

## Final Evaluation Report

---

Your Details	
Full Name	Issah Seidu
Project Title	Status and Conservation of EDGE sharks and rays in the west coast of Ghana
Application ID	33214-B
Date of this Report	11/10/2022

**1. Indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
<p>Assess the composition, historical and current catch distribution, stock status, population parameters of EDGE sharks and rays in small scale fisheries in Western Ghana.</p>				<p>We carried out 126 days of landing sites surveys in seven communities - Apam, Winneba, Axim, Shama, Nyayano, Adjoa and Dixcove.</p> <p>We recorded a total of 1,032 individual elasmobranchs, which constituted 307 EDGE sharks and 725 EDGE rays, belonging to 16 species. Of the 16 species recorded nine were EDGE shark species and seven EDGE ray species.</p> <p><i>Carcharhinus falciformis</i> (32.6%) and <i>Rhinobatos irvinei</i> (44.1%) were the most abundant EDGE shark and ray species respectively landed in all the study communities. Male specimens were common and constituted 52% of the total individuals of landed species. Most species landed (61%) were not sexually mature.</p> <p>We used semi-structured interviews to assess the population trends of threatened guitarfishes which are well known and easily identified by fishers. When asked 51 fishers to compare the abundance of guitarfish catch to 10 years ago, most fishers (71%) indicated that the abundance of the large guitarfishes (common and blackchin guitarfish) have declined by 80–90%, while 59% indicated that the abundance of smaller guitarfishes (spineback and white spotted guitarfish) have declined by 40–60%.</p> <p>Details of the findings of this objective have been published in the Marine Policy Journal <a href="https://doi.org/10.1016/j.marpol.2022.105159">https://doi.org/10.1016/j.marpol.2022.105159</a> (Seidu et al. 2022).</p>
<p>Assess socio-economic and trade dynamics of highly valued EDGE sharks and rays in Western</p>				<p>We collected detailed information on socio-economics and trade dynamics of sharks and their interactions with artisanal fisheries in three key shark fisheries in Ghana, which was published in the Fisheries Research Journal</p>

Ghana.			<p><a href="https://doi.org/10.1016/j.fishres.2021.106157">https://doi.org/10.1016/j.fishres.2021.106157</a> (Seidu et al. 2022).</p> <p>Therefore, this objective was tailored to collect detailed information on guitarfishes where ecological and social dimension data was lacking.</p> <p>Fishers were asked about their motivations for the target or retention of guitarfish. Sale of fins and meat (45%) and as source of food or sustenance (37%) were the main drivers for the catch or retention of guitarfish.</p> <p>Fishers sold guitarfish specimens wholly to traders as no mechanisms were put in place to measure them. Prices of guitarfishes depend largely on the sizes of the specimens. <i>Glaucostegus cemiculus</i> meat was sold for an average of <u>GH¢ 13.50</u> (USD 2.30) per specimen in Adjoa to <u>GH¢ 200.00</u> (USD 33.90) per specimen in Apam. <i>Rhinobatos rhinobatos</i> meat was sold for the highest price in Adjoa (<u>GH¢ 17.10</u> or USD 2.80 per specimen), followed by Axim (<u>GH¢ 14.70</u> or USD 2.49).</p> <p>Details of the findings of this objective have been published in the Marine Policy Journal <a href="https://doi.org/10.1016/j.marpol.2022.105159">https://doi.org/10.1016/j.marpol.2022.105159</a> (Seidu et al. 2022).</p>
Build local capacity in shark research and conservation.			<p>We have built the capacity of six more fishers and three university students. We equipped them with shark identification, monitoring and sampling protocols as well as the biology, ecology and conservation status of sharks and rays. Each participant was equipped to identify over 70% of sharks and rays mostly landed in their various communities. The students and fishers were integrated into the project and support the data collection exercise. The fishers are serving as citizen scientists and furnishing us data on sharks and rays in their various communities.</p>
Create awareness on the plight of sharks and rays in coastal fishing communities in West Coast Ghana.			<p>We have organised a total of five meetings with personnel from the Regional and District Fisheries Commission to create awareness on the conservation needs of sharks and rays, and to discuss how the project findings can be integrated into developing management strategies for the</p>

