



HALF-YEAR PROGRESS REPORT 2021

PROTECTING GUITARFISH ALONG THE COAST OF GOA IN INDIA

Mapping Spatial Distribution and Creating Awareness



Project/ Programme Name:	Protecting Guitarfish Along The Coast Of Goa In India Mapping Spatial Distribution And Creating Awareness
Project/Programme Number(s):	IND0749
Web Link(s) to project/programme strategic plan or other useful documents:	
Reporting Period:	April 2021 – September 2021
Project/Programme Start Date (FY):	April 2021
Project/Programme End Date (FY):	
Report Completed by:	Aditya Kakodkar & Gaurav Patil
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Executive Summary

Guitarfish are closely related to sharks and rays. Their bodies are almost intermediate between the two. They are most often neglected due to lack of economic value to the fishers. This happens even though they are an important predator in the intertidal food chain and are themselves a good source of nutrition to coastal communities and bigger predators in the marine ecosystems.

In this project we attempt to collect baseline data about this fish through fisher interviews and bycatch analysis in shore seines. Collected information will be used to plan outreach activities to improve knowledge about the guitarfish and raise awareness about their conservation amongst the coastal communities.

In this half year progress report, we attempt to present the progress of the project along the pre-determined timeline and the major objectives of the project.

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About the project

The main goal of this project is to conserve Guitarfish species along Goa's coastline. This project aims to collect local knowledge and map the distribution of the guitarfish in the coastal water. This project has been graciously supported by Sony India Pvt. Ltd.

Guitarfish is a very little understood fish with most of the data on its habitat and occurrence along Goa's coast unknown. Most of the species of the guitarfish are not well described and some prominent species such as the Whitespotted guitarfish (*Rhinochobatus djiddensis*) is protected under India's Wildlife (Protection) Act, 1972 and is placed under the schedule – I (part II(A)). Other important species occurring in our waters such as the Bowmouth guitarfish (*Rhina ancylostoma*) is listed as critical species in the IUCN red list. These fish are large in size and are mostly encountered in deeper water and are common bycatch in the trawl industry.

There are other smaller species found in the coastal waters. For instance, the Sharpnose (*Glaucostegus granulatus*) and Widenose guitarfish (*Glaucostegus obtusus*) are amongst the most common guitarfish found in the intertidal regions. They interact mostly with shore seines and gill nets operated by smaller artisanal fishers.

Due to the lack of information available about the Guitarfish species it was decided to collect the baseline data from the fishers by interviewing them and also collect the actual occurrence data using the bycatch analysis in the shore seines. This would give us the complete picture of the status of the guitarfish in the past and also the present.

We interviewed the fishers with the help of a questionnaire to collect baseline information.



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Image-1: Survey team waiting for the fishing boats to come to the shore

The questions were designed to obtain information about the habitat, distribution and present conservation status of the guitarfish. Other information such as socio-economic situation of the fishers and their knowledge regarding the importance of guitarfish conservation was also obtained.

At present, bycatch analysis of the shore seine catch is being carried out. This study concentrates purely on the interaction of the guitarfish with the fishing gear. Data on various parameters is collected to obtain a complete picture of the population dynamics and life cycle of the fish in the study area.

WWF India intends to work closely with the local fishing community to accomplish its objectives. It should be noted that no meaningful conservation can occur without the support and involvement of the local communities.

Project Progress

Project timeline

The project has three major objectives as represented in the gantt chart below. These are:

1. Map the habitat and distribution of guitarfish along the coast of Goa
2. Raise awareness on the status and threats faced by guitarfish.
3. Reduction of threats due to fisheries

The first objective and significant parts of the second objective will be covered during the first year. The rest will be taken up in the second and the third year. Some of the objectives are multi-year and are divided into phases i.e., only phase – 1 will be carried out in the first year. At present, the project is on track and all tasks are being carried out as per the timeline.

