Darwin Plus:
Overseas Territories Environment and Climate Fund
Annual Report

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

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

Submission Deadline: 30th April 2023

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

Darwin Plus Project Information

Project reference	DPLUS161
Project title	Exploring the drivers of human-shark conflict at Ascension Island
Territory(ies)	UKOT(s)
Lead Partner	University of Exeter
Project partner(s)	University of Exeter, University of Windsor, University of Plymouth, Zoological Society of London, Ascension Island Government
Darwin Plus grant value	£285,415.00
Start/end dates of project	October 2022 – September 2024
Reporting period (e.g. Apr 2022-Mar 2023) and number (e.g. Annual Report 1, 2)	Annual Report 1 (October 2022 – March 2023).
Project Leader name	Dr Sam Weber
Project website/blog/social media	N/A
Report author(s) and date	Daniel Simpson, Sam Weber, Tiffany Simpson, Nigel Hussey, David Curnick (9th May 2023)

1. Project summary

Ascension Island is surrounded by one of the world's largest marine protected areas (MPAs), which aims to conserve biodiversity while simultaneously contributing to the social and economic wellbeing of the Island's human population. Recently, however, an increasing number of Galapagos sharks in shallow coastal waters has created significant conflicts with ocean users, including fishers, swimmers and divers. The disruption to Island life has led some to call for a cull, posing a significant test of Ascension's MPA and strict shark protection laws. At present, however, the causes of the recent increase in shark activity are unknown, which is fuelling speculation and concern. This project aims to provide reliable evidence to Government and stakeholders by undertaking a rigorous, scientific investigation into the socio-ecological drivers of human-shark conflict at Ascension Island. The project will characterise the nature and extent of human-shark interactions; explore underlying ecological drivers; and conduct experimental trials and feasibility studies of conflict reduction measures. Results will be shared with the community to foster a deeper understanding of shark ecology and will feed into ongoing public consultations led by AIG to find evidence-based solutions for resolving human-shark conflicts.

2. Project stakeholders/partners

This project involves five formal partners (Ascension Island Government Conservation and Fisheries Directorate, University of Exeter, University of Windsor, University of Plymouth, Zoological Society of London) and a large and diverse stakeholder group of local marine users and policy makers. The formal partners have worked collaboratively on all stages of project planning and implementation, from application writing to fieldwork. The need for the project was originally identified AIGCFD who then worked alongside other partners to develop a set of outputs that are relevant to local needs. Project partners have met at least monthly during Y1 to plan fieldwork and monitor and evaluate progress, facilitated by a SharePoint page for sharing documents and datasets. Decisions are made collectively by the project core team based on a discussion of the technical, logistical, and social aspects of each work package, but generally deferring to the greater local knowledge of AIGCFD on matters where there is a risk of community conflict. For example, the social science aspects of the project (Output 1) are particularly sensitive and there are ongoing discussions between AIGCFD and other partners on how to frame this in a way that generates useful results but does not enflame tensions around human-shark interactions (see Section 3).

Between 18th Feb - 19th March 2023, representatives from three project partners (UoE, UoW and ZSL) took part in a 5-week field expedition to train the local Project Officer, tag sharks, and deploy tracking and oceanographic equipment, supported by detailed training videos prepared by UoP. The Y1 field expedition also provided a focal point for engaging with a wider range of local stakeholders on Ascension Island. This included a public meeting to explain project goals, showcase equipment and take questions, as well as dedicated meetings with key marine stakeholders (Fisherman's Association & Administrator's Office) to build mutual understanding and discuss areas of potential conflict and collaboration. A session was also organised with the Ascension MPA youth committee, which included a presentation on sharks from one of the visiting researchers followed by a series of activities exploring attitudes towards sharks (**Annex 4.1**).

A particular strength of this project to date is the extent to which stakeholders have been actively involved in project design. For instance, the deployment of submerged scientific moorings as part of Output 2 has the potential to create an obstruction and navigation hazard for other marine users (shipping, fishers, divers). Following an extensive consultation on the depth and location of these moorings with representatives from these groups (Fisherman's Association, Harbour Mistress, dive clubs) the array was redesigned to achieve project goals while avoiding potential conflict areas. Similarly, the deployment of time-lapse cameras to monitor inshore shark activity also has the potential to create conflict with rock fishers and bathers due to privacy and surveillance concerns. A public consultation on the location of these cameras is currently ongoing (**Annex 4.2**). While this consultative approach has delayed the start of some outputs, it is appropriate to ensure that the project does not exacerbate the very conflicts it is trying to address.

3. Project progress

3.1 Progress in carrying out project Activities

Output 1: 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 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.

Outputs 1.1 to 1.3 have been postponed until Y2 at the request of AIGCFD due to conflicting conservation priorities on Ascension Island. The first round of stakeholder interviews and questionnaires were originally scheduled to take place during the Y1 partner field expedition. However, due to the limited availability of partners and infrequent flights to Ascension, the only available dates for this expedition in Y1Q4 coincided with a major inshore fisheries review and public consultation on Ascension Island which had been several years in the planning. Senior management in AIGCFD felt that carrying out social research on the drivers of human-shark conflict, involving interviews and questionnaires with many of the same stakeholders, would be an unhelpful distraction during what could be a potentially charged time. Following discussions among all partners, it was agreed that the social science outputs should be delayed until the earliest possible convenience in Y2. Social science specialists from ZSL have been in discussions with the other members of the project team regarding a plan to reschedule their visit once regular flights from the UK resume in May 2023. This short delay will also give time to agree on the content of the social research which has been a subject of considerable discussion between the project core partners. A key consideration is that the way semi-structured interviews and questionnaires are framed does not reignite or exacerbate tensions between sectors of the community in how to respond to shark conflicts. Although the formal aspects Outputs 1.1-1.3 have been postponed, the Y1 field expedition and a separate visit by one of ZSL social science leads in Y1Q3 were used to informally discuss matters with members of the community, acting as a useful precursor for subsequent social science surveys in Y2.

1.4 Gather data on catch depredation rates working in collaboration with local recreational and sports fishers.

Initial consultation with the Ascension Fishers Association has begun to generate interest in project and constructive conversations were held on obtaining catch depredation data from members during the Y1 partner expedition. However, a formal mechanism by which to report and receive this data has not yet been agreed. Although a system of voluntary logbook recording is already in place for inshore recreational and sports fishers, uptake has been low and the reliability of the data returned is questionable. A major barrier to obtaining reliable catch data is a deep-rooted suspicion among fishers in how this data will be used and acted on by the authorities. Consequently, allying collection of catch depredation data to existing reporting schemes may not yield the desired results. The project board are currently discussing alternative options for obtaining reliable data on fisher-shark interactions, including social media "mining" and anonymous reporting channels.

