Biodiversity Challenge Funds Projects
Darwin Initiative, Illegal Wildlife Trade Challenge Fund, and Darwin Plus

Half Year Report

It is expected that this report will be a **maximum of 2-3 pages** in length.

If there is any confidential information within the report that you do not wish to be shared on our website, please ensure you clearly highlight this.

Submission Deadline: 31st October 2024

Please note all projects that were active before 1 October 2024 are required to complete a Half Year Report.

Submit to: BCF-Reports@niras.com including your project ref in the subject line.

Project reference	DPLUS161
Project title	Exploring the drivers of human-shark conflict in Ascension
Country(ies)/territory(ies)	Ascension Island
Lead Organisation	University of Exeter
Partner(s)	University of Windsor, University of Plymouth, Zoological Society of London, Ascension Island Government Conservation and Fisheries Directorate (AIGCFD)
Project leader	Dr Sam Weber
Report date and number (e.g. HYR1)	HYR3
Project website/blog/social media	

1. Outline progress over the last 6 months (April – September) against the agreed project implementation timetable (if your project started less than 6 months ago, please report on the period since start up to end of September).

Although we are not looking for specific reporting against your indicators, please use this opportunity to consider the appropriateness of your M&E systems (are your indicators still relevant, can you report against any Standard Indicators, do your assumptions still hold true?). The guidance can be found on the resources page of the relevant fund website.

Summary of progress over the last six months:

- Multiple visits from project partners at University of Exeter, University of Windsor, University of Plymouth and Zoological Society of London occurred between April and July 2024 to carry out additional shark tagging and oceanographic equipment deployments, complete social science surveys and engage in public outreach activities.

- A further 21 sharks were fitted with acoustic telemetry tags (17 Galapagos, 4 silky sharks), bringing the total to 55 individuals tagged over the course of the project, exceeding our original target (n=50). New deployments targeted key demographic groups that were missing from previous years (including large adults). In addition, 4 silky sharks

were fitted with pop-up satellite archival tags (match funded by ZSL) to track movements when absent from the Ascension coastal tracking array.

- Training in acoustic tagging methodology was provided to 5 AIG staff, who led deployments during the second round of tagging.

- Ongoing spaciotemporal data collection, including morphological measurements and collection of biological samples, continued across the period, bringing the total sample size to 119 Galapagos and 57 silky sharks. All samples collected to June 2024 have now been analysed for stable isotopes of carbon and nitrogen to investigate temporal trends in diet, and results included in three MSc theses.

- 3 inshore coastal locations were selected to deploy additional oceanographic monitoring equipment provided by in-kind support from AIGCFD. The data was collected by using 2 x ECO Acoustic doppler current profilers (ADCPs) and 1 x Signature 1000 ADCPs. This was to support the data collected from the 2 x Aquadopp ADCP oceanographic monitoring stations already deployed previously in the project and was to expand network for modelling drivers of shark movements.

- Semi-structured interviews were designed and conducted with > 30 individuals from representative stakeholder groups to gain a better understanding of the human dimensions of conflicts. Analysis of the results is currently ongoing.

- Multiple public engagement and dissemination events were held with island stakeholders. This included 2 formal presentations at Travellers Hill RAF Base Cinema sharing early insights from the project (attended by > 100 people) and a catered community event held at Saints Members club. The latter provided an opportunity to interact with boat and rock fishers and engage in both semi-structured and informal collection of data.

- Collection of time-lapse imagery from two former 'conflict areas' (Pierhead and Comfortless Cove swimming beach) continued across the reporting period, aimed at monitoring levels of shark activity. However, several technical issues have been experienced with camera hardware (see Section 2) which have required manufacturer support and has resulted in breaks in the time series. A hard drive with all images collected to September 2024 been sent back to the University of Exeter where an undergraduate dissertation student is currently analysing them to quantify sharks and plot activity trends.

- A feasibility study on installation of shark barrier systems at Ascension Island's main swimming beaches has now been completed and is awaiting feedback from partners/stakeholders.

A more detailed summary of progress against planned activities for the period is provided below:

Output	Activity	Response
1.1-1.4	The social context of human-shark conflict on Ascension Island is characterised through a process of inclusive stakeholder engagement, ensuring that local knowledge and views are duly represented in project design and implementation.	**1.1** – Dec 2023 Social Scientist (ZSL) visited Ascension to develop questionnaires. Re-visited the island in April/May 2024 to carry out stakeholder questionnaires. **1.2-** Due to the limited internet capabilities on Ascension interviews and questionnaires were delivered in person with paper-based versions and using a tablet to help collect the required data.

