Applicant: **Kohler, Johanna**
Organisation: **Cayman Islands Department of Environment**
Funding Sought: **£619,181.00**

# DPR13S2\1010

**Safeguarding vulnerable life-stages of shark populations in the Cayman Islands**

This study addresses significant information gaps in the life-cycle of sharks in the Cayman Islands. Building on existing methodologies (satellite telemetry, sex hormones, ultrasonography) and locally developed citizen science, innovative Birth-Alert-Tags used in this project will reveal key life-events and the reproductive ecology for Endangered Caribbean reef sharks and, potentially, for other coastal shark species. Findings will improve the effectiveness of existing marine protected areas and the national shark protection, advancing the islands' capability to sustain long-term conservation of biodiversity.

## PRIMARY APPLICANT DETAILS

| | |
|---|---|
| **Title** | Dr |
| **Name** | Johanna |
| **Surname** | Kohler |
| **Organisation** | Cayman Islands Department of Environment |
| **Website (Work)** | [redacted] |
| **Tel (Work)** | [redacted] |
| **Email (Work)** | [redacted] |
| **Address** | [redacted] |

# DPR13S2\1010

Safeguarding vulnerable life-stages of shark populations in the Cayman Islands

## Section 1 - Contact Details

### PRIMARY APPLICANT DETAILS


| | |
|---|---|
| **Title** | Dr |
| **Name** | Johanna |
| **Surname** | Kohler |
| **Organisation** | Cayman Islands Department of Environment |
| **Website (Work)** | [redacted] |
| **Tel (Work)** | [redacted] |
| **Email (Work)** | [redacted] |
| **Address** | [redacted] |


### GMS ORGANISATION

| **Type** | **Organisation** |
|---|---|
| **Name** | Cayman Islands Department of Environment |
| **Phone (Work)** | [redacted] |
| **Email (Work)** | [redacted] |
| **Website (Work)** | [redacted] |
| **Address** | [redacted] |

## Section 2 - Title & Summary

### Q3. Project title:

Safeguarding vulnerable life-stages of shark populations in the Cayman Islands

### What was your Stage 1 reference number? e.g. DPR13S1\1123

DPR13S1\1019

Please attach a cover letter as a PDF document.

DPLUS STAGE 2 signed cover letter DPR13S2_1010

06/10/2024

17:07:26

pdf 1019.75 KB

## Q4. Response to Stage 1 feedback

**You must explicitly set out how and where you have addressed all the comments/feedback in the application form: briefly restating the feedback point, then clearly setting out how you have responded to it in the application.**

From feedback on our Stage 1 application, we have made the following changes to strengthen our proposal:

Reviewer Comment: There are no clear mechanisms for securing political support or buy-in [...]

The DoE is the lead partner on this project and the government agency that develops national policies (e.g. National Biodiversity Action Plans) and proposes recommendations to the National Conservation Council (NCC) for legally binding changes to the National Conservation Act (NCA, 2013). The DoE also actively enforces the NCA and carries out reviews of development applications and, under delegated authority from the NCC, can direct conditions for developments and regulations for fishing/water-users in cases where protected species and their critical habitats are involved. Additionally, the project aims to secure political and public engagement by hosting workshops for other relevant Government agencies and key organisations, drawing ideas from key stakeholders for the development of a mitigation response to the threats identified by this project. It will also hold meetings for public consultation to ensure social inclusion of and support from relevant local communities (included in Q14,Q15,Q16,Q18, and Q24). A total of 7 Letters of Support from political decision-makers and key stakeholders outline their commitment and additional support of this project (besides the Lead organisation/Project partner).

Reviewer Comment: Please provide more details about stakeholder engagement [...]

The project will directly involve local key stakeholders in project activities such as fieldwork, data collection and the development of solutions (workshops). The DoE communicates the ecological importance of sharks and their protection throughout the year and the existing outreach content will be supplemented with project specific outreach as outlined in the proposal. The project will also be locally communicated through the creation of a short documentary, implementation in resource packs; and shared with the wider Caribbean region, among UKOTs, and the international scientific community in ad-hoc forums and conferences to ensure a lasting legacy of final results, methodologies and recognition of Darwin Plus funding after the completion of this project. More information is provided in Q14,Q15,Q19, and Q24.

Reviewer Comment: Will the project link the stakeholder engagement and citizen science aspects to GESI [...]

Public participation in fieldwork and the citizen science Sharklogger Network are on volunteer basis and everyone who wants to participate, regardless of gender, age, or social background, will be welcomed. It is difficult to set disaggregated indicators/targets because the project wants to maximise stakeholder engagement, encouraging participation among all social and all gender backgrounds. Culturally, there will be a natural gender bias in fieldwork participation because one of the key stakeholders of this project are boaters/anglers who tend to be male. We will report disaggregated results. Details provided in Q24.

Reviewer Comment: Around which island or islands will the shark tagging be attempted?

Initially, the research effort will be focused on Grand Cayman. The majority of dead sharks are reported from Grand Cayman. This island is also subject to the highest impact from human activities. However, there is potential to collect information on reproductive activities and pupping locations without specific tagging effort on the other two Islands: Little Cayman and Cayman Brac. Previous surveys conducted by the DoE showed that mature Caribbean reef sharks move between all three islands, particularly in the summer months. This is believed to be due to reproductive activities. One of the objectives of this project is to find out where sharks go during gestation and for pupping, hence, it is interesting to monitor potential movement to Little Cayman or Cayman Brac for reproductive activities using sharks tagged on Grand Cayman.
Within this project, there is potential to tag/collect data from sharks around Little Cayman and Cayman Brac. However, this depends on the success of project activities on Grand Cayman and the sample sizes needed for meaningful results, within the allocated budget. In the long-term, the DoE hopes to use this project as launching pad to up-scale these research activities to all three islands and more species, after the project is completed. More information provided in Q19.

Reviewer Comment: It would be positive to see regional sharing of project findings.

Regional sharing of final results and technology used in this project, as well as among other UKOTs, will be achieved through scientific publications, DoE attendance at conferences and forums. This will likely happen after the completion of this project. Details provided in Q19.

Reviewer Comment: More information on the plan for recruited roles and [...]

The DoE has a small but dedicated team and to address the issue that more capacity is needed, recently more DoE Darwin applications include additional recruitment to prevent over-commitment and provide the UKOT with support in meeting project objectives. The DoE is not the final approval agency for new roles within its department but is responsible for making the recommendations to the Cayman Islands Government. Recently the DoE was successful in integrating two short-term funded Darwin posts into permanent DoE roles given the merits and benefits of the roles were very easy to demonstrate and the individuals were in place and had been successfully integrated with their roles for the previous two years. The roles outlined in this Darwin Plus application would be a significant asset to the department and the DoE intends to recommend the continuation of at least one project post, which will be easy to justify with a successful outcome of this project.
The Logframe was amended, and the hire of project staff moved to “activities”.

Reviewer Comment: The Logframe should be strengthened.

We have taken the feedback into consideration along with information learned during the recent BCF-workshops and have amended the Logframe. We have made every effort to provide disaggregated indicators and Means of Verification, were reasonable, but would like to refer to the information provided in the response to Reviewer Comment#3, that some indicators are purposefully not disaggregated because of the cultural bias and to not limit public participation.

Reviewer Comment: [...] demonstrate how their project will implement existing environmental solutions [...].

These environmental solutions have been clarified throughout the application, specifically in Q14,Q17 and Q26.

## Q5. Summary of project

**Please provide a brief non-technical summary of your project: the problem/need it is trying to address, its aims, and the key activities you plan on undertaking.**

**Successful Darwin Plus Main projects must demonstrate substantial measurable outcomes in <u>at least one</u> of the themes of Darwin Plus either by the end of the project's implementation or via evidenced mechanisms for post-project delivery.**

**<u>Preference will be given to discrete projects implementing existing identified environmental solutions on the ground.</u>**

**The broad themes of Darwin Plus Main are:**

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

This study addresses significant information gaps in the life-cycle of sharks in the Cayman Islands. Building on existing methodologies (satellite telemetry, sex hormones, ultrasonography) and locally developed citizen science, innovative Birth-Alert-Tags used in this project will reveal key life-events and the reproductive ecology for Endangered Caribbean reef sharks and, potentially, for other coastal shark species. Findings will improve the effectiveness of existing marine protected areas and the national shark protection, advancing the islands' capability to sustain long-term conservation of biodiversity.

