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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Small Pelagic LEK Validation Report



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THE
UNIVERSITY
OF RHODE ISLAND
GRADUATE SCHOOL
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Hen Mpoano

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For more information on the Ghana Sustainable Fisheries Management Project, contact:

USAID/Ghana Sustainable Fisheries Management Project

Coastal Resources Center

Graduate School of Oceanography

University of Rhode Island

220 South Ferry Rd.

Narragansett, RI 02882 USA

Tel: 401-874-6224 Fax: 401-874-6920 Email: info@crc.uri.edu

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Cover photo: Section of participants in Adina, Volta Region (Credit: Hen Mpoano)

Detailed Partner Contact Information:

USAID/Ghana Sustainable Fisheries Management Project (SFMP)
10 Obodai St., Mempeasem, East Legon, Accra, Ghana

Telephone: +233 0302 542497 Fax: +233 0302 542498

Maurice Knight	Chief of Party maurice@crc.uri.edu
Kofi Agbogah	Senior Fisheries Advisor kagbogah@henmpoano.org
Nii Odenkey Abbey	Communications Officer nii.sfmp@crcuri.org
Bakari Nyari	Monitoring and Evaluation Specialist hardinyari.sfmp@crcuri.org
Brian Crawford	Project Manager, CRC brian@crc.uri.edu
Ellis Ekekepi	USAID AOR (acting) eekekpi@usaid.gov

Kofi.Agbogah
kagbogah@henmpoano.org

Stephen Kankam
skankam@henmpoano.org
Hen Mpoano
38 J. Cross Cole St. Windy Ridge
Takoradi, Ghana
233 312 020 701

Andre de Jager
adejager@snvworld.org
SNV Netherlands Development Organisation
#161, 10 Maseru Road,
E. Legon, Accra, Ghana
233 30 701 2440

Donkris Mevuta
Kyei Yamoah
info@fonghana.org
Friends of the Nation
Parks and Gardens
Adiembra-Sekondi, Ghana
233 312 046 180

Thomas Buck
tom@ssg-advisors.com
SSG Advisors
182 Main Street
Burlington, VT 05401
(802) 735-1162

Victoria C. Koomson
cewefia@gmail.com
CEWEFIA
B342 Bronyibima Estate
Elmina, Ghana
233 024 427 8377

Lydia Sasu
daawomen@daawomen.org
DAA
Darkuman Junction, Kaneshie Odokor
Highway
Accra, Ghana
233 302 315894

For additional information on partner activities:

CRC/URI: <http://www.crc.uri.edu>
CEWEFIA: <http://cewefia.weebly.com/>
DAA: <http://womenthrive.org/development-action-association-daa>
Friends of the Nation: <http://www.fonghana.org>
Hen Mpoano: <http://www.henmpoano.org>
SNV: <http://www.snvworld.org/en/countries/ghana>
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ACRONYMS

LEK	Local Ecological Knowledge
IUU	Illegal Unreported or Unregulated fisheries
GITA	Ghana Industrial Trawlers Association

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INTRODUCTION

The Local Ecological Knowledge study of fishermen was to gather detailed information about the knowledge and perceptions of fishermen in coastal communities on Sardinella Fisheries in Ghana. The goal of the validation exercise was to present the findings of the study to the fishermen to vet if it was an accurate representation of their knowledge as provided by interviewees.

The validation meetings were held at Half Assini, New Takoradi, Moree Adina, Abutiakope, Tema and Elmina.

This report is a consolidation of the outcomes of the validation in the 7 selected landing sites.

Table 1: LEK Validation Implementation Schedule

Communities	Date
Half Assini	13/12/2016
New Takoradi	15/12/2016
Moree	20/12/2016
Abutiakope	10/01/2017
Adina	10/01/2017
Tema	11/01/2017
Elmina	12/01/2017

Validation Approach

A section of the results was selected for the validation (see Annex) in the 7 landing sites. The selection was done to exclude similar outcomes from the small pelagic fishery profile that had already been vetted in this same communities. The results were then processed in Photoshop into JPG format for printing on large format flexy and printed. Use of large format flexy was to allow us have a beach level engagement where large number of fishermen can attend.