				<p>species.</p> <p>A total of 16 after-work meetings were also organised in small groups for fishers, canoe owners, traders, traditional and fisher leaders in four communities. After-church meetings were also organised in three communities (Adjoa, Apam and Dixcove communities) to create awareness on the plight of sharks and rays. We distributed souvenirs such as key holders, t-shirts and educational materials to fishers, canoe owners, traders, chief fishers and their elders.</p> <p>We also conducted community radio conservation programmes in two major fishing communities (Apam and Dixcove) to create awareness on the conservation needs of sharks and rays.</p>
--	--	--	--	--

**2. Describe the three most important outcomes of your project.**

**a).** This project has created the first detailed database on sharks and rays (i.e., species caught, size, sex, maturity stage, gear use, fishing vessels and trip duration etc.) in Ghana and further fills a significant knowledge of the artisanal fisheries interaction with elasmobranchs. The project further gave us novel information on the social dynamics, trade routes, and drivers of shark and guitarfish fisheries in Ghana and across West Africa.

**b).** Comprehensive data from this project has contributed to the IUCN reassessment of 28 West African endemic and near endemic sharks and rays. Further, our novel study on artisanal fisheries interaction with guitarfishes in Ghana (<https://doi.org/10.1016/j.marpol.2022.105159>), which emanated from this study has contributed significantly to the listing of three common guitarfish (*Rhinobatos*, *R. albomaculatus*, and *R. R. irvinei*) in West Africa on the CITES Appendix II, awaiting confirmation at CoP 19.

**c).** The work has further built the capacity of important stakeholders such as fishers and university students to respond to the inadequate baseline data on Ghanaian elasmobranch fauna towards the development of conservation strategies. Importantly, the work further created awareness on the conservation needs of the shark and ray species and won the support of many fishers and traditional leaders who are supporting our conservation and research activities in four key elasmobranch fishing communities.

**3. Explain any unforeseen difficulties that arose during the project and how these were tackled.**

The first difficulty we encountered was the direct interaction with fishers and canoe owners. We encountered pocket of hostility from many fishers at the onset of the

project in some communities. Many fishers are now switching to shark fisheries due to the low income generated from teleost or bony fishes. These fishers were uncooperative at the onset of the project because they believe we were fishing out information which will eventually be used against them to halt their fishing operations. These situations delayed our progress in the field because we had to halt our work and develop new strategies to approach the fishers any time, they attack us.

Another significant issue we encountered was the training of local volunteers and students in the identification of sharks and rays. Many trainees found it extremely difficult to identify morphological congener species such as hammerhead sharks, mako sharks, thresher and some guitarfish species. We therefore spent considerable number of times on our training programs in their various landing sites.

#### **4. Describe the involvement of local communities and how they have benefited from the project.**

Through a series of meetings, we were able to mobilise the support and got permission from the chief fishers and their elders in the seven coastal communities in the West Coast Ghana. We further organised meetings in small groups in each community with fishers, canoe owners, traders and fish processors. The purpose of the meetings was to win the support of key actors in the shark and ray fisheries for the project. We took opportunity to discuss the plight of sharks and rays with these stakeholders and how this project can be used to support the development of conservation strategies for the species.

A total of nine local volunteers were equipped with shark identification, market and landing site surveys and monitoring protocols. We further train them in shark and ray ecology and their conservation status as well as international instruments such as CITES and CMS protecting some of the threatened species. These trainees are supporting us in collecting long term data on sharks and rays in their respective communities. As means to incentivise the local fishers trained as citizen scientists to collect long term dataset on sharks and rays, we provided them monthly talk time and gave them foodstuffs and other assortments during festive periods. We have signed three volunteers on medical insurance policy and hoping to extend this to other trainees by the first quarter of next year.

Further, we have been involving the trained students in our landing surveys data collection on sharks and rays in the country. We have further supported one student from the Department of Wildlife Management of Kwame Nkrumah University of Science and Technology (KNUST) to collect data on shark fisheries for his BSc thesis.