# Section 3 - UKOT(s), Dates & Budget Summary

## Q6. UKOT(s)

**Which UK Overseas Territory(ies) will your project be working in?**

☑ Cayman Islands

*** if you have indicated a territory group with an asterisk, please give detail on which territories you are working on here:**

*No Response*

**In addition to the UKOTs you have indicated, will your project directly benefit any other Territories or country(ies)?**

⦿ Yes

**If so, list here.**

| | | | |
|---|---|---|---|
| **Focus of work: UKOTs** | Cayman Islands | **Other Territories/ country(ies):** | Anguilla, Ascension, BVI Monserrat, TCI and the wider Caribbean region |

## Q7. Project dates

| Start date: | End date: | Duration (e.g. 2 years, 3 months): |
|---|---|---|
| 01 April 2025 | 31 March 2028 | 3 years |

### Q8. Budget summary

| Year: | 2025/26 | 2026/27 | 2027/28 | Total request |
|---|---|---|---|---|
| Amount: | [redacted] | [redacted] | [redacted] | £ 619,181.00 |

## Q9. Do you have matched funding arrangements?

⊙ Yes

Please ensure you clearly outline your matched funding arrangement in the budget.

## Q10. If you have a significant amount of unconfirmed matched funding, please clarify how you will fund the project if you don't manage to secure this?

All matched funding arrangements are confirmed. [redacted] of total project costs will be 'matched' from the [redacted] Details provided in the budget spreadsheet.

## Q11. Have you received, applied for or plan to apply for any other UK Government funding for the proposed project or similar?

⊙ No

## Section 4 - Problem statement

### Q12. Problem the project is trying to address

**Please describe the problem your project is trying to address in the UKOTs, relating to at least one of the themes of Darwin Plus:**

**For example, what are the specific threats to the environment that the project will attempt to address? Why are they relevant, for whom? How did you identify the need for your project? Please cite the evidence you are using to support your assessment of the problem.**

Seventeen shark species, many Vulnerable, Endangered or Critically Endangered, have been identified in the Cayman Islands (DoE.ky/sharks). Due to their ecological and socio-economic significance to the islands(1), sharks received nation-wide species protection in 2015(2), yet population numbers are still extremely low(3) following historic exploitation in the 1960-1970s. Previous research revealed species specific spatiotemporal distributions, abundances and behaviour(1,3,4), including evidence suggestive of reproductive activities in local sharks with several species apparently reproducing in nearshore waters(4,5). However, there are significant knowledge gaps

in their life-cycles. In Cayman, information on the reproductive biology, exact pupping locations, and key areas that support the most vulnerable life-stages (gestation/newborns) of local sharks is not available.

In the past, the study of the reproductive ecology of highly mobile species in the wild was very resource intensive and typically required the animals to die in order to collect the data. This approach is controversial of an animal group that is locally protected and threatened by extinction. The recent development of new technologies, including waterproof ultrasonography(Fig4) and cutting-edge Birth-Alert-Tag(Fig5) designed specifically for shark species, made this first of its kind investigation in Cayman feasible.

The local economy is highly dependent on tourism and, with an ever-increasing resident human population, the marine environment is subject to coastal development (potential degradation/loss of essential habitat(6,7,Fig3)) and to other anthropogenic activities (pollution, recreational/artisanal fishing). These activities are recognised to impact shark populations(8,9). Existing Marine Protected Areas (cover 44% of total coastal shelf, Fig2) provide some shelter to resident sharks and local biodiversity, but fishing is unregulated beyond the 45m depth contour. In recent years, increasing numbers of sharks caught in shallow coastal waters has led to the death of these animals (including numerous newborns) and anglers frequently report unintentional catches of larger sharks in deeper waters, at popular fishing spots (Fig6,Fig7). Despite Cayman's proactive conservation efforts, these events have raised concern about the effective protection and long-term conservation of these ecologically important predators locally and, along with the risk of injuries to humans and animals, calls for action to reduce the frequency of angler-shark encounters.

Aside from the research and management of natural resources, the DoE is the agency responsible to enforce the National Conservation Act (NCA)(2013) and the dedicated team of conservation officers actively patrol and respond to reports. However, a major barrier for developing an appropriate mitigation strategy is that complete life-cycles of local shark species are unknown, and resources are limited. Therefore, the overarching aim of this project is to provide the Cayman Islands Government with the additional capacity and technical expertise needed to gather reliable evidence for Government and stakeholders through systematic investigation in order to close the knowledge gap in the life-cycles of sharks and develop potential solutions to a pressing shark conservation issue. Initially we will focus on the Endangered Caribbean reef shark as it is endemic to the Caribbean Sea and locally one of the most important shark species. In the long-term, the DoE intends to continue this effort for all breeding shark populations.

# Section 5 - Environmental Conventions, Treaties and Agreements

## Q13. Environmental Conventions, Treaties and Agreements

**Please detail how your project will contribute to the aims of the national and/or international agreement(s) your project is targeting. What key UKOT Government priorities and themes will it address and how? You should also consider local, territory specific agreements and action plans here. Letters of support from UKOT Government partners/stakeholders should also make clear reference to the agreements/action plans your project is contributing towards.**

This proposed project will produce information necessary to enable the Cayman Islands Government to best conserve local biodiversity, adapt to the effects of climate change, improve the protection of the natural environment, and to support the UKOT's interest in marine boundary negotiations with neighbouring countries.

In specific, this project supports the Cayman Islands and UK Government in meeting commitments under the UN Cartagena Convention (SPAW protocol) to protect and preserve habitats of depleted, threatened or endangered species. It will provide fundamental support in meeting similar obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES, Appendix-II 2015,2017,2013) and the Convention on Biological Diversity (CBD): Target 1,3 (increase protected areas and management of areas to reduce biodiversity loss), Target 4 (halt species extinction, protect genetic diversity, and manage human-wildlife

conflicts), Target 8 (minimize the impacts of climate change on biodiversity), Target 9 (manage wild species sustainably to benefit people), Target 14,20,21 (integrate biodiversity in decision-making at every level and capacity-building, technology transfer, and scientific and technical cooperation for biodiversity to ensure knowledge is available to guide biodiversity action), Target 22,23 (inclusive participation in decision-making, and gender inclusiveness and equality). This project also supports the recently adopted IUCN Programme "Nature 2030" (Area 1 People: Target 1 to ensure just and inclusive conservation, Target 2 enhance enforcement of the environmental rule of law; Area 2 Land: Target 1 species are conserved and key biodiversity areas are safeguarded; Area 4 Ocean: Target 1 loss of marine species and decline of marine ecosystem integrity is halted, and restoration initiated, Target 2 overall positive biodiversity outcomes and sustain livelihood benefits for coastal communities; Area 5 Climate: Target 3 responses to climate change and its impacts are informed by scientific assessment) and enables the contribution to the IUCN Important Shark and Ray Areas (ISRA) project included in the Convention on Migratory Species (CMS). The IUCN also classified the Caribbean reef shark as 'Endangered", highlighting a critical need for greater study and conservation action for this species.

This project will provide invaluable data for the OT Government in meeting obligations under the Environmental Charter (2001) and the National Conservation Act(NCA) seeking to protect additional marine habitat, especially critical habitat such as breeding, pupping and nursery grounds (NCA, part 3 section 7, prioritised section 8(1)a). Furthermore, this project supports ongoing work towards national objectives that include (1) development and implementation of Shark Species Conservation Plan, (2) improvement to marine protections, (3) accession to the Cartagena SPAW Protocol for the protection of areas and wildlife, and (4) identification of key national waters and their protection during boundary delimitation negotiations.

The project will also enhance the capacity and develop skills within the UKOT to support the environment in the short- and long-term. It will reveal information currently unavailable in most countries. Thus, it would not only augment the existing Cayman Islands' shark protection but also provide potential to benefit the conservation of biodiversity and the natural environment in other UKOTs, and the wider Caribbean region.

# Section 6 - Method, Project Stakeholders, Gender, Change Expected, Pathway to Change & Exit Strategy

## Q14. Methodology

**Describe the methods and approach you will use to achieve your intended Outcome and contribute towards your Impact. Provide information on:**

- **how you reflected on and incorporated evidence and lessons learnt from past and present similar activities and projects in the design of this project.**
- **the specific approach you are using, supported by evidence that it will be effective, and justifying why you expect it will be successful in this context.**
- **how you will undertake the work (activities, materials and methods).**
- **how the main activities will be and where these will take place.**
- **how you will manage the work (governance, roles and responsibilities, project management tools, risks etc.).**

1. At the core of this project is the pressing conservation issue around annual reports of frequent bycatch and, at times, death of numerous sexually mature and very young sharks in the Cayman Islands(Fig6,7). While this project is first of its kind locally and will use cutting-edge scientific methods, it will build on existing knowledge(1,3,4) and methodologies from previous studies conducted by DoE, including five successful Darwin Plus shark-projects (CAY601,CAY701,DPLUS036,DPLUS140,DPL00074), and the citizen science Sharklogger Network(5). This project will benefit from over 15-years of experience by DoE's shark research team, led by Dr. Johanna Kohler. The OSU project partner, Dr. James Sulikowski, has over 25-years of experience studying the ecology of elasmobranchs and will provide the project with access to essential technology(11,Fig5) and expertise

for the analyses of data to infer reproductive cycles.

