

DPLR3\1044

Darwin Plus Local - Final Report (1)

Officer: Linzi Ogden

Section 1 - Darwin Plus Local Project Information (Essential)

Project Reference Number

DPL00074

Q1. Project Title

No Response

Overseas Territory(ies)

☒ Cayman Islands

Lead Organisation or Individual

Cayman Islands Department of Environment

Partner Organisation(s)

N/A

Value of Darwin Plus Local Grant Award

£48,385.00

Project Start Date

01 April 2024

Project End Date

31 March 2025

Project Leader Name

Dr Johanna Kohler

Project Website/Twitter/Blog etc.

www.doe.ky/sharks, @doecayman

Report Author(s)

Report Date

29 April 2025

Project Summary

No Response

Project Outcomes

Checked	Biodiversity: improving and conserving biodiversity, and slowing or reversing biodiversity loss and degradation;
Unchecked	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;
Checked	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?

☒ 1 - Outcome substantially exceeded

Project outcomes and justification for rating above

This project successfully enhanced Cayman’s capability, built public engagement, and revealed novel ecological and spatial information not only about Caribbean reef sharks but also blacktip sharks (exceeding 1 species identified in proposal). The substantial outreach (exceeding the goal) initiated by this project led to the acquisition of an additional 5 tags through local funding, bringing the target to a total of 10 tags.

In total, the project trained 9 DoE staff and 17 volunteers on the shark handling & tagging protocol (Table1), leading to 21 field trips and 14 sharks (Table2) being safely and successfully caught, measured, and released. Using pop-up satellite archival tags, this project collected diving, temperature and light-level data from a total of 8 sharks (exceeding target of 5 sharks), 3 Caribbean reef and 5 blacktip sharks (not meeting target of 5 Caribbean reef sharks). Potentially due to sex-specific behaviour in each species, only male Caribbean reef sharks and only female blacktip sharks were tagged (Table3, not meeting target of both sexes). The stretch goal of 10 tagged sharks was not met primarily due to the number of sharks caught outside of the training period and limited fieldwork time due to poor/severe weather. The very active hurricane season in 2024 (Table4) presented

a unique opportunity and revealed species-specific behavioural responses by tagged sharks to storms/hurricanes (Table5, exceeding the outcomes identified in proposal).


For the first-time in Cayman, high-resolution data on the vertical and horizontal habitat use, as well as temperature tolerances, for Caribbean reef and blacktip sharks were identified through this project. The species-specific behaviours showed clear differences in depth, diving duration and environmental drivers, verifying that both species play considerable but different roles in connecting the shallow and deep-water habitats (Figure1) and emphasising the importance of Cayman and the existing national shark protection to the survival of these species. The development of the National Biodiversity Action Plans for Caribbean reef sharks and for blacktip sharks (Table6, exceeding goal) through this project initiated the first draft of the National Shark Species Conservation Plan (exceeding goal).


Increased engagement with science and shark conservation was generated through direct community involvement in field trips, searches for tags washed up on shore, project transparency, and outreach (Figure2, exceeding targets). Updated educational materials are available in perpetuity online and will continue to be shared through DoE (Table7). At the end of the project, the production and screening of the project documentary "Tagged & Tracked: Shark Diaries of the Cayman Islands" (Figure3, exceeding the goal) generated a lasting wave of enthusiasm across the three islands (Table1). After a few more screening-events over the next months, it will be made available online for perpetuity.


The findings were presented to DoE senior managers, all DoE and some CIG staff (Table1), will also be widely disseminated through a peer-review paper currently in preparation, and can be used for national priorities such as maritime boundary negotiations, the design of additional Marine Protected Areas ("30 by 30"), and can inform the shark conservation management in other UKOTs.

Supporting Evidence - file(s) upload

 [Supporting evidence DPL00074](#)

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Supporting Evidence - links to published document/online materials

All links are included in the file "Supporting Evidence" (uploaded) . The links will expire on 31 May 2025. All supporting evidence is referenced in this final report form.

Project Challenges

Before the project, it was identified through previous fieldwork that substantial effort to catch the target number of sharks is required because shark populations are relatively low in Cayman and, even if present, sharks do not always bite baited hooks. Therefore, considerable effort was put into identifying high shark abundance areas and times from anglers, divers, dive companies and DoE's citizen science programme (Sharklogger Network) and previous fieldwork. These spots and times of day were targeted, while using the highest quality of chum and bait that was available at the time and had been proven successful for catching sharks during previous fieldwork.

