



Illegal Wildlife Trade (IWT) Challenge Fund Annual Report

To be completed with reference to the "Project Reporting Information Note":
(<https://iwt.challengefund.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 2024

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IWT Challenge Fund Project Information

Project reference	IWT116
Project title	Equipping southwest Indian Ocean countries to combat illegal shark trade
Country/ies	Mozambique and Tanzania
Lead Partner	Wildlife Conservation Society
Project partner(s)	<ul style="list-style-type: none"> • Oceanographic Institute of Mozambique (InOM) • Deep Sea Fishing Authority (DSFA), Tanzania • Dr Rima [REDACTED] • Dr Demian [REDACTED], Mote Marine Laboratory, United States • Stellenbosch University (SU), through Dr Aletta [REDACTED], South Africa
IWTFCF grant value	£579,920.00
Start/end dates of project	July 1, 2022 – December 31, 2024
Reporting period (e.g. April 2023-Mar 2024) and number (e.g. Annual Report 1, 2, 3)	Apr 2023-Mar 2024 (Annual report 2)
Project Leader name	Dr Rhett [REDACTED]
Project website/blog/social media	
Report author(s) and date	Dr Rhett [REDACTED] and Dave [REDACTED] (April 28, 2024), with contributions from project partner Dr Aletta [REDACTED]

1. Project summary

The project aims to improve government capacity in Mozambique and Tanzania for monitoring trade in shark and ray products and enforcing trade controls. Key activities include training of government staff for visual and molecular (genetic) identification of traded shark species, implementing improved resources for identification and monitoring, improving knowledge on trade and fisheries, and support to governments for policy improvement, which will ultimately lead to a reduction in illegal trade from these two focal countries.

The project is intended to improve capacity for monitoring and enforcement of trade controls, to reduce illegal trade in shark and ray products, which occurs throughout East Africa. However, government capacity to enforce trade controls is inadequate. The vast majority of shark and ray species that are traded are threatened (Vulnerable, Endangered or Critically Endangered),

largely because they are targets in this trade, hence the listing of many of these species on CITES appendices. After the start of this project, >100 additional shark and ray species were added to CITES Appendix II based on the threats of trade to their sustainability, of which 22 occur in Mozambique and Tanzania, thus increasing the number in these countries that require CITES trade controls and permits for legal trade. The project's expected long-term impact is to reduce mortality of these species, by reducing pressure on their populations caused by illegal and/or unsustainable trade, leading to sustainable populations and more sustainable fisheries. In the proposal we listed 5 species (2 Critically Endangered and 3 Endangered) likely to benefit through improved enforcement of trade controls, but many others will too.

All coastal fisher communities which rely on shark and ray products for their food and income are affected by illegal trade that targets sharks and rays for international markets, with consequent local population declines. Effective enforcement of (CITES) trade controls would prohibit trade in species that cannot be sustainably traded and allow only sustainable levels of trade in those species that are resilient and whose populations are healthy. The ultimate benefit will be healthier shark and ray populations that benefit small-scale fishers who depend on these species for food (i.e. local sale and local protein source) but not on international exports of animal parts (i.e. fins).

Training and equipping government staff for species identification, along with catch and trade surveys, are taking place in Mozambique and Tanzania. Samples for genetic analyses derive from these catch monitoring sites in both countries and opportunistically through customs confiscations. Genetic analyses and some genetic training have taken place in South Africa through the Elasmobranch Genetics Group at Stellenbosch University. We have also recently partnered with Bloom Association based in Hong Kong, the global hub for shark fin trade, to access detailed trade data on shark and ray products entering Hong Kong from East Africa.

2. Project stakeholders/ partners

Oceanographic Institute of Mozambique (InOM) – This partnership was based on InOM's request for WCS to support InOM with shark and ray conservation activities, as well as a long-standing working relationship between WCS and InOM. InOM participated in project planning by advising how WCS can support InOM in conducting training and capacity building activities. WCS has shared catch survey data from project Years 1 and 2 with InOM, along with recommendations for reduced mortality of threatened species in coastal fisheries. InOM has been more involved during Year 2, benefiting from two training workshops under this grant (a genetic sequencing training workshop in South Africa (Activity 1.5), and a workshop on the rapid genetic sequencer (Activity 1.4), focussing on genetic validation of species identification.

Tanzania Deep Sea Fishing Authority (DSFA) – This partnership was based on demand, with DSFA requesting assistance with shark and ray conservation activities and capacity building in Tanzania, and in particular support to improve the industrial fishery observer program. DSFA staff benefited from the species identification training workshops in August 2022 and March 2023; in Year 2, one DSFA technician attended the Zanzibar training workshop on the rapid genetic sequencer (Activity 1.4). In Year 2, through information provided by DSFA, a report was prepared by an external consultant, in consultation with WCS and DSFA, assessing the current status and needs of the observer program (Activity 3.1), along with an implementation strategy for improving this program (Activity 3.2 planned for Year 3), for discussion with DSFA in Year 3.

Dr Rima Jabado – WCS has partnered with Dr Jabado (Chair of the IUCN Shark Specialist Group) on several projects, as a global leader in shark and ray species identification training. Dr Jabado has revised the 2022 CITES shark/ray identification guides, which will be used for a CITES shark and ray species identification training workshop in Maputo in Year 3 (new Activity 1.2b). Dr Jabado and Dr Bennett met to discuss the implementation of the Year 3 workshop and translation (and adaptation to local species only) of the revised guides, during an opportunistic project planning meeting in New York, in March 2024.

Dr Demian Chapman – Dr Chapman (Mote Marine Laboratory) provided expertise on the use of a rapid genetic sequencer, intended to improve identification speed and accuracy of CITES-listed shark and ray products in trade. Ms Valerie Hagan, an experienced technician from Dr Chapman's laboratory, trained ten technicians from Mozambique and 13 from Tanzania, on the

use of the sequencer during two workshops in Maputo and two in Tanzania in October 2023 (Activity 1.4; Tanzanian activities outside of original project deliverables). Ms Hagan also installed a sequencer (through matched funding) in Mozambique at the Natural History Museum (Activity 1.3) and in Tanzania at the Department of Fisheries, Mainland Tanzania.

Stellenbosch University (SU), South Africa – The long-standing partnership between WCS and SU continued under this project, with the genetics component co-designed by Dr Aletta Bester-van der Merwe (lab manager of SU's Elasmobranch Genetics Group) and Dr Rhett Bennett (project PI at WCS). Through Years 1 and 2, the SU lab analysed (Activity 2.3) nearly 500 samples taken from sharks and rays landed in the coastal fisheries in Mozambique and Tanzania, or from confiscated fins, to validate species landed and traded. SU also trained four Mozambique technicians (two each from InOM and the Natural History Museum in Maputo) in genetic barcoding (Activity 1.5).

Involvement of other stakeholders

Mozambique

In Mozambique, we have formally engaged with the Natural History Museum (NHM) in Maputo, which is developing a biobank and growing their genetic laboratory capacity. The NHM also benefited from the two training workshops involving InOM (Activities 1.4 and 1.5), and formally took responsibility for housing and operation of the rapid genetic sequencer (Activity 1.3). The NHM is taking on a bigger role in “forensic” genetic work in Mozambique, to undertake barcoding in-country when unidentified specimens are intercepted in trade.

In May 2023, WCS engaged with the fishing community (Activity 4.1) and the Community Fishing Council of Zalala Beach, in Zambezia Province, Mozambique – an area known for extensive shark landings – through a series of targeted discussion groups and questionnaires. This was led by WCS Mozambique’s marine technician, Ms Naseeba Sidat (as part of her MSc at University of California Santa Cruz) and included representatives from the Centre for Marine Research and Technology (part of Eduardo Mondlane University), District Services of Economic Activities, and InOM.

Through the change request approved in January 2024, we shifted the training on the mobile phone communication platform (activity 1.7 originally for Year 2) to Year 3, and will incorporate further species identification training for the National Institute of Fish Inspection (INIP), the frontline organization for fishery inspections and detection of illegal products. Dr Jabado will train 25 INIP inspectors in July 2024, using new (2024) CITES shark and ray guides. Two INIP inspectors benefited from the rapid sequencer training in Maputo (Activity 1.4).

Tanzania

We responded to a request from the Tanzania Fisheries Research Institute (TAFIRI) in Year 2, as we did in Year 1, to help prepare a national response to a request for information from the CITES Secretariat pertaining to CITES-listed sharks and rays. The project also trained one TAFIRI representative during the rapid sequencer training in Dar es Salaam (Activity 1.4) and several TAFIRI representatives at the species identification workshops in Year 1 (Activity 1.2).

We also engaged with the Department of Fisheries under the Ministry of Livestock and Fisheries, of Mainland Tanzania, to train four of their staff on the use of the rapid sequencer (Activity 1.4), and to formally hand over (Activity 1.3) one of these machines to this agency for undertaking *in situ* genetic testing of unidentified sharks and rays in the trade.

Other areas

We engaged with Bloom Association, based in Hong Kong, to access all available import and seizure data from Hong Kong, Singapore, and Taiwan, for shark and ray products originating in Mozambique and Tanzania.

We also worked with the Biodiversity Enforcement division of the South African government Department of Forestry, Fisheries and the Environment, to provide support for visual and genetic (in partnership with SU, Activity 2.3) identification of species of sharks and rays from a large batch of confiscated fins at O.R. Tambo International Airport in Johannesburg, having originated in Mozambique.

We partnered with CapMarine (Capricorn Marine Consulting), a leading consultancy in southern Africa in terms of onboard observer training and monitoring programs, to develop the scoping study on Mozambique's and Tanzania's existing observer programs.

3. Project progress

3.1 Progress in carrying out project Activities

Under Output 1

Activities 1.1 and 1.2 were completed and reported on in Year 1. In addition (per the change request approved January 2024), we have allocated funding from Activity 1.7 to updated training of Mozambique inspectors (new Activity 1.2b in revised logframe) on shark and ray identification in Year 3, by Dr Jabado, using 2024 CITES shark/ray identification guides.

Activity 1.3 Rapid genetic sequencer for CITES listed shark/ray species is installed and operational in Mozambique. A rapid genetic sequencer was sourced (matched funds), and installed by Mote Marine Laboratory's technician, at the Natural History Museum (NHM) in Maputo, Mozambique, in October 2023. Additional to the original project plan, a second sequencer was sourced (matched funds) and installed at Tanzania's Department of Fisheries.

Activity 1.4 Government staff in Mozambique trained on use of rapid genetic sequencer. In October 2023, the Mote Marine Laboratory technician provided training on the rapid genetic sequencer to ten technical specialists (7 females, 3 males), two each from InOM, NHM, National Institute for Fish Inspection (INIP), UEM Biotechnology Center (CB-UEM), WCS. This included an awareness meeting, attended by 17 government representatives, and two two-day workshops, with five specialists trained during each (Annex 4.1). In addition, two two-day training workshops were held in Tanzania (one in Zanzibar and one in Mainland Tanzania), which were not included in the original proposal, during which 13 Tanzanian technicians (6 female, 7 male) were trained on the use of the sequencer. In total 23 technicians were trained across the two countries, 18 more than the number proposed in the original logframe indicator.