2. Evidence of reproductive activities in sharks in nearshore waters around the Cayman Islands is currently sporadic or anecdotal. To rectify this, a multi-method approach will thoroughly assess the reproductive ecology of Caribbean reef sharks:

A) Ultrasonography exams of adult sharks(Fig4) will determine pregnancy in females, identify litter sizes and gestational stages, and reproductive stages in males. This will be used to investigate breeding seasonality and will inform the deployment of satellite tags on individual sharks.

B) Blood sex hormones will be sampled from sexually mature sharks, concentrations of testosterone, progesterone and oestrogen will be analysed and used to investigate reproductive cycles and seasonality.

C) Birth-Alert-Tags will be placed inside the uterus of pregnant female sharks(Fig5) to remotely record exact locations/times of shark birth. Pop-off satellite archival tags will be externally attached to pregnant females and sexually mature male sharks, collecting depth, water temperature, and daily GPS locations.

D) In parallel and to maximise resources, scientific data will be informed by previous and additional analyses of dive logs from volunteer participants in the citizen science Sharklogger Network, including reports of apparent reproductive activities. Participants' engagement is encouraged through close-guidance and incentives such as social gatherings and sense of community (group dive trips/t-shirts and giveaways).

E) Pupping locations and areas that facilitate key life-stages will be examined against risk of impacts by anthropogenic activities using multiple datasets (MPA maps, aerial and drone imagery, LIDAR bathymetry, diving records, area development plans). Updated additional geospatial information will be collected with high-resolution drone imagery (also produced for another ongoing Darwin Plus-funded project (DPLUS184)). The proportion of time that sharks spent outside of MPAs and national protection, thus becoming vulnerable to local bycatch or international exploitation, will be calculated. Depth/habitat used for gestation will be examined using available marine-benthic habitat maps. Species-specific temperature tolerances will be compared to determine future climate change impacts, while measured variables will identify thermoclines and other possible refuges. This data will be supplemented by diving behaviour and temperature data collected by an ongoing Darwin Plus Local study (DPL00074).

3) The research results will be presented to 'Local Participants' (including relevant Government agencies, stakeholders, organisations, and the public). A workshop will develop a mitigation strategy with recommendations drawn from ideas of Local Participants and experiences resolving human-wildlife conflict elsewhere, acceptable under the national shark protection. Ultimately, simple changes in public behaviour may be key to resolving the causes of shark deaths and diffusing angler-shark encounters, which often begins with a deeper understanding of sharks themselves. To facilitate this, parallel to the project's direct engagement of key stakeholders, the findings will be continuously shared and discussed with the Cayman Islands community through outreach (public meetings, school talks, online and print media) and a short documentary produced and screened after the completion of this project, helping to foster a better understanding of shark behaviour and support of conservation measures.

4) The final results will inform the update of the National Biodiversity Action Plan (NBAP) for Caribbean reef sharks, and any additional species information will be used to develop NBAPs for those species. These results will also be presented to Local Participants to enable the NCC to make legally binding recommendations.

5) The project lead will have responsibility for overseeing all work-streams with the support of experienced DoE senior managers. Dr. Sulikowski will assist in coordinating project activities and be responsible for OSU administrative and research aspects. Project activities and deliverables will be supported by the remaining project staff, seconded OSU PhD candidate and Caymanian DoE staff, and numerous resident volunteers. The

project will ensure activities will be gender-inclusive and deliverables represent relevant views of Cayman's diverse community.

## Q15. Project Stakeholders

**Who are the stakeholders for this project and how have they been consulted (include local or host government support/engagement where relevant)? Briefly describe what support they will provide and how the project will engage with them**

Sharks are Part 1 protected species under the National Conservation Act (NCA)(2013) because of their ecological and socio-economic importance to the Cayman Islands. Sharks are top marine predators and as such play an important role in maintaining the balance of coral reef ecosystems. Healthy reefs attract tourists to the islands, a major source of income for local business. Sharks also directly contribute to the tourism product because many divers travel around the world to see, and dive with, these charismatic animals.

Stakeholders for this project include the Cayman Islands (CI) Government Ministry responsible for the environment, CI Department of Environment, National Conservation Council, CI Tourism Association, CI National Trust, CI Angling Club, Plastic Free Cayman, and Sustainable Cayman all of which expressed their support of this research and commitment to engage with project activities (workshops, data collection, promotion of talks and final results, see Letters of Support).

Additionally, the Central Planning Authority, Development Control Board, Beach/Water-Front Property Owners Association, CI Department of Tourism, the Premier and the Governor of the Cayman Islands will be kept informed by means of consultation performed in YR3.
Community meetings will keep the general public informed. The scientific community will be engaged through research publications. Sharing, among UKOTs and the wider Caribbean, will be achieved through the presentation of project findings at a scientific conference, and at ad-hoc forums which DoE attends, for example: GCFI conference, MPA connect, Small Island Biodiversity Conference, Caribbean UKOTs task force or similar groups then in existence.

## Q16. Gender Equality and Social Inclusion (GESI)

**All applicants must consider whether and how their project will contribute to promoting equality between persons of different gender and social characteristics. Please include reference to the GESI context in which your project seeks to work in. Explain your understanding of how individuals may be disadvantaged or excluded from equal participation within the context of your project, and how you seek to address this. You should consider how your project will proactively contribute to ensuring individuals achieve equitable outcomes and how you will ensure meaningful participation for all those engaged.**

Gender balance within DoE is broadly equal and the project would be delivered by a mixed gender team with key project staff residing in Cayman. The DoE is subject to the Gender Equality Law (2011) and promotes the equal recruitment without discrimination, on the basis of sex, marital status, pregnancy or gender and payment of equal remuneration to male and female employees who perform work of equal value. When recruiting project staff, including the appointment of a PhD candidate, for enhancing in-country capacity we will be inclusive regardless of gender and ensure a representative sample of applicants are interviewed.

The off-island partners will provide laboratory support and training of on-island staff to build capacity within the UKOT, across different genders and job positions. Research teams of both partner organisations will be inclusive regardless of gender and project activities do not disadvantage any gender or social group.

This project will involve key stakeholders from local communities (fishing & diving) across different social backgrounds to assist, on a volunteer-basis, with the fieldwork to equally provide skills/local knowledge and get invested in shark research and conservation in order to ensure meaningful engagement. For both groups, fishers and divers, no selection is being made with regards to occupation, gender, age, or education level of

individuals. We will ensure that all outreach and education activities consider gender equality in their content and target groups across social backgrounds.

Efforts will also be made to ensure all engagement is inclusive, a gender balance is maintained and to provide training to staff around gender equality and safeguarding issues. The outcomes of this project will benefit the marine environment of the Cayman Islands which is vital to its social and economic well-being.

## Q17. Change expected

**Detail the expected changes this work will deliver. You should identify what will change and who will benefit a) in the short-term (i.e. during the life of the project) and b) in the long-term (after the project has ended). Please describe the changes for the environment and, where relevant, for people in the OTs, and how they are linked.**

**When talking about how people will benefit, please remember to give details of who will benefit, differences in benefits by gender or other layers of diversity within stakeholders, and the number of beneficiaries expected. The number of communities is insufficient detail – number of households should be the largest unit used.**

This project aims to remove the uncertainty surrounding key life-events in Caribbean reef sharks in the Cayman Islands by undertaking a detailed, scientific investigation into their reproductive biology and ecology.

In the short term, the local community will feel that the conservation problem is being acknowledged and addressed in a systematic way, that their concerns are being listened to and their ideas contribute directly to the process. The project will provide the Cayman Islands Government with the additional capacity and technical expertise needed to understand key life-events in Caribbean reef sharks and identify areas that support their most vulnerable life-stages yet deemed at greatest risk to climate change or direct anthropogenic impacts. Hormone analysis and ultrasonography will identify gestational stages and reproductive cycles, while satellite telemetry identifies exact pupping locations, and the habitat use during gestation and for mating. The improved knowledge of Caribbean reef shark behaviour will be used to aid a more informed and balanced debate on appropriate mitigation and management strategies for the underlying reason of shark deaths that have sometimes attributed blame to specific communities (e.g. anglers, boaters) and resulted in a widening gap between conservationists and these specific groups. Ultimately, the hope is that the information enables dynamic recommendations with focus on specific areas and time periods that require careful management for the survival of sharks rather than harsh blanket regulations which cause increasingly discontent among local anglers, hindering public support and undermining effective long-term conservation. While it is possible that the (potentially complex) reproductive ecology of Caribbean reef sharks will not be fully revealed during the lifetime of the project, at a minimum, we will be able to provide some key information to start the conversation with key stakeholders to evaluate possible mitigation options that will help to diffuse the immediate concerns about the frequency of shark deaths and angler-shark encounters.

