out project Activities**

Due to factors entirely beyond our control, no funds to allow us to begin implementing the project were received by any project partner until nearly 5 months after the intended start of the project in October 2021. As a result, activities began on 1<sup>st</sup> March 2022, leaving only one month of this reporting year available. The lack of funding also limited our ability to purchase some of the necessary equipment for fieldwork, thus limiting the scope of what we could accomplish and forcing partners to scramble to source existing equipment for use. We are applying to the Darwin Plus secretariat via a Change Request Form to have the timetable for the project extended by 5 months to recoup the time lost. The circumstances have proved extremely stressful to all concerned. Nevertheless, the MCI / HWU PI was able to fly to Grand Cayman on March 3<sup>rd</sup> and she and the Graduate Research Assistant have completed a majority of the activities, intended for completion during autumn 2021, during March and the first week of April. BTW also sent a Graduate Research Assistant on March 22<sup>nd</sup> to Grand Cayman, to begin deploying the deep-sea drop camera activities that were intended for completion during autumn 2021.

We have deployed 32 BRUVS at 50-200m around Grand Cayman and on the offshore “Cayman Bank”, establishing a domination of the deep reef by a belt of sponges and antipatharians at specific depth zones, and recording species of fish. We have begun viewing and analysis of the video footage collected by the 50–200m BRUVS. We have already recorded 5 species of shark (including dramatic footage of tiger and hammerhead sharks at 100-200 m) and 3 species of fish all never recorded in shallower water (see sample videos in Annex 3 in social media links); we have also recorded approx. 10 species of sponges and antipatharians, as well as coral presence down to about 75 metres. These data will be recorded in the digital database. We have tested the sea-bed lander camera rig off Grand Cayman, with two successful deployments at depths below to 2000m, recording over 10 hours of deep-sea video footage for future analysis. We have begun evaluating these video data and have recorded a seemingly significant presence of giant red shrimp from 1000-2000m. In addition, we have recorded 2 species of deep-sea fishes: cutthroat eel and what appears to be a snake mackerel, both of which serve as depth range extensions for Cayman. These data will also be recorded in the digital database.

The RoV available to us from the DoE proved inadequate for the planned video surveys as it is not able to function at depths greater than 30m. However, DoE requested that in place of this element of the activities, that we deploy the same number of sets of open-water BRUVS. These BRUVS were recently made available to DoE by the UK government through the BlueBelt programme. We have applied to the Darwin Plus secretariat for approval of this change. Meanwhile, we have deployed 5 sets of these BRUVS (a total of 25 stereo BRUVS).

We have discussed our requirements with the DoE's GIS section and will begin adding our data into the GIS software in the next phase of the project.

Given the very limited time available and due to staff shortages, technical dives to 100m at focal areas around Grand Cayman have not begun. We have discussed the technical diving programme with the owner of Divetech (the local technical diving Dive Centre) and she is recruiting staff and would like to continue involvement with this project.

We have begun to discuss our initial results with several fishers and anglers who have proved helpful in indicating what species might be expected and popular locations.

We have had several meetings with the DoE's Public Education & Outreach Officer to publicise the launch of the project and posted four items on four social media platforms (see Annex 3).

The remaining Activities 2.2, 3.1-3.4, 4.1-4.7 and 5.3 / 5.4 were not scheduled for the first phases of the project and so have not been initiated.

### **3.2 Progress towards project Outputs**

As stressed above, due to factors entirely beyond our control, project work could only begin as of 1<sup>st</sup> March 2022, that is 5 months after the planned start and with only one month of the reporting year available. As noted above, we are applying to the Darwin Plus secretariat via a Change Request Form to have the timetable for the project set back by 5 months. Meanwhile some progress has been made towards Outputs as follows.

A proforma for the database has been agreed and data from an initial review of the video footage entered. The DoE GIS Officer will begin working on a database in preparation of maps incorporating the initial data in the next phase of the project. Work on the final scientific report/papers/ research findings is not scheduled to begin until later. Work on Habitat Action Plan for mesophotic and sub-mesophotic habitats areas and species is not scheduled to begin until later. To date, sharks and snappers have been recorded on deep water videos, but not groupers. Press / social media releases and talks on project aims and progress directed at strengthening stakeholder support for Action Plans and MPA recommendations have begun, but will be expanded as the project progresses. As described under 5.2 above, news items have been released to the local press and placed on DoE (in collaboration with MCI) and BTW social media platforms (Facebook, Instagram, Twitter and LinkedIn)

### **3.3 Progress towards the project Outcome**

Given only one month of project work it is too early for significant progress towards project outcomes to be expected. However, data are now being collected relevant to Outcome 0.1 The production of Action Plans and Outcome 0.2 Recommendations for one or more Marine Protected Areas (MPAs). For Outcome 0.3, training has also taken place of DoE staff in the operation of the Drop-down deep-water BRUVS and the open-water stereo BRUVS.