Output 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.

Camera installation at nominated locations (Pierhead and bathing beaches) has required an extended period of stakeholder consultation due to the presence of sensitive military installations and public privacy concerns, which has delayed the start of this activity. This process has now been completed for the first camera installation at the Pierhead, and image capture will commence in April 2023 (Q1 Y2). The Pierhead camera consists of a mains-powered CCTV system that includes a live feed of the field of view to help allay stakeholder privacy concerns (**Annex 4.1**). At remaining monitoring sites (bathing beaches), the lack of mains power necessitates the use of standalone solar powered time-lapse assemblies. A suitable unit has been sourced to trial at one beach location (https://cam-do.com/products/time-lapse-packs), with an additional unit to follow if field trials prove successful. Installation of camera 2 (Comfortless Cove) is still progressing through the consultation phase (**Annex 4.2**), which is expected to be completed by 12th May 2023.

2.2 Analyse time-lapse imagery to quantify relative shark abundance and validate results generated from online citizen science platforms.

Due to delays in camera installation caused by public consultation, data collection did not begin until Q1Y2. A monitoring schedule has now been established to download and analyse images collected from the first camera installation, with the second camera expected to be operational in May 2023.

2.3 Deploy passive acoustic telemetry array and oceanographic moorings.

This activity has now been completed. Following extensive consultation with local marine stakeholders (see Section 2), a passive acoustic telemetry and oceanographic monitoring array consisting of 29 telemetry receivers (**Annex 4.3**) and 3 oceanographic moorings (**Annex 4.4**) was deployed in March 2023 (Y1Q4). The telemetry array provides good coverage of the entire coastal shelf of Ascension Island from the nearshore (< 15m) to the 100 m isobath (**Annex 4.5**), which encompasses the expected core distribution of Galapagos sharks based on previous satellite tracking data.

2.4 Deploy acoustic telemetry tags on Galapagos sharks.

During the Y1 field expedition in Feb-March 2023 (Y1Q4), a total of 34 sharks were tagged with internally-implanted acoustic tags (**Annex 4.6**). This included 27 Galapagos sharks and 7 silky sharks with sizes ranging from 105 – 182 cm fork length. Although silky sharks were not the original target of the study, their unexpectedly high abundance in mixed-species aggregations with Galapagos sharks means that their role in shark-fisher conflicts around Ascension cannot be excluded. A decision was therefore taken to tag individuals from both species to compare behaviours. Sample sizes achieved during the first expedition were largely constrained by availability of sharks (see Sections 3.4 & 10), and will be supplemented during follow-up trips in Y2 to fill demographic gaps (e.g. large adults) and tag individuals involved in any large-scale inshore movements.

2.5 Carry out monthly physiological, morphological and reproductive assessments of Galapagos sharks to assess spatiotemporal variation in body condition and breeding status.

Monthly blood sampling and assessments of shark morphology (girth/length) commenced during the field expedition in February-March 2023 (Y1Q4) and will be continued throughout Y2 by the local AIGCFD Project Officer who received full training from visiting partners. To date, 68 morphological measurements and 12 blood samples have been obtained, with an aspirational sample size of at least 10 individuals per month. A portable ultrasonography unit for direct verification of shark pregnancy status has been purchased and delivered to AIGCFD; however, the lack of adult females encountered during the Y1 field expedition prevented any field trials (see Sections 3.4 & 10). Future tests are planned once the location of adult females is known.

2.6 Analyse ecological and oceanographic data to explain any observed variation in inshore shark activity (2.2) and rates of catch depredation (1.4).

This activity is not scheduled to commence until Y2 Q4 once acoustic telemetry and oceanographic moorings are retrieved to download data. However, detections of tagged sharks are being downloaded remotely from receivers on an approximately monthly basis and will be communicated to the public as part of regular updates on shark activity and distributions.

***2.7 Report and publish the findings of applied shark research*.**

Scheduled to commence in Y2.

Output 3: 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 camera trials of electronic deterrent devices to assess their effectiveness in repelling Galapagos sharks.

Two different shark deterrent devices have been purchased (FishTek SharkGuard and Ocean Guardian FISH series) and delivered to AIGCFD. Preliminary trials were carried out during the Y1 field expedition (Y1Q4) to design an underwater videography rig capable of measuring behavioural responses of Galapagos sharks to these devices. The rig consisted of a modified baited remote underwater video system (BRUVS) with a pair of stereo cameras that allow approach distances and interactions with a bait stimulus to be recorded and quantified in the presence or absence of a deterrent (**Annex 4.7**). Several interactions were recorded, both with and without deterrents; however, the results were inconclusive and further discussions with the manufacturers are needed to understand the functioning and capabilities of the devices used. More intensive experimental trials are planned for Y2 Q1-Q2 based on the outcome of these meetings.

3.2 Deploy electronic deterrent devices on fishing vessels to establish their effectiveness at reducing catch depredation relative to experimental controls.

There is no progress on this activity to report from Y1. The movement of sharks away from inshore areas during the first six months of the project and the resulting decrease in fisheries catch depredation mean there is currently no motivation for fishers to engage in these trials. Feedback from meetings held with the Ascension Fishers Association in February 2023 was that members would be very interested in participating in trials of deterrent devices should catch depredation become a problem again; however, concerns that gear-mounted devices might reduce catch rates of target species is currently a disincentive.

3.3 Produce fully-costed designs and associated environmental impact assessments for shark barriers at bathing beaches, engaging with manufacturers and local marine users.

Bespoke designs and quotes have been received from two of the major suppliers of physical shark barriers located in South Africa and Australia based on information and designs supplier by the AIGCFD Project Officer (**Annex 5**). These proposals will now be incorporated into costed feasibility studies based on ongoing servicing requirements and a broader ecological impact assessment.

3.4. Analyse and report the results of field trials of shark deterrents.

Not scheduled until Y2, once deterrent trials can take place (see 3.3. and 3.4)

Output 4: The results of social and ecological research are openly shared and discussed with 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.