In the long-term, this project will assist the DoE as a launching pad for extensive research into the reproductive ecology and complete life-cycle history for all coastal sharks in the Cayman Islands. This information is needed to meet DoE's obligation under the National Conservation Act to develop a Shark Species Conservation Plan, with regulations that are sustainable and adequate for the long-term conservation of local sharks but also publicly acceptable and compatible with the protection status of sharks. The findings will feed into ongoing outreach led by the DoE to foster a deeper understanding of shark ecology among key stakeholders and the public beyond the duration of this project. The information will also be published and shared regionally so that other UKOTs and the international scientific community can benefit from the results and mitigation strategy as well as the techniques used in this project. The project will both draw from previous experiences and contribute to sustainable practice on resolving human-wildlife conflicts, thus extending the benefits of the work beyond the local context.

## Q18. Pathway to change

**Please outline your project's expected pathway to change. This should be an overview of the overall project logic and outline why and how you expect your Outputs to contribute towards your overall Outcome and, in the longer term, your expected Impact.**

The overall project aims to support the development of evidence-based solutions to safeguard shark populations against impacts of human activities and climate change through increased local expertise, research and risk assessment, development of possible solutions, and policies and outreach.

In Output 1 we first use additional capital items and expertise to provide training and infrastructure within the UKOT.
In Output 2, we use a range of scientific methods, combined with the direct involvement of key stakeholders and citizen science, to investigate the reproductive ecology of Caribbean reef sharks, identifying the habitat use during gestation, exact pupping locations/times, gestation periods, reproductive cycles and threats in the face of increased anthropogenic activities and climate change.
In Output 3, the results of Output 2 inform the development of a joint mitigation strategy that draws on the ideas of local stakeholders and experiences of resolving similar human-wildlife conflict elsewhere.
In Output 4, final results are presented to (i) DoE informing management/allocations of resources, (ii) the NCC to enable legally binding recommendations, (iii) stakeholders to encourage the uptake of guidelines in their policies and (iv) the public through outreach to enhance public support of evidence-based conservation measures that allow people and sharks to coexist.

## Q19. Sustainable benefits

**How will the project reach a sustainable point and continue to deliver benefits post-funding? Will the activities require funding and support from other sources, or will they be mainstreamed in to "business as usual"? How will the required knowledge and skills remain available to sustain the benefits? If relevant, how will your approach be scaled? How will you ensure your data and evidence will be accessible to others?**

This project will provide the Cayman Islands Government with the additional capacity and technical expertise needed to gather essential information and leave a legacy of enhanced knowledge about the life-cycle of Caribbean reef sharks, risks to their survival in the face of increasing human population and climate change, taking forward a concrete mitigation strategy (developed in collaboration see Q15) implemented in a NBAP that enables legally binding recommendations by the NCC. The research and monitoring activities initiated during the project are also expected to be sustained in the longer term. Both project partners view this project as a launch pad for extensive research into the reproductive ecology of all coastal sharks in the Cayman Islands, as evidenced by the substantial amount of matched funding (see Q8). The capital items and training on cutting-edge methodologies builds capacity within the UKOT which has also been deliberately designed to be achievable within DoE's "business as usual". While additional funding might be needed to cover costs for tags, analysis and additional staff, the research infrastructure established during the project should continue to supply management- and policy-relevant information for years to come.

All raw datasets, maps, and policy documents generated by this project will be archived at the DoE, in accordance with Cayman Island Government data sharing and management policies. Project reports, scientific publications and outreach material will be made freely available for download/viewing (DoE website/YouTube) where they will be in perpetuity. To ensure that peer-reviewed project findings are accessible, a specific budget for Open-Access publishing has been included in this project. Sharing, regionally and among UKOTs, will happen after the completion of this project and achieved through scientific conferences and ad-hoc forums which DoE attends, for example: GCFI, MPA connect, Small Island Biodiversity Conference, Caribbean UKOTs task force or similar groups then in existence.

**If necessary, please provide supporting documentation e.g. maps, diagrams, references etc., as a PDF using the File Upload below:**

[redacted]
06/10/2024
18:22:09
pdf 1.4 MB

# Section 7 - Risk Management

## Q20. Risk Management

**Please outline the 6 key risks to achievement of your Project Outcome and how these risks will be managed and mitigated, referring to the Risk Guidance. This should include at least one Fiduciary, one Safeguarding, and one Delivery Chain Risk.**

| Risk Description | Impact | Prob. | Inherent Risk | Mitigation | Residual Risk |
|---|---|---|---|---|---|
| **Fiduciary (Financial)** Risks associated with bribery, corruption and fraud | Moderate | Rare | Minor | DoE's highly experienced finance manager is responsible for budgetary and financial reporting requirements and will ensure all funds are managed and audited appropriately. The MOA with OSU will detail roles and responsibilities between project partners. All funds will be distributed through the DoE's multi-level sign-of procurement process. | Minimal |
| **Safeguarding: risk of sexual exploitation abuse and harassment (SEAH), or unintended harm to beneficiaries, the public, implementing partners, and staff.** Abuse or harassment happens between members of the project or with any participant of the planned activities. | Major | Rare | Minor | DoE has policies which includes a rigorous reporting process. We will ensure that these pathways and best practices are shared with and applied by all project staff and volunteers. | Minor |

| | | | | | |
|---|---|---|---|---|---|
| **Safeguarding: risks to health, safety and security (HSS) of beneficiaries, the public. Implementing partners, and staff.**<br>Project activities have a negative impact on HSS of project staff, study animals or stakeholders. | Major | Unlikely | Moderate | Project activities will follow standard DoE protocol for shark handling and tagging, approved by the National Conservation Council and OSU's institutional animal care and use committee. All staff will be briefed on HHS risk and safeguarding policies and will receive training to ensure any incidences are registered and mitigated. | Minor |
| **Delivery Chain**<br>Availability and delays in procurement of consumables and capital items. Staff turnover and loss of project staff are such that loss of skills and experience within the team impacts project delivery. | Major | Possible-Unlikely | Moderate | In case of delays, OSU partner can assist with access to essential equipment. We will ensure inclusive capacity building as possible so that skills are well distributed and documented(protocols). Quarterly Steering group meetings will ensure we detect any issues in advance and have mitigation plans in place to minimise impact. | Minor |
| **Risk 5**<br>Increasing costs on Cayman and fluctuating GBP and KYD rate conversions can significantly affect the delivery of the project if GBP declines significantly during the project. | Major | Possible | Major | Between stage 1 and 2 the budget was adjusted accounting for risk. Costs for consumables and capital items are based on most recent quotes and a FX buffer which will safeguard against drastic declines of GBP and help the project keep on track if rates change again. | Moderate |
| **Risk 6**<br>Heavy tropical storm or hurricane impact occurs in the territory during the project can affect fieldwork activities and data collection. | Major | Likely | Major | Fieldwork will be scheduled to minimise the disruption and will resume after storms. The islands have precautions in place to reduce the impact on infrastructure and people. One of the project objectives is to capture these impacts to provide important data in terms of habitat and impacts of climate change. | Moderate |

| | | | | | |
|---|---|---|---|---|---|
| **Risk 7**<br>During the time of the project, we are not able to obtain information on pregnant Caribbean reef sharks. | Major | Possible | Major | The expertise and resources from both project partners will inform fieldwork activities. We will tag pregnant females from other coastal shark species. OSU matched funding will provide additional tags so that we are able tag pregnant female Caribbean reef sharks if we catch them later in the study. | Moderate |

## Q21. Project sensitivities

**Please indicate whether there are sensitivities associated with this project that need to be considered if details are published (detailed species location data that would increase threats, political sensitivities, prosecutions for illegal activities, security of staff etc.). Please note your response to this question won't influence the outcome of your application.**

⦿ No

# Section 8 - Workplan

## Q22. Workplan

**Provide a project workplan that shows the key milestones in project activities. Complete the Word template as appropriate to describe the intended workplan for your project.**

[redacted]
06/10/2024
18:42:21
pdf 214.82 KB

# Section 9 - Monitoring and Evaluation (M&E)

## Q23. Monitoring and evaluation (M&E) plan

**Describe how the progress of the project will be monitored and evaluated, making reference to who is responsible for the project's M&E.**

**Darwin Plus projects will need to be adaptive and you should detail how the monitoring and evaluation will feed into the delivery of the project including its management. M&E is expected to be built into the project and not an 'add' on. It is as important to measure for negative impacts as it is for positive impact. Additionally, please indicate an approximate budget and level of effort (person days) to be spent on M&E (see Finance Guidance).**

A new Memorandum of Agreement between DoE and OSU will be signed at the start of the project, with roles and responsibilities clearly formulated. The project will be delivered as a partnership and M&E will be systematically embedded within the project activities and managed throughout the project by the project lead (Dr. Johanna Kohler), supported by the project partner (Dr. James Sulikowski) and DoE managers who have worked on previous successful Darwin projects.