Activity 1.5 Government technicians from Mozambique trained in genetic barcoding for species identification. In July 2023, four technicians (3 female, 1 male), two each from InOM and NHM in Mozambique, attended a two-week genetic barcoding workshop at Stellenbosch University (SU), South Africa (Annex 4.2), provided by Dr Juliana [REDACTED] (postdoctoral fellow and lead laboratory technician) and Prof. Aletta [REDACTED] (Head of Department) in the SU Department of Genetics. Training included basic genetic processes, laboratory safety protocols, DNA extraction, and barcoding to identify species from unknown samples. The group worked on actual samples collected in Mozambique, thus contributing to the results under Activity 2.3. In total, four specialists were trained, twice the number proposed in the logframe indicator.

Activity 1.6 Mobile phone-based communication platform is developed and operational. In Tanzania, during species identification training, we trained fishery officials deployed at landing sites and researchers in Government institutions to support species identification. WCS created a WhatsApp group in Year 2, for data collectors, researchers, and WCS staff, and provide support to data collectors to identify species and take better photographs for identification. In Mozambique, this activity was shifted to Year 3 (per approved change request in January 2024). Conversations were conducted with a local NGO, Mozambique Wildlife Alliance, which assists the Government in enforcing laws related to illegal trade. INIP was identified as the appropriate government institution to collaborate with on this matter. INIP and WCS agreed on the next steps, including to create a WhatsApp group (for INIP inspectors and shark and ray identification specialists) to provide support in cases where identification on-site is not feasible.

Activity 1.7 Fisheries and inspection agents are trained on use of the mobile phone-based communication platform. In Year 2, WCS provided data collectors with phones and training on Kobo Toolbox, included them in the WhatsApp group, and helped identify a core team of data collectors and Government partners to pilot implementation at target sites. Since the training, we deployed 11 data collectors. In Year 3, we will engage customs agents and include them in the WhatsApp group. In Mozambique, this activity was moved to Year 3 (per approved change request in January 2024), when INIP will undergo training on shark and ray identification, from Dr Jabado. A protocol will be established outlining the procedure to follow when shark/ray products are seized and determining what samples should be sent to NHM for genetic analysis.

Following engagement with the Mozambique judiciary in Year 2, we will expand Activity 1.7 in Year 3 to include training on national and global policy for sharks and rays in Mozambique, for selected lawyers, prosecutors, and judges. This responds to a suggestion from a reviewer at proposal submission stage to engage the judiciary and helps ensure that knowledge of shark and ray policy is improved throughout the chain of authority, from inspectors to the judiciary.

Under Output 2

Activity 2.1 Coastal fishery catch surveys are conducted in each country to increase information on CITES and threatened shark/ ray species caught in coastal fisheries. Shark and ray catch surveys were planned for 5 sites per country and took place at 8 sites in Tanzania and 7 sites in Mozambique throughout Year 1, and 7 sites and 5 sites respectively during Year 2. Seven new sites were started in the Memba/Mossuril district in Mozambique in July 2023. Data collectors also collected tissue samples from selected species for genetic barcoding. Data are recorded on mobile phones using the KoboCollect app, and automatically uploaded to a database where WCS staff verify species identification. WCS cleaned and validated species for all data recorded up to the end of 2023. The Tanzania results (including aspects on ecology, species composition, fishing effort and gears, and seasonality of landings) formed part of a baseline assessment presented (Annex 4.3) to Tanzanian government institutions during development of the NPOA-Sharks, which DSFA is currently reviewing.

Activity 2.2 Trade surveys are conducted to improve knowledge on trade in shark/ ray products. WCS undertook questionnaire-based interviews with 48 shark/ ray/ fish traders (32 male, 16 female), in Tanzania in July-October 2023 and March-April 2024. In Mozambique (through matched funding), 70 individuals were interviewed (60 male, 10 female). In addition, in Mozambique, semi-structured and informal fisher interviews were conducted at one coastal fishery site in December 2023 (during community engagement activities) and returned extensive information on fisheries, auctions of landed products, product value chains, legal and illegal activities, and fisher perceptions of management. We intend to replicate that work in Year 3 at other landing sites where we currently conduct catch surveys, with funds reallocated from Year 2 catch surveys (per the approved January 2024 change request).

Activity 2.3 Genetic barcoding is conducted to improve knowledge of shark/ ray species in trade. WCS sent 1,245 shark and ray tissue samples from the coastal fisheries in Tanzania and Mozambique to SU for processing. A subset of ~400 samples were processed, of which 324 were successfully sequenced to confirm/validate the species being fished. Furthermore, in addition to the confiscation of fins in Mozambique in October 2022 (reported in Year 1), in December 2023, WCS worked with the NGO TRAFFIC and the South African Government's Biodiversity Enforcement division of the Department of Forestry, Fisheries and Environment, to identify species from a batch of ~660 fins, confiscated in South Africa. The fins originated in Mozambique and were destined for Hong Kong when intercepted. WCS systematically identified each fin visually to species level, where possible, and collected tissue samples of a subset for genetic analysis. Of the 668 individuals represented by the number of dorsal fins and pairs of pectoral fins, 85% were visually identified as wedgefishes and 5% as hammerhead sharks (all CITES-listed), and ~10% could not be identified. Of 128 samples genetically barcoded, degraded DNA resulted in successful sequencing of only a small proportion, but these were dominated (88%) by CITES-listed species. Overall, the information strongly confirms illegal exports of the fins of wedgefishes and hammerhead sharks from Mozambique. Pending government approval for dissemination, genetic sequences developed during this project will be submitted to online reference databases, contributing further to such monitoring.

Under Output 3

Activity 3.1 A scoping study with government agencies and commercial/ industrial fisheries companies is completed to understand needs and risks of developing and implementing an observer program. A detailed scoping study was undertaken, and a report prepared (Annex 4.4), on the status of commercial and industrial fishery observer programs in Mozambique and Tanzania, with notes on needs/shortfalls. The study was conducted in consultation with WCS and project partners InOM (Mozambique) and DSFA (Tanzania), by Capricorn Marine Consultants (CapMarine), who provide observer training for multiple countries in East Africa.

Activity 3.2 A strategy for implementing commercial/industrial scale data collection through observer programs is developed. CapMarine subsequently developed an implementation strategy (Annex 4.5) for improved observer programs in each country, based on the shortfalls and requirements for each, as identified in the scoping report. This deliverable was intended for completion in Year 3. The report and implementation strategy will be presented and discussed with the relevant government departments in each country, in Year 3.

Under Output 4, activities are scheduled to run until the end of Q3 of Year 3.

Activity 4.1 Engagement with local fishing communities to gain commitment to supporting and adhering to local fishery and trade regulations. In May 2023, we engaged with the President of Zalala Beach Community Fishing Council (CCP), Centre for Marine Research and Technology at Eduardo Mondlane University (CePTMar, 3 representatives), District Services of Economic Activities (SDAE, 3), InOM (2), WCS (1) and UCSC (1) (Annex 4.6). Objectives were to present the proposed project to gain community support, raise awareness on the importance of sharks and rays and the impact of overfishing of these animals on the livelihoods of Zalala fishers, and jointly identify the major threats to fisheries and fishery resources. There were discussions on shark and ray trade, and data collectors were trained on trade surveys. In August 2023, a second stakeholder workshop was held, including InOM (4 representatives), National Fisheries Administration (ADNAP, 1), academia (3), Zalala Beach CCP (1), WCS (2) and UCSC (1). A meeting with 45 community members from the Zalala CCP (with 8 women) followed, led by InOM and ADNAP with participation of WCS, UCSC and head of Police (Annex 4.7). Five focus groups (10 representatives each) followed, including women from the community involved in fisheries and trade, gillnet fishers, line fishers, beach seine fishers and traders. Objectives were to i) increase awareness of shark and ray importance and impacts on community fishers' livelihoods of shark and ray overfishing; ii) share results of shark and ray catch surveys in Mozambique and Zalala Beach with communities; iii) validate catch data and socio-economic drivers for shark fishing in Zalala Beach; and iv) gain understanding on the value of fishing to fisher livelihoods and wellbeing, community perceptions of management and conservation, and primary challenges community fishers face in terms of their livelihoods. We jointly identified potential solutions for sustainable fishing that safeguard the livelihoods of fishers and shark and ray populations (Annex 4.8). This formed part of the MSc of a female Mozambican student (Annex 4.9, MSc report). Issues and actions noted will inform of a local action plan to be developed in Year 3 with the community, for sustainable shark and ray fisheries.

In Tanzania, we worked with local fishing communities to map shark and ray catches for various fishing grounds, to identify hotspots for sharks and rays in the community fished areas that could be the focus of spatial fishing restrictions. The information was presented to 11 communities around Misali Island during the preparation of the Marine Spatial Plan (MSP) for the area. Information from various sources, including shark and ray hotspots, was included in the assessment, and used by communities to agree on locations of permanent and temporary closures. While the process is not final, it represents the first example of MSP in Tanzania, and we hope it will be replicated across other seascapes in Zanzibar and the mainland.

Activity 4.2 Governments are engaged to develop draft regulations or amendments to existing regulations, to support improved or strengthened fishery and trade regulations. In Mozambique in Year 2, with WCS's support, significant progress was made in the completion of the NPOA-Sharks and the preparation of Non-Detriment Findings (NDFs) for two CITES-listed shark species. WCS, in collaboration with WWF, supported InOM and ADNAP in enhanced inter-institutional coordination to conclude these two documents and conduct a final validation workshop. The NPOA-Sharks highlights the crucial need to address legislative gaps for effective protection and sustainable management of sharks and rays. WCS is in discussion with ADNAP to develop Terms of Reference for hiring a legal consultant to conduct a legal gap analysis, in Year 3. WCS also supported InOM in providing feedback to the CITES Secretariat, for two Notifications to Parties (May 2023 and March 2024).

In Tanzania, WCS supported the advancement of the NPOA-Sharks, and through matched funds provided a training workshop on the implementation of CITES and development of NDFs, for CITES-listed shark and ray species. One NDF has been finalised, covering 7 threatened ray species. WCS has supported TAFIRI, the CITES Scientific Authority in Tanzania, to prepare information for feedback to the CITES Secretariat, for a Notification to Parties (May 2023 and

March 2024). WCS is now in discussions with relevant authorities to provide a critical review of the Zanzibar and Mainland Tanzania Fisheries Regulations that are currently being revised.

A policy gap analysis identified the species requiring protection at national level in each country, by virtue of their poor conservation status or binding measures under multilateral agreements or regional fisheries management organizations (RFMOs) calling for protection or retention bans. These lists were submitted to governments in each country to raise awareness on species needing stronger management measures, full protection or trade control.

3.2 Progress towards project Outputs

Output 1 – Customs agents and fisheries inspectors have improved resources and capacity for visual and molecular identification of illegal shark and ray species in fisheries and trade, and species subject to trade controls.

Baseline condition – In Mozambique and Tanzania, human capacity (species identification, knowledge of implementation requirements and numbers of inspectors) is inadequate for trade control. Fisheries, trade, and customs agents had no capacity or resources for rapid species validation of shark and ray products. Inspectors lacked training in such identification skills. In Mozambique, laboratory technicians did not have the skills to undertake genetic barcoding to identify species from tissue samples using standard barcoding techniques. In Tanzania, fisheries/customs inspectors had no training or guides for shark/ray identification.