A public meeting was held on Thursday 9th March 2023 in which AIGCFD Project Officer and project partners outlined the objectives of the work, showcased equipment and methods, and answered questions from members of the community (**Annex 4.9**). The meeting was attended by 12 people and discussed placement of scientific moorings, shark ecology and opportunities for community involvement. In addition to the public event, dedicated meetings were also held with representatives from key stakeholder groups. This included:

- A meeting with the secretariat of the Ascension Fishers Association (ASFA) to discuss potential impacts of the work on fishers (e.g. mooring locations) and opportunities for volunteer involvement in project activities.
- A meeting with the Ascension Island Administrator (FCDO) to discuss the permissions and permits required, as well as how best to engage local stakeholders prior to beginning the research.
- A session at Two Boats School for the Ascension MPA youth committee (19 persons aged 10 - 16), which included a presentation on sharks from one of the visiting researchers followed by a series of activities exploring attitudes towards sharks (see **Annex 4.10**).

4.2 Disseminate and promote project activities and outputs through a range of online and print media.

Project aims and activities have been promoted through 17 posts on AIGCFD's official social media channel (**Table 1**) and 6 local newspaper articles (**Annex 4.11**). A public display board has been erected at the Pierhead adjacent to the live video feed for the first inshore shark monitoring camera (**Annex 4.1**) and is used to post hard copy updates of project findings. Information relevant to particular stakeholder groups has also been disseminated by direct email communication as part of public consultations on locations of scientific moorings and monitoring cameras.

Table 1. Summary of AIG social media activity promoting the project and referencing Darwin Plus funding:

Platform	***Posts***	***Likes***	***Shares***
Twitter	7	205	38
AIG Conservation Facebook account	1	135	12

Ascension MPA Facebook account	5	107	9
Ascension MPA Instagram	4	154	18

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.

No action to report in this reporting period. Scheduled to commence in Y2

4.4 Produce a non-technical report summarising project findings and setting out recommendations for mitigating human-shark conflicts.

No action to report in this reporting period. Scheduled to commence in Y3.

3.2 Progress towards project Outputs

Output 1. 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.

As described in Section 3.1, we have made limited progress on this output due to conflicting conservation priorities on Ascension Island which postponed a planned visit by ZSL social scientists in Y1Q4. We are currently working to reschedule this visit to Y2Q1 or Y2Q2 once regular civilian flights to Ascension from the UK resume in May 2023. The unavoidable delay in gathering baseline community interviews and questionnaires will require a subtle change in the goals of this output (e.g. it will be more difficult to assess attitudinal change as a direct result of the project). However, the core objective of understanding the social context of human-shark conflict remains unchanged. Extensive stakeholder consultation conducted during Y1 has also helped to ensure that local views are incorporated in study design (see Section 2).

Output 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.

A key objective of the project is to better understand drivers of shark behaviour at Ascension Island, which was previously lacking. Although it is still too early to test hypotheses on factors influencing shark movements, much of the enabling research infrastructure has now been established and progress against indicators is well advanced. One of three inshore shark monitoring cameras is now operational with a second site due to be installed shortly pending the result of a public consultation; 34 of the 50 sharks targeted in the project proposal have been acoustically tagged and an extensive hydrophone array has been established on Ascension's coastal shelf to track their movements (**Annex 4.2-4.6**); a local project officer has been trained in shark sampling methodologies with 12 blood samples and morphological measurements collected to date for assessing nutritional condition; and three oceanographic moorings have been established to monitor changes in nearshore oceanography. Although formal analysis of the factors affecting movements of tagged sharks cannot take place until receivers and oceanographic moorings are recovered in Y2Q4, remote downloads of summarised detections are currently being carried out on a monthly basis and will be communicated to the public as part of routine project updates. One important development that has occurred since the start of the project is the disappearance of sharks from coastal areas where they were previously abundant, prompting speculation that they may have dispersed away from the island. However, during the Y1Q4 field expedition, a very large shark aggregation (estimated at thousands of individuals) was located off Ascension's remote southern coast, including individuals tagged by AIGCFD in inshore areas. This early finding was shared with the community at the public meeting and in accompanying social media posts and is already providing insights into the spatial dynamics of Galapagos sharks around Ascension. However, our ability to assess factors contributing to human-shark conflict will depend on sharks returning to inshore areas used by people and we are continuing to monitor this situation carefully (see Section 3.4 and **Annex 6 - Risk Register**).

Output 3. Field trials and fully costed feasibility studies of non-lethal conflict reduction measures are undertaken to assess their viability on Ascension Island

Some progress has been made on this output. Two models of electronic shark deterrent have been sourced and delivered to Ascension Island and preliminary trials have been carried out to develop a standardised protocol for testing these using a modified baited remote underwater video system (**Annex 4.7**). However, these trials are at an early stage and have not been sufficiently replicated to enable testing of the efficacy of devices in deterring Galapagos sharks. The low level of catch depredation during the first 6 months of the project have also discouraged local fishers from engaging in experimental trials on fishing gear. Further trials will take place during Y2 and we remain confident that robust assessments of behavioural responses of Galapagos sharks to deterrents can be made as a minimum. Progress on feasibility systems shark barrier systems for beaches is more advanced, with proposals already obtained from two suppliers (**Annex 5**). These will be refined during Y2 to an include an assessment of wider impacts on biodiversity and other marine users.

Output 4 The results of social and ecological research are openly shared and discussed with the Ascension Island community and are used to assess the suitability of a range of mitigation options for ameliorating human-shark conflicts.

The project is currently at too early a stage to disseminate the findings of research; however, a concerted effort has been made to engage the community in the goals, planning and implementation of the work in Y1 through a public meeting and youth committee event, 17 social media posts, 6 local newspaper articles, and consultation with key stakeholder groups. Feedback from stakeholders has already been incorporated into project design through adjustments to the placement of shark monitoring cameras and scientific moorings and we will continue to apply the same transparent and consultative approach across subsequent phases of the work.