	1.1 Design and deliver semi-structured interviews with representative stakeholder groups to better understand the human dimensions of conflicts. **1.2** Develop and promote a simplified online questionnaire to enable broader community participation in social research. **1.3** Analyse interview and questionnaire data to inform project design and produce attitudinal baselines for future comparisons. **1.4** Gather data on catch depredation rates working in collaboration with local recreational and sports fishers	**1.3 –** Ongoing analysis of data collected in April/May 2024 **1.4 –** Opportunistic data has been collected with depredation activity reported from boat fishers. This is carried out during the monthly fish sampling at the communal fish cleaning area were information is collected for catch per unit effort, fish otolith etc. Unfortunately, due the isolation of the island and boats often out of service, there is only ever a very small number of boats that are going fishing regularly. No sports fishing companies are operating at Ascension
2.1-2.7	**2.** Knowledge of the behaviour and distribution of Galapagos sharks on Ascension Island is significantly enhanced and is used to evaluate a range of hypotheses proposed to explain recent increases in inshore activity **2.1** Install fixed-point, time-lapse camera assemblies for monitoring shark activity at key coastal locations **2.2** Analyse time-lapse imagery to quantify relative shark abundance and validate results from online citizen science platforms **2.3** Deploy passive acoustic telemetry array and oceanographic moorings. **2.4** Deploy acoustic telemetry tags on Galapagos sharks **2.5** Carry out monthly physiological, morphological and reproductive assessments of Galapagos sharks to assess spatiotemporal variation in body condition and breeding status **2.6** Analyse ecological and oceanographic data to explain any observed variation in inshore shark	**2.1**- Ongoing image collection from original location of Comfortless Cove throughout 2023. Time lapse camera installed at the Pier in late December 2023. After 2 months, a major firmware/WIFI connectivity issue developed with the UpBlink unit and was required to be sent back to Seasense (distributor) in the UK. In the interim, Comfortless camera was relocated to the Pier for continuation of time lapse images. (New UpBlink Wifi controller was sent out to the Island in late July 2024 only to develop issues again after approx. 2 months. Working on resolution with the company). **2.2** Hard drive with all images collected over the entire project has been sent back to the University of Exeter where a undergraduate student is analysing the images from both Comfortless and the Pier images. **2.3** Complete acoustic array recovery including data collection and turnaround of equipment in Mar/April 2024. 12 months of data collected and beginning of analysis. Early results indicate a significant residency to the array (island) of the Galapagos species and intermittent visiting population of Silky sharks. Catch data, as a reflection against the acoustic residency analysis suggests that the Silky species is most likely a regular visitor with ongoing species presence; however individual behaviour suggests a more transient characteristics, at least for the 12 months of constant monitoring. **2.4** In addition to the original 34 tags deployed in March 2023, another 4 silkies and 17 Galapagos sharks were acoustically tagged during the intensive fieldtrip of April/May 2024 (total for project; 11 Silky and 49 Galapagos sharks.

	activity (2.2) and rates of catch depredation (1.4). **2.7** Report and publish the findings of applied shark research. .	**2.5** Monthly morphological and tissue samples collected including biological samples of fin and blood tissue until May 2024. 14 months of catch data: 175 mixed species of sharks caught and sampled, 124 samples (red blood, fin clips and plasma have been processed for isotopic analysis. **2.6** ADCP (Acoustic doppler current profilers) and Thermistors (temp loggers) were deployed in March 2023, recovered, data downloaded, serviced and redeployed in July 2023, in Mar/April 2024 and most recently in July 2024. Recovery will be in March 2025. **2.7** Three master's students (2 from ZSL, and 1 from University of Exeter) have completed their dissertations on the findings from the project to date. One PhD student is currently working on chapters relating to the social science and fine scale movements of the tagged animals. Also, will include an overlay of oceanographic data to understand the potential drivers behind the activity.
3.1-3.4	Field trials and fully costed feasibility studies of non-lethal conflict reduction measures are undertaken to assess their viability on Ascension Island **3.1** Conduct baited trials of electronic deterrent devices to assess their effectiveness in repelling Galapagos sharks. **3.2** Deploy electronic deterrent devices on fishing vessels to establish their effectiveness at reducing catch depredation relative to experimental controls. **3.3** Produce fully-costed designs and associated environmental impact assessments for shark barriers at bathing beaches, engaging with manufacturers and local marine users 3.4 Analyse and report the results of field trials of shark deterrents	**3.1 -** Ongoing work to capture evidence of deterrent effectiveness**.** Field trials are dependent on the activity of the sharks during the fieldwork on any particular day. We have experienced particular days when the activity has changed from previously experienced and therefore trials have been abandoned due to no shark activity in that area. **3.2 -** Limited shark interactions have been reported. (1) due to undescribed seasonality, or lower than previous periods when higher numbers of sharks were present in popular rock and boat fishing areas, and (2). due to the frequent lower number of serviceable boats operating at the moment. 90% of the fishing boats currently on the hard stand and fluctuates throughout the year. 3.3 – Completed feasibility study, waiting on reviews **3.4** - Ongoing data collection required and field trials.
4.1-4.4	The results of social and ecological research are openly shared and discussed with the	**4.1 –** During the project partners visit in April we held several public presentations to give a snapshot and early analysis of the 12 months of data collected and to give a summary of the