Progress made – In Year 1, more than 60 government officials from 21 agencies in Tanzania were trained on shark and ray identification using CITES guides. The delegates also gained training on 3D-printed replica shark fins, a set of which remains in each of Mozambique and Tanzania for future and repeat training. In Year 2, rapid genetic sequencers were installed at NHM in Maputo and the Department of Fisheries in Dar es Salaam, and 23 technicians in Mozambique and Tanzania, were trained to use the sequencer to validate shark and ray species from tissue samples. Four laboratory technicians from Mozambique were trained at SU on genetic barcoding to enable species identification from tissue samples. In Tanzania, we established a network of data collectors and researchers, coordinated via WhatsApp, to monitor landings of sharks and rays, and trained data collectors to use Kobo Toolbox for data collection, allowing for real-time and centralized collection of landings data at species level.

Change recorded to date – Capacity has been considerably improved in Tanzania and Mozambique for the identification of CITES-listed, regulated and illegally traded shark and ray species, through the provision of visual identification training (Tanzania through IWT, Mozambique through other funding) and materials (CITES ID guides and 3D-printed replica fins, in Tanzania and Mozambique through IWT), in Year 1. This was further improved in Year 2, through molecular (genetic) training (rapid sequencer training in Mozambique and Tanzania, barcoding training for Mozambique representatives) and tools (rapid genetic sequencer in each country), and support for species identification and improved data collection through the WhatsApp group. The project has thus considerably strengthened capacity across multiple agencies to implement more effective monitoring and control of trade in shark and ray products.

Source of evidence for this change – Evidence includes (from Year 1) a 2-day species identification training workshop for 22 customs/fisheries agents, three 1-day species identification training workshops for 8-20 fisheries agents each, dissemination of at least 50 CITES species identification guides and a set of 3D-printed replica fins in each of Mozambique and Tanzania (all through IWT funds), and a species identification workshop in Mozambique (matched funding). Evidence from Year 2 includes two two-day rapid sequencer training workshops, training of 23 people, and installation of rapid sequencers in Mozambique and Tanzania, and a two-week genetic barcoding training workshop at SU for four Mozambique technicians. Change is evidenced by the positive feedback from workshop participants, reports for certain workshops, and before-after assessments of capacity for some workshops.

How likely to achieve by project closure – This output is very likely to be achieved by project closure, as most activities under this output are complete. All Year 1 activities and most of Year 2 activities under this output were completed on time. Activities 1.6 and 1.7 in Mozambique were moved to Year 3 (per approved change request) to ensure more effective implementation and expand the scope of training to include a broader topic and range of participants.

Output 2 – There is increased information and knowledge of threatened shark/ ray species caught and traded, through surveys, to support enforcement.

Baseline condition – Although WCS has been conducting species-level shark and ray catch surveys of the artisanal fishery in Mozambique and Tanzania since 2018, there is limited species-level catch information through surveys led by government institutions and knowledge on shark and ray trade volumes and value chains (both domestically and internationally) is poor, with poor trade reporting at national level and to international bodies such as CITES.

Progress made – Our surveys have throughout Years 1 and 2 have provided an important source of information on shark and ray landings in coastal fisheries in Mozambique and Tanzania. These data contributed to the delineation of several Important Shark and Ray Areas (ISRAs) in these countries, as part of the IUCN Species Survival Commission, Shark Specialist Group's ISRA project. In Year 2, trade surveys gained information on shark and ray product value chains, drivers of trade, dominant species, long term trends in trade, and other information on trade dynamics, with 48 traders, sellers and fishers interviewed in Tanzania and 70 in Mozambique. In addition, national import data were obtained from Hong Kong, Singapore and Taiwan, through a collaboration with a new partner (Bloom Association), which provides considerably more detailed information on imports to these countries having originated in Mozambique and Tanzania, and neighbouring countries. Such data indicate significantly greater volumes being exported by these countries than they reported themselves, with some species-level information validating information obtained from the catch surveys in terms of key species and targeting for the global fin trade. Genetic sequencing is revealing CITES-listed shark and ray species being illegally traded, and confirming species landed in the coastal fisheries. Over 500 tissue samples taken from sharks and rays landed in Mozambique and Tanzania's fisheries, and those confiscated by customs agents in Mozambique and in South Africa (for products having left Mozambique) have been sequenced, providing a wealth of information to supplement information from visual identification, catch surveys, and import data.

Change recorded to date – This work has improved knowledge on species being caught and those being illegally traded. In both countries, coastal fisheries are landing prohibited and threatened species, and shark and ray species likely to end up in the global trade, with poor monitoring of species and species-level volumes being caught and traded. More quantitative species-level data on catches and illegal exports, as well as better information (some to family level) on trade volumes, are available now because of this project and the multi-method approach used. We are also working with governments in both countries to improve CITES implementation for sharks and rays, with much of this data feeding into NDFs under development by government agencies with support from WCS, leading to more informed NDF assessments for several CITES-listed shark and ray species.

Source of evidence for this change – Better data (catch datasets, genetic confirmation of species landed, Asian import statistics, etc.) and new results (including genetic sequence data from multiple confiscations of illegal products) relating to shark and ray catches in and trade from Mozambique and Tanzania (and other countries through which products are routed).

How likely to achieve by project closure – This output is certain to be achieved by the close of the project, as all activities are completed as planned, although catch surveys will continue into Year 3, so far as funding permits. Catch datasets from Mozambique and Tanzania have been cleaned to the end of 2023, and the Mozambique data are being analysed for a report to government. The genetic sequencing has been completed, and a report drafted for submission to the Tanzanian government. Genetic sequence information will be published on online genetic reference databases once governments have provided relevant approvals.

Output 3 – A scoping study is undertaken to evaluate whether and how observer programs could be implemented, to expand catch/fishery monitoring to commercial and industrial vessels.

Baseline condition – There are currently limited or intermittent fisheries observer programs on commercial and industrial fishing vessels in Mozambique and Tanzania.

Progress made – During Year 2, a scoping study was undertaken to assess the status and coverage of the onboard observer programs in domestic commercial and industrial fisheries in Mozambique and Tanzania. A consulting agency with expertise in Western Indian Ocean fishery observer programs was hired, and was able to communicate with relevant Mozambique

government representatives via WCS, and directly with the Deputy Director of the DSFA in Tanzania as well as representatives from the Tanzania Fisheries Research Institute (TAFIRI), and Zanzibar Fisheries Research Institute (ZAFIRI) to obtain relevant information to undertake the study. The study assessed global and regional requirements and minimum standards for onboard observers/observer programs and critically evaluated those in the two countries against these requirements and standards. Achievements, gaps, and needs were noted, and used to develop an implementation strategy to bring these programs up to a standard that meets minimum requirements.

Change recorded to date – The findings of this critical assessment are now available for governments in each country to understand the shortfalls and needs, with a detailed strategy provided for how to overcome these. These will be discussed in detail as we engage further with both governments in Year 3. There has been no change to the status of existing observer programs as that was beyond the scope of this project and defined as such during the proposal stage; however, the documents provide guidance to improve observer programs in the future.

Source of evidence for this change – A scoping report and separate implementation strategy, prepared by a leading consulting agency for observer programs, and externally reviewed by an independent observer program expert.

How likely to achieve by project closure – This output has already been achieved, with both activities completed. We will take the findings to the respective governments in Year 3.

Output 4 – Improved regulatory framework for sharks and rays, and support from local fishing communities to adhere to improved or strengthened fishery and trade regulations.

Baseline condition – Mozambique protected 14 shark and ray species, with minimum size limits for a further 29 species in 2021 through new fisheries regulations (REPMAR). Yet sharks and rays, including threatened species, juveniles, pregnant females and prohibited species are still caught and killed, and illicit trade occurs, including products such as CITES-listed species without relevant permits. Tanzania protects 10 shark and ray species (only 7 of which are known to occur in Tanzanian waters). Eleven species listed on Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (required by CMS Parties to be prohibited from capture) occur in Tanzania, of which just two are protected. Tanzania's fishing regulations are inadequate for effective management of shark and ray fisheries and trade. Neither country had appropriate paperwork for legal export of CITES-listed sharks or rays.

Progress made – In Mozambique, three meetings were held with fishing communities and local authorities in Year 1 to raise awareness and gain support for the amended fisheries regulations. In Year 2, a CCP at Zalala Beach, encompassing five fishing communities, was engaged through a series of visits, workshops, discussion groups and feedback meetings, which gained support for developing local management measures intended to reduce fishery impacts on threatened/prohibited species. In Memba/Mossuril districts of Mozambique, seven CCPs, encompassing 17 fishing communities, have been engaged to support local management measures. In Tanzania, 11 fishing communities have been engaged to map shark and ray presence in the various fishing grounds, providing information that was integrated into the first micro-MSP in Zanzibar, with the goal of integrating knowledge on location of ecological hotspots into management of fishery resources. Communities identified areas for temporary and permanent closures and discussed and agreed on expansion of the MPA in Misali. The micro-MSP has been presented to the local authorities and is under review for ratification.

At government level, in Mozambique, the NPOA-Sharks has been finalized and there is an NDF to guide trade in two CITES-listed shark species. In Tanzania, the NPOA-Sharks has advanced and an NDF that guides trade in seven ray species is complete. For both countries, species lists have been submitted to governments to guide management authorities on shark and ray species that require strengthened management measures, full protection, or trade controls.

Change recorded to date – 23 fishing communities from eight CCPs in Mozambique have been made aware of issues around overexploitation of threatened sharks and rays, their needs and concerns have been stated, and their support gained for strengthened fishery measures. In Tanzania, 11 fishing communities have been engaged, and areas for temporary and permanent closures identified, with a micro-MSP awaiting approval. Governments are now better equipped to identify and enforce CITES trade restrictions and other fishery measures. Management

authorities have improved information to guide improved protections, management measures and trade controls, and lead to reduced mortality rates of and unsustainable trade in threatened and prohibited shark and ray species. The completed NDFs that guide trade in certain species constitute actual policy change by activating domestic regulations under CITES, while the NPOA-Sharks will provide a policy to guide regulatory change.

Source of evidence for this change – A completed NPOA, species list and NDF in Mozambique; and a completed NDF, species list and micro-MSP for rezoning off Pemba Island in Tanzania, with a draft NPOA to be developed in 2024.

3.3 Progress towards the project Outcome

Baseline: The baseline condition is that fisheries are landing threatened and protected species, and products are being illegally traded, in both Mozambique and Tanzania, and capacity to improve this situation is limited in both countries.

Progress against indicators: Progress is being made particularly in terms of improved capacity for effective monitoring, species identification and enforcement, as well as improved catch and trade information. Fishing communities have been engaged and catch data collected in both countries, and collected catch data are now being analysed to assess indicator 0.1. Asian import data have been compiled and are being analysed, along with genetic barcoding results, to assess indicator 0.2, to be completed in Year 3. The dominance of species listed on CITES prior to this project, in a 2023 confiscation of fins in South Africa, having originated in Mozambique, suggests that there has not been a decline in the proportion of CITES-listed or threatened species in Mozambique's illegal exports, since confiscations in 2022.