3.3 Progress towards the project Outcome

Outcome *The underlying socio-ecological drivers of, and potential solutions to, human-shark conflict on Ascension Island are better understood and form the basis of evidence-based management recommendations.*

The project is still in the early stages of implementation. Nevertheless, several of the steps needed to achieve the outcome-level indicators have been taken. The deployment of monitoring cameras, telemetry tags, tracking receivers and oceanographic moorings in Y1, along with training delivered to local project officer to enable long-term sampling, all represent meaningful steps towards the goal of evaluating credible hypotheses proposed to explain recent increases in inshore shark activity (Indictor 0.1). Work on developing evidence-based management recommendations is less advanced; however, two electronic deterrent devices have been sourced and trialled and preliminary quotes obtained for two shark barrier systems, representing measurable progress towards Indictor 0.2 (conduct experimental trials and/or costed feasibility studies of at least four different non-lethal conflict reduction measures). Indicator 0.3 depends upon synthesis of other outputs and no additional progress to report on for this period.

A key challenge to achieving Indicators 0.1 and 0.2, and hence the project outcome, within the funding period is the change in shark distribution that has occurred since the inception of this project. Where there were previously large numbers of sharks concentrated in inshore areas, shark activity is currently highly restricted to a single aggregation on the less visited southern coast of the island. Inshore movements have occurred periodically over the past 5 years, and it is possible that this latest shift represents part of a longer-term cycle of movement. However, our ability to assess drivers of human-shark conflict and to engage fishers in tests of mitigation options will depend on one or more recurrences of the large-scale incursions observed over recent years. We are continuing to monitor this situation and will revaluate our approach and objectives depending on changes in shark activity observed throughout Y2.

3.4 Monitoring of assumptions

Outcome Assumptions

0.1 Inshore shark activity varies during the study and sufficient data can be collected to test each hypothesis.

Comments: As described in section 3.3, since the start of the project, shark activity appears to have been highly concentrated in more remote areas to the south of the Island, with no inshore activity reported in key conflict areas frequented by people. This distribution may change again, and the research infrastructure is now in place to detect it if it does; however, it is not a situation we can influence. We will continue to monitor the situation carefully and work with Darwin to adapt our goals if inshore activity does not resume within the funding period.

0.2 Assumes that local fishers and manufacturers of shark barriers and deterrents engage in the project (see Output specific assumptions).

Comments: While the Fishers' Association have indicated that members are in theory interested in participating in trials of deterrent devices, uptake will depend on a resumption of high levels of catch depredation (see assumption 0.2). We will continue to maintain a dialogue with the ASFA so we are in a position to rapidly implement trials if and when catch predation becomes problematic again. In the interim we will focus on completing planned filmed behavioural trials which are not dependent on fisher involvement. Manufacturers of shark barriers have so far engaged with feasibility studies, with two of four suppliers approached responding with a quote.

0.3 Drivers of recent increases in shark activity can be confidently identified within the timeframe of the project.

Comments: Depends heavily on assumption 0.1. As outlined in the original logframe, even if this assumption is not met, a range of management options can still be assessed based on international best practice and tests of common conflict reduction measures carried out during the project. Shark behavioural studies are also likely to reveal a range of factors influencing distributions, even if these do not result in a repeat of large-scale incursions observed over the past 5 years.

Output Assumptions

1.1-1.2 People engage with the project and are willing to participate in interviews and questionnaires.

Comments: As described in Section 3.1, social research elements of the project have been postponed to Y2 at the request of AIG so it is not yet possible to evaluate this assumption.

1.3 Assumes that fishers are willing to participate and reliably record and report logbook data.

Comments: As described in Section 3.1, AIG are currently in the process of reforming their inshore fisheries management and have introduced voluntary logbooks; however, uptake has been low, in part due to a suspicion on how such data will be used. If reliable data on catch depredation cannot be obtained through logbooks we will alternative, working with individual vessels who (e.g. military recreational vessels) alternative, social media activity.

2.1 Permissions can be obtained and suitable locations can be found for securely mounting monitoring cameras.

Comments: Suitable locations have been determined for cameras at the Pierhead and Comfortless Cove and permissions have been granted from the Ascension Administrator, subject to conclusion of a public consultation for the latter.

2.2-2.4 A suitable research vessel is available for the duration of the project.

Comments: This assumption has held for Y1. AIG Conservation's 8.0m RIB is available for routine research activities and AIG Operations approved the use of a container barge for the deployment of moorings to hold large items of scientific equipment.

2.2 - 2.3 Sufficient sharks can be captured for tagging and sampling.

Comments: The number of sharks observed around the inshore areas has decreased significantly over the past 6 months which has reduced the availability of individuals for tagging and sampling. A large mixed-species aggregation has since been identified on the southern coast of the island which has provided sufficient animals to meet project goals to date. However, access to sufficient sharks to meet monthly sampling targets remains an ongoing risk. The aggregation is located in an exposed area on the windward side of the island, meaning access is highly weather-dependent, and its continued presence is uncertain. The aggregation also consists primarily of juveniles and sub-adults, meaning key demographics of larger, adult individuals are currently missing from tagging and sampling datasets. Now that time-sensitive tagging targets have been largely met, the team plan to expand range of locations visited to determine if additional aggregations can be located in more accessible parts of the island.

2.4. Instruments do not malfunction or are lost.

Comments: This assumption cannot be tested until equipment is recovered following 6-12 months deployment.

3.1-3.2 Local fishers agree to participate in trials of shark deterrents and manufacturers of barrier systems respond with quotes and technical specifications.

Comments: See Output-level indicator 0.2.

4.1 The Ascension Island community are sufficiently engaged in the project to attend meetings.

Comments: A first public meeting was advertised and held in Y1 to introduce the project and showcase some of the equipment to be used. However, attendance was low (13 persons), which is not unusual for conservation themed public meetings. Information has been disseminated through the community through other means including public notices, stakeholder mailing lists (e.g. Ascension Fishers' Association), local newspaper articles, and social media to ensure that messaging reaches as many groups as possible.

4.2 Participants in baseline surveys are willing to participate in follow-up interviews.

Comments: Follow-up interviews are not scheduled until Y2 so it is not yet possible to evaluate this assumption. As noted in Section 3.1, the unavoidable postponement of baseline surveys until Y2 will limit our ability to assess attitudinal changes resulting from the project, so the utility of follow-up interviews will need reassessing once the parameters of social research have been agreed among all partners.

