

Applicant: **Mukhida, Farah**
Organisation: **Anguilla National Trust**
Funding Sought: **£49,062.00**

DPLR5\1072

From understanding to management: endangered shark movements, connectivity and conservation

Shark and ray species, including those in Anguilla's waters, face extinction threats. The conversion of Anguilla's marine parks into biodiversity sanctuaries offers hope for elasmobranchs, provided their habitats overlap with these protected areas. This project evaluates the parks' effectiveness as refuges by using acoustic telemetry to track shark movements. It applies IUCN's Important Shark and Ray Area criteria to identify critical habitats and develops a sub-regional action plan to guide national conservation priorities.

PRIMARY APPLICANT DETAILS

Name	Farah
Surname	Mukhida
Tel (Work)	+ [REDACTED]
Email (Work)	[REDACTED]
Address	[REDACTED]

DPLR5\1072

From understanding to management: endangered shark movements, connectivity and conservation

Section 1 - Project Title & Contact Details

Q1. Project Title

From understanding to management: endangered shark movements, connectivity and conservation

Q2. Please select whether you are applying as an organisation or as an individual (Guidance section 3 and Guidance Glossary)

☒ Organisation

PRIMARY APPLICANT DETAILS

Name	Farah
Surname	Mukhida
Tel (Work)	
Email (Work)	
Address	

GMS ORGANISATION

Type	Organisation
Name	Anguilla National Trust
Phone (Work)	
Email (Work)	
Website (Work)	
Address	

Section 2 - Overseas Territory(ies)

Q3. Please state whether the same (or a similar) project proposal has previously been submitted (or you are planning to submit it) to the UK Government for funding. This includes through Darwin Plus Local,

Defra’s other Darwin Plus grant schemes or other UK Government funding mechanisms. Failure to share this information may result in the application being ineligible (see Guidance section 2.1.1).

☒ No

Q4. Overseas Territory (Guidance section 1.3):

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

☒ Anguilla

*** 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 UKOT(s) you have indicated, will your project directly benefit any other UK OT(s) or country(ies)?

☒ No

Section 3 - Project Partners





Q5. Project partners (Guidance section 3.2)

In this section, please give details of all the partners involved (including the Lead Organisation) and provide a summary of their roles.

Project Leader name: (Guidance section 3.1)	Farah Mukhida
Lead Organisation name: (if applying as an organisation; Guidance section 3.1)	Anguilla National Trust
Lead Organisation Website (if applicable):	www.axanationaltrust.com
Is the Lead Organisation based in a UKOT where the project is working? (Guidance section 3.1)	<input checked="" type="radio"/> Yes
List other partners involved and where are they based:	Fisheries and Marine Resources Unit-Department of Natural Resources (FMRU), Anguilla University of Exeter, United Kingdom (UE)

Summary of roles and responsibilities of each partner in the project:	<p>Anguilla National Trust will be project lead and will be responsible for all aspects of project management, including technical and financial management and reporting, and project implementation.</p> <p>The Fisheries and Marine Resources Unit-Department of Natural Resources will assist with the deployment of acoustic receivers and tags and will benefit from training in data analysis and application.</p> <p>The University of Exeter will coordinate the extended loan/donation of acoustic receivers from the Ocean Tracking Network, undertake ethical review of the project, lead on the deployment of acoustic tags and provide training in acoustic data analysis and the application of that data to assess the importance and effectiveness of Anguilla's existing marine protected area network in protecting and providing critical habitat to at-risk sharks and to inform Important Shark and Ray Area designation.</p>
I confirm that all listed partners are aware of this application and have indicated support:	Checked

Attach a Cover Letter for your application (Guidance section 4.2).

 [Cover Letter-Anguilla National Trust-shark telemetry](#)
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Section 4 - Project Summary & Description

Q6. Project Summary (Guidance section 3.8)

Please provide a brief summary of your project. This may be used in communication activities and/or published online, if your application is successful.

Shark and ray species, including those in Anguilla's waters, face extinction threats. The conversion of Anguilla's marine parks into biodiversity sanctuaries offers hope for elasmobranchs, provided their habitats overlap with these protected areas. This project evaluates the parks' effectiveness as refuges by using acoustic telemetry to track shark movements. It applies IUCN's Important Shark and Ray Area criteria to identify critical habitats and develops a sub-regional action plan to guide national conservation priorities.