Indicators: The indicators are believed to be adequate for measuring the intended outcome, although their validity does rely on the assumptions (see 3.4) holding true, and the means of verification rely on useful information which is partly dependent on governments and other collaborating stakeholders. While we push to ensure that the outcome is achieved, the activities and outputs may take time to reach the proposed outcome, which we had expected may take longer than the project duration. However, we are confident that we should be able to detect some change towards the outcome, by the end of the project. As we obtained data from fewer seizures in each country than expected, we have reached out to a partner in Hong Kong to access data on illegal shipments into Hong Kong, to provide further data for indicator 0.2.

All Year 1 activities are complete, and most Year 2 activities were completed, aside from those moved to Year 3 (per approved change request). We are confident that all activities will be completed by the end of the funding period. Government officials are now better equipped to identify and enforce trade controls and fishery measures. Governments are engaged with this work, and their support to effect policy change should be forthcoming, and meetings with local fishers in both countries have been well received, suggesting support from fishing communities towards more sustainable harvesting of shark/ray species and reduced illegal trade.

3.4 Monitoring of assumptions

Outcome level assumptions

Assumption 0.1: Reduced proportions in catches reflect reduced targeting or capture, not further population decline (indirectly validated through ongoing fishery-independent ecological studies).

Comments: This assumption holds true. Through other projects we have collected fishery-independent ecological data in Mozambique using baited remote underwater video, providing a comparative dataset for coastal shark and ray species. Preliminary results indicate no notable declines. In Tanzania, a survey is scheduled for February 2025, for comparison against data collected in 2018. In Mozambique, this was complicated by the amended Fishing Regulations in 2021, after which inspectors misinterpreted the law and arrested all fishers landing any shark or species. Fishers were thus reluctant to show landed sharks and rays to data collectors, creating an *apparent* decline in catches for a period. However, sensitization meetings in 2022 helped to resolve this issue, with 2023 data being considered as a suitable comparison with the baseline.

Assumption 0.2: Trade routes have not changed in avoidance of new enforcement measures.

Comments: We feel that this assumption holds true and will validate this using import data into Hong Kong, Taiwan and Singapore, which we have recently accessed through a partner based in Hong Kong. The vast majority of exported illegal shark products (mainly fins) are imported into/shipped to Hong Kong, where data are recorded better than in the countries of origin, meaning Hong Kong import data remain a stable source of information from which valuable information can be obtained on the trade in shark and ray products. The new CITES listings that came into effect in 2023 for at least 22 species of sharks and rays in the region complicate this indicator; however, the assessment of this indicator will look at trends in the proportions of species listed on CITES prior to this project separately from the newly listed species.

Output level assumptions

Assumption 1.1-1.5: Staff take up the knowledge shared during training to become able to identify to species level and to undertake molecular laboratory-based analysis.

Comments: These assumptions hold true. Species identification training was well received with participants noting critical knowledge gains useful to their profession, most showing improved capacity (in workshops with brief before-after capacity assessments) and most interested in further training and resources. This will be supported through repeat training (Activity 1.2b in Mozambique in Year 3, to train government staff using the revised guides).

Assumption 1.6-1.7: Shark identification experts are willing to offer expertise and rapid responses to allow communication platform to be effective.

Comments: This assumption still holds true. There are several experts included in WhatsApp groups for shark and ray identification in Tanzania and South Africa. WCS works regularly with taxonomists and global shark and ray identification experts to validate species identification.

Assumption 2.1-2.2: Results are dependent on fishers agreeing to share relevant information, some of which is sensitive. But previous such surveys suggest that fishers are generally forthcoming with information.

Comments: Fishers have been willing to share information with data collectors in Tanzania throughout the project period. As mentioned, there was a period in Mozambique when fishers hid shark catches from authorities and data collectors. However, this issue appears to have been resolved, through several sensitisation meetings with fishers and local authorities, with sharks and rays again being recorded in catches, therefore we feel this assumption holds true.

Assumption 2.3: Assumes fishers and traders will be willing to allow data collectors to collect biological material to allow genetic analysis, but previous sampling suggests that will not likely be a problem.

Comments: This holds true, as fishers still allow data collectors to take biological samples.

Assumption 3.1: Requires willingness of governments and fishing industry to engage. WCS support for implementing such observer programs has been called for by governments in both countries, therefore government support should be forthcoming. The fishing industry will be encouraged to collaborate.

Comments: This assumption has held true. Governments in both countries initiated the process by calling for this activity. The consultant successfully communicated with and gained information from relevant Mozambique government representatives, particularly InOM, and in Tanzania through direct communication with representatives from DSFA, TAFIRI and ZAFIRI.

Assumption 3.2: Assumes that an observer program is financially and logistically feasible.

Comments: This assumption holds true. The completed implementation strategy outlines the actions needed to implement an improved observer program in each country.

Assumption 4.1: Assumes a basic willingness by fishing communities to shift to sustainable practices/levels of fishing.

Comments: This assumption still holds true. Engagement with fishing communities in Year 1 and Year 2 gained considerable support from the communities in Mozambique and Tanzania.

In both countries, the communities engaged showed strong support for further actions in Year 3 to develop local management measures that include the needs of shark and ray species.

Assumption 4.2: Assumes government processes are not so slow as to delay the outcomes.

Comments: Policy development and legislative changes are slow processes. We therefore understand that there is a risk that activity 4.2 and its outputs may be achieved beyond the funding period of this grant. However, we frequently engage with government agencies in each country, two of which are partners on this project, and we are pushing to achieve this output by the end of the project, to contribute to the proposed outcome.

3.5 Impact: achievement of positive impact on illegal wildlife trade and poverty reduction

Project's contribution to a higher-level impact on illegal wildlife trade: Enforcement agencies and personnel in Mozambique and Tanzania are considerably better equipped to enforce illegal wildlife trade controls, through: increased human capacity and better tools for species identification (including real-time access to expert knowledge and near real-time molecular species confirmation); and better information on catch and trade to better understand legal and illegal fisheries and trade (including drivers of fishing and trade, trade routes, species being traded etc). More than 60 government agents in Tanzania now have improved capacity to identify species of sharks and rays, 23 Mozambican and Tanzanian agents have the capacity to use the rapid genetic sequencer, and four technicians in Mozambique are able to conduct standard genetic barcoding. Each country is also equipped with specific CITES-listed shark and ray identification guides, 3D-printed replica fins, and a rapid genetic sequencer.

By the end of the project there will be improved bottom-up and top-down measures towards sustainable fishing of and trade in sharks and rays. Stronger fishery and trade measures (informed by better information) and better capacity to implement these will reduce the pressure on shark and ray populations, particularly from illegal activities, and as key ecological role players that shape food webs and maintain ecosystem balance, healthier shark and ray populations should result in healthier fish populations, benefiting the ecosystem and its users.

Project's contribution to a higher-level impact on human development and wellbeing (poverty reduction): Selected fishing communities in both countries are being engaged, to understand their socio-economic situations, dependence on shark and ray resources, drivers of shark and ray fishing and trade, the needs of the communities, potential alternative livelihoods (if any), reasons why some fishers break the rules, the general understanding of fishery and trade regulations, and opinions on management (what can and cannot work in their setting). This is to ensure that the needs, opinions, and knowledge of small-scale fishers are appropriately considered in the development of fishery management measures.

Working with coastal communities to develop local management measures to reduce shark and ray mortality is an indirect contribution to poverty alleviation in the long term, intended to empower local communities to manage their own resources (by better understanding and taking ownership of the resources) to ensure more sustainable use and more equitable access. The impacts on their livelihoods should be carefully self-managed, whilst having the power to prevent excessive exploitation or overharvesting that may be caused by a handful of unlawful fishers or unsustainable fishing behaviours. Simultaneously contributing to the improved institutional capacity and working with governments to promote policy reform and improved governance for the management of sharks and rays and their fisheries will also contribute to population sustainability and to poverty alleviation in the long term.

Shark and ray trade controls come largely from CITES, which governs international trade only. By working towards strengthened enforcement of CITES trade controls, including science-based NDF decisions that prohibit unsustainable trade and permit only trade that is sustainable, the greatest impact of effective CITES implementation would be on those exporting or importing products illegally, in breach of CITES, or from unsustainable species/fisheries – largely commercial and industrial fishers and traders, with minimal impact on small-scale fishers (generally those most reliant on the resource) who would be permitted to continue to catch, consume and locally sell products of most of these species. Therefore, short-term impacts of stricter CITES enforcement would have greatest impact in industrial fisheries, and minimal

negative impact on small-scale or coastal fishers. In the long-term, stronger regulations and better capacity to implement these, along with better enforcement of CITES trade controls, will have positive impacts on reducing shark and ray mortality and support more sustainable populations, and ultimately more sustainable catches for coastal fishers.

4. Thematic focus

Our project aligns with theme 2 (Ensuring effective legal frameworks and deterrents) and theme 3 (Strengthening law enforcement).

Key activities aligned with these themes include training of government staff for identification of traded shark species, better resources for identification and monitoring, better knowledge on trade and fisheries, and support to governments for policy reform. Engagement to support local management measures also contributes to theme 2, even if not formal “legal frameworks”. Project activities are thus contributing to an improved management and enforcement framework for shark and ray fisheries and trade. Notable achievements this past year include:

- Installation of a rapid genetic sequencer at the Natural History Museum in Maputo, Mozambique, and Department of Fisheries in Dar es Salaam, Tanzania.
- Training of 21 government staff to use the rapid genetic sequencer, through four training workshops provided by a technician from Mote Marine Laboratory.
- Training of four Mozambique laboratory technicians on standard genetic barcoding to identify species from tissue samples, through training course at SU, in South Africa.
- A scoping report on the status and needs of commercial and industrial fishery observer programs in Mozambique and Tanzania, and development of an implementation strategy developed to guide activities to improve these programs in the future.
- Species-level catch data on sharks and rays landed in coastal fisheries in both countries.
- Trade surveys in both countries to gain information on the factors driving shark and ray trade, product value changes and other aspects of trade; and assimilation of import data on sharks and rays from Hong Kong, Taiwan, and Singapore (global shark trade hubs).
- Genetic barcoding (at SU) of ~ 500 shark and ray samples from coastal fisheries in Mozambique and Tanzania, and confiscated fins from Mozambique, confirming species being landed in the fisheries and considerable illegal trade in CITES-listed sharks and rays.
- Support to governments in both countries to improve CITES implementation for sharks and rays, including developing NDFs for two species in Mozambique and seven in Tanzania.
- Community engagement in Mozambique and Tanzania to gain support for management measures at local level, through a series of engagement visits, interviews and focus groups.
- Engagement with the Mozambican fishery management authorities to undertake measures to revise aspects of national fishery regulations pertaining to sharks and rays.

5. Impact on species in focus

The proposal listed five focal (all CITES Appendix II) species – pelagic thresher sharks *Alopias pelagicus*, shortfin mako sharks *Isurus oxyrinchus*, scalloped hammerhead sharks *Sphyrna lewini*, shortfin devil rays *Mobula kuhlii* and whitespotted wedgefish *Rhynchobatus djiddensis*. Findings from activities in this project are contributing towards improved knowledge and policy for several project focal species and many others.

Catch surveys have revealed numerous shark and ray species in the catches (>70 in Tanzania alone), with Critically Endangered scalloped hammerheads caught in very high numbers, and devil rays (*Mobula* genus, prohibited in Mozambique, and listed on CMS Appendix I and thus should be protected in Tanzania) also common in the landings.