	Ascension Island community, and are used to assess the suitability of a range of mitigation options for ameliorating human-shark conflicts. **4.1** Hold public meetings on Ascension Island to present and discuss project plans and findings. **4.2** Disseminate and promote project activities and outputs through a range of online and print media. **4.3** Carry out follow-up interviews and questionnaires to assess how public attitudes and perceptions have changed relative to baselines established in 1.3. **4.4** Produce a non-technical report summarising project findings and setting out recommendations for mitigating human-shark conflicts	project going forward. >100 people in attendance. Social scientist was available to also present plans for collecting qualitative data of recreation fishers' interactions and opinions. A function was held for rock and boat fishers to attend with questionnaires distributed to assist with data collection. **4.2 –** Ongoing public notices in the local newspaper, social media posts and posters in public areas communicating latest developments **4.3 –** Social scientist project partner aims to report results in a formalised output. Providing information back to the public before end of project **4.4 -**Ongoing preparation of peer reviewed journal articles

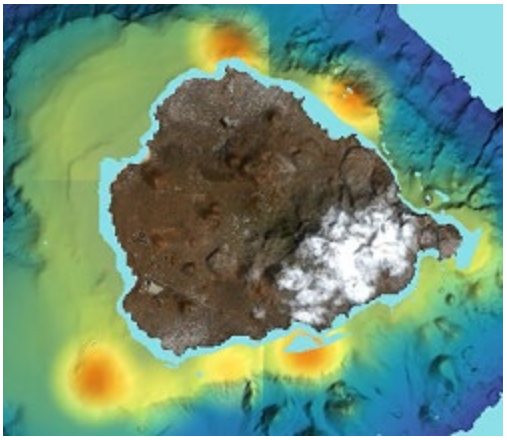

Fig 1. Hotspots discovered of acoustically tagged shark activity around Ascension Island 2023 to 2024

Fig 2. Recovered ADCP oceanographic equipment

Fig 3 Communications board at the local pier for disseminating public notices and the white board for recording shark sightings at the pier area. (E.g. Activity 4.2)

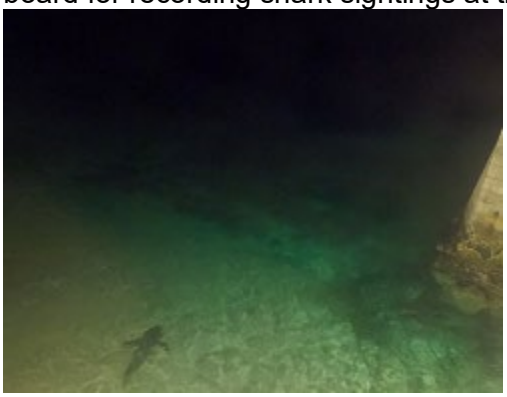

Fig 4 Time lapse images of sharks swimming in shallow waters near the Pier area in very shallow coastal waters. This area is the most utilised for ease of access fishing area, boating operations (safer access to land via boat) and fish cleaning activity on the island.

Shark Project Update

Summary of activities and preliminary findings

From March to May 2024, Conservation once again welcomed project partners from the Darwin-funded Human-Shark Conflict Project from the University of Exeter, the Zoological Society of London, and the University of Windsor. During this visit, the team carried out the servicing, data collection, and redeployment of all the acoustic and oceanographic equipment.

The team also delivered a presentation to the community about the progress of the project and some of the initial results.

The field work from March to May included the servicing of all equipment as well as the acoustic tagging of additional sharks for further monitoring. Acoustic receivers, ADCPs (measuring water current direction and speed), and temperature loggers were recovered, serviced, and redeployed following the collection of data from these instruments. Data downloaded from the receiver's indicated movements of the 34 acoustically tagged sharks from 2023 to 2024, including both Silky and Galapagos sharks. Preliminary findings show that approximately 85% of Galapagos sharks demonstrated very high local residency to the island, while the intermittent residency of Silky sharks showed movements away from the island for several months, with occasional returns. Hotspots of general shark activity were identified around the island (Figure 1). The thermocline and water temperatures for the year were recorded (Figure 2) with some evidence showing that shark movement was associated with shifts in water temperature. Blood and fin clip samples are currently being processed in the lab at the University of Exeter, with early isotope analysis indicating a similar diet between the Galapagos and Silky sharks.