### **3.4 Monitoring of assumptions**

#### **0.1 Continuing support and availability of DoE directorship and staff**

The DoE directorship and staff have been both available and highly supportive, assisting with the planning and execution of fieldwork. Two formal project meetings were held with the Director and Deputy Director during March - April 2022.

#### **0.2 DoE accommodation, vessels and vehicles available as agreed**

Accommodation and vehicles have been available. There has been considerable pressure on boat availability due in particular to the unanticipated need for vessels to support work on the newest coral disease (Stony Coral Tissue Loss Disease). Nonetheless, we were only prevented from operating by lack of a vessel on one day during March - April 2022.

0.3 Weather conditions suitable for fieldwork during planned fieldwork periods (arranged for best weather periods of year)

The weather has been more disruptive than expected, with survey work being prevented by strong winds on seven days during March - April 2022.

0.4 COVID-19 epidemic under control in UK and Cayman Island open to visiting scientists (subject to vaccination) by late 2021 through to end of visit.

The pandemic contributed to delays in the start of the fieldwork, since until early this year visitors were required to undertake one week's quarantine and then a testing schedule before being permitted to undertake normal activities.

1.1 DoE vessels and crew available for fieldwork and weather conditions suitable  
See 0.1, 0.2 & 0.3

1.2 Scientific gear (deep water camera housings, etc.) acquired and operational.

The gear was acquired in February 2022 as soon as the funds provided via HWU became available for their purchase. Some gear was borrowed, when no stock was available at the late date. The gear was assembled, tested and deployed during March – April, with results meeting our expectations. eDNA equipment was not able to be purchased due to the lack of funding provided timely. This will take place at a later date.

2.1 Sufficient data generated by fieldwork to permit formulation of policies and action plan.

It is still early days in this project. Despite the later than planned start, we are confident that the aims will be fully achieved when granted an extension to cover the lost 5 months of project time.

2.2 DoE GIS officer available to complete task

The DoE GIS Officer is available and has agreed a plan to complete the GIS work.

3.1 Provision of data and analyses by partner organisations.

BTW will begin reporting on its deep-sea lander results on each phase, once further data are collected.

3.2 Continuing availability and cooperation of relevant scientific staff

All relevant staff are working closely together, encouraged by the early results.

3.3 & 3.4 These Assumptions are not relevant until later in project

4.1 Sufficient data generated by fieldwork to permit formulation of policies and action plan.

It is too early to make any judgement on this point; this will be a critical issue, but early results are quite encouraging.

4.2 Timetable of NCC meetings permits timely consideration of draft Action Plan and Recommendations

This issue only becomes relevant towards the end of the project. The NCC meeting schedule did not allow a meeting while the MCI / HWU PI was in the Cayman Islands in March - April 2022, but it has been arranged that an introduction to the project be presented by Zoom during the next phase of the project.

5.1 Interest of stakeholders in participating (not an issue during previous projects)

Sports fishers and submarine operators have been approached and expressed interest in assisting with the project.

#### 4. Project support to environmental and/or climate outcomes in the UKOTs

After only one month's work, our data are already providing information on Cayman Islands' protected species in areas not previously surveyed, the deep-sea waters surrounding the islands. These species include hard and soft corals, sponges, elasmobranchs and other deep water fish species. For example, we recently recorded a school of six scalloped hammerhead sharks (*Sphyrna lewini*) at about 300m deep off the north of Grand Cayman. This species was once common around grouper and snapper spawning aggregations, but groups of them have not been recorded in many decades.

## **5. OPTIONAL: Consideration of gender equality issues**

As foreshadowed in our application, the project has involved both male and female participants in more or less equal numbers. There were seven female and ten male Caymanian nationals / residents and two female and two male expatriates that participated in office work, fieldwork and training.

## **6. Monitoring and evaluation**

MCI / HWU PI Prof. Mauvis Gore has provided updates to Prof. Fernandes (at lead organisation HWU) weekly during the fieldwork period and interaction with the DoE Director and Deputy Director has been almost daily. Also during the first fieldwork period, Prof Ormond (MCI / HWU) visited the project for two weeks to provide advice and monitor progress, as well as assisting in the field. Also, during the fieldwork period, BTW Research Assistant Christine de Silva visited the project for a week and began its deep-sea camera deployments. BTW lead Dr. Austin Gallagher has remained in regular contact with MCI leading up to and during the field work periods. Taken together, this has helped alleviate the issue of the 5 month delay in starting the project.

## **7. Lessons learnt**

We were very surprised by the long delays in grant payment a) by DEFRA to HWU (the lead organisation) and in turn b) by HWU to MCI, BTW and DoE. As a result, money for equipment purchase and consumables only became available in mid-February 2022, and project staff were still unpaid as of 6<sup>th</sup> April 2022 in the next financial year of the project.