In Year 1, we reported on a shark confiscation from September 2022, which comprised >80% CITES-listed species, including whitespotted wedgefish and scalloped hammerhead shark (both of which are Critically Endangered and focus species for this project). In Year 2, we sampled a further confiscation, made in South Africa but of fins originating in Mozambique. This again comprised over 90% CITES-listed species, including whitespotted wedgefishes (85%) and hammerhead sharks (10%), based on visual identification, with ~70 of 128 samples

genetically sequenced being confirmed to species level, including hammerhead sharks, wedgefishes, CITES-listed requiem sharks and just 5 individuals not from CITES-listed species.

The NDFs completed in Mozambique and Tanzania include scalloped hammerhead shark and whitespotted wedgefish, respectively, with negative NDF outcomes for both, meaning no international trade will be legally permitted. Both NDFs were partly informed through the project's catch surveys and genetic barcoding results.

Trade data from Hong Kong indicate that thresher sharks and hammerheads form important components of illegal trade from the southwest Indian Ocean, thus providing useful information to develop NDFs and encourage stricter fishery measures, at national level for thresher sharks in both countries (already prohibited in Mozambique) and hammerhead sharks in Tanzania.

6. Project support for multidimensional poverty reduction

Expected beneficiaries: Those affected by illegal trade in sharks and rays include local fishers who rely on sharks and rays for food and income. Fishery policy in Tanzania and Mozambique is inadequate (although improving) and adherence to environmental agreements is poor (e.g., CITES trade controls, and protection under CMS), compounded by inadequate capacity for species identification of shark and ray species, knowledge of implementing requirements and resources to support implementation. If illegal (and unsustainable) trade in sharks and rays continues, their populations will decline further (particularly the most threatened species, which contribute most to the illegal trade), negatively affecting coastal ecosystems, as well as coastal fishers by decreasing their opportunities for food and income from legal trade; such loss of ecosystem services is also a form of poverty. This is particularly problematic, as some of the highest value fins globally come from coastal species caught in the coastal fisheries in Mozambique and Tanzania (e.g., whitespotted wedgefish and scalloped hammerhead sharks, both Critically Endangered and CITES-listed), having direct negative impacts on coastal fishers.

The project will help coastal fishing communities by i) implementing actions to reduce mortality and illegal/unsustainable capture of and trade in shark and ray species that are threatened or prohibited (e.g., nationally protected, CMS Appendix I), or subject to trade controls (CITES); ii) improving government capacity to enforce regulations and trade controls for sharks and rays; iii) providing better information to inform management of these species; and iv) supporting fishing communities and governments to improve local/national measures for sharks and rays.

Local fisher communities will be supported to implement their own management measures, empowering them to manage their own resources for greater sustainability, whilst excluding those fishers and traders operating illegally and unsustainably. We continuously engage with government authorities on these matters, and governments have requested capacity building and implementation support. Improved enforcement capacity, along with support for stronger national-level management measures (including fishery and trade regulations) will provide the legal framework for safeguarding of shark and ray species for sustainable and legal use.

Evidence that the project will contribute to poverty alleviation: The project will contribute indirectly to poverty alleviation (as defined in Darwin/IWT guidelines) in the long-term (likely after the close of funding), through several mechanisms (those aligned with examples in this report template are in *italics*). Contributions to poverty alleviation already achieved include improved capacity for enforcement of trade and fishery regulations and better information on shark and ray fisheries and trade. Improved local and national level management for sharks and rays will come in Year 3 through fishing community and government engagement, with increased awareness of i) the poor conservation status of sharks and rays, ii) their contribution to healthy ecosystems (*increased awareness about the value of wildlife*), iii) the need for improved conservation, and iv) existing regulations. This *improved community governance* will promote more equitable access to resources and more sustainable resource use. *Improved ecosystem services* will include healthier fishery resources for the benefits of the ecosystem and the resource users, including improved food security and income for fishers, traders and processors. Other indirect contributions to poverty alleviation are the inclusion of community fishers in management and decision-making processes, and gender equality in these processes through specifically addressing the needs of women in coastal fisheries and trade.

Notable achievements this year: Information on shark and ray catch and trade has improved, and governments have improved capacity and resources for enforcement of fishery and trade

controls. Engagement with fishing communities and governments in Year 2 raised awareness of the need for improved shark and ray conservation, and potential negative impacts on coastal communities if fishery resources decline further. There is evidence to suggest communities and governments will support improved fishery and trade controls as we engage in Year 3.

7. Gender Equality and Social Inclusion (GESI)

Please quantify the proportion of women on the Project Board.	1 of 5 (20%)
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.	3 of 5 (60%)

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and will not contribute to or create further inequalities.	X
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

The project design ensured there was equity in terms of partners, recipients of training, and potential beneficiaries of the outcome and impact. This is within the framework of fisheries and trade, which are known to be male-dominated. The project teams of three partners (SU, Dr Rima Jabado and InOM) are led and dominated by women, while others (WCS, Mote Marine Laboratory) have at least one woman in their project team directly involved in implementing this project. Female project partners include experts who provided training (e.g., Dr Jabado and SU) and those who received training (particularly InOM and the NHM).

The project supported gender equality in access to project benefits, with 44% of 89 individuals trained under this project being women (75% for one workshop). Each survey included female respondents (e.g., 33% of trade survey respondents in Tanzania and 14% in Mozambique), gaining valuable information on the role of women in shark and ray fisheries and trade.

During community engagement in Zalala Beach, Mozambique, led by two female WCS staff, a specific focus group was held for women to gain their thoughts and was attended by 10 women from the community. In the Memba/Mossuril district, Mozambique, where catch surveys started in Year 2, a gender action plan was developed (under a separate project but supported in part by this IWT project) and implemented in June 2023. Here, pairs of data collectors at each catch survey site include one man and one woman, who each received training, equipment, and support during the implementation of their activities; and six new CCPs were established across 17 fishing communities, with 60% of the CCP leadership comprising women.

The women's focus group provided information on the insights, opinions and needs of women in the fishing community, how they are involved, what fishing and trade mean to them and how they benefit. Having a focused women-only group, led by female staff, allowed the women to voice their real opinions and thoughts, without any potential bias or concern for repercussions that may have influenced the findings if men from the community were present, thus giving a better understanding of how to accommodate woman's needs and possible threats/risks in the process of securing more sustainable fisheries. The female project partners and implementers could more easily relate to the women in the fishing community, and allowed better access to this woman's group, which may not have been so forthcoming if led by men.

Notable achievements linked to gender equity in this project include the woman's focus group in Zalala, the inclusion of numerous women in the various trainings provided under this project, the inclusion of 50% women in data collection teams in Memba/Mossuril, and the inclusion of three of five of project partner teams being led by women.

8. Monitoring and evaluation

Our M&E tracks progress against logframe activities, indicators, and outputs, and activities not directly in this project. The workplan, with deadlines, responsible authority and actions needed for implementing deliverables, has been adequate so far. For each activity, meetings are held with the project team, relevant partners, and experts who can assist with the best approach, to ensure effective delivery. Regular project meetings took place in Year 2. WCS project staff had multiple in-person meetings with Dr Jabado, Dr Chapman and Dr Bester-van der Merwe, and engaged frequently with DSFA and InOM to ensure completion of activities.

Evaluation against the outcome is more relevant for Year 3, as Years 1-2 are more focused on activities linked to the enabling processes of the outcome statement "Improved capacity for effective enforcement, improved fishery and trade knowledge, and fisher and government support for improved management", for which there has been good progress. Year 3 will focus on using those processes to achieve the actual change intended in the outcome statement "reduced illegal trade in regulated/threatened shark/ray species, in Mozambique and Tanzania".

Outcome indicators are reductions in the proportion of threatened/prohibited species landed, and reductions in the illegal trade in prohibited/CITES-listed species. These will be measured through our catch data, information obtained from trade data, and genetic confirmation of species from seizures. At output level, qualitative and quantitative indicators are well defined in the logframe, noting e.g., the number of people to be trained, the topic, and Year. We have completed all activities (progress detailed in section 3.1), other than those moved to Year 3. For all activities we have met or exceeded the quantitative aspect of the respective indicator.

The change request approved in January 2024 made minor changes to the logframe (Annex 2). Most include the expansion of activities in the original proposal through new opportunities in Mozambique. We believe that implementing these changes will bring considerable extra value to the project's outcomes and impact and improve value for money. These changes are a result of constant and adaptive M&E for this project, to ensure we deliver what we committed to.

Most M&E work is done by WCS as the success of the project and its outcomes are the lead organisation's responsibility. Irrespective of partner actions, WCS is ultimately accountable to DEFRA and IWTCF to deliver on the project. Having been let down previously by some project partners, prior to and during this project, WCS takes responsibility for most of the M&E work. SU has made a relatively large contribution to M&E linked to the genetic laboratory work.

9. Lessons learnt

Discrete activities (e.g., workshops) worked well. Careful budget management made it possible to increase the numbers of participants, for greater capacity building. Securing experts as project partners during proposal development allowed most activities to start and be completed on time. Activities requested by governments were implemented more easily; initially, we did not have a strong enough relationship with the Tanzanian government to offer training of customs agents, but in Year 1 the Tanzanian government raised this need, and by adapting the project we could provide training on the rapid genetic sequencer in Year 2. Delaying an activity until the right circumstances can have a better outcome (e.g., not rushing into community

engagement immediately after a cyclone delayed work in Year 1). Activities not tasked to a specific project partner, or that did not have a clearly defined mechanism for implementation (e.g., genetic sample collection from seized shipments) were more difficult to complete on time.

If we had the opportunity to repeat the project, each activity would be more clearly planned out, identifying all key role players and mechanisms for achieving each deliverable.

Projects would benefit from 1) early engagement with fishing communities and governments; and 2) clearly defining the work plan, responsible parties and mechanisms for each activity. As counter wildlife trafficking, policy development, fisheries management and trade controls operate over broad spatial scales developing partnerships across multiple sectors is important.

We believe this project was well designed and achievable, albeit with an ambitious outcome. However, if the points raised above had been implemented from the outset, the project could have been more efficiently implemented. For the remainder of the project, we will define activities in greater detail and ensure that relevant stakeholders are engaged well in advance of intended activities that would involve them. We do not intend to submit further change requests.

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

From the Year 1 report, the reviewer had two main comments. 1) *“It would be useful to hear more about WCS’s role in this project. You do a good job of describing the relevant skills/needs of the partners but there is limited description of WCS’ role. It would be useful to hear more about how the partners interact with one another through your project management as well.”*

WCS leads project implementation and coordination, M&E, and often brings multiple stakeholders to the same table, for more collaborative activities. In this project, WCS has led activities including multi-agency community and government engagement, and data collection. Specialist activities (e.g., training, genetics) are led by partners consulting with WCS.

Reviewer comment 2: *“Gender equality and social inclusion – there is a lot of engagement with, consultation with and representation of fishing communities in this project. It would be useful therefore for the team to consider how they are engaging with women and considering the issue of social inclusion? Whilst shark fishers in this region are highly likely to be men, there are likely to be women throughout the supply chain who need to be engaged with, and listened to.”* As detailed in section 7, our community engagement work in Zalala Beach in Mozambique during Year 2 had a specific focus group dedicated to women only, to understand the roles, opinions and needs of, and risks to, women in the community fisheries. During the trade surveys, 33% of respondents in Tanzania and 14% in Mozambique were women, providing similar information relating to trade. This responds directly to the reviewer’s comment.