It was anticipated that hurricanes will impact fieldwork schedules which would require finding weather windows between storms to maximise fieldwork effort. Due to the very active hurricane season in 2024, fieldtrips were sporadic towards the end of the planned fieldwork period. Therefore, plans were adapted to extend the fieldwork effort into January 2025. However, the frequency and severity of storms prevented fieldwork over a total of 14.5 weeks between 19/09/2024 and 7/01/2025.

While technical failure and premature release of tags are possible, both were unexpected based on previous work. Some tags released before the programmed end date (activation of built-in fail-safe release due to species-specific behavioural response to hurricanes, information not available before this project) and another tag failed to transmit data (unidentified reason). Therefore, programming of tags was adapted to avoid premature release from animals and an extensive community search for the non-transmitting tag was initiated.

Lessons Learned

Fieldwork: Six-hour fishing trips at “hotspots”, returning 1-2hrs after sunset, and using ‘heavy duty’ scientific fishing gear proved successful. While fishing with ‘rod & reel’ was tested on a few trips, aiming to increase the engagement by anglers, this method was discontinued because it failed to successfully secure the shark. The type of bait appeared to be important: fresh barracuda being highly attractive to sharks, followed by fresh tuna. Due to publicised project activities, bait donations were accepted from anglers and restaurants (leftovers). The established good relations with the angling community should be fostered to increase their engagement in conservation and the sustainability of scientific fishing at reduced costs.

Data collection: The programming of tags needs to be species-specific to avoid premature release from study animals. For example, very small variances and long durations (>3days) at constant depth should be selected for blacktip sharks due to their response to hurricanes. Fieldwork planning should also carefully consider the impacts of storms on shark behaviour, especially if some species seek shelter and are less likely to be encountered before or after storms.

Outreach & engagement: Project transparency via all DoE platforms successfully engaged the public and communicated project activities, including calls for action with the search for tags. WhatsApp groups were helpful to facilitate the participation of volunteer residents on fieldtrips. Priority was given to participants in the DoE citizen science ‘Sharklogger Network’ programme and anglers. The project documentary and findings generated immense public interest and engagement across all three islands.

Section 3 - Project Finance (Essential)

Project Expenditure

Project Spend (indicative) since last Annual Report	2023/24 Grant (£)	2023/24 Total actual Darwin Plus Costs (£)	Variance %	Comments (please explain significant variances)
Staff Costs				
Consultancy Cost				
Overhead Costs				
Travel and Subsistence				

Operating Costs			
Capital Items			
Others			
Total	48,385.00	48,417.20	+0.06%

Please provide a short narrative summary on project finances.

Overall, project finances are reconciled with a very small variation. There was a slight underspend on Operating Costs which primarily reflects the variation in data transmissions, most likely due to one tag that released from a shark and washed up on the shore in Little Cayman and failed to transmit the data. The slight overspend on Others reflects the purchase of a portable hard drive that facilitated the data storage to produce the project documentary film "Tagged & Tracked: Shark Diaries of the Cayman Islands".

DoE provided a total of [REDACTED] matched funding (in-kind and direct) for an additional 5 pop-off archival satellite tags (stretch goal of 10 tags deployed) and covering the remaining project costs including staff time and resources for 21 fieldtrips, 1 workshop, 4 screenings of project documentary, and multiple outreach campaigns. The unforeseen travel to Little Cayman was also covered by the DoE which included flights, accommodation, a vehicle, and subsistence for 2 staff.

Pink Banana Studios produced the documentary film "Tagged & Tracked: Shark Diaries of the Cayman Islands" valued at about [REDACTED] (in-kind).

Through sales of Whitetip lager and a raffle hosted during one screening of the project documentary, the Cayman Islands Brewery raised [REDACTED] that helped to cover some of the DoE costs.

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)

Checked	DPLUS-A01: Number of people from key national and local stakeholder groups completing structured and relevant training.
Checked	DPLUS-A02: Number of secondments or placements completed by individuals of key local and national stakeholders.
Checked	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

9 people from key national and local stakeholder groups completed structured and relevant training. 6 secondments or placements completed by individuals of key local and national stakeholders. 1 local/national organisations with improved capability and capacity as a result of project.