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

The project is still at too early a stage to demonstrate measurable benefits for biodiversity conservation in the UKOTs. However, as described and evidenced in Section 3, several important steps have been taken towards the overall objective of understanding socio-ecological drivers of, and finding solutions for, human-shark conflict on Ascension Island. This objective is well aligned with strategic objectives 1 & 2 of the Ascension MPA Management Plan ("Conserving Ascension Island's marine biodiversity…" and "Supporting the sustainable development of social and economic activities") which are conflicted by negative interactions between sharks and human ocean users such as fishers, divers, and bathers. The project is also contributing to research priorities identified in the Ascension Island MPA Research, Monitoring and Evaluation Strategy, including…

Internationally, the project contributes to meeting AIG's commitments under the draft Post 2020 Global Biodiversity Framework, specifically Target 4 (managing human-wildlife conflict), Target 9 (ensuring livelihoods of local communities), and Target 14 (integrating biodiversity values). The project also supports the recently adopted IUCN Resolution relating to human-wildlife conflict,

which recognises the challenges of balancing public safety and wildlife's needs and calls for holistic responses "…*supported by the best-available information and systematically collected and credible evidence*;" which is core to the proposed project.

5. Gender equality and social inclusion

This project aims to achieve equitable outcomes for all participants and stakeholders. There are known gender biases in the fishing community, with men being the more dominant gender participating in fishing activities and therefore possibly more engaged in human-shark conflict. However, the issue regarding shark interactions effects everyone. The project has taken a number of steps to ensure inclusivity in public consultations and messaging surrounding project activities, including the use of social media, public notices, and stakeholder forums (e.g. Fishers' Association) to reach sectors of the community that are unable to or are uncomfortable attending and speaking at public meetings. Opportunities for volunteering have also been fully inclusive and both men and women have been actively engaged in shark tagging and sampling activities.

Please quantify the proportion of women on the Project Board[1].	4 of 10 people on the project board are women (40%).
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[2].	AIGCFD has a senior leadership team of 100% women. Other partners have complex management hierarchies with woman at various levels, including in the most senior leadership roles, however named project leads from each organisation consist of all males.

6. Monitoring and evaluation

M&E in Y1 has been organised as per the original project application, involving weekly email updates from the Project Officer and (at least) monthly meetings between project partners to monitor progress, discuss emerging risks or milestones that have been missed, and adapt accordingly. Overall responsibility for M&E rests with the Project Leader (University of Exeter) and local Project Officer (AIGCFD) with any issues discussed between all partners at monthly meetings. A project SharePoint has also been established for sharing live versions of datasets, reports and other documents, which has greatly assisted in monitoring progress against monthly sampling targets. M&E during Y1 has focussed on monitoring progress against measurable indicators for Outputs 1-3 as the contribution of each of these to achieving the overall Outcome is explicit in the project's pathway to impact.

As discussed in Section 3, Output 1 (social research) has been postponed due to potential clashes with a major inshore fisheries consultation on Ascension Island, and much of the internal M&E output has focussed on finding a consensus on the most appropriate timing and format for planned activities. A dedicated meeting on this output was organised between AIGCFD and external partners in Y1Q4 and we are now close to finalising an approach.

All activities planned for Output 2 (shark ecology) in Y1 have either been completed or are close to completion based on the indicators in the logframe and progress against ongoing sampling targets is being monitored through the project SharePoint, weekly email updates from the Project Officer, and

[1] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[2] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

monthly team meetings. The quality of data received from the first two monitoring camera installations (Indicator 2.1) will be evaluated in Y2 before a third site is established.

Progress against Output 3 (conflict resolution approaches) is primarily measured through numbers of fishers engaged in trials of electronic deterrent devices and numbers of feasibility studies completed for shark barrier systems. As discussed in Section 3.1, a recent decrease in inshore shark activity and drop in fisheries catch depredation has willingness of fishers to engage in these trials. We are monitoring this situation continuously and have developed protocols and participant information for trials so that we are ready respond should shark activity peak again. Contingency plans have also been discussed by partners, including greater emphasis on filmed behavioural trials which are not dependent on fisher involvement.

7. Lessons learnt

Many of the technical lessons that the project stands to learn await the completion of Outputs 1-3 in Y2. However, at least two useful learning experiences can be reported. Firstly, low attendance at the first public meeting in Y1, even addressing an emotive issue like sharks, suggests that this format is unlikely to be an effective way to engage many sectors of the community. Instead, the project will continue to use diverse media and explore creative ways to maximise reach and inclusivity, including greater use of personal contacts and stakeholder networks like Fisherman's Association to recruit participants for social and fisheries research. Secondly, the highly consultative approach taken to project activities thus far has proven to be effective and appears, at least anecdotally, to have built a level of trust and mutual understanding between the project team and other stakeholders. We will continue to reinforce and build on this approach in subsequent phases of the work.

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

N/A (this is the first annual report for this project).

9. Risk Management

A new risk register has been created for this project and is appended to the Annual Report.

10. Other comments on progress not covered elsewhere

N/A

11. Sustainability and legacy

The Project's intended exit strategy, including a legacy of enhanced understanding of the socio-ecological drivers of human-shark conflict and evidenced recommendations for mitigating these, remains valid and achievable. The essential research infrastructure for monitoring shark movements and inshore activity around Ascension Island has been established and project partners have reiterated their commitment to maintaining this in the longer-term, including through a formal Memorandum of Understanding if possible. As part of the Y1 partner field expedition, local staff within AIGCFD have been trained in shark sampling and tagging techniques, leaving a legacy enhanced capacity for longer term research. During Y2, the project will increase effort in trialling and assessing the feasibility of non-lethal conflict mitigation measures, providing managers with a range of evidenced and costed solutions should human-shark conflict continue to affect community wellbeing and undermine support for conversation objectives.

12. Darwin Plus identity

The Darwin Initiative has been the principal external funder of conservation work on Ascension Island over the past decade and its identity and brand are already well known in the Territory. In the current project, the Darwin Initiative logo and/or acknowledgement of Darwin funding features prominently on presentations delivered at public meeting (**Annex 4.9**), public notices published in the local newspaper (**Annex 4.11**), updates in the local pier mounted public notice board and electronic correspondence distributed via social media posts (see Section 3.1, Table 1; **Annex 4.12**).

13. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been investigated in the past 12 months	No
Does your project have a Safeguarding focal point?	No (although a focal point will be nominated for human research commencing in Y2)
Has the focal point attended any formal training in the last 12 months?	N/A
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 70 % [7] Planned: 70 % [7]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? No safeguarding issues have been encountered during Y1 of the project.	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. Stakeholder interviews in Y2 of the project have the potential to present safeguarding issues, which will be fully addressed in institutional ethics permits for human research. Copies of relevant ethical approvals will be appended to the next annual report.	