Q7a. Description (Guidance section 2.1 and 6)

Please provide a description of your project, including:

- the overall objective
- the current situation and the problem the project is trying to address
- what success will look like and how you will measure it

Please be as specific as possible when describing the project, using quantified data and evidence where available. You may wish to consider: what are the specific threats to the environment that the project will attempt to address, and what should we know about these threats? What does your successful project

look like? And how will you demonstrate whether and how your project has been successful?

Anguilla's marine park (MP) network consists of six sites encompassing c.78 km² within Anguilla's nearshore. These sites were established through the Government of Anguilla's MP Act and supporting regulations, with the aim of protecting critical nearshore waters. Over the last three years, marine resources managers have been working to enhance protected area effectiveness and resilience through the development and implementation of evidence-based management plans, including their transformation into no-take zones (DPLUS137).

As part of our efforts to enhance the effectiveness of Anguilla's MP network, we have been collecting data related to their role in protecting critical life stages of commercially- and ecologically-valuable species (e.g., spotted spiny lobster *Panulirus guttatus*, parrotfish *Scaridae* spp., green sea turtles *Chelonia mydas*, hawksbill sea turtles *Eretmochelys imbricata*, sharks and rays *Elasmobranchii*). While FMRU has been monitoring fish populations and ANT has led on monitoring and satellite tracking of nesting and foraging sea turtle populations and globally and regionally important populations of seabirds, we have only just begun to focus our efforts on shark and ray research.

Recognising that 25% of all shark species are threatened with extinction from recreational and commercial fishing (including by-catch and IUU fishing), habitat degradation as well as misunderstanding and mislaid fear, ANT, FMRU, UE and Marine Conservation Society launched an initiative to collect baseline ecological and socioeconomic data related to sharks and rays found within Anguilla's nearshore waters (DPLUS136). Through Baited Remote Underwater Video Station (BRUVS) deployment within and outside of MP boundaries and local ecological knowledge (LEK) surveys, we have identified the presence of 17 shark and ray species in Anguilla.

Despite this work, we still lack critical information related to their individual movements (e.g., are they migratory or resident?), and we also have yet to determine whether the MP network needs to be updated in order to protect all critical life stages, especially for those species that are at-risk (including black-tipped sharks *Carcharhinus limbatus*, Caribbean reef sharks *Carcharhinus perezi*, lemon sharks *Negaprion brevirostris*, tiger sharks *Galeocerdo cuvier*, spotted eagle ray *Aetobatus narinari*).

This pilot project builds on our baseline BRUVS data and LEK surveys and applies acoustic biotelemetry to determine whether existing MPs provide critical habitats for elasmobranch protection, including as pupping grounds, migration corridors, and foraging sites within the context of other fisheries management tools and a climate-changing ocean [01-03]. Initial survey work also suggests that Anguilla's MPs could be candidate Important Shark and Ray Areas (ISRAs). This project would serve to confirm that status.

Through this project we will:

1. Deploy an array of ten acoustic receivers across two MPs (Dog Island, Prickly Pear), two dive sites (scheduled to be integrated into Anguilla's MP network), and three sites outside of MP boundaries, allowing us to enhance our knowledge of the role of existing MPs within shark conservation while also allowing us to assess how Anguilla's MPs compare to other sites and inform marine spatial planning.
2. Deploy 25 acoustic tags into sharks, initially targeting Near Threatened Caribbean reef sharks, with data collected over a 9-month period, including at least one breeding/pupping season. Deployed receivers will also detect animals that move into the region that were tagged elsewhere.
3. Share results with the Caribbean Shark Coalition (of which ANT and FMRU are members), providing baseline data for Anguilla but also contributing to our regional understanding of shark movements.
4. Use results to identify/confirm ISRAs, providing another layer of value and protection to sites.
5. Identify additional research gaps and prioritise future research and conservation agendas, based on Anguilla's Shark Research Action Plan.
6. Hold a sub-regional meeting to identify collective conservation action.

Q7b. Long-term sustainability (Guidance section 2.1 and 6)


Please describe the long-term benefits of the project and the change it will bring about. How will the outcomes of the project be sustained after the funding is finished?


Baseline BRUVS work has highlighted important data gaps in our understanding of elasmobranch ecology which has limited our ability to identify conservation needs and priorities. Through data collected by acoustic receivers, we will collect invaluable spatial data that increases our understanding of habitat use, site fidelity and migration routes, while also helping us to identify ISRAs – the first for Anguilla and the Caribbean region.