Timeline for the "Conserving Goa's Guitarfish Species through Baseline Data Mapping and Awareness Efforts"											
TIMELINE		Apr 21 - Jun, 21	Jul 21 - Sep 21	Oct 21 - Dec 21	Jan 22- Mar 22						
Sr. No.	Objectives/Month										
1	Map Guitarfish habitat										
1.1	Baseline DataCollection										
1.2	Bycatch data collection										
1.3	Mapping Distribution										
2	Awareness on Guitarfish										
2.1	Guitarfish ID Guide										
2.2	Fisher awareness										
	Report writing										
2.3	Communication material										
3	Reduction of Fisheries Threat	Starting in FY2 & FY3 (Phase 2 & 3)									
3.1	Workshop with local communities										
3.2	Engage with Govt./Stakeholders										

■ Proposed
 ■ Completed
 ■ Delayed
 ■ Extended

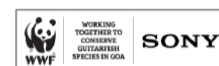


Fig-1: Timeline of the first year of the project

Implementation of the project was delayed due to the statewide COVID-19 lockdown in Goa. During the lockdown, as it was impossible to venture into the field, the team stayed indoors. They created an identification chart for the fishers (see objective 2.1 above). This adjustment by the team helped us create a high-quality identification chart that proved very useful in the field during the interviews, which started in July 2021.

The project team further extended the bycatch analysis for the whole season as it was felt that more relevant data can be collected regarding the population dynamics of the guitarfish by monitoring the bycatch over a complete fishing season.

A detailed progress report is presented in the following sections.

Objective-wise progress

In the following sections we present the project objective-wise progress of the project. The objectives are further divided into activities and each activity is marked with the status tag to indicate its present situation.

Objective 1: Map the habitat and distribution of Guitarfish along the coast of Goa

ACTIVITY-1.1: Collect baseline data through social surveys

STATUS: COMPLETE

A total of 17 locations were surveyed and 112 fishers were interviewed. The 17 locations were spread all along the coast of Goa (Fig-2). Of the 17, six locations were from the north and the rest were from the south Goa. More locations were chosen in the south as there are more small scale fishers in the south. In the north, economy is mainly dependent on tourism.

Initially, our intention was to collect at around 80-100 questionnaire interviews, but due the persistent efforts of the team a higher number (112) was achieved.