14. Project expenditure

Table 1: Project expenditure during the reporting period (1 April 2022 – 31 March 2023)

Project spend (indicative) in this financial year	2022/23 D+ Grant (£)	2022/23 Total actual D+ Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs				
Consultancy costs				
Overhead Costs				
Travel and subsistence				
Operating Costs				
Capital items				
Others (Please specify)				
TOTAL	**129,475.00**	**123,589.33**		

Table 2: Project mobilising of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.		
Total additional finance mobilised by new activities building on evidence, best practices and project (£)		

Annex 1: Report of progress and achievements against logframe for Financial Year 2022-2023 – if applicable

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
Impact Evidence-based solutions are identified for an emerging human-wildlife conflict in one of the world's largest marine protected areas.		After 6 months of work, this project is still at too early a stage to demonstrate tangible benefits for biodiversity in Ascension Island. However, early progress against Outputs 1-3 has established the enabling conditions for developing evidence-based solutions human-shark conflict.	
Outcome *The underlying socio-ecological drivers of, and potential solutions to, human-shark conflict on Ascension Island are better understood and form the basis of evidence-based management recommendations.*	0.1 By Q4 of Y2, at least four credible hypotheses proposed to explain recent increases in inshore shark activity have been evaluated using empirical data. 0.2 By Q4 of Y2, experimental trials and/or costed feasibility studies of at least four different non-lethal conflict reduction measures have been undertaken that are specific to Galapagos sharks on Ascension Island. 0.3 By Q1 of Y3, available mitigation options are reviewed and presented to stakeholders, drawing on the findings of 0.1-0.2 together with experiences of managing similar human-wildlife conflicts elsewhere.	0.1 Much of the research infrastructure needed for testing hypotheses regarding shark movements has been established, including deployment of oceanographic and acoustic telemetry moorings encircling the island (*Annex 4.3-4.6*), installation of shore-based monitoring cameras (*Annex 4.1*), and training of local AIGCFD team to carry out routine sampling of sharks for physiological and reproduction studies. 0.2 Preliminary trials of electronic deterrent devices have been carried out using modified baited underwater video rigs to record shark interactions with a bait stimulus in the presence or absence of a deterrent (*Annex 4.7*). Initial quotes obtained for two physical shark barrier systems which will form the basis of feasibility studies. 0.3 No progress this reporting period	
Output 1. The social context of human shark conflict on Ascension Island is characterised through a process of inclusive stakeholder engagement, ensuring that local knowledge and	1.1 By Q3 of Y1, at least 40 persons representing different marine user groups, genders, age classes and nationalities have participated in semi structured interviews to gather baseline data on attitudes towards sharks, perceived causes of recent	1.1 – 1.2 Preliminary meetings held with AIGCFD managers to discuss the aims and scope of surveys/questionnaires. Informal conversations held between international partners and local stakeholders (fishers) to better understand the local context.	1.1 – 1.2 Reschedule visit for ZSL social scientists for Y2 Q2 when weekly civilian flights to Ascension resume. Finalise format and content of interviews and questionnaires.

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
views are duly represented in project design and implementation	activity spikes, and socially-desirable interventions. 1.2 By Q3 of Y1, at least 50% of the Ascension Island community have been invited to participate in an accessible online questionnaire to canvas public opinion on recent increases in shark activity. 1.3 By Q3 of Y1, at least three local fishers have been engaged in participatory research to gather data on the frequency and spatial distribution of catch depredation by sharks.	1.3 Meeting held with Ascension Fishers' Association and AIGCFD to discuss mechanisms for gathering data on catch depredation rates as part of wider catch reporting objectives.	1.3 Work with AIGCFD to overcome barriers to catch reporting, including pilot schemes involving more engaged members of the fishing community. Explore alternatives to official reporting systems, including social media analysis to detect spikes in public discourse surrounding fisher-shark conflict.
Activity 1.1 Design and deliver semi-structured interviews with representative stakeholder groups to better understand the human dimensions of conflicts.		See Output 1.1 – 1.2	See Output 1.1 – 1.2
Activity 1.2 Develop and promote a simplified online questionnaire to enable broader community participation in social research.		See Output 1.1 – 1.2	See Output 1.1 – 1.2
1.3 Analyse interview and questionnaire data to inform project design and produce attitudinal baselines for future comparisons.		See Output 1.1 – 1.2	See Output 1.1 – 1.2
1.4 Gather data on catch depredation rates working in collaboration with local recreational and sports fishers		See Output 1.3	See Output 1.3
Output 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	2.1 By Q3 of Y2, time lapse camera systems have been installed and used to monitor Galapagos shark activity at three sensitive coastal locations (including the Pierhead and major bathing beaches) over a minimum 12- month period.	2.1 Time lapse camera installed at the pierhead to monitor shark presence/absence during day and night periods (Annex 4.1). Other locations are still in the public consultation process (Annex 4.2) and are expected to be installed in May 2023 (Y2 Q1).	

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
recent increases in inshore activity.	2.2 By Q3 of Y2, an acoustic tracking array is established on the Ascension Island coastal shelf and is used to monitor the movements and depth use of at least 50 Galapagos sharks over a minimum 12-month period. 2.3 By Q3 of Y2, spatiotemporal variation in the body condition and reproductive status of Galapagos sharks is assessed over a 12-month period using blood biochemistry, morphology and/or ultrasound of at least 100 individuals sampled in inshore and offshore locations. 2.4 By Q3 of Y2, spatiotemporal variation in the physical oceanography of Ascension Island's coastal environment is monitored over a 12-month period and is related to Galapagos shark distribution, behaviour and life-stages present (3.4).	2.2 A total of 34 sharks (27 Galapagos and 7 silky) have been fitted with acoustic telemetry tags and are being tracked on an array consisting of 29 moored telemetry receivers located in coastal and offshore areas (Annex 4.3-4.6). 2.3 Local project officer has been trained in sampling methodologies and begun routine monthly sampling of sharks for assessment of physiological condition, with 1.5 months of data (12 individuals) collected to date. 2.4 Three fixed oceanographic moorings (comprising of temperature sensors and acoustic doppler current profilers) have been deployed on Ascension's coastal shelf and are recording high resolution temperature and current data across the 0–90 m depth range (depth range utilised by Galapagos sharks) (Annex 4.4-4.5)	
Activity 2.1 Install fixed-point, time-lapse camera assemblies for monitoring shark activity at key coastal locations.		Camera installation completed at first location (Pierhead; Annex 4.1). Second camera location (Comfortless cove bathing beach) is in public consultation process (Annex 4.2) with installation expected Y2Q1.	Install second camera system. Establish a third monitoring location pending the results of trials of camera systems purchased for initial sites.
Activity 2.2 Analyse time-lapse imagery to quantify relative shark abundance and validate results generated from online citizen science platforms.		No progress this reporting period	Begin collating and analysing time lapse footage from the first two monitoring locations.