This project provides the framework for species conservation action planning and frames conservation action within the context of sub-regional/collective action and priorities, showcasing the role Anguilla plays within a larger regional movement to safeguard these keystone species.


For this project, we will analyse data from the first 9 months of acoustic tag transmission, but these tags will transmit signals for up to a decade. This project marks the beginning of a much-longer applied conservation programme where data will continue to be collected, analysed, and used to inform species and habitat conservation and monitor changes over time. Receiver stations will be maintained and can be moved around as necessary. Local staff will be trained in data analysis, allowing us to adapt our conservation actions and approaches as new evidence becomes available during and post-project.

(Optional) Please upload any additional and supporting materials or files (such as maps of project sites, etc) below. Maximum of 5 sides of A4, and is combined as a single PDF:

 [Supporting Documents-Anguilla National Trust-shark telemetry.](#)

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Section 5 - Project Outcome(s)

Q8. Project Outcome(s) (Guidance section 1.2)

Successful Darwin Plus Local projects must demonstrate measurable outcomes in at least one of the themes of Darwin Plus with a clear focus on biodiversity and the natural environment, either by the end of the project or soon after through a credible plan.

Please note: Any proposals including research or monitoring are required to demonstrate a clear link to tangible outcomes for conservation of biodiversity and the natural environment. Please explain how any new research will be applied to drive environmental outcomes on the ground.

Please confirm that your project has a clear focus on biodiversity and the natural environment.

Checked

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

Please tick which additional theme(s) of Darwin Plus your project contributes to (if relevant):

Unchecked

Climate change: responding to, mitigating and adapting to climate change and its effects on the natural environment and local communities;

Unchecked	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.

Please justify your selection. Please use quantitative information where possible here.

This project focuses on the ecology of at-risk apex predators, particularly Endangered Caribbean reef sharks, an indicator species of reef health. Presence of this species has been confirmed within two of Anguilla's marine parks but their movements and site fidelity are unknown. Working with sub-regional colleagues, we will be in a position to identify and coordinate national and collective Caribbean reef shark conservation actions that will have cascading effects on other elasmobranch species.

This project will also increase long-term capacity to manage and conserve sharks and rays, including through the training of staff in acoustic monitoring protocols and data analysis.





Section 6 - Workplan

Q9. Workplan (Guidance section 2.2)

Please provide anticipated dates for the start and end of your planned project here. Please use the Darwin Plus Local Project Workplan (available at: <https://darwinplus.org.uk/how-to-apply/local-applications/>) to provide a list of the individual activities you have planned for this project, a brief description of what each activity entails, and the months in which the activities will be carried out. If the project involves only one activity (e.g. a purchase), please still provide project start and end dates (noting estimated times for procurement). Please note that your project must start after 1 April 2025 and be completed by 31 March 2026.

Start date:	End date:	Duration (e.g. 3 months):
01 April 2025	31 March 2026	12 months

Please upload the completed Darwin Plus Local Project Workplan with your proposed project activities here

 [r5-dplus-local-implementation-timetable-Anguilla National Trust-shark telemetry.](#)
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Section 7 - Costs

Q10. Costs (Guidance section 2.2 and please read the Finance Guidance)

Please provide a breakdown of costs to be funded through Darwin Plus Local (in GBP).

Are you seeking any matched funding for this project? (Please note that this is optional and there is no requirement to seek matched funding for Darwin Plus Local projects).

☒ Yes

How much matched funding are you seeking and where from?

Match funding from the ANT has been secured to cover project overhead costs (partial – 2.5%), staff costs and vehicle use by our UE partner who will assist with the deployment of the acoustic receiver stations (£25661). UE has also confirmed matched funding to cover personnel costs and overheads (£48417). Ocean Tracking Network will donate the acoustic receivers (£21739). Total funding secured is £95817.

Budget line	Explanation	Cost in GBP
Staff costs:		
Consultancy costs:		
Overhead costs:		
Travel & subsistence costs:		
Operating costs:		
Capital equipment:		
Other Costs		
Total:		

This section provides more information on the budget to help evaluators understand how you will use the funds you are requesting. You do not need to list all costs, but please list and detail costs of more than £1,000 per item below, under the appropriate budget line.