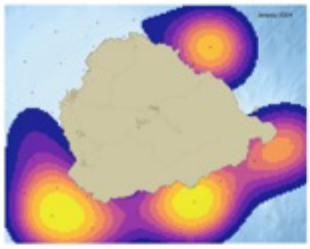

Figure 1 Hotspots of shark activity identified around the island

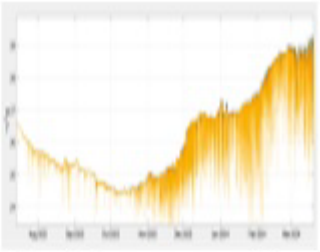

Figure 3 Example of water temperature captured from one data logger

Future plans for the acoustic array include continued data collection for another 12 months, with the data to be recovered and analyzed as part of a larger PhD project in March 2025. Further analysis will

20xx/00x {Year/Notice number} – Forward to Comms Officer for completion

help to continue understanding the oceanographic influence and fine-scale movements of the sharks around Ascension.

For more information, please contact Daniel Simpson at daniel.simpson@ascension.gov.ac or visit us at the Marine Festival.

Conservation and Fisheries Directorate
29 May 2023

Fig 5: Local Ascension Island newspaper article public communication. This issue was the 12 months of acoustic telemetry and temperatures for a general Darwin project update.

2. Give details of any notable problems or unexpected developments/lessons learnt that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Activity and behaviour of the shark population around Ascension Island continues to be erratic and unpredictable, which has complicated planned biological sampling. A short burst of activity in coastal areas was detected June-August 2024 in Pierhead cameras and reports from fishers, but this occurred at a time when partners and key AIG staff were off-island and unable to capture individuals for sampling. Assay kits for blood metabolites and hormones, which we planned to use for reproductive and condition studies of captured sharks for inshore/offshore areas have also yielded inconsistent and unrepeatable results for samples collect up to April 2024. As such, it has not been possible to generate reliable results for completing these planned activities. We have therefore decided to use strongly repeatable results from stable isotope assays to track dietary changes and plan to invest remaining project budget for sample analysis to strengthening this dataset. A change request outlining this proposed change will be submitted to Darwin shortly.

Collection of timelapse imagery from shore-based locations has been hampered by recurrent firmware and WIFI connectivity issues with the commercial time lapse controllers (CamDo UpBlink) purchased for the project. These issues persisted in a replacement provided by the manufacturer and have been traced back to a known technical fault with the latest batch of controllers. Additional replacements are now on order under warranty, but these issues have resulted in gaps in our monitoring timeseries of inshore shark activity.

3. Have any of these issues been discussed with NIRAS and if so, have changes been made to the original agreement?

Discussed with NIRAS:	No
Formal Change Request submitted:	No
Received confirmation of change acceptance:	No

Change Request reference if known: *If you submitted a financial Change Request, you can find the reference in the email from NIRAS confirming the outcome*

4a. Please confirm your actual spend in this financial year to date (i.e. from 1 April 2024 – 30 September 2024)

Actual spend:

4b. Do you currently expect to have any significant (e.g. more than £5,000) underspend in your budget for this financial year (ending 31 March 2025)?

Yes ☐ **No** ☒

4c. If you expect and underspend, then you should consider your project budget needs carefully. Please remember that any funds agreed for this financial year are only available to the project in this financial year.

If you anticipate a significant underspend because of justifiable changes within the project, please submit a re-budget Change Request as soon as possible. There is no guarantee that Defra will agree a re-budget so please ensure you have enough time to make appropriate changes to your project if necessary. Please DO NOT send these in the same email as your report.

NB: if you expect an underspend, do not claim anything more than you expect to spend this financial year.
5. Are there any other issues you wish to raise relating to the project or to BCF management, monitoring, or financial procedures?

6. Please use this section to respond to any feedback provided when your project was confirmed, or from your most recent annual report. If your project was subject to an Overseas Security and Justice Assistance assessment please use this space to comment on any changes to international human rights risks, and to address any additional mitigations outlined in your offer letters. Please provide the comment and then your response. If you have already provided a response, please confirm when.
No comments requiring responses in this Half Year Report were raised in the last annual review

Checklist for submission

For New Projects (i.e. starting after 1st April 2024)	
Have you **responded to any additional feedback** (other than caveats) received in the letter you received to say your application was successful which requested response at HYR (including safeguarding points)? You should respond in section 6, annexes other requested materials as appropriate.	
If not already submitted, have you attached your **risk register**?	
For Existing Projects (i.e. started before 1st April 2024)	
Have you responded to **feedback from your latest Annual Report Review?** You should respond in section 6, annexes other requested materials as appropriate.	
For All Projects	
Include your **project reference** in the subject line of submission email.	
Submit to **BCFs-Report@niras.com**.	
Have you **clearly highlighted any confidential information** within the report that you do not wish to be shared on our website?	
Have you reported against the most **up to date information for your project?**	
Please ensure claim forms and other communications for your project are not included with this report.	