#### **5. Are there any plans to continue this work?**

This project provided detail key information on EDGE sharks and rays by monitoring landing sites and markets along the west coast of Ghana. We plan to continue monitoring key elasmobranch fishing communities in central and eastern coast of Ghana in our subsequent project. We will also use fisheries independent survey to map key habitats, distribution and breeding grounds of sharks and rays. We will

further interact with migrant fishers who are targeting sharks and rays to understand their fisheries activities, motivation and their migration routes. With this holistic information we will then link-up with key stakeholders to inform immediate policy measures across Ghana. We are further working with local communities towards the establishment of Locally Managed Marine Areas (LMMAs) for long term conservation impacts.

Second, we hope to discuss and pilot alternative livelihoods strategies with high economic returns for some fishers targeting these species.

#### **6. How do you plan to share the results of your work with others?**

We have published one paper entitled "Every fish in the sea is meat and so are guitarfishes": Socioeconomics drivers of guitarfish fishery in Ghana." in the Marine Policy Journal, which was largely used for the listing of three guitarfish species in on the CITES Appendix II, awaiting confirmation in CoP 19. We have further received positive comments on one additional manuscript, which is currently under review.

We have published a Newsletter in Shark Life, the IUCN Shark Specialist Group Newsletter for wider readership and will contribute to the subsequent issue. We have shared major results from the project with key stakeholders including Ghana's Fisheries Commission, The Ghana Environmental Protection Agency, Department of Wildlife and Department of Fisheries and Watershed Management of KNUST. We are planning to organise a forum for chief fishers and their elders, fishers, canoe owners, traders, and processors as well as conservation NGOs such as A Rocha Ghana, Hen Mpoano and others to highlight the findings of the project and also solicit for their continue support for the development of conservation measures for the species.

#### **7. Looking ahead, what do you feel are the important next steps?**

We plan to extend our landing and market sites monitoring programme to other important elasmobranch fishing communities in eastern and central coast of Ghana. We have located fishing grounds, breeding and habitats of guitarfish and other shark species and thus plan to continue locating and mapping key areas of sharks and rays to delineate for a protected area. To this end, we will conduct fisheries independent surveys to collect detailed spatial data to support our already existing database. Our major goal for this project is to establish the first marine protected area in Ghana to support the sustainable management of marine megafauna which include sharks, rays, guitarfishes, dolphins amongst others in Ghana.

We plan to continue building local capacity who can respond to the threats facing sharks and rays, by providing quality scientific data and spearheading their conservation in the country. We will organise a series of training programmes year after year at the local level to train students and local volunteers to act as citizen scientists to collect holistic data on sharks and rays.

We will continue liaising with local project partners and local stakeholders to promote the conservation of sharks and rays. We hope to extend our conservation activities in all key elasmobranch fishing communities across Ghana.

**8. Did you use The Rufford Foundation logo in any materials produced in relation to this project? Did the Foundation receive any publicity during the course of your work?**

Rufford Foundation logo was used in all our printed educational materials including flyers, fact sheets, key holders and others. We acknowledged The Rufford Foundation during our conservation presentation, training, local meetings and local radio-based conservation programs. We also acknowledged The Rufford Foundation in the papers we published in the various scientific journals.

**9. Provide a full list of all the members of your team and their role in the project.**

**Issah Seidu:** I spearheaded the execution of the project. I trained local volunteers in shark and ray identification and monitoring techniques. I also led the team to conduct landing and market sites survey for the sharks and rays and led fishers to identify habitats, breeding and their fishing grounds.

**Kubra Yakubu:** Kubra lead the community education and conservation awareness campaigns of this project.

**Marie Ayerson:** She led the training of local volunteers in administering formal and informal interviews. She also supported the education and awareness creation campaigns in the various communities.

**Bukari Saphiano:** He spearheaded the convening of meetings with fishers and traders and further supported the community outreach programs in the various communities.

**10. Any other comments?**

At the end of this project, we realised how it's urgent to build local capacity to response to the various degree of threats to sharks and rays and other marine megafauna. Sharks and rays are now sustaining the livelihoods of many artisanal and semi-industrial fishers and thus, the threat of overfishing is escalating widely across the country. The project has also unravelled the eminent threats from migrant fishers who are increasingly targeting guitarfishes and therefore calls for actions to mitigate their actions on these species. The threats of Illegal, Unreported and Unregulated (IUU) fishing are also increasing at an alarming rate, which calls for revision of the current fishing laws of the country. We aim to work with local and governmental agencies to devise management strategies to mitigate the threats to sharks and rays and other sympatric marine resources.