Reviewers’ comments pertaining to the different aspects of the project were discussed with the relevant partners involved in Year 1 activities, who were pleased with the positive review.

The reviewer stated the Year 1 report did not adequately distinguish between Mozambique and Tanzania, for project progress. We distinguish better between the two countries in the current report. The reviewer also suggested it would be useful if the logframe in Annex 1 was used more clearly to report against indicators and progress. We have done so in the current report.

At the time of funding, a reviewer suggested engaging the judiciary. In Year 3, lawyers, prosecutors, and judges in Mozambique will be trained on national and global policy for sharks and rays, to improve the knowledge of shark and ray policy throughout the chain of authority.

11. Risk Management

No risks not previously accounted for have arisen in the last Year, and no noted risks have become more serious, thus there was no need to amend the project or risk register (see Annex 4.10). But, to manage two of the potential risks “Political will is limited, leading to poor uptake and implementation of the project’s opportunities” and “Fishers are not willing to support more sustainable fishing practices or stricter regulations, making enforcement more challenging”, we requested (approved January 2024) an extension to the project by six months in Year 3.

12. Sustainability and legacy

After Year 1 identification training, the Tanzanian government requested further capacity building, so we expanded Activity 1.4 to provide training on the rapid genetic sequencer in Tanzania also. In Mozambique, the NHM showed an interest in genetic capacity, with a strong proposal that secured the installation of the rapid sequencer (Activity 1.3) at NHM, so we added two NHM technicians to the number proposed for the rapid genetic sequencer and genetic barcoding training (Activities 1.4 and 1.5). The Mozambique government requested further species identification training, which we will provide in Year 3 (new Activity 1.2b).

We share all data collected with each government. Genetic sequences generated will be uploaded to open access online genetic reference databases (contingent on government approval). When scientific publications are produced, results will be shared openly (contingent on government approval), and published in open-access journals where possible.

Several organisations have shown interest, such as that from NHM to partner on genetic barcoding, and from INIP to receive training on species identification (new Activity 1.2b). We also had interest from Bloom Association in Hong Kong to collaborate on trade data analysis, and from TRAFFIC to engage on illegal trade communication platforms.

There are no changes to the intended benefits post-project. Capacity built and tools provided for better enforcement will remain in country post-project. Working with communities and governments should secure support from both, for improved local and national management measures to reduce mortality, and allow more stable shark and ray populations post-project.

The sustained legacy and impact of this project are long-term. Improved enforcement should benefit the resources in the long-term, through reduced illegal activities. Capacity built in this project will be retained and should be inexpensive to maintain. We will build further capacity in the future, including training of trainers in government agencies, for in-country training capacity. We hope to scale up activities and outputs from this project, in the future, to expand coverage and impact within Mozambique and Tanzania, and other southwest Indian Ocean countries.

13. IWT Challenge Fund identity

The UK Government's contribution to this project's work has been acknowledged (with logo presented in most cases) in the following:

- A popular [article](#) published at Medium;
- As a significant contribution to work on reducing illegal shark and ray trade in the project countries, during global planning meetings of several NGO stakeholders and funders working on shark and ray conservation (New York, Geneva 2023; Belize, New York 2024);
- Sensitization meetings with fishing communities and fisheries enforcement agencies, and during community engagement meetings with fishing communities, in Mozambique;
- Species identification (Tanzania), rapid genetic sequencer (Tanzania and Mozambique) and genetic barcoding (South Africa) training workshops in Year 1 and Year 2;
- Presentations (2) at Southern African Shark and Ray Symposium (South Africa, Oct 2023);
- Presentation at Indo-Pacific Fish Conference (New Zealand, Nov 2023);
- Presentation at Nairobi Convention Science to Policy meeting (Mozambique, Dec 2023);
- Several presentations delivered by students in the SU genetics laboratory.

This IWT Challenge Fund (IWTCF) grant has been recognised as a distinct project. The IWTCF is known in Tanzania and Mozambique, with government partners in both engaged during proposal preparation, to define aspects of the project. This IWTCF project is known to the DSFA and TAFIRI in Tanzania, and to InOM, NHM, INIP and ADNAP in Mozambique.

The project does not have any social media platforms.

14. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been reported in the past 12 months	No

Does your project have a Safeguarding focal point?	No. However, WCS has a regional Social Safeguards Coordinator (Simon [REDACTED] who guides projects' safeguarding and training of staff. Such training includes <i>inter alia</i> community engagement approaches including Free, Prior, and Informed consent (FPIC), human right trainings, human subjects research and social impact assessments.
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: 100% of WCS' core project team [8 staff], as well as all data collectors conducting catch, trade and socio-economic surveys have all undertaken Human Subjects Research (HSR) training, or minimum standards training on HSR. The WCS Rights and Community team has also conducted several trainings in Mozambique and Tanzania. Planned: No further training will take place for this project
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. There have been no challenges in terms of safeguarding in the past 12 months.	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify. The WCS Institutional Review Board (IRB) is the authority for approving HSR by WCS. All survey and community engagement activities were approved by the IRB, for which project staff received formal training on HSR. No further training is planned during this project.	
Please describe any community sensitisation that has taken place over the past 12 months; include topics covered and number of participants. The community engagement work, topics and number of participants (disaggregated by gender) are presented in detail in section 3.1, under output 4.	
Have there been any concerns around Health, Safety and Security of your project over the past year? If yes, please outline how this was resolved. No such concerns	

15. Project expenditure

Our financial team is currently finalising the tables of expenditure and matched funding.

Table 1: Project expenditure during the reporting period (April 2023-March 2024)

Project spend (indicative) since last Annual Report	2023/24 Grant (£)	2023/24 Total actual IWT Costs (£)	Variance %	Comments (please explain significant variances)
Staff costs (see below)				
Conservation technology team				
WCS WIO shark program manager				
WCS WIO shark program assistant				
WCS Regional Communications Specialist				
WCS MZ Marine Program Director				
WCS MZ Marine Project Assistants				
WCS Marine Director Tanzania				
WCS TZ Marine Program Coordinator				
WCS TZ Research Assistant				
Consultancy costs				
Consultant for data cleaning and analysis				
Consultant for training on genetic analysis				
Consultant to assist with policy development				
Consultant to develop scoping study report				
Consultant National expert industrial fisheries				
Consultant trainer species identification				
Overhead Costs				
Overheads				
Organisation office rental, heating etc.				
Travel and subsistence				

International travel				
National travel				
Fieldwork travel and subsistence				
Operating Costs				
Conferences, workshops and seminars				
Fieldwork operating costs (not travel)				
Data Collection				
Lab analysis - Stellenbosch University				
Data collector				
Capital items (see below)				
Laptop				
2 full sets of 3D replica fins for training				
External data hard drives 5TB x 4				
Smartphones				
Rapid genetic sequencer				
Others (see below)				
Consumables				
Communication materials				
Lawyer fees				
Audit costs (refer to T&Cs for requirements)				
TOTAL	259,284	259,284	0%	

Table 2: Project mobilised or matched funding during the reporting period (1 April 2023 – 31 March 2024)

	Secured to date	Expected by end of project	Sources
Matched funding leveraged by the partners to deliver the project (£)			Shark Conservation Fund; Paul G. Allen Family Foundation
Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices, and the project (£)			Shark Conservation Fund

16. Other comments on progress not covered elsewhere

The design of the project has been enhanced (per Change Request approved January 2024). These are detailed elsewhere in the report. The proposed changes were made as we believe they will add significant value to the project’s outcomes and impact.

17. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes (please leave this line in to indicate your agreement to use any material you provide here).

The project has enhanced capacity in Mozambique and Tanzania for enforcement of fishery and trade controls for sharks and rays. A series of workshops in Tanzania in 2022 and 2023, delivered by Dr Rima Jabado, provided training for 62 government staff (23 females and 39 males) on shark and ray species identification. A further series of workshops in 2023, delivered by Valerie Hagan of Mote Marine Laboratory, provided training for 10 technicians (7 female, 3 male) in Mozambique and 13 (6 female and 7 male) in Tanzania, on the use of a rapid genetic sequencer and specific methods for confirming species of sharks and rays from unidentified products in trade, in near real time. Four Mozambican technicians (3 female, 1 male) were trained on standard genetic barcoding for species identification, during a two-week training course in the Stellenbosch University Department of Genetics, in South Africa. Landing site surveys conducted over two years have provided species-level data on sharks and rays landed in coastal fisheries, while trader surveys have provided information on shark and ray trade dynamics. Genetic barcoding, conducted at SU, has provided molecular confirmation of shark and ray species landed in the fisheries, and (through sampling of confiscated products) those being illegally exported. Such information is supporting engagement with local fishing communities and national governments in both countries and will help to inform strengthened measures for reduced mortality and illegal trade in sharks and rays, for healthier populations.

We have no photos or videos for reasons of sensitivity.

Annex 1: Report of progress and achievements against logframe for Financial Year 2023-2024

Project summary	Progress and Achievements April 2023 - March 2024	Actions required/planned for next period
<p>Impact</p> <p>Reduced mortality and illegal trade in regulated species, which in turn lead to healthier shark/ray populations and ecosystems, which support improved fisher catches, more sustainable fisheries, and more secure livelihoods</p>	<p>By the end of Year 2, capacity has been increased among government agencies for better enforcement of fishery and trade regulations. Local fishing communities and governments in both countries have been engaged (and this will continue in Year 3) to raise awareness of the need, and gain support, for improved fishery and trade measures for sharks and rays. Reductions in mortality as a result of improved management and reductions in illegal trade volumes as a result of better enforcement and stricter measures, which should be implemented in Year 3, are envisaged to lead to healthier populations of sharks and rays in the two project countries.</p>	
<p>Outcome Improved capacity for effective enforcement, improved fishery and trade knowledge, and fisher and government support for improved management facilitate reduced illegal trade in regulated/threatened shark/ray species, in Mozambique and Tanzania</p>		
<p>Outcome indicator 0.1</p> <p>By 2024, fisheries mortality of threatened/prohibited species has reduced by 25% against 2020/2021 data</p>	<p>Capacity and resources for identifying threatened/prohibited species in fisheries and for enforcement are improved; information is improved on species-level catches in coastal fisheries (section 3.2). Fishing communities and governments have been engaged to develop local and national fishery measures (section 3.2).</p>	<p>Further engagement with fishing communities and governments, using project information to develop improved fishery management measures; further enforcement by government agents; comparison of catch data trends to ecological data trends; awareness of revised measures across all stakeholders; leading to reduced mortality</p>
<p>Outcome indicator 0.2</p> <p>By 2024, illegal trade in prohibited/CITES species has reduced by 25% against 2020/2021 data</p>	<p>Information on trade dynamics from trade surveys in both countries, along with import data from key Asian fin importing countries has been assimilated, and better information is available from genetic sequencing of confiscated products; government capacity to identify prohibited/CITES-listed species in trade is improved (section 3.2)</p>	<p>Information presented to governments; continued support to governments for better CITES enforcement, including further NDFs and improved trade regulations; awareness of revised measures across all stakeholders; leading to reduced illegal trade.</p>