Details of staff costs over £1,000 (if relevant)

N/A

Details of overhead costs over £1,000 (if relevant):

Details of travel and subsistence costs over £1,000 (if relevant):

Details of operating costs over £1,000 (if relevant):

Details of capital equipment costs over £1,000 (if relevant):

N/A

Details of consultancy costs over £1,000 (if relevant):

N/A

Details of other costs over £1,000 (if relevant)

Wire transfer fees for purchase of acoustic tags (1 wire transfer)

If your project budget was prepared in another currency and converted to GBP, please provide the exchange rate, its source, and the date it was accessed:

Other currency:	Exchange rate:	Source of this exchange rate:	Date exchange rate accessed:
USD	1.2925	xe.com	09 November 2024

Darwin Plus Local has been created to build capacity and contribute to local economies in-territory (Guidance section 2.1.1 and section 1.8.4 of the Finance Guidance).

In-territory spend is defined in Darwin Plus Local as including funding spent on:

- Equipment purchased in-territory;

- Equipment that cannot be acquired in-territory and is therefore purchased abroad, but will remain and be used in-territory beyond the life of the proposed Darwin Plus Local project;
- Training or skills that cannot be acquired in-territory and are therefore purchased abroad, but will be used in-territory beyond the life of the proposed Darwin Plus Local project;
- Time for consultants or staff based in-territory.

In-territory spend does not include:

- Time for consultants or staff who are based abroad, even if they travel to the OT to undertake the work;
- Shipping and import costs for equipment purchased abroad;
- Travel and subsistence costs where they incur spend outside the OT.

What % of the total will be spent in-territory? 100

If less than 80% of the total project spend is to be spent in-territory, please explain why.

N/A

Section 8 - Local and National Priorities

Q11. Local and national priorities

Please explain how this project aligns with local and national priorities? You may wish to consider the project in the context of national environmental laws, objectives, strategies, territory specific agreements, action plans or policies.

This project supports the Government of Anguilla's National Biodiversity Strategy and Action Plan by identifying, monitoring, and conserving sharks and rays (Strategy 3), increasing national capacity in biodiversity conservation especially through training opportunities (Strategy 7), promoting environmental awareness (Strategy 8), and supporting exchange of information both nationally and regionally/internationally (Strategy 10).

It also supports Anguilla's National Environmental Management Strategy by collecting environmental and ecological data (Strategy 22), promoting environmental education, training, and capacity building (Strategy 24), and conserving and managing biodiversity and natural resources (Strategy 39).

Data and information collected and analysed through this project will also support the development of evidence-based sub-regional action plan (during project period) and a national conservation action plan (post-project) as called for by the Biodiversity and Heritage Conservation Act (2009).

It also meets two Targets under the Kunming-Montreal Global Biodiversity Framework by strengthening capacity to conduct scientific research and biodiversity monitoring (Target 20) and ensuring that best available data are accessible to decision-makers, natural resources managers and the public to support equitable governance and effective biodiversity conservation (Target 21).

Will the project...

Take place on Government owned land or water?

☒ No

Involve biocontrol, invasive alien species control or eradication?

☒ No

Require permit(s) from Government departments for completion of activities?

☒ No

If you have answered yes to any of the questions above, please attach evidence that you have Government support for this project i.e. a Letter of Support. Applications which indicate that they do not take place on Government land or water, but which propose work that appears to the reviewers would be difficult/impossible to carry out without working on government land or waters may be ineligible if no Letter of Support is provided.

No Response

Section 9 - Project Risks

Q12. Project Risks

Please demonstrate your consideration of any risks involved in this project and how you intend to manage them. Please note the importance of health and safety and environmental risk assessment in the design of your project. If there is any possibility that your project may have negative impacts on the environment or human health, it is important that you provide a comprehensive analysis of potential environmental and human health risks, and the prevention measures you will take to ensure the work does not cause harm.

Depending on your project, you may wish to consider:

- Biosecurity risks – particularly for projects involving external equipment.
- Safeguarding risks – particularly for projects involving vulnerable groups such as children, older people or people with disabilities.
For example, you should consider the ratio of vulnerable people or children to adults, ensuring there are appropriate background checks of all staff, and informing vulnerable groups and children of their right to safety and protection.