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.
Checked	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.
Checked	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

2 new national biodiversity species management plans available and endorsed. 35 people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement).

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

Checked	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

3 knowledge products published and endorsed.

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

National Biodiversity Action Plans (NBAP) for Caribbean reef sharks and for blacktip sharks produced through this project include outlining local risks to the survival of each species respectively. Both NBAPs also emphasize the species' dependency on local habitats and national protection. The project findings not only reinforce the national protection of sharks but also provide information for the design of deep-water habitat conservation plans and offshore Marine Protected Areas. The project has also produced support for the finalization of Cayman's jurisdictional marine boundaries (with Jamaica and Cuba) and evidence that it is necessary to focus on species management beyond national jurisdictions across their range to ensure effective conservation.

Sustainability and Legacy

The project staff continue as part of the Cayman Islands Department of Environment (DoE). The project lead and assistant will focus on the continuation of shark research and conservation efforts in the Cayman Islands. The DoE staff who were second to the project will continue to benefit from the experience and expertise gained through this project. There was no capital purchased by the project, but the tags that were retrieved can be refurbished to be redeployed. The knowledge revealed by this project will benefit the community through updated outreach material, press releases, and a documentary film in perpetuity. The National Biodiversity Action Plans for Caribbean reef and blacktip sharks will guide future research and conservation management. In the next months, the DoE will build on the momentum gained by this project by deploying a total of 8 satellite tags: the remaining 2 tags from this project and 6 additional tags (double tagging animals with a pop-off archival satellite tag and satellite tag), on Caribbean reef and blacktip sharks. The deployment of these tags and, by double tagging both species, will help verify the findings from this project and collect more data for a scientific publication to share the findings from this project with the wider scientific community internationally.

Section 6 - Communications & Publicity





Exceptional Outcomes and Achievements

One project highlight was the week-long screening of the documentary film "Tagged & Tracked: Shark Diaries of the Cayman Islands" (30min length) produced by shark research volunteer and filmmaker James Dartnall in partnership with the project lead. The film was extensively promoted by DoE, screening partners, and acclaimed by local news (radio, TV, newspapers). A total of 320 people were in attendance during 4 exclusive screening events across the three islands and another 69 people attended 2 screening events for local stakeholders, bringing the grand total to 389 people by end of April 2025.

The documentary not only follows the project activities throughout the year but also highlights the expectational project findings such as: record of maximum depth in Caribbean reef sharks and blacktip sharks (worldwide), first record of Caribbean reef sharks and blacktip sharks leaving Cayman's jurisdictional waters, first record of a tagged blacktip shark moving from Grand Cayman to Little Cayman, first record of species-specific responses to hurricanes. This information was made available through this project and will also be shared with the wider Caribbean region and scientific community through a publication (in preparation) in a scientific journal.

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.

 Exceptional Outcomes and Achievements DPL00
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Photo, video, and/or graphic captions and credits.

Film clip description:

Through the lens of one scientist's determination as she navigates the unexpected, "Tagged & Tracked: Shark Diaries of the Cayman Islands" highlights the crucial role that sharks play in the health of marine environments by exploring shark behaviours and habitats that they rely on for survival. Dr Johanna Kohler and her team offer a glimpse into the treacherous work of shark tagging, behind the scenes research results and how to think outside the box when nature throws some curve balls. In the end, the data doesn't lie.

Territory: Cayman Islands

Credit: Cayman Islands Department of Environment

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.

LinkedIn: Department of Environment (DOE Cayman), Johanna Kohler (Dr Johanna Kohler), Anne Veeder, Pink Banana Studios (PINKBANANA studios), The Cayman Islands Brewery

Facebook: Cayman Islands Department of Environment, [REDACTED] Pink Banana Studios London, Cayman Islands Brewery

Twitter: Department of Environment (@doecayman), Johanna Kohler ([REDACTED]), Pink Banana Studios (no twitter available), Cayman Islands Brewery (@Caybrew1)

Instagram: Department of Environment (@doecayman), Johanna Kohler ([REDACTED]), Anne Veeder [REDACTED] Pink Banana Studios (@pinkbananastudios), Cayman Islands Brewery (@caybrew)

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 Johanna Kohler
Role within Darwin Plus Project	Project lead
Email	
Phone	
Do you need further sections to provide additional contact details?	<input checked="" type="radio"/> No