Monthly meetings of the core project partners (Dr. Kohler & Dr. Sulikowski) and quarterly meetings of the

Steering group, involving also DoE managers and advisers relevant to each phase of the project, will be held either virtually (no costs) or in person during visits of Dr. Sulikowski (scheduled for training/fieldwork and included in the budget). These meetings will evaluate project activities and produce minutes to track and evidence actions and decisions. The monthly meeting minutes and progress reports will be provided to the quarterly Steering group. The Steering group will review the project progress and will use the logical framework to evaluate the progress against targets to identify any barriers that might be encountered to achieve the project outputs and ensure the required six months and annual reports for Darwin are prepared on time and project goals are achieved. The core project partners will implement any changes, after consulting with DoE managers, in case of lack of progress. Meeting minutes will provide a means of verification.

The core project partners will also be responsible for evaluating the reports from all outreach activities (including workshops) and ensuring the compliance of project activities with national government laws, including safeguarding, gender inclusion and equality, and ethical standards throughout. Reports, meeting minutes of workshops as well as attendance register will be archived in project database. Stakeholder feedback will be obtained, and results incorporated into protocols and policy documents.

The DoE managers and administrative staff are responsible for the financial monitoring of project and Darwin Plus funds. The Cayman Islands Government has strict and multilevel signoffs for any spending. The spending of Darwin funds will be tracked according to DoE procurement protocol and the project lead will be responsible to ensure that project activities are conducted within the forecasted budget and are clearly and accurately audited.

The final project report will include an evaluation of the impact of the project and its successes and failures. This report will be submitted to Darwin Plus, as well as made public on the DoE website. As an external validation, scientific results will be submitted for publication in peer-reviewed journals. The final publications will likely happen after the lifetime of the project and will be delivered by the core project partners with the support of DoE managers, who are able to follow these through post-project completion.

Budget required for M&E considered the (in-kind) time committed to Steering group meetings (5-10%), allocated to the core project partners (10%) for M&E, organizing meetings and preparing reports, and for financial monitoring (10%) and costs of final auditing ([redacted]).

| | |
|---|---|
| **Total project budget for M&E (£)**<br><br>**(this may include Staff and Travel and Subsistence Costs)** | [redacted] |
| **Total project budget for M&E (%)** | [redacted] |
| **Number of days planned for M&E** | [redacted] |

## Section 10 - Logical Framework & Standard Indicators

## Q24a. Logical Framework (logframe)

**Darwin Plus projects will be required to monitor and report against their progress towards their Outputs and Outcome. This section sets out the expected Outputs and Outcome of your project, how you will measure progress against these and how we can verify this.**

BCF_St2_and_Single_Stage_Logical_Framework_DPR13S2_1010
06/10/2024
19:05:48
pdf 128.08 KB

Impact:

Effective conservation of biodiversity in the Cayman Islands by safeguarding sharks' most vulnerable life-stages from impacts of human activities and climate change, serving as flagship for coastal and offshore management.

Outcome:

Enhanced understanding of life-cycles in Caribbean reef sharks, risk assessment of the survival of pregnant females and newborns at birthing locations, strengthening on-island capability and key stakeholder engagement.

| Project Outputs |
| --- |
| **Output 1:** |
| Enhanced skills, knowledge and understanding (capability) of lead organisation, other local key organisations and that local key stakeholders (volunteers) as well as a key monitoring device (capacity) for the lead organisation to continue conservation and research efforts beyond the end of this project. |
| **Output 2:** |
| Assessment of reproductive ecology in Caribbean reef sharks and, potentially from other coastal shark species, identification and risk assessment of key habitats and areas for the survival of breeding shark populations. |
| **Output 3:** |
| Development of mitigation response and building public support through direct engagement of key stakeholders and local organisations. |
| **Output 4:** |
| Improved protection of essential shark habitat/areas will help local government meet national conservation objectives and can provide guidance for shark conservation measures in other UKOTs, the Caribbean region and globally. |
| **Output 5:** |
| *No Response* |

**Do you require more Output fields?**

**It is advised to have fewer than 6 Outputs since this level of detail can be provided at the Activity level.**

⦿ No

## Activities

**Each activity is numbered according to the Output that it will contribute towards, for example, 1.1, 1.2, 1.3 are contributing to Output 1.**

1.1 One research assistant with relevant qualifications is hired, appointment of one PhD candidate from Big Fish Lab at Oregon State University (OSU), both positions are based on-island.

1.2 Local fishers/boats may be hired occasionally to carry out fieldwork activities.
1.3 Purchase of one ultrasound machine for local shark research.
1.4 Off-island training of project lead on performing relevant field methodologies (ultrasonography exams, analysis of images, and placement of Birth-Alert-Tags) on similar shark species in the USA. Training is led by expertise of the partner organization.
1.5 Local project staff are trained to conduct relevant field methodologies (ultrasonography exams, analysis of images, and placement of Birth-Alert-Tags) during scheduled fieldwork activities.
1.6 Workshop to train DoE Conservation Officers on the reporting of dead sharks, led by project lead.
1.7 Close guidance by project lead, if needed, when dead sharks are reported.
1.8 Establishing communication channels (e.g. WhatsApp groups) with local stakeholder for the organisation of fieldwork activities.
1.9 Recruitment and training of a total of 10 additional volunteer divers to the citizen science Sharklogger Network.
1.10 Training of at least 25 SCUBA divers to identify signs of reproductive activities in sharks during dives.
1.11 Close-guidance and management of the participants in the Sharklogger Network including data verification, implementation of updates to data collection for all volunteer participants and motivation of participants to ensure continued participation and data quality using sense of community, incentives and outreach.
1.12 Project staff of both project partners will focus close collaboration through frequent communication as well as joined fieldtrips for on-island training and data collection.

2.1 Ultrasound examination and sex hormone analysis of 48 adult Caribbean reef sharks (at least 24 males and 24 females, of which at least 10 females are pregnant).
2.2 Determination of litter sizes, gestational stages and monthly levels of sex hormones (oestrogen, progesterone, testosterone).
2.3 Identification of species-specific reproductive rates and reproductive cycles and gestational periods for Caribbean reef sharks, and potentially other species.
2.4 Placement of Birth-Alert-Tags in at least 10 pregnant female Caribbean reef sharks and, potentially, a number of pregnant sharks from other species.
2.5 Identification and mapping of exact pupping locations (GPS)/times of shark birth.
2.6 Attachment of pop-up archival satellite tags to at least 6 pregnant female and 6 adult male Caribbean reef sharks and, possibly, to a number of pregnant females from other species to record vertical/horizontal movements, ambient water temperature.
2.7 Collection of shark and dive data from divers in the citizen science Sharklogger Network including evidence of reproductive activities, relative abundance of coastal shark species and species-specific abundances throughout the year, for 3 continuous years.
2.8 Analysis of vertical/horizontal habitat use, temperature tolerances and mapping of areas that support reproductive activities.
2.9 Mapping of past and projected habitat loss at identified pupping locations.
2.10 Risk assessment to the survival of pregnant and newborn sharks at key areas/times, consulting MPA maps, habitat loss and anthropogenic activities, in the face of climate change.

3.1 Direct involvement of key stakeholders in project activities is encouraged through social media engagement, WhatsApp-groups, newsletters of research activities, managed by project lead and staff.
3.2 Outreach campaigns including at least 1 newspaper article, 1 radio appearance, 1 podcast appearance are performed by project lead and staff and supported by lead organisation.
3.3 Performance of at least 3 school presentations by local project staff.
3.4 Public talks (or webinars), one on each island, at the beginning of the project to outline aims, recruit stakeholders for project activities, and promote public involvement.
3.5 Consultation of with at least 6 key organisations for the development of recommendations for mitigation strategies for high-risk areas and key time periods that support reproductive activities of local sharks.
3.6 Public talks (or webinars), one on each island, at towards the end of the project to present results and for public consultation on mitigation recommendations.

3.7 Preparation and running of outreach campaign promoting the understanding of threats to sharks and mitigation responses to reduce identified impacts of anthropogenic activities on the most vulnerable life-stages in local sharks.