Output 1 Customs agents and fisheries inspectors have improved resources and capacity for visual and molecular identification of, and national and global policy pertaining to, illegal shark and ray species in fisheries and trade, and species subject to trade controls		
Output indicator 1.1 By the end of Year 1, CITES shark/ray identification guides in local language are printed and disseminated to 50 agents in Tanzania (already underway in Mozambique), compared to zero agents currently	Completed in Year 1 (see Year 1 annual report)	No further actions
Output indicator 1.2 By the end of Year 1, 20 government staff in Tanzania trained on shark and ray identification and use of CITES identification guides (already completed in Mozambique), compared to zero agents currently (to our knowledge no agents in Tanzania have received such training)	Completed in Year 1 (see Year 1 annual report)	No further actions
Output indicator 1.2b By the end of Year 3, 20 government staff in Mozambique are trained on shark and ray identification and use of revised CITES identification guides, compared to zero agents currently (no agents in Mozambique have received training on the revised guides)	New activity for Year 3: Through change request (2024-01), some funds from Activity 1.7 in Mozambique to be used in Year 3, to replicate species identification training from Activity 1.2 in Mozambique, using newly developed CITES guides	Training scheduled for 10-11 July 2024, to be provided by Dr Rima Jabado (project partner)
Output indicator 1.3 By the end of Year 2, a rapid genetic sequencer for CITES listed shark/ray species is installed and operational in Mozambique, the first ever in Mozambique	Completed. Rapid genetic sequencer installed at Natural History Museum (NHM), Maputo, Mozambique. In Addition: Rapid genetic sequencer installed at Department of Fisheries, Dar es Salaam, Tanzania.	Continual correspondence with Museum and Fisheries Department, to ensure units are operational, and to provide continued support
Output indicator 1.4 By the end of Year 2, 5 staff in Mozambique trained on use of rapid genetic sequencer, compared to zero staff trained on the use of a rapid genetic sequencer	Completed. 10 Mozambican government staff trained to use sequencer, during 2 x 2-day workshops. In Addition: 13 Tanzanian government staff trained to use sequencer, during 2 x 2-day workshops.	Continual correspondence to ensure users are comfortable with process and unit
Output indicator 1.5 By the end of Year 2, 2 government technicians from Mozambique trained in genetic barcoding for species identification, compared to zero technicians currently (to our knowledge no technicians in Mozambique have received dedicated training in this field)	Completed. 4 Mozambican technicians attended 2-week genetic barcoding training workshop at Stellenbosch University (SU, project partner), South Africa.	Establishing collaboration with WCS, NHM Maputo and SU to conduct future genetic barcoding at NHM
Output indicator 1.6 By the end of Year 2, a mobile phone-based communication platform is developed and operational, the first of its kind for sharks and rays in these two countries	In Mozambique, this activity has been moved to Year 3 (change request 2024-01). It was agreed a WhatsApp group will be established with INIP inspectors.	Mozambique: WhatsApp group to be established with INIP inspectors and shark identification experts, in Year 3

	Communication group established for data collectors, researchers, administrators, and NGOs in Zanzibar, in Year 2, using WhatsApp	Userbase to be widened and data collectors to improve collection effort and data quality in Tanzania in Year 3
Output indicator 1.7 By the end of Year 3, fisheries and inspection agents are trained on use of the mobile phone-based communication platform, compared to zero technicians currently.	In Mozambique, this activity has been moved to Year 3 (change request 2024-01) but we have engaged relevant institutions to define the work now scheduled for Year 3. First group of Tanzania data collectors (WHO ELSE) trained in Year 2, and actively using WhatsApp group to improve communications on species identification.	Mozambique: Activity to be undertaken in Year 3 Further users to be trained in Tanzania in Year 3
Output indicator 1.7b By the end of Year 3, 5 lawyers/prosecutors and members of the judiciary in Mozambique have been trained on national and global policy for sharks and rays, compared to zero currently	This is a new activity planned for Year 3 in Mozambique (change request 2024-01), linked to the training of INIP inspectors under Activity 1.7	Training workshop with selected members of judiciary to take place in Mozambique in Year 3
Output 2. There is increased information and knowledge of threatened shark/ ray species caught and traded, including new species-level catch and trade data through project surveys and genetic validation of species recorded, to support enforcement		
Output indicator 2.1 Coastal fishery catch surveys are conducted weekly in at least 5 sites in each country to increase information on CITES and threatened shark/ ray species caught in coastal fisheries	Coastal catch surveys continued during Year 2 at 7 sites in Tanzania and 5 (+7 new) sites in Mozambique, providing species-level catch data on sharks and rays in coastal fisheries. Data being cleaned for analysis.	Catch surveys to continue during Year 3. To be analysed at end of Year 3
Output indicator 2.1b Informal fisher surveys are conducted in at least 3 sites in Mozambique to provide information on fishery dynamics, and other aspects	This is a new activity planned for Year 3 in Mozambique (change request 2024-01), linked to the catch and trade surveys under Activities 2.1 and 2.2	Activity to be undertaken in Mozambique in Year 3
Output indicator 2.2 Trade surveys are conducted by the end of Year 2 to improve knowledge on trade in shark/ ray products	Trade surveys conducted during Year 2; interviews with 48 traders in Tanzania and 70 in Mozambique. Analysis initiated.	Additional respondents to be interviewed opportunistically where possible, in Year 3. Analysis to be completed in Year 3.
Output indicator 2.3 Genetic barcoding of samples collected during fishery and trade surveys is conducted to improve knowledge of shark/ ray species in trade	Over 500 tissue samples from sharks and rays landed in Mozambique and Tanzania's fisheries, and those confiscated by customs agents in Mozambique and in South Africa (for products having left Mozambique) have been sequenced confirming species in illegal trade	Analysis to be undertaken in Year 3 to link results to trade data and landing site catch data
Output 3. A scoping study is undertaken to evaluate whether and how observer programs could be implemented, to expand catch/ fishery monitoring to commercial and industrial vessels		

<p>Output indicator 3.1 By the end of Year 2, a scoping study with government agencies and commercial/industrial fisheries companies is completed to understand needs and risks of developing and implementing an observer program.</p>	<p>Scoping study successfully completed for Mozambique and Tanzania, and associated scoping report prepared, in Year 2</p>	<p>To be presented to and discussed with government in Year 3</p>
<p>Output indicator 3.2 By the end of the project, a strategy for implementing commercial/industrial scale data collection through observer programs is developed</p>	<p>Implementation strategy successfully completed for Mozambique and Tanzania, and associated strategy document prepared, in Year 2</p>	<p>To be presented to and discussed with government in Year 3</p>
<p>Output 4. Improved regulatory framework for sharks and rays, and support from local fishing communities to adhere to improved or strengthened fishery and trade regulations</p>		
<p>Output indicator 4.1 By the end of the project, there is support for strengthened local fishery and trade regulations in target fishing communities, through the inclusion of fishery and trade measures in community management plans.</p>	<p>Community engagement has been initiated with a series of visits, workshops, discussion groups and feedback meetings in one community in Mozambique, which gained considerable support for developing local management measures.</p> <p>In Tanzania we completed draft of the micro-MSP with prescription for zones and regulations on fishing grounds. The micro-MSP applies to 11 communities in the Misali area of Pemba Island, Zanzibar.</p>	<p>Further engagement in Year 3 to gain further support and to develop joint recommendations into local measures for inclusion in local management plans</p>
<p>Output indicator 4.2 By the end of the project there is a draft regulation in place or amendment to existing regulations to support improved or strengthened fishery and trade regulations</p>	<p>Support for NPOA-Sharks completion in Mozambique and advancement in Tanzania; species list presented to governments in Mozambique and Tanzania to guide stricter measures for species needing protection, or stricter trade/fishery measures; completed NDFs for 2 shark species Mozambique and 7 ray species in Tanzania. Governments in both countries engaged to support national regulatory changes</p>	<p>Further engagement in Year 3. Support to each government to revise relevant policy/regulations to incorporate stronger fishery and trade measures for sharks and rays. Support for further NDF trade controls in both countries.</p>

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: Impact: Reduced mortality and illegal trade in regulated species, which in turn lead to healthier shark/ ray populations and ecosystems, which support improved fisher catches, more sustainable fisheries, and more secure livelihoods			
<p>Outcome: (Max 30 words)</p> <p>Improved capacity for effective enforcement, improved fishery and trade knowledge, and fisher and government support for improved management facilitate reduced illegal trade in regulated/threatened shark/ ray species, in Mozambique and Tanzania</p>	<p>0.1 By 2024, fisheries mortality of threatened/prohibited species has reduced by 25% against 2020/2021 data</p> <p>0.2 By 2024, illegal trade in prohibited/CITES species has reduced by 25% against 2020/2021 data</p>	<p>0.1 Inspected catch records which contain fewer threatened/prohibited species</p> <p>0.2 Inspected shipment records which reveal fewer prohibited/ CITES-listed shark products</p>	<p>0.1 Reduced proportions in catches reflect reduced targeting or capture, not further population decline (indirectly validated through ongoing fishery-independent ecological studies)</p> <p>0.2 Trade routes have not changed in avoidance of new enforcement measures</p>
<p>Output 1: Customs agents and fisheries inspectors have improved resources and capacity for visual and molecular identification of, and national and global policy pertaining to, illegal shark and ray species in fisheries and trade, and species subject to trade controls</p>	<p>1.1 By the end of Year 1, CITES shark/ ray identification guides in local language are printed and disseminated to 50 agents in Tanzania (already underway in Mozambique), compared to zero agents currently</p> <p>1.2 By the end of Year 1, 20 government staff in Tanzania trained on shark and ray identification and use of CITES identification guides (already completed in Mozambique), compared to zero agents currently (to our knowledge no agents in Tanzania have received such training)</p> <p>1.2b By the end of Year 3, 20 government staff in Mozambique are trained on shark and ray identification and use of revised CITES identification guides, compared to zero agents currently (no agents in Mozambique have received training on the revised guides)</p> <p>1.3 By the end of Year 2, a rapid genetic sequencer for CITES listed shark/ ray species is installed and operational in Mozambique, the first ever in Mozambique</p> <p>1.4 By the end of Year 2, 5 staff in Mozambique trained on use of rapid genetic sequencer, compared to zero staff trained on the use of a rapid genetic sequencer</p> <p>1.5 By the end of Year 2, 2 government technicians from Mozambique trained in genetic barcoding for species identification, compared to zero technicians currently (to our knowledge no technicians in Mozambique have received dedicated training in this field)</p>	<p>1.1 Distribution lists (disaggregated by sex)</p> <p>1.2 and 1.2b Training terms of reference, participant list (disaggregated by sex)</p> <p>1.3 Genetic sequencing reports, photos</p> <p>1.4 Training terms of reference, participant list (disaggregated by sex)</p> <p>1.5 Training terms of reference, participant list (disaggregated by sex)</p> <p>1.6 Project reports</p> <p>1.7 and 1.7b Training terms of reference, participant list (disaggregated by sex)</p>	<p>1.1 – 1.5 Staff take up the knowledge shared during training to become able to identify to species level and to undertake molecular laboratory-based analysis.</p> <p>1.6 – 1.7 Shark identification experts are willing to offer expertise and rapid responses to allow communication platform to be effective.</p> <p>1.7b Participants take up knowledge shared during training on national and global policy for sharks and rays</p>