We intentionally planned for the project to begin after half-way through the first financial year (October 2021), to avoid delays that might arise with the COVID-19 epidemic and as a result of payment of grants by DEFRA to projects beginning in April 2021 being delayed. In the event, this seems to have resulted in us being placed at the back of the queue, with cumulative delays appearing to be due to administrative staff working from home during the COVID-19 epidemic, both working to rule and / or having limited access to institutional computer databases. Hopefully, the institutions concerned will learn from this experience, as these have limited partner capacity to date. Otherwise these delays should not affect the project, provided a 5 month extension to provide the full period of project time to the timetable is approved.

In relation to fieldwork in Cayman, during March 2022 we modified the drop-camera gear (100-200m) to function more effectively and found that combined deployments with the 1000 – 2000m landers are possible, depending on the schedules of the partners and the type of boat and skipper available. The RoV available from the DoE was not adequate for the planned surveys. We were able to find a solution by using open-water BRUVS that became available instead.

## **8. Actions taken in response to previous reviews (if applicable)**

This is the first Annual Report for this project – this section not applicable.

## **9. Other comments on progress not covered elsewhere**

As explained above, we experienced significant difficulties in being able to run our first field trip.

## **10. Sustainability and legacy**

A surprising number of local people seem aware of the project even after only one month's operation. It is too early to discuss our exit strategy further, but our original expectations that DoE and local staff will adopt and continue with the initiative have been confirmed.

## 11. Darwin identity

Each item of publicity released by MCI and DoE have included and acknowledged the Darwin Initiative. (Note that the national television station and print newspaper are not currently operational). The project has a clear identity.

The Cayman Islands government and DoE have had a long-term experience of hosting Darwin (and previous similar OTEP) projects and have a full understanding of the Initiative.

The Darwin Initiative has been linked through the DoE.

## 12. Impact of COVID-19 on project delivery

Apart from the delay in receiving funds (described above and believed linked to staff being off sick, replacement staff, and part-time work by institutional staff), the COVID-19 pandemic regulations would have required UK and USA staff to remain in quarantine on entering Cayman prior to 28<sup>th</sup> Feb 2022, thus resulting in a loss of fieldwork time. This especially impacted BTW, who were not able to provide staff for longer than a week at a time, the time required to quarantine, due to other commitments.

We are requesting a 5 month extension on the timetable through a Change Request to the Darwin Initiative. This would still allow completion within the relevant financial years.

In the office in Cayman, all staff are still wearing masks in common areas and lateral flow tests are taken once a week. In the field in small boats at sea in Force 3 or 4 winds, the issue of protection is not considered of concern.

Virtual meetings were previously used in communication between UK, US and Cayman based participants helpful and will continue to be used when useful.

## 13. Safeguarding

Please tick this box if any safeguarding violations have occurred during this financial year.

If you have ticked the box, please ensure these are reported to [ODA.safeguarding@defra.gov.uk](mailto:ODA.safeguarding@defra.gov.uk) as indicated in the T&Cs.

HWU, BTW, and DoE have relevant policies and no gaps in policy have been identified during the first month of the project.

## 14. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2020 – 31 March 2021)**

Project spend (indicative) in this financial year	2020/21 D+ Grant (£)	2020/21 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs	██████	██████	█	0
Consultancy costs	█	█	█	0
Overhead Costs	██████	██████	█	0
Travel and subsistence	██████	██████	██████	Draft - Other Travel cost subject to receiving Partner details
Operating Costs	█	█		Draft

Capital items	█	█		Draft
Others (Please specify) Partner Cost	█	█		Draft - Payment to Partners subject to receiving breakdown for budget lines
<b>TOTAL</b>	█	█		

**15. OPTIONAL: Outstanding achievements of your project during the reporting period (300-400 words maximum). This section may be used for publicity purposes**

I agree for the Darwin Secretariat to publish the content of this section (please leave this line in to indicate your agreement to use any material you provide here).

Obviously the one month operational period covered by this report provides little opportunity for outstanding achievements. The highlights were three video sequences obtained at 100-200 m depth at different locations of Caribbean reef shark, scalloped hammerhead and tiger shark. These have been featured on social media posts prepared by the DoE (see Annex 3).

## Checklist for submission

	Check
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> putting the project number in the Subject line.	✓
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:Darwin-Projects@ltsi.co.uk">Darwin-Projects@ltsi.co.uk</a> about the best way to deliver the report, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	✓
<b>Do you have hard copies of material you need to submit with the report?</b> If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
Have you involved your partners in preparation of the report and named the main contributors	✓
Have you completed the Project Expenditure table fully?	✓
Do not include claim forms or other communications with this report.	