4.1 Update of the National Biodiversity Action Plan (NBAP) for Caribbean reef sharks to include the essential habitat/key time periods for the survival of breeding Caribbean reef shark population and newly developed mitigation recommendations.
4.2 Develop or update NBAPs for any other shark species based on project results.
4.3 Update Shark Tagging and Handling Protocol and Sharklogger Network Data Collection Protocol.
4.4 Update of standard school talks and public talks.
4.5 Creation of resource packs and make available on DoE website, promotion of packs via outreach campaign through lead organisation.
4.6 Presentation of final results and recommendations for mitigation measures to a minimum of three government groups responsible for the environment and three local key organisations.
4.7 Assigning local videographer/photographer to follow project activities and produce a short documentary showcasing the problem that the project addresses, project development, funding partners, the aims, and field activities, as well as project outcomes highlighting stakeholder and public involvement throughout the duration of the project.
4.8 Preparation of 3 manuscripts for the submission to scientific journals for publication of project results to agencies in other UKOTs as well as the scientific community worldwide.

## Q24b. Standard Indicators

| Standard Indicator Ref & Wording | Project Output or Outcome this links to | Target number by project end | Provide disaggregated targets here |
|---|---|---|---|
| **e.g. DPLUS-A01: Number of people in eligible countries who have completed structured and relevant training** | **e.g. Output indicator 3.4 / Output 3** | **e.g. 60** | **e.g. 30 women; 30 men** |
| DPLUS-A01: Number of people in eligible countries who have completed structured & relevant training | Outcome 0.3, Output 1 | 10 | Cayman Islands based staff; 5 women, 5 men |
| DPLUS-A02: Number of people in eligible countries who have completed secondments or placements | Output 1 | 3 | Cayman Islands Department of Environment staff; 1 woman, 2 men |

| | | | |
|---|---|---|---|
| DPLUS-A03: Number of local or national organisations with enhanced capability and capacity | Output 1, 3, 4 | 5 | Cayman Islands Department of Environment, Ministry of Sustainability & Climate Resiliency, National Conservation Council, Tourism Association, Angling Club |
| DPLUS-A04: No. of people reporting that they are applying new capabilities 6+ months after training | Output 1 | 18 | Cayman Islands based staff, participants in the Sharklogger Network; minimum 4 women, minimum 4 men |
| DPLUS-B02: Number of new or improved species management plans available and endorsed | Output 4 | Minimum 1 | National Biodiversity Action Plan for Caribbean reef sharks; improved |
| DPLUS-B05: Number of people with increased participation in governance. | Output 3 | 4 | Cayman Islands residents; at least one woman |
| DPLUS-C01: Number of best practice guides and knowledge products published and endorsed | Output 4 | 3 | Cayman Islands; English |
| DPLUS-C03: New assessments of habitat conservation action needs published. | Output 4 | 1 | Cayman Islands |
| DPLUS–C07: Number of webinar attendees | Output 3, 4 | 20 | Cayman Islands; 10 women, 10 men |
| DPLUS-C08: Number of Media related activities | Output 1, 3, 4 | Minimum 10 | Cayman Islands; Online and print media, Radio appearance, Podcast, (potentially TV if re-instated, there is no TV currently operation within the UKOT) |
| DPLUS-C10: Number of decision-makers attending briefing events | Output 3, 4 | 6 | Cayman Islands; minimum 2 women |
| *No Response* | *No Response* | *No Response* | *No Response* |
| *No Response* | *No Response* | *No Response* | *No Response* |

**If you cannot identify three Standard Indicators you can report against, please justify this here.**

Some disaggregated indicators are difficult to define due to cultural background within the UKOT. Efforts will be made to be as gender and socially inclusive as possible.

# Section 11 - Budget and Funding

## Q25. Budget

**Please complete the appropriate Excel spreadsheet which provides the Budget for this application and ensure the Summary page is fully completed. Some of the questions earlier and below refer to the information in this spreadsheet.**

[redacted]

06/10/2024

19:46:37

xlsx 96.79 KB

## Q26. Alignment with other funding and activities

**This question aims to help us understand how familiar you are with other work in the geographic/thematic area, and how this proposed project will build on or align with this to avoid any risks of duplicating or conflicting activities.**

**Q26a. Is this new work or does it build on existing/past activities (delivered by anyone and funded through any source)?**

⦿ New Initiative

**Please provide details:**

This project is a new initiative, the first of its kind in the Cayman Islands and UKOTs, that will investigate issues and fill in knowledge gaps revealed by previous collaborative work conducted by the DoE and project partners funded from various sources including DPLUS grants, private funding, and the Cayman Islands Government. Evidence of reproductive activities were reported by divers participating in the citizen science Sharklogger Network, established and managed by the project lead. This data will be used to inform the proposed project activities. Ultrasound examinations, sex hormone analysis and Birth-Alert-Tag deployments have not previously been conducted for Caribbean reef sharks in Cayman or anywhere else but will be based on tested methodologies developed by the OSU partner. Data on habitat changes are available at the DoE and, if needed, additional data can be collected via drone operated by the DoE GIS officer. One of the primary motivations for this project is to provide the Cayman Islands Government with the additional capacity and technical expertise needed to gather essential information closing a significant gap in the life-cycle of an Endangered species and carry out systematic investigation into the drivers and potential solutions relating to a pressing shark conservation issue.

**Q26b. Are you aware of any current or future plans for work in the geographic/thematic area to the proposed project?**

⦿ Yes

**If yes, please give details explaining similarities and differences, and explaining how your work will be additional, avoiding duplicating and conflicting activities and what attempts have been/will be made to co-operate with and share lessons learnt for mutual benefit.**

There are no other organisations conducing similar work in the Cayman Islands and any interested organisation must apply for research permits through the DoE.

The DoE has expertise in local shark ecology and handling procedures from previous Darwin Plus projects including the Darwin Plus local (DPL00074) using, at present, similar pop-off satellite telemetry as proposed for this study.

In March 2024, the DoE collaborated with OSU and an US-based NGO (Beneath the Waves) to pilot-test if the proposed methodology would be feasible to study offshore species (Oceanic whitetip shark) in Cayman, which is a project that has potential to move forward in the future but no exact proposal has been made. OSU are conducting similar studies in the Channel Islands, California, North Carolina, New England and at several locations in the Pacific Ocean. Dr. Sulikowski is part of the team that developed the Birth-Alert-Tag technology and has tested and updated it over the past 6 years. Through these previous and current studies, Dr Sulikowski has developed field methods and expertise in analysis of gestation periods, reproductive cycles and reproductive rates that will be used in this current study.

## Q27. Balance of budget spend

**Defra are keen to see as much Darwin Plus funding as possible directly benefiting UKOT communities and economies. While it is appreciated that this is not always possible every effort should be made for funds to remain in-Territory.**

**Explain the thinking behind your budget in terms of where Darwin Plus funds will be spent. What benefits will the Territory/ies see from your budget? What level of the award do you expect will be spent locally? Please explain the decisions behind any Darwin Plus funding that will not be spent locally and how those costs are important for the project.**

One of the primary motivations for this project is to provide the OT Government with the additional capacity and technical expertise needed to investigate a pressing conservation issue. This involves necessary inclusion of salary contributions and travel budgets for local and international partners with access to specific technical skills and equipment that are not available locally. It is expected that 77% of the total Darwin Plus funding is directly spent in the Cayman Islands for salaries, training of staff, fieldwork, workshops, and project deliverables, including a FX buffer helping to manage if rates change significantly.

All budget that will be spent outside of Cayman (23%) will benefit the local project partner and stakeholders by providing necessary data that forms the basis of this project, enhancing skills and knowledge, and ensuring public engagement with activities and deliverables. With the exception of some service charges (e.g. shipping, open-access publishing, travel, laboratory, Argos-satellite system), the remaining Darwin Plus funds will be spent on (i) the procurement of equipment and consumables for fieldwork, and (ii) the education and engagement of stakeholders, both of which will remain on-island once the project has concluded and either become property of the DoE or benefit the local community.

## Q28. Value for Money

**Please describe why you consider your application to be good value for money including justification of why the measures you will adopt will secure value for money.**

This research will be the first of its kind in the Cayman Islands and UKOTs building on existing research, including several Darwin Plus project. It makes use of previous achievements over the last 15 years and both project partners directed considerable matched funding towards the goals of this project. The requested funds represent realistic values gained from extensive experience and thorough planning. The partnership with OSU allows us having favourable agreements with their laboratory for the hormones analysis and access to the cutting-edge Birth-Alert-Tag technology and the added value of having an PhD candidate on-island brings additional benefits to the project (accessibility to research materials, data processing/analysis and the involvement of other staff with complementary expertise within OSU). Satellite telemetry is expensive, but effort

has been made to reduce the costs (minimum number of tags for meaningful results, matched funding from OSU for additional tags and DoE for additional Argos costs). Multiple visits from/to project partners are required for the effective training/fieldwork. Travel to the Cayman Islands and subsistence costs are very high and every effort has been made to reduce these costs (e.g. matched funding from DoE/OSU for accommodation, logistics, travel outside of peak season where possible, communications via email/zoom, OSU covers most of the PhD salary). Funds dedicated for outreach will be used for meaningful public education and engagement and the update of at least one CIGOV policy document enables change to marine protection and potentially coastal development with legally binding recommendations by the NCC.