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
2.3 Deploy passive acoustic telemetry array and oceanographic moorings.		Deployed 29 acoustic receivers and 3 oceanographic moorings around Ascension Island during month long expedition involving project partners.	Conduct monthly downloads of summarised shark detections from telemetry receivers. Retrieve, download, service and redeploy all moorings after 6-12 months.
2.4 Deploy acoustic telemetry tags on Galapagos sharks.		2.4 Deployed internal acoustic tags on 34 juvenile and sub-adult sharks (27 Galapagos and 7 silky).	Carry out additional tag deployments to fill demographic gaps in the study cohort (e.g. large adults).
2.5 Carry out monthly physiological, morphological and reproductive assessments of Galapagos sharks to assess spatiotemporal variation in body condition and breeding status.		2.5 Project officer trained in sampling methodologies; 12 individuals sampled to date over 1.5 months.	Continue routine sampling, with a goal of sampling a minimum of 10 individuals/month.
2.6 Analyse ecological and oceanographic data to explain any observed variation in inshore shark activity (2.2) and rates of catch depredation (1.4).		No progress this reporting period	Begin data analysis once moorings are retrieved in Y2Q4.
2.7 Report and publish the findings of applied shark research		No progress this reporting period	Begin data analysis once moorings are retrieved in Y2Q4.
Output 3. Field trials and fully costed feasibility studies of non-lethal conflict reduction measures are undertaken to assess their viability on Ascension Island.	3.1 By Q1 of Y2, experimental trials of at least two electronic 'shark deterrent' devices are carried out to establish their effectiveness in reducing negative interactions with fishing vessel. 3.2 By Q3 of Y2, feasibility studies of at least two 'shark barrier' systems are undertaken for Ascension Island's main bathing beaches, including fully costed installation and maintenance budgets, and an assessment of wider impacts on biodiversity and	3.1 Two models of electronic shark deterrent devices have been sourced and received by AIGCFD. Preliminary trials of deterrents carried out using stereo baited camera systems to measure behavioural responses to deterrents (Annex 4.7) 3.2 Initial designs/quotes obtained from two suppliers of bespoke shark barrier systems for bathing beaches at Ascension Island (Annex 5).	3.1 Scale up filmed experimental trials of deterrent devices. Initiate deployments on fishing vessels if/when high levels of catch depredation resumes. 3.2 Refine barrier designs and finalise quotes. Incorporate costings into feasibility studies in conjunction with ecological impact assessments and other considerations.

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
	other marine users (e.g. navigation hazards).		
Output 4. The results of social and ecological research are openly shared and discussed with the Ascension Island community and are used to assess the suitability of a range of mitigation options for ameliorating human-shark conflicts.	4.1. By the end of the project, at least two public meetings have been held (one in Y1 and one in Y2) to discuss and adapt research plans, and to disseminate findings. 4.2. By Q1 of Y3, at least 40 persons have participated in follow-up interviews to assess how public perceptions and attitudes towards sharks have changed as a result of project activities. 4.3. By Q1 of Y3 a report outlining potential mitigation options for emerging human-shark conflicts on Ascension Island is presented to stakeholders, including non-technical summaries of the key findings of social and ecological research.	4.1 A "kick-starter" public meeting was held in Y1Q4 to provide an opportunity for the community to meet the project partners and learn more about the aims and methodologies that will be used (Annex 4.9). A separate session was also organised for the MPA Youth Committee, including a presentation and shark-themed activities (Annex 4.10). 4.2 No progress this reporting period. 4.3 No progress this reporting period	
4.1 Hold public meetings on Ascension Island to present and discuss project plans and findings.		4.1 Public meeting held in Q4 of Y1 (Annex 4.9)	4.1. Arrange second public meeting in Y2 Q4 to update on findings.

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	Actions required/planned for next period
4.2 Disseminate and promote project activities and outputs through a range of online and print media.		4.2 A total of 17 social media posts and 6 local newspaper articles featuring project content have been produced to date (Annex 4.11-4.12). Hard copies of public information materials placed on the notice board installed at the Pierhead.	4.2 Continue to provide public updates on at least a monthly basis.
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.		4.3 No progress to report this period.	
4.4 Produce a non-technical report summarising project findings and setting out recommendations for mitigating human-shark conflicts		4.4 No progress to report this period.	

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	SMART Indicators	Means of verification	Important Assumptions
Impact: Evidence-based solutions are identified for an emerging human-wildlife conflict in one of the world's largest marine protected areas.			
Outcome: The underlying socio-ecological drivers of, and potential solutions to, human-shark conflict on Ascension Island are better understood and form the basis of evidence-based management recommendations.	0.1 By Q4 of Y2, at least four credible hypotheses proposed to explain recent increases in inshore shark activity have been evaluated using empirical data. 0.2 By Q4 of Y2, experimental trials and/or costed feasibility studies of at least four different non-lethal conflict reduction measures have been undertaken that are specific to Galapagos sharks on Ascension Island. 0.3 By Q1 of Y3, available mitigation options are reviewed and presented to stakeholders, drawing on the findings of 0.1-0.2 together with experiences of managing similar human-wildlife conflicts elsewhere.	0.1 Papers published in the peer-reviewed literature or in-press manuscripts; MSc theses. 0.2 Reports available on the AIG website; manuscripts for submission to peer-reviewed journals. 0.3 Reports available on the AIG website.	0.1 Assumes that inshore shark activity varies during the study and that sufficient data can be collected from Outputs 1-3 to test each hypothesis (see Output specific assumptions). 0.2 Assumes that local fishers and manufacturers of shark barriers and deterrents engage in the project (see Output specific assumptions). 0.3 Action to address underlying causes assumes that drivers of recent increases in shark activity can be confidently identified within the timeframe of the project. Even if this assumption is not met, a range of management options can still be assessed based on international best practice and tests of common conflict reduction measures carried out during the project.
Output 1 The social context of human-shark conflict on Ascension Island is	1.1 By Q3 of Y1, at least 40 persons representing different marine user groups, genders, age classes and	1.1 Fully anonymised datasets and disaggregated summary statistics	1.1 Assumes that people engage with the project and are willing to participate in interviews.