Project summary	SMART Indicators	Means of verification	Important Assumptions
	<p>1.6 By the end of Year 2, a mobile phone-based communication platform is developed and operational, the first of its kind for sharks and rays in these two countries</p> <p>1.7 By the end of Year 3, fisheries and inspection agents are trained on use of the mobile phone-based communication platform, compared to zero technicians currently.</p> <p>1.7b By the end of Year 3, 5 lawyers/prosecutors and members of the judiciary in Mozambique have been trained on national and global policy for sharks and rays, compared to zero currently.</p>		
<p>Output 2. There is increased information and knowledge of threatened shark/ ray species caught and traded, including new species-level catch and trade data through project surveys and genetic validation of species recorded, to support enforcement</p>	<p>2.1 Coastal fishery catch surveys are conducted weekly in at least 5 sites in each country to increase information on CITES and threatened shark/ ray species caught in coastal fisheries</p> <p>2.1b Informal fisher surveys are conducted in at least 3 sites in Mozambique to provide information on fishery dynamics, and other aspects</p> <p>2.2. Trade surveys are conducted by the end of Year 2 to improve knowledge on trade in shark/ ray products</p> <p>2.3 Genetic barcoding of samples collected during fishery and trade surveys is conducted to improve knowledge of shark/ ray species in trade</p>	<p>2.1 Catch dataset with photographs, and species-level information</p> <p>2.1b Field reports</p> <p>2.2 Datasets from trade surveys, and schematic representations of product value chains</p> <p>2.3 Datasets of genetic sequences confirming species genetically analysed</p>	<p>2.1-2.2 Results are dependent on fishers agreeing to share relevant information, some of which is sensitive. But previous such surveys suggest that fishers are generally forthcoming with information</p> <p>2.3 Assumes fishers and traders will be willing to allow data collectors to collect biological material to allow analysis, but previous sampling suggests that will not likely be a problem</p>
<p>Output 3. A scoping study is undertaken to evaluate whether and how observer programs could be implemented, to expand catch/ fishery monitoring to commercial and industrial vessels</p>	<p>3.1 By the end of Year 2, a scoping study with government agencies and commercial/ industrial fisheries companies is completed to understand needs and risks of developing and implementing an observer program.</p> <p>3.2 By the end of the project, a strategy for implementing commercial/ industrial scale data collection through observer programs is developed</p>	<p>3.1 Scoping report detailing assessments of risks, engagement with governments and industry, proposed operational plan and proposed budget.</p> <p>3.2 Implementation strategy for industrial scale data collection</p>	<p>3.1. Requires willingness of governments and fishing industry to engage. WCS support for implementing such observer programs has been called for by governments in both countries, therefore government support should be forthcoming. The fishing industry will be encouraged to collaborate</p> <p>3.2 Assumes that an observer program is financially and logistically feasible</p>
<p>Output 4. Improved regulatory framework for sharks and rays, and support from local fishing communities to adhere to</p>	<p>4.1 By the end of the project, there is support for strengthened local fishery and trade regulations in target fishing communities, through the inclusion of fishery and trade measures in community management plans.</p>	<p>4.1 Stronger fishery and trade measures are included in the community-managed</p>	<p>4.1. Assumes a basic willingness by fishing communities to shift to sustainable practices/ levels of fishing.</p>

Project summary	SMART Indicators	Means of verification	Important Assumptions
improved or strengthened fishery and trade regulations	4.2 By the end of the project there is a draft regulation in place or amendment to existing regulations to support improved or strengthened fishery and trade regulations	fishing area management plans 4.2 Draft regulation or amendment to existing regulations which are supported by the Government	4.2. Assumes government processes are not so slow as to delay the outcomes.
<p>Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)</p> <p>Output 1: Customs agents and fisheries inspectors have improved resources and capacity for visual and molecular identification of illegal shark and ray species in fisheries and trade, and species subject to trade controls</p> <p>Activity 1.1 CITES shark/ray identification guides in local language are printed and disseminated to agents in Tanzania</p> <p>Activity 1.2 Government staff in Tanzania trained on shark and ray identification and use of CITES identification guides</p> <p>Activity 1.2b Government staff in Mozambique trained on shark and ray identification and use of revised CITES identification guides</p> <p>Activity 1.3 Rapid genetic sequencer for CITES listed shark/ray species is installed and operational in Mozambique</p> <p>Activity 1.4 Government staff in Mozambique trained on use of rapid genetic sequencer</p> <p>Activity 1.5 Government technicians from Mozambique trained in genetic barcoding for species identification</p> <p>Activity 1.6 Mobile phone-based communication platform is developed and operational</p> <p>Activity 1.7 Fisheries and inspection agents are trained on use of the mobile phone-based communication platform</p> <p>Activity 1.7b Lawyers/prosecutors/judiciary in Mozambique trained on national and global policy for sharks and rays</p> <p>Output 2: There is increased information and knowledge of threatened shark/ray species caught and traded, including new species-level catch and trade data through project surveys and genetic validation of species recorded, to support enforcement</p> <p>Activity 2.1 Coastal fishery catch surveys are conducted in each country to increase information on CITES and threatened shark/ray species caught in coastal fisheries</p> <p>Activity 2.1b Informal fisher surveys are conducted in Mozambique to provide information on <i>inter alia</i> fishery dynamics</p> <p>Activity 2.2 Trade surveys are conducted to improve knowledge on trade in shark/ray products</p> <p>Activity 2.3 Genetic barcoding is conducted to improve knowledge of shark/ray species in trade</p> <p>Output 3. A scoping study is undertaken to evaluate whether and how observer programs could be implemented, to expand catch/fishery monitoring to commercial and industrial vessels</p> <p>3.1 A scoping study with government agencies and commercial/industrial fisheries companies is completed to understand needs and risks of developing and implementing an observer program</p> <p>3.2 A strategy for implementing commercial/industrial scale data collection through observer programs is developed</p> <p>Output 4: Improved regulatory framework for sharks and rays, and support from local fishing communities to adhere to improved or strengthened fishery and trade regulations</p> <p>4.1 Engagement with local fishing communities to gain commitment to supporting and adhering to local fishery and trade regulations</p> <p>4.2 Governments are engaged to develop draft regulations or amendments to existing regulations, to support improved or strengthened fishery and trade regulations</p>			

Annex 3 Standard Indicators

Table 1 Project Standard Indicators

IWTCF Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
IWTCF-B01	Number of people trained in law enforcement skills (shark and ray species identification, and use of a mobile-phone platform for real-time species confirmations, Tanzania, Activity 1.2)	People	Women, Tanzania	23			23	10
IWTCF-B01	Number of people trained in law enforcement skills (shark and ray species identification, and use of a mobile-phone platform for real-time species confirmations, Tanzania, Activity 1.2)	People	Men, Tanzania	39			39	10
IWTCF-B01	Number of people trained in law enforcement skills (use of rapid genetic sequencer for <i>in situ</i> species confirmation, Mozambique, Activity 1.4)	People	Women, Mozambique		7		7	2-3
IWTCF-B01	Number of people trained in law enforcement skills (use of rapid genetic sequencer for <i>in situ</i> species confirmation, Mozambique, Activity 1.4)	People	Men, Mozambique		3		3	2-3
IWTCF-B01	Number of people trained in law enforcement skills (use of rapid genetic sequencer for <i>in situ</i> species confirmation, Tanzania, Activity 1.4)	People	Women, Tanzania		6		6	0
IWTCF-B01	Number of people trained in law enforcement skills (use of rapid genetic sequencer for <i>in situ</i> species confirmation, Tanzania, Activity 1.4)	People	Men, Tanzania		7		7	0
IWTCF-B01	Number of people trained in law enforcement skills (genetic barcoding of unidentifiable shark/ray meat/fin products, Mozambique, Activity 1.5)	People	Women, Mozambique		3		3	1
IWTCF-B01	Number of people trained in law enforcement skills (genetic barcoding of unidentifiable shark/ray meat/fin products, Mozambique, Activity 1.5)	People	Men, Mozambique		1		1	1
IWTCF-B01	Number of people trained in law enforcement skills (use of a mobile-phone platform for real-time species confirmations, Mozambique, Activity 1.7)	People	Women, Mozambique		0		0	5
IWTCF-B01	Number of people trained in law enforcement skills (use of a mobile-phone platform for real-time species confirmations, Mozambique, Activity 1.7)	People	Men, Mozambique		0		0	5
IWTCF-B04	Number of new/improved community management plans available and endorsed (community management plans with improved measures for sharks and rays, Tanzania, Activity 4.1).	Number	Tanzania				0	1
IWTCF-B04	Number of new/improved community management plans available and endorsed (community management plans with improved measures for sharks and rays, Mozambique, Activity 4.1).	Number	Mozambique				0	1

IWTCF Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
IWTCF-B21	Number of policies and frameworks developed or formally contributed to by projects and being implemented by appropriate authorities (draft regulation in place or amendment to existing regulations to support improved or strengthened fishery and trade regulations, Tanzania, Activity 4.2).	Number	Tanzania				0	1
IWTCF-B21	Number of policies and frameworks developed or formally contributed to by projects and being implemented by appropriate authorities (draft regulation in place or amendment to existing regulations to support improved or strengthened fishery and trade regulations, Mozambique, Activity 4.2).	Number	Mozambique			1	1	1
IWTCF-B23	Number of databases established that are used for law enforcement. (Catch data, trade data, genetic sequence database, Tanzania, Activities 2.1, 2.2, 2.3)	Number	Tanzania		2		3	3
IWTCF-B23	Number of databases established that are used for law enforcement. (Catch data, trade data, genetic sequence database, Mozambique, Activities 2.1, 2.2, 2.3)	Number	Mozambique		2		3	3
IWTCF-B24	Number of government institutions/ departments with enhanced awareness and understanding of biodiversity and associated poverty issues. (Tanzania, determined as number of institutions/departments with representatives attending awareness meetings; Y2 excludes institutions/departments counted in Y1)	Government institutions	Country		11		11	5
IWTCF-B24	Number of government institutions/ departments with enhanced awareness and understanding of biodiversity and associated poverty issues. (Mozambique, determined as number of institutions/departments with representatives attending awareness meetings; Y2 excludes institutions/departments counted in Y1)	Government institutions	Country	4	1		5	5
IWTCF-D03	Number of local/national organisations with improved capability and capacity as a result of the project (Tanzania).	Government institutions	Country	11	5		16	5
IWTCF-D03	Number of local/national organisations with improved capability and capacity as a result of the project (Mozambique).	Government institutions	Country	8	1		9	5

Table 2 Publications

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
Safeguarding Livelihoods and Shark and Ray Populations in Mozambique *	Blog post	Naseeba Sidat (WCS), 2023	Female	Mozambican	Medium, online	Safeguarding Livelihoods and Shark and Ray Populations in Mozambique by Wildlife Conservation Society Our Ocean, Our Future Medium

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.	N/A
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
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see section 17)?	N/A
Have you involved your partners in preparation of the report and named the main contributors	X
Have you completed the Project Expenditure table fully?	No
Do not include claim forms or other communications with this report.	