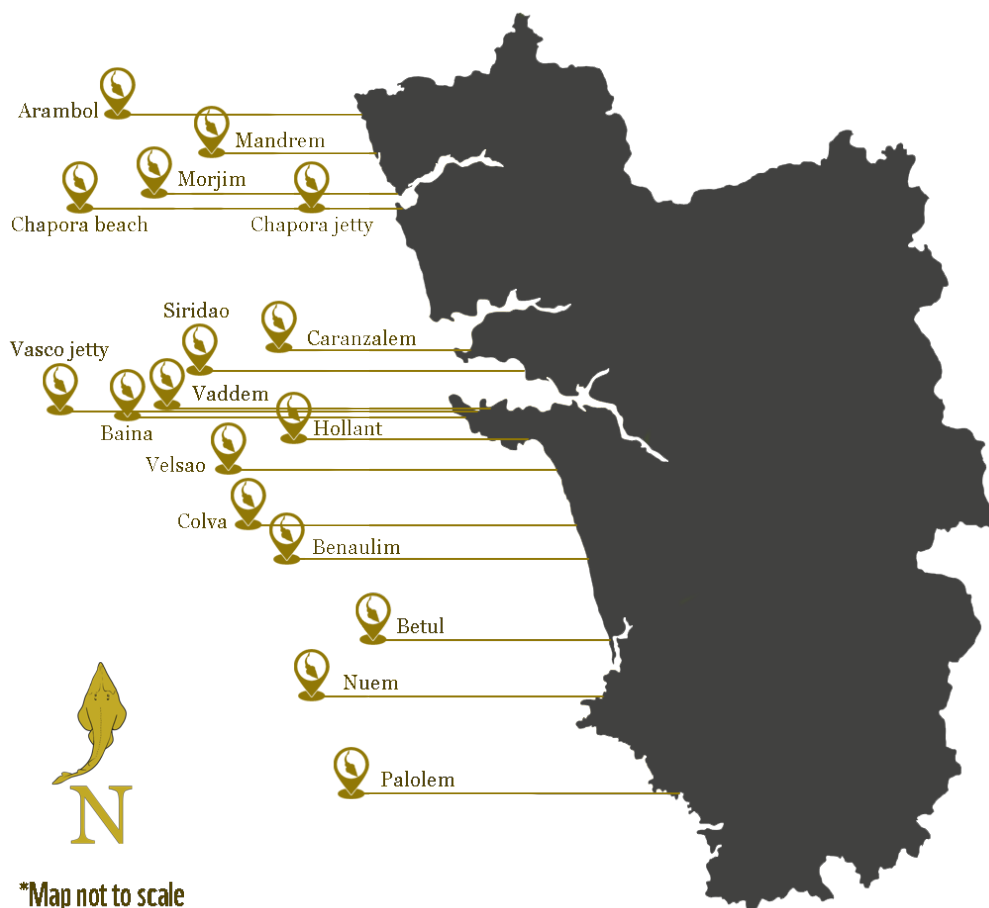


Fig-2: Map of Goa showing interview survey locations

Questions were mainly designed to get to know the presence, habitat and the interaction of the guitarfish with fishing gear. Emphasis was also given on the identification of the different species of the guitarfish as this would prove to be an important tool for the future conservation actions.



Image-2: Team conducting guitarfish interview survey.

Socio-economic information about the fishers was also collected to know more about the ways in which the fishers work and to find out if guitarfish is an important part of their economy. We were also looking to collect information on the non-economic use of the guitarfish i.e. uses in the cultural or traditional medicinal context.

Most of the surveys were conducted at the end of the monsoon season hence there were some challenges in meeting fishers when there was heavy rainfall. At times fishers avoided going out to fish when the sea was too rough.

A detailed analysis of the questionnaire survey results will be presented in the yearly report.

ACTIVITY-1.2: Collect data on Guitarfish bycatch

STATUS: IN PROGRESS

Study of the guitarfish bycatch occurring in the shore seine nets is an important part of this study. This is because in our preliminary observations it has been noted that there is high incidence of guitarfish juveniles bycatch in the shore seine operation, especially in the areas where the shore seines are operated on shores next to river estuaries.



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Image-3: Shore seine operation

Bycatch analysis for this project is carried out at the Caranzalem beach, near the capital city of Panjim. This site has been chosen due to its easy accessibility, regular shore seine operation and some unique bathymetric conditions which make it ideal breeding and nursery ground for a variety of marine life. Caranzalem beach lies on the river mouth of one of Goa's largest river; the river Mandovi which washes up a lot of nutrients through its tributaries and gives rise to a nutrient rich environment at the mouth of the river. The abundant planktonic life makes this area very rich in invertebrate life which in turn supports guitarfish and other bottom feeders.



Fig-3: Map of Caranzalem beach

Data on several parameters is collected during the bycatch analysis. Some of the important parameter are:

- Life stage: The Life stage of the guitarfish is very important consideration during bycatch analysis as the occurrence of large number of juvenile fish gives us an indication if the area under study is a nursery ground for the fish
- Gender: Gender in guitarfish is determined depending on the presence of clasper in the adult male fish. Regular occurrence or presence of large number of adult of the species indicate that the area under study could be a potential breeding area.
- Date/Time of Shore seine operation: The timings of operation of the shore seine can help us understand the active periods of the guitarfish.
- Total catch of the shore seine: Data on this parameter is mainly collected to calculate the percentage of the guitarfish bycatch in each shore seine fishing attempt.



Image-4: Dorsal side of the wide-nose guitarfish

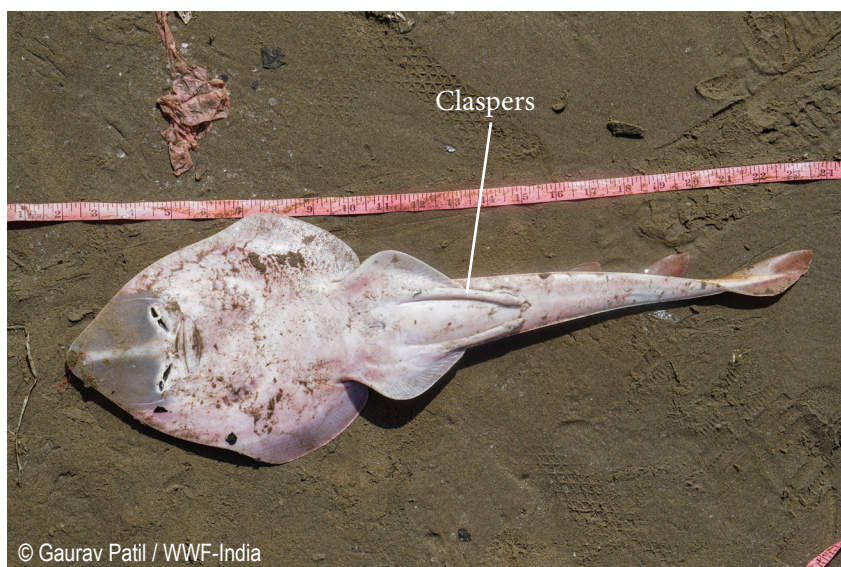


Image-5: Ventral side of the wide-nose guitarfish male. Its gender can be identified by seeing their claspers in matured individuals.