At the meetings, the results of the study were presented to the fishermen in the form of graphs. The graphs were explained to them for them to confirm or disagree with the results. Opportunity was also given for the fishermen to explain the views to give a better understanding of the information they had provided. The main issues that arose in the discussions are reported below.



Figure 1: Section of participants during Validation in Adina, Volta Region

OUTCOMES

Below are the aggregated comments on responses given by participants at the validation to the analysis of the LEK interview responses.

Reasons for Fishing

Major reasons for choosing to engage in fishing were to continue family traditions, interest in fishing, and inability to go through formal education. Other reasons included financial difficulties, unavailability of other job options and the potential financial gains to be derived from fishing. The fishermen in the various communities agreed with the results, saying that it was very accurate.

Fishermen Whose Parents Indulged in Fishing

Most of the fishermen said their parents engaged in fishing. They also indicated that it was the main way current fishermen were introduced to fishing.

Knowledge Needed to Fish Sardinella

The fishermen said mending of nets, swimming etc. were very important skills for every fisherman to fish. However, the phase of the moon is an important indication of whether or not fish would be abundant and also influenced the intensity of the waves which could also affect the setting of nets. As such they had expected it to have had higher response than displayed by the diagram. Reasons for the results were given as loss of knowledge due to oral means of transfer and level of experience of fishermen that were interviewed.

Fisheries Decision Making in Ghana

Fishermen confirmed the results, saying that at the local level, chief fishermen were the most powerful decision makers. For the regional level, the head of the chief fishermen and the Fisheries Commission were the most powerful decision makers in the descending order of importance. For the national level, the fishermen agreed that the Minister for Fisheries and Aquaculture Development was the most powerful decision maker.

A fisherman raised a question on the authority of the chief fishermen in regulating fishing activities. He said in the past, the duties of the chief fishermen included preventing illegal fishing, settling quarrels between fishermen and meting out punishment to fishermen and

crews that flouted locally set regulations. He continued that, as a result, the chief fishermen had gradually lost their credibility as enforcers of the law on the landing sites under their jurisdiction. Daniel Nortey, a programme officer, explained that the Government of Ghana through the Legislative arm had over the years, enacted into law several rules and regulations regarding fisheries. However, because chief fishermen were not recognised by the law as arbitrators, fishermen who thought decisions taken against them by the local authorities were unfavourable had a right to seek redress through the law courts.

Characteristics of Sardinella in Ghanaian Waters

Fishermen agreed that sardinella were very abundant, seasonal, and could be identified using swimming patterns. They also said Sardinella were relatively easy to catch and fetches a substantial amount of money for fishermen. It was added that, during the rainy season were fishermen are not able fish, sardines move around the shallow waters of the coast way back in the 1990's but there has been a tremendous change currently. They added that sardines were generally abundant in the month of August to September.

Smaller sizes were said to be captured in the months of June to September while larger ones were captured in the months of October and November. They also added that illegal fishing activities like the use of chemicals and explosives in fishing could also account for the small sizes.

The abundance of sardinella is believed to have reduced because of migration of the fish to countries as far as Morocco due to the bad fishing practices of fishermen along the coast of Ghana.

Size Range of Sardinella Captured in Fishing Expeditions

The size of Sardinella individuals captured during fishing expeditions ranged from 1.5 inches to 12 inches. Though the fishermen agreed with the size range, they said it varied with the time. They also said that recently, the size captured in fishing expedition had reduced.

Do Sardinella of Similar Length School Together?

The results showed that though majority of the fishermen agreed that Sardinella individuals of similar length schooled together, some disagreed stating that the time of the year, location and depth sometimes determined the length of schooling sardinella.

Seasonal Abundance of Sardinella

The fishermen also confirmed the results that Sardinella became abundant from June to September. But they reiterated that, the particular month depended on when upwelling occurred in the year.

Movement of Sardinella

It was indicated that sardinella do not literally move from the west coast to the east coast of Ghana. But rather it is the food (upwelling) that moves from the west coast to the east coast. This upwelling movement is what influence the sighting of the sardinella and give it the appearance of moving from west to east. The sardinella is said to move from off the continental shelf towards the shore as the upwelling begins. They explained that fishermen at the western shores encountered the fish first because their coast was much further into the sea than that of the Volta and Greater Accra Regions.

Predators of Sardinella

Agreeing with the data presented, the fishermen confirmed that the main predators of sardinella fish were dolphins, sharks, tuna species and the blue marlins.