### Q29. Capital items

**If you plan to purchase capital items with Darwin Plus funding, please indicate what you anticipate will happen to the items following project end. If you are requesting more than 10% capital costs, please provide your justification here.**

The bulk of the capital equipment required for this project is being contributed in-kind by the DoE and OSU. Capital spend represents only [redacted] of the Darwin Plus budget and is solely used to purchase an ultrasound machine for the examination of shark species (that can be used for other species as well), one water-proof action camera (recording fieldwork activities for outreach), and instruments for tagging procedures. All capital items that are purchased directly using Darwin Plus funds will become the property of the DoE helping to foster a legacy of long-term marine research and monitoring capabilities. It is of note, that satellite tags are not listed as capital item but do hold some capital value because retrieved tags could be refurbished by the manufacturer for a fraction of the costs of a new tag.

## Section 12 - Safeguarding and Ethics

## Q30. Safeguarding

**All projects funded under the Biodiversity Challenge Funds must ensure proactive action is taken to promote the welfare and protect all individuals involved in the project (staff, implementing partners, the public and beneficiaries) from harm. In order to provide assurance of this, projects are required to have specific procedures and policies in operation.**

**Please upload the following mandatory policies:**

- **Safeguarding and/or PSEAH Policy: including a statement of commitment to safeguarding and a zero tolerance to inaction statement on bullying, harassment and sexual exploitation and abuse. Policy should include a commitment to either Core Humanitarian Standard (CHS), IASC minimum operating standards for PSEA MOS-PSEA) or CAPSEAH minimum standards.**
- **Whistleblowing Policy: which details a clear process for dealing with concerns raised and protects whistle blowers from reprisals**
- **Code of Conduct: which sets out clear expectations of behaviours – inside and outside the workplace – for staff and volunteers involved in the project and makes clear what will happen in the event of non-compliance or breach of these standards, up to and including dismissal.**
- **Safety and Security Policy or Security Plan: that outlines a plan on how to mitigate and respond to potential health, safety and security threats.**

**If any of these policies are integrated into a broader policy document or handbook, please upload just the relevant or equivalent sub-sections to the above policies, with (unofficial) English translations where needed.**

**Please outline how your project will ensure:**

**a) beneficiaries, the public, implementing partners, and staff are made aware of your safeguarding commitment and how they can confidentially raise a concern,**

**b) safeguarding issues are investigated, recorded and what disciplinary procedures are in place when allegations and complaints are upheld,**

**c) you will ensure project partners also meet these standards and policies.**

**Indicate which minimum standard protocol your project follows and how you meet those minimum standards, i.e. CAPSEAH, CHS, IASC MOS-PSEA. If your approach is currently limited or in the early stages of development, please clearly set out your plans address this.**

The Project Lead is currently under contract by the Department of Environment (DoE), a Cayman Islands' Government entity, and as such is bound by several modern and fully implemented policies on safeguarding, whistle blower protection, code of conduct and risk management (relevant documents attached), which also applies for all other DoE staff and any staff hired by the project. The Project Lead will be responsible for ensuring that processes are in place to recognise and respond to any safeguarding, code of conduct or health and safety issues that arise during the project. Standard reporting procedures as outlined in the existing policies will be followed. OSU also has a Safeguarding Officer who can provide support and advice the OSU team. DoE will be responsible for providing the necessary information and access to existing polices, and training for those who may be working with all groups but especially those who may be in a vulnerable situation.

## Q31. Ethics

**Outline your approach to meeting the key principles of good ethical practice, as outlined in the guidance.**

The Project Board will ensure that all relevant permissions and ethical requirements associated with specific project activities are met from the outset, and will ensure adherence to these throughout the project, including compliance with national data protection legislation and obligations. We will review existing ethical approval procedures within the partner organisation and assist in the establishment of processes, providing training where required. OSU staff will ensure that all activities conducted have approval from the OSU Ethics Committee.

# Section 13 - Project Staff

## Q32. Project staff

**Please identify the core staff (identified in the budget), their role and what % of their time they will be working on the project (these should match the details you provide in the budget).**

| Name (First name, Surname) | Role | % time on project | 1 page CV or job description attached? |
|---|---|---|---|
| Dr. Johanna Kohler | **Project Leader** | 85 | Checked |
| TBA | Research Assistant | 100 | Checked |
| PhD Candidate (OSU) | Research Assistant | 75 | Checked |
| Dr. James Sulikowski | Project Partner & Specialist | 10 | Checked |

**Do you require more fields?**

⦿ Yes

| Name (First name, Surname) | Role | % time on project | 1 page CV or job description attached? |
|---|---|---|---|
| Timothy Austin | Research and Assessment Advisor (DoE Deputy Director) | 10 | Checked |
| Marine Research Field Officer | Boat Captain | 50 | Checked |
| Judy Hurlston | Public Education and Outreach Advisor | 20 | Checked |
| John Bothwell | Policy and Management Advisor | 20 | Checked |
| Jeremy Olynik | Senior GIS Advisor and Modeller | 30 | Checked |
| Dr. Croy McCoy | Marine Resource Unit Manager | 5 | Checked |
| Sonya Van Wouw | Administrative and Finance Manager | 20 | Checked |
| TBC | Administrative Secretary | 20 | Checked |

**Please provide 1 page CVs (or job description if yet to be recruited) for the project staff listed above as a combined PDF.**

DPLUS STAGE 2 CV_Job roles DPR13S2_1010
06/10/2024
20:03:07
pdf 9.36 MB

**Have you attached all project staff CVs and job descriptions?**

⦿ Yes

# Section 14 - Project Partners

## Q33. Project partners

**Please list all the Project Partners (including the Lead Organisation who will administer the grant and coordinate delivery of the project), clearly setting out their roles and responsibilities in the project including the extent of their engagement so far.**

| | |
|---|---|
| **Lead organisation name:** | Cayman Islands Department of Environment (DoE) |
| **Is the Lead Organisation based in a UKOT where the project is working?** | ⦿ Yes |

| | |
|---|---|
| **Why is this organisation the Lead Organisation, and what value to they bring to the project? (including roles, responsibilities and capability and capacity):** | DoE has conducted shark research since 2009, initiated and supported by multiple previous Darwin Plus Projects for which the DoE was the in-country project partner and lead partner for the most recent Darwin Plus Local project to study the "Deep-diving behaviour of Caribbean reef sharks in the Cayman Islands".<br><br>The DoE has experienced research and finance staff to manage grants, meet deadlines, and deliver project results as well as an excellent track record of community and stakeholder involvement and outreach. The DoE will distribute the funds, provide administrative and accountancy services, office and laboratory facilities, vehicles, vessels, and staff for fieldwork. The DoE will be working with stakeholder groups such as anglers, divers, and coastal property owners and residents and is responsible to implement the findings in national policies.<br><br>The project will be led by a highly experienced research staff (Dr. Johanna Kohler) and supported by DoE managers. Dr. Kohler had over 15 years of experience working with sharks and has over 8 years expertise in local knowledge of sharks, the marine environment, and shark handling/tagging procedures. She established the ongoing citizen science Sharklogger Network in 2016, provides experience in data analysis and has invaluable relationships with local communities. |
| **Allocated budget (proportion or value):** | [redacted] |
| **Representation on the Project Board (or other management structure)** | ⦿ Yes |
| **Have you included a Letter of Support from the Lead Partner?** | ⦿ Yes |