Project summary	SMART Indicators	Means of verification	Important Assumptions
characterised through a process of inclusive stakeholder engagement, ensuring that local knowledge and views are duly represented in project design and implementation.	nationalities have participated in semi-structured interviews to gather baseline data on attitudes towards sharks, perceived causes of recent activity spikes, and socially desirable interventions. 1.2 By Q3 of Y1, at least 50% of the Ascension Island community have been invited to participate in an accessible online questionnaire to canvas public opinion on recent increases in shark activity. 1.3 By Q3 of Y1, at least three local fishers have been engaged in participatory research to gather data on the frequency and spatial distribution of catch depredation by sharks .	available in project reports and databases held by AIGCFD. 1.2 Questionnaire available online; reach will be assessed through mailing lists used to distribute invitations relative to Ascension's known population size. 1.3 Catch depredation data in databases held by AIG and summarised in project reports	1.2 Assumes that people engage and complete the questionnaire. Participation in community surveys is often unpredictable on Ascension, so this indicator is based on the proportion of the community reached, rather than the expected number of respondents. 1.3 Assumes that fishers are willing to participate and reliably record and report logbook data.
Output 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 By Q3 of Y2, time lapse camera systems have been installed and used to monitor Galapagos shark activity at three sensitive coastal locations (including the Pierhead and major bathing beaches) over a minimum 12- month period. 2.2 By Q3 of Y2, an acoustic tracking array is established on the Ascension Island coastal shelf and	2.1 Time-lapse footage uploaded to online citizen science platforms (e.g. zoonopia.org); monitoring databases held by AIG; summarised findings in project reports and MSc theses. 2.2 Tag/receiver metadata and filtered detections entered in existing AIGCFD databases; papers	2.1 Assumes that necessary permissions can be obtained, and suitable locations can be found for securely mounting cameras. Also assumes that cameras do not malfunction and that sharks can be accurately enumerated in time-lapse images. 2.2-2.4 Assumes that a suitable research vessel is available for the

Project summary	SMART Indicators	Means of verification	Important Assumptions
	is used to monitor the movements and depth use of at least 50 Galapagos sharks over a minimum 12-month period. 2.3 By Q3 of Y2, spatiotemporal variation in the body condition and reproductive status of Galapagos sharks is assessed over a 12-month period using blood biochemistry, morphology and/or ultrasound of at least 100 individuals sampled in inshore and offshore locations. 2.4 By Q3 of Y2, spatiotemporal variation in the physical oceanography of Ascension Island's coastal environment is monitored over a 12-month period and is related to Galapagos shark distribution, behaviour, and life-stages present (3.4).	published in the peer reviewed literature or in-press manuscripts; MSc theses; project reports. 2.3-2.4 Papers published in the peer-reviewed literature or in press manuscripts; MSc theses; project reports made available on the Ascension Government website.	duration of the project. AIG have confirmed current vessel availability, which includes a level of redundancy in case individual assets require repair or maintenance; however, this remains a risk. 2.2 - 2.3 Assumes that sufficient sharks can be captured for tagging and sampling. Minimum sample sizes are based on experiences during previous shark tagging projects at Ascension Island and are likely to be achievable given current high levels of activity. 2.4. Assumes that instruments do not malfunction or are lost.
Output 3. Field trials and fully costed feasibility studies of non-lethal conflict reduction measures are undertaken to assess their viability on Ascension Island.	3.1 By Q1 of Y2, experimental trials of at least two electronic 'shark deterrent' devices are carried out to establish their effectiveness in reducing negative interactions with fishing vessel. 3.2 By Q3 of Y2, feasibility studies of at least two 'shark barrier'	3.1 Results of experimental trials presented in project reports and manuscripts for submission to peer-reviewed journals.3.2 Results of feasibility studies presented in project reports available on the AIG website.	3.1 Assumes that local fishers agree to participate in trials of shark deterrents. Given the impact of catch depredation on the fishing community and the desire to find solutions, we expect that this assumption will hold.

Project summary	SMART Indicators	Means of verification	Important Assumptions
	systems are undertaken for Ascension Island's main bathing beaches, including fully costed installation and maintenance budgets, and an assessment of wider impacts on biodiversity and other marine users (e.g. navigation hazards)		3.2 Assumes that manufacturers of barrier systems respond with quotes and technical specifications.
Output 4 The results of social and ecological research are openly shared and discussed with the Ascension Island community, and are used to assess the	4.1. By the end of the project, at least two public meetings have been held (one in Y1 and one in Y2) to discuss and adapt research plans, and to disseminate findings.	4.1 Promotional posters for public meetings; Powerpoint presentations; photographs and attendance figures. 4.2 Fully anonymised datasets and disaggregated summary statistics available in project reports and databases held by AIGCFD 4.3 Report presented to AIG and the Island Council and made publicly available online.	4.1 Assumes that the Ascension Island community are sufficiently engaged in the project to attend meetings. Given the high profile of this issue we are confident that this assumption will hold. 4.2 Assumes that participants in baseline surveys (Output 1.1) are willing to participate in follow-up interviews.

Annex 3: Standard Indicators

Table 1 Project Standard Indicators

DPLUS Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DPLUS Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DPLUS-A01	Number of people from key national and local stakeholders completing structured and relevant training	Members of AIG Conservation & Fisheries Directorate trained in shark tagging and sampling methodologies	People	Gender: 1M 1F Stakeholder: Public sector (2) Typology: Biodiversity (2)	2				1
DPLUS-A03	Number of local/national organisations with improved capability and capacity as a result of project	Number of local organisations with enhanced capacity to undertake applied research on sharks	Organisations		1				
DPLUS -C05	Number of projects contributing data, insights, and case studies to national Multilateral Environmental Agreements (MEAs) related reporting processes and calls for evidence.	Projects contributing data and insights relevant to the Post 2020 Global Biodiversity Framework Target 4 (managing human-wildlife conflict)	Projects	Typology: data and insights	1				
DPLUS-C15	Number of Media related activities.	Number of Media related activities.	Number	Social media (17) Local print media (6)	23				

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	X
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	X
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	X
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 15)?	
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	X
Do not include claim forms or other communications with this report.	