Risk	Mitigation
Storms and hurricanes hamper fieldwork	The installation of acoustic receivers and the deployment of acoustic tags will take place during the first quarter of the project, which falls outside of the peak hurricane season (September through October). Weather forecasts will be monitored to ensure that sea conditions are conducive to deployment.
Loss of acoustic receivers due to storms and hurricanes	Stations will be deployed strategically in areas that are protected by reef structures and that are in deeper waters to not be easily affected by strong wave action. Stations, however, can be removed should inclement weather and sea conditions indicate that the stations could be compromised.

Low shark encounter rates

We will focus our search efforts on areas where Caribbean sharks have been observed (through our previous BRUVS deployments, LEK surveys, and citizen science surveys). We are allowing six weeks for the implanting of tags which will allow us time to reassess search sites, if necessary. If we are still unable to tag enough sharks to meet our target (25), acoustic stations will still be able to pick up signals from sharks tagged elsewhere, still providing valuable data as it relates to movements, migration, and habitat use.

Do you require more fields?

☒ No

Section 10 - Terms & Conditions

Q13. Terms and conditions (Guidance section 3.10)

By applying for Darwin Plus Local you are adhering in full to the grant Terms and Conditions in full (available at: <https://darwinplus.org.uk/how-to-apply/local-applications/> and as referenced in the Guidance at section 3.10). For information, the Terms and Conditions include requirements for all applicants to (amongst other requirements as per the full Terms and Conditions):

- Uphold a zero tolerance for inaction approach to tackling sexual exploitation, abuse, and harassment.
- Where appropriate, make all reasonable and adequate efforts to address gender inequality and other power imbalances.
- Notify all cases of fraud and theft (whether proven or suspected) relating to the project to the Grant Administrator as soon as they identified.

Please indicate you have read, and understood, and will adhere to the Terms and Conditions.

Checked

Supporting documents list (please have these ready to attach with application)

- Cover Letter of no more than two A4 pages. (Guidance section: 4.2 has information on what this cover letter should include).
- If the project takes place on public land or water, is addressing invasive alien species or includes activities requiring a permit, a Letter of support from OT Government.
- Project Workplan in the template provided for Darwin Plus Local (available at: <https://darwinplus.org.uk/how-to-apply/local-applications/>).
- Map and additional information (optional) maximum five additional pages.

If your application is successful

-
If your project application is successful, the Fund Administrator (NIRAS) will ask you to provide some financial evidence for due diligence checks before you receive your project grant. (Please see section 3.3 of the Darwin Plus Local Finance Guidance). Please be ready to provide this evidence promptly.

- **Financial evidence for organisations:** Year-end financial statements, the latest management accounts or audited accounts (if you have these).
- **Financial evidence for individuals:** Proof of identity such as a passport, ID card or driving licence and solvency (such as bank statements) and a police check.

Section 11 - Certification





Certification

I certify that, to the best of my knowledge and belief, the statements made in this application are true and the information provided is correct.

Checked

I have the authority to submit an application on behalf of my organisation.

Checked

Name:	Farah Mukhida
Position in the organisation: (if applicable)	Executive Director
Signature (please upload e-signature)	<div> FMukhida signature</div> <div> 24/11/2024</div> <div> 12:16:24</div> <div> jpg 59.28 KB</div>
Date:	24 November 2024

Section 12 - Submission Checklist

Checklist for submission

	Check
I have read the Guidance documents, including the “Darwin Plus Local Guidance” and the “Darwin Plus Local Finance Guidance”.	Checked
If my proposed project takes place on public lands or water or is addressing alien invasive species, I have uploaded a Letter of Support from Government.	Unchecked
I have uploaded a cover letter that details the information requested in the guidance (Guidance section 4.2 has information on what this cover letter should include).	Checked
I have read, and can meet, the current Terms and Conditions for this fund (found at: https://darwinplus.org.uk/apply/local-applications/) for this fund.	Checked
I have provided actual start and end dates for my project that fit this Round.	Checked
I have provided my summary budget based on UK government financial years i.e. 1 April – 31 March and in GBP in the application form.	Checked
I have uploaded my project workplan using the specific template provided (available at: https://darwinplus.org.uk/apply/local-applications/).	Checked
I have uploaded all supplementary documents if I have any.	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
The application has been signed by a suitably authorised individual (clear electronic or scanned signatures are acceptable).	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 Darwin Plus. We also provide occasional updates on other UK Government activities related to biodiversity conservation and share project news. 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 Darwin Plus including project details (usually title, lead partner, project leader, location, and total grant value).