**Do you have partners involved in the Project?**

⦿ Yes

| | |
|---|---|
| **1. Partner Name:** | Big Fish Lab, Oregon State University, USA (OSU) |
| **Website address:** | https://marineresearch.oregonstate.edu/sulikowskilab |

| | |
|---|---|
| **What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):** | Dr. James Sulikowski will provide advice and expertise for the training of DoE staff on field methodologies and analysis, particularly on the application of Birth-Alert-Tags, analysis of ultrasonography images and sex hormones. As CO-PI of the Big Fish Lab at OSU, he is dedicated to the study of charismatic fish such as sharks, skates and rays, with research themes relating to movement patterns, growth rates, and reproductive biology to discover ways to more effectively manage, conserve and utilize shark populations. OSU will provide access to tagging equipment, laboratory facilities, and assign an OSU PhD candidate (TBC) to the project. The PhD candidate will assist in fieldwork, data analysis and report writing and will be supervised by Dr. Sulikowski and Dr. Kohler, fully integrating their work as a member of the DoE project team. Dr. Sulikowski will frequently visit and join the project staff to conduct project activities over the course of the project. |
| **UKOT-based/other Partner** | ⦿ Other |
| **Allocated budget (proportion or value):** | [redacted] |
| **Representation on the Project Board (or other management structure)** | ⦿ Yes |
| **Have you included a Letter of Support from this organisation?** | ⦿ Yes |

| | |
|---|---|
| **2. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |
| **What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity):** | *No Response* |
| **UKOT-based/other Partner** | ○ UKOT-based<br>○ Other |
| **Allocated budget (proportion or value):** | *No Response* |
| **Representation on the Project Board (or other management structure)** | ○ Yes<br>○ No |
| **Have you included a Letter of Support from this organisation?** | ○ Yes<br>○ No |

| | |
|---|---|
| **3. Partner Name:** | *No Response* |

| | |
|---|---|
| **Website address:** | *No Response* |
| What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity): | *No Response* |
| **UKOT-based/other Partner** | *No Response* |
| **Allocated budget (proportion or value):** | ○ UKOT-based<br>○ Other |
| **Representation on the Project Board (or other management structure)** | ○ Yes<br>○ No |
| Have you included a Letter of Support from this organisation? | ○ Yes<br>○ No |

| | |
|---|---|
| **4. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |
| What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity): | *No Response* |
| **UKOT-based/other Partner** | ○ UKOT-based<br>○ Other |
| **Allocated budget (proportion or value):** | *No Response* |
| **Representation on the Project Board (or other management structure)** | ○ Yes<br>○ No |
| Have you included a Letter of Support from this organisation? | ○ Yes<br>○ No |

| | |
|---|---|
| **5. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |
| What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity): | *No Response* |
| **UKOT-based/other Partner** | ○ UKOT-based<br>○ Other |

| | |
|---|---|
| **Allocated budget (proportion or value):** | *No Response* |
| **Representation on the Project Board (or other management structure)** | ◯ Yes<br>◯ No |
| Have you included a Letter of Support from this organisation? | ◯ Yes<br>◯ No |

| | |
|---|---|
| **6. Partner Name:** | *No Response* |
| **Website address:** | *No Response* |
| What value does this Partner bring to the project? (including roles, responsibilities and capabilities and capacity): | *No Response* |
| **UKOT-based/other Partner** | ◯ UKOT-based<br>◯ Other |
| **Allocated budget (proportion or value):** | *No Response* |
| **Representation on the Project Board (or other management structure)** | ◯ Yes<br>◯ No |
| Have you included a Letter of Support from this organisation? | ◯ Yes<br>◯ No |

**Please provide a combined PDF of all letters of support.**

DPLUS STAGE 2 Letter of Support DPR13S2_1010
06/10/2024
20:07:14
pdf 5.13 MB

# Section 15 - Lead Organisation Capability and Capacity

## Q34. Lead Organisation Capability and Capacity

**Has your organisation been awarded Biodiversity Challenge Funds (Darwin Plus, Darwin Initiative or Illegal Wildlife Trade Challenge Fund) funding before (for the purposes of this question, being a partner does not count)?**

⦿ Yes

**If yes, please provide details of the most recent awards (up to 6 examples).**

| Reference No | Project Leader | Title |
|---|---|---|
| DPL00074 | Dr Johanna Kohler | Deep-diving behaviour of Caribbean reef sharks in the Cayman Islands |
| DPL00026 | Jane Haakonsson | Remote monitoring of Sister Islands Rock Iguanas on Cayman Brac |
| DPLUS184 | Dr Jane Hardwick | Mitigating the impacts of climate change on sea turtle populations |
| DPLUS044 | Gina Ebanks-Petrie | Assessment, protection and actions for important seabird populations in the |
| DPLUS019 | Dr Janice Blumenthal | Socioeconomic aspects of turtle conservation in the Cayman Islands |
| *No Response* | *No Response* | *No Response* |

## Have you provided the requested signed audited/independently examined accounts?

◉ Yes

# Section 16 - Certification

## Certification

**On behalf of the**

Company

**of**

Cayman Islands Department of Environment

**I apply for a grant of**

£619,181.00

**I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.**

**(This form should be signed by an individual authorised by the applicant institution to submit applications and sign contracts on their behalf.)**

- **I enclose CVs for key project personnel, a cover letter, letters of support, a budget, logframe, Safeguarding and associated policies, and project workplan.**
- **Our last two sets of signed audited/independently verified accounts and annual report (covering three years) are also enclosed.**

Checked

| | |
|---|---|
| **Name** | Johanna Kohler |
| **Position in the organisation** | Shark Project Officer |
| **Signature (please upload e-signature)** | JohannaKohlerSignature<br>06/10/2024<br>20:14:00<br>jpg 81.78 KB |
| **Date** | 06 October 2024 |

**Please attach the requested signed audited/independently examined accounts.**

DPLUS STAGE 2 Financial Evidence_DPR13S2_1010-compressed
06/10/2024
20:27:46
pdf 17.08 MB

**Please upload the Lead Organisation's Safeguarding and Associated Policies as a PDF**

DPLUS STAGE 2 Safeguarding policies DPR13S2_1010
06/10/2024
20:16:54
pdf 2.4 MB

# Section 17 - Submission Checklist

## Checklist for submission

| | Check |
|---|---|
| **I have** read the Guidance**, including the "Guidance Notes for Applicants", "Monitoring Evaluation and Learning Guidance", "Standard Indicator Guidance", "Risk Guidance", and "Finance Guidance".** | Checked |
| **I have read, and can meet, the current** Terms and Conditions **for this fund.** | Checked |
| **I have provided** actual start and end dates **for the project.** | Checked |
| **I have provided a** budget based on UK government financial years **i.e. 1 April – 31 March and in GBP.** | Checked |
| **I have checked that our** budget is complete, **correctly adds up and I have included the correct final total at the start of the application.** | Checked |
| **The application been** signed by a suitably authorised individual **(clear electronic or scanned signatures are acceptable).** | Checked |
| **I have attached the below documents to the application:**<br>• **a** cover letter from the Lead Partner, **outlining how any feedback received at Stage 1 has been addressed where relevant and referencing any potential conflicts of interest, as a single PDF.** | Checked |

| | |
|---|---|
| • **the** completed logframe **as a PDF using the Stage 2 template provided and using "Monitoring Evaluation and Learning Guidance" and "Standard Indicator Guidance".** | Checked |
| • **the budget (which meets the requirements above) using the template provided.** | Checked |
| • **a signed copy of the last 2 annual report and accounts (covering three years) for the Lead Organisation, or provided an explanation if not.** | Checked |
| • **the completed workplan as a PDF using the template provided** | Checked |
| • **a copy of the Lead Organisation's Safeguarding Policy, Whistleblowing Policy, Code of Conduct and Safety and Security Policy or Security Plan (Question 30).** | Checked |
| • **1 page CV or job description for each of the Project Staff identified at Question 32, including the Project Leader, or provided an explanation of why not, combined into a single PDF.** | Checked |
| • **a letter of support from the Lead Organisation and partner(s) identified at Question 33 and relevant OT Governments, or an explanation of why not, combined into a single PDF.** | Checked |
| **The additional supporting evidence is in line with the requested evidence, amounts to a maximum of 5 sides of A4, and is combined as a single PDF.** | Checked |
| **(If copying and pasting into Flexi-Grant) I have checked that all my responses have been successfully copied into the online application form.** | Checked |
| **I have checked the** Darwin Plus website **immediately prior to submission to ensure there are no late updates.** | Checked |
| **I have read and understood the Privacy Notice on the** Darwin Plus website. | Checked |

**We would like to keep in touch!**

**Please check this box if you would be happy for the lead applicant (Flexi-Grant Account Holder) and project leader (if different) to be added to our mailing list. Through our mailing list we share updates on upcoming and current application rounds under the Darwin Initiative and our sister grant scheme, the IWT Challenge Fund. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share our quarterly project newsletter. You are free to unsubscribe at any time.**

Checked

## Data protection and use of personal data

Information supplied in the application form, including personal data, will be used by Defra as set out in the **Privacy Notice**, available from the Forms and Guidance Portal.

This **Privacy Notice must be provided to all individuals** whose personal data is supplied in the application form. Some information may be used when publicising the Darwin Initiative including project details (usually title, lead partner, project leader, location, and total grant value).