Largest Guitarfish Found

One of the highlight of the bycatch of the study that we recorded the largest known specimen of the widenose guitarfish (*Glaucostegus Obtusus*). The fish was measured to be **114.3 cm** long as compared to the previous record of **93 cm** in fishbase.org.



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ACTIVITY-1.3: Map Distribution of Guitarfish along the coast

STATUS: IN PROGRESS

Historically, Guitarfish habitat and its occurrence along Goa's coast has been poorly recorded. Mapping is an important conservation planning tool which can help determine the area most important for conservation of a particular species. This activity will help us in marking out the area where prominent guitarfish habitats occur i.e. the breeding or nursery grounds, major bycatch areas and areas where conservation measures will be most successful.

We plan to conduct more site visits and collate data obtained from questionnaire surveys and initial bycatch analysis to put together a complete picture for mapping the distribution of the guitarfish.

Objective 2: Raise awareness on the status and threats faced by Guitarfish.

ACTIVITY-2.1: Develop a local Guitarfish species identification guide

STATUS: IN PROGRESS

We have divided this activity in two parts. In the first part a basic identification chart was published. It contained 7 species of guitarfish, popularly believed to be found along the west coast of India. The objective of this chart was to help the fishers identify guitarfish interacting with their gear. The charts were also important for the questionnaire survey team as it help them standardise the identification of the species indicated by the fishers.

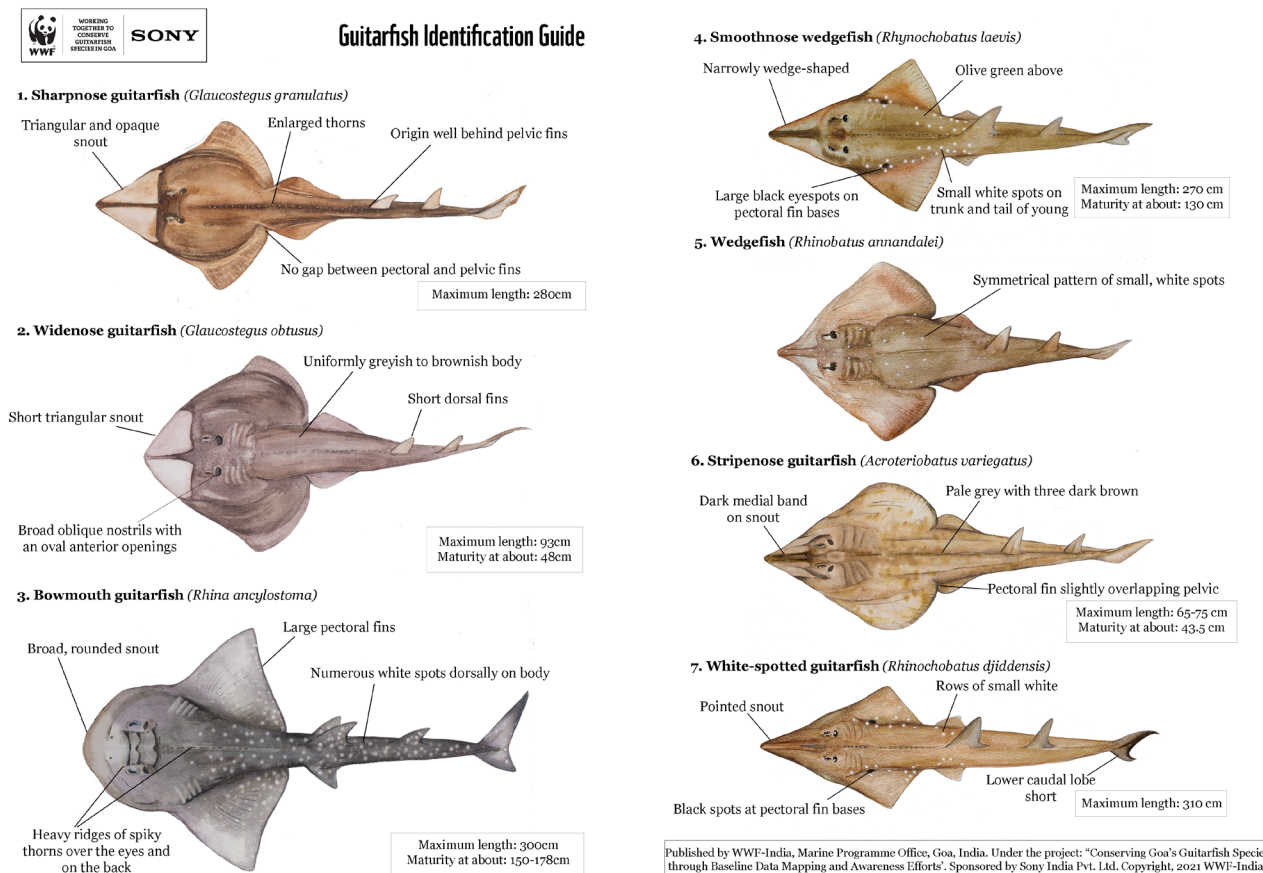


Image-6 & 7: Guitarfish identification chart

In the second part of this activity, we intend to publish a more detailed identification guide for the fishers which will be translated in local languages to help the fishers read through and identify guitarfish on their own. We also intend to include information on the importance of the guitarfish, its habitat and conservation measures in this guide. This guide will be used as an outreach aid and will also be distributed amongst the fishers during the fisher awareness activities.

Challenges

- State-wide lockdowns were the biggest challenge in conducting the fisher interview surveys. Due to the lockdowns our field team was not able to visit the fisher locations and interview them. This led to some initial delays in the start of the surveys.
- Untimely rain/cyclones hampered the availability of the fishers for interviews. This was because the fishers were reluctant to go out to fish during heavy rains and would prefer to stay indoors.
- Some bycatch analysis attempts had to be repeated as the shore seine operation did not take place on regular basis. This was mainly due to certain uncertain whether condition and on rare occasions due to surplus fish catch on previous attempts or non-availability of manpower for the labour intensive operation.

- Guitarfish breeding/nesting season seemed to be delayed this year and this caused some changes in our plans.
- Some of the beaches well known for sightings of the guitarfish were damaged due to sand erosion and this led to poor sighting of the guitarfish in these places.

Ways Forward

- After consultation with fisheries experts it was decided to extend the guitarfish bycatch analysis from the initially planned 3 months to the rest of the fishing season. It will give us a complete picture of the guitarfish population dynamics including any variability in its population.
- Designing and development of the guitarfish charts for distribution amongst the fishers is in progress. This will help us communicate our message of conservation to the fishers.
- At least a couple of guitarfish awareness workshops will be organized initially to gauge the interest of the fishers and then more would follow. The main purpose of these activities will be to present our findings to the fishers and get their support in the future conservation attempts.

Financial Report

Following is the Financial report for the project From April 2021 to September 2021.

		Financial Update 30.09.2021		
Project :	Conserving Goa Guitarfish			
				INR
S. No.	Budget Head / Activity	Budget Year (Apr 21 - Mar 22)	Expenditure as on 30.09.2021	Budget Balance
Objective 1:				
	Activity 1.1	35,000	21,266	13,734
	Activity 1.2	45,000	21,265	23,735
	Activity 1.3	80,000		80,000
Objective 2 :				
	Activity 2.1	70,000		70,000
	Activity 2.2	60,000		60,000
	Communication	80,000	2,016	77,984
	Monitoring & Evaluation	-		-
	Office Running	82,000	32,662	49,338
	Travel & Subsistances	60,000	24,024	35,976
	Capital Assets	60,000	78,000	(18,000)
	Staff Cost	3,16,890	1,49,000	1,67,890
	Total	8,88,890	3,28,233	5,60,657
	Management 12.5%	1,11,111	41,029	70,082
		10,00,001	3,69,262	6,30,739
	Fund received till 25.02.2021	10,00,000		
	Expenditure till 30.09.2021	3,69,262		
	Balance	6,30,738		
	Advance	15,000		

A note of gratitude to Sony India

The project team will like to express our gratitude towards Sony India's unending support in our endeavour and for giving us the opportunity to study and conserve guitarfish. We would also like to assure the Sony India, that we resolve to continue our work with the same enthusiasm and wish for your continuous patronship support in the future.



Thank you for your support!