Human Factors That Affect Sardinella

Fishermen affirmed the results that non-compliance with regulations on illegal fishing methods was the major factor that affect sardinella in Ghana's waters followed by trawling activities. They also said overfishing, light from oil rigs and noise were minor factors that affected sardinella fish.

In the Volta Region, it was believed that the damming of the Volta river and the closing of the Keta Lagoon negatively affect the abundance of sardinella. The damming of Volta River was believed to have reduced the supply of nutrients into Ghana's coastal waters. The use of nets of small mesh sizes to capture fingerlings both in the Keta Lagoon and the sea was also believed to have negatively affected the fishing of sardinella and could account for the small sizes described by the results.

In the other regions, illegal fishing methods especially the use of chemicals, explosives and small mesh sizes, bribery and corruption among law enforcement agencies, noise and pollution were confirmed as factors that negatively affected sardinella in Ghanaian coastal waters.

Threats to Sardinella Fisheries in Ghana

Fishermen agreed with the result outcome that light fishing posed the biggest threat to sardinella fishing in Ghana. They also agreed that chemical fishing, trawling and the use of dynamites in fishing posed threats in decreasing order of significance.

At Half Assini, a fisherman said that some time ago, the Chief Fishermen along the coast of Ghana came into an agreement to stop illegal, unregulated and unreported fisheries in their respective landing sites. These Illegal Unreported or Unregulated (IUU) fishing activities included light fishing, the use of chemicals in fishing and pair trawling. He said soon after, it was realised that some chief fishermen allowed these activities along their territories. This, he said, made adhering to the agreement economically impossible because fishermen who indulged in these practices made better profit than fishermen who followed the rules. He suggested that such agreements be backed by law so that fishermen who break the laws are dealt with.

Fishing Association

Fishermen said that most of the associations were not functional at the beach level. Even then, strong associations or groups were weakened by the acceptance of bribes from powerful politicians and boat owners.

An association that was left out during the interviews was the Ghana Inshore Trawlers Association (GITA.)

BEST ACTION TO MANAGE SARDINELLA AND OTHER SMALL PELAGICS IN GHANA

Majority of the fishermen suggested that the best way to manage Sardinella fisheries was to enforce existing regulations on illegal fishing methods to stop the practices. They agreed with the suggestion that trawlers should be prevented from fishing sardinella as a second action to manage Sardinella Fisheries in Ghana. Few agreed with the suggestion of instituting closed seasons and reducing efforts as a way of managing Sardinella Fisheries in Ghana.

Reduction in Effort

Some fishermen disagreed that the effort had to be reduced as suggested by the results. They said that previously, they ran day and night shifts but they all captured fish so if they now all

went in the day time it did not mean more fishermen were going to sea. Some also said that reducing effort would lead to loss of livelihoods of some fishermen and would cause poverty in coastal communities.

Illegal Fishing Methods

Though most fishermen agreed that illegal fishing methods like the use of chemicals, explosives and small mesh sizes had to be stopped, some disagreed that the use of light was detrimental to the fishing industry. They described light fishing as an improvement in the type of fishing gear explaining that, the gears that were accepted as legal were not used by their forefathers but came as an improvement over those types of gear.

Increased Enforcement

Though fishermen agreed that existing regulations should be enforced, they expressed disappointment that many of the culprits had bribed their way out of prosecution. They also said that interference from powerful political and threats from local boat owners make it impossible for the laws to be enforced along the landing sites.

Other Suggestions

The fishermen proposed that committees be formed by local fishermen with political and legislative backing to be able to enforce regulations along the beach but expressed worry over the potential political interference and threats from boat owners whose crews were involved in illegal practices. They however said the creation of these local groups would provide employment that could also reduce effort.

Licensing of boats was also suggested as a possible way of curbing illegal fishing practices. They said licensing would reduce the number of fishing vessels at sea. Licenses could also be revoked if the crew of the boat were found to have engaged in illegal fishing practices to serve as a deterrent to others.

Some fishermen suggested that sardinella exclusion devices could be included in the nets of trawlers especially, to prevent them from fishing sardinella. They also asked that officials from the Fisheries Commission go with the trawlers on fishing expeditions to ensure that the trawlers adhered to the regulations.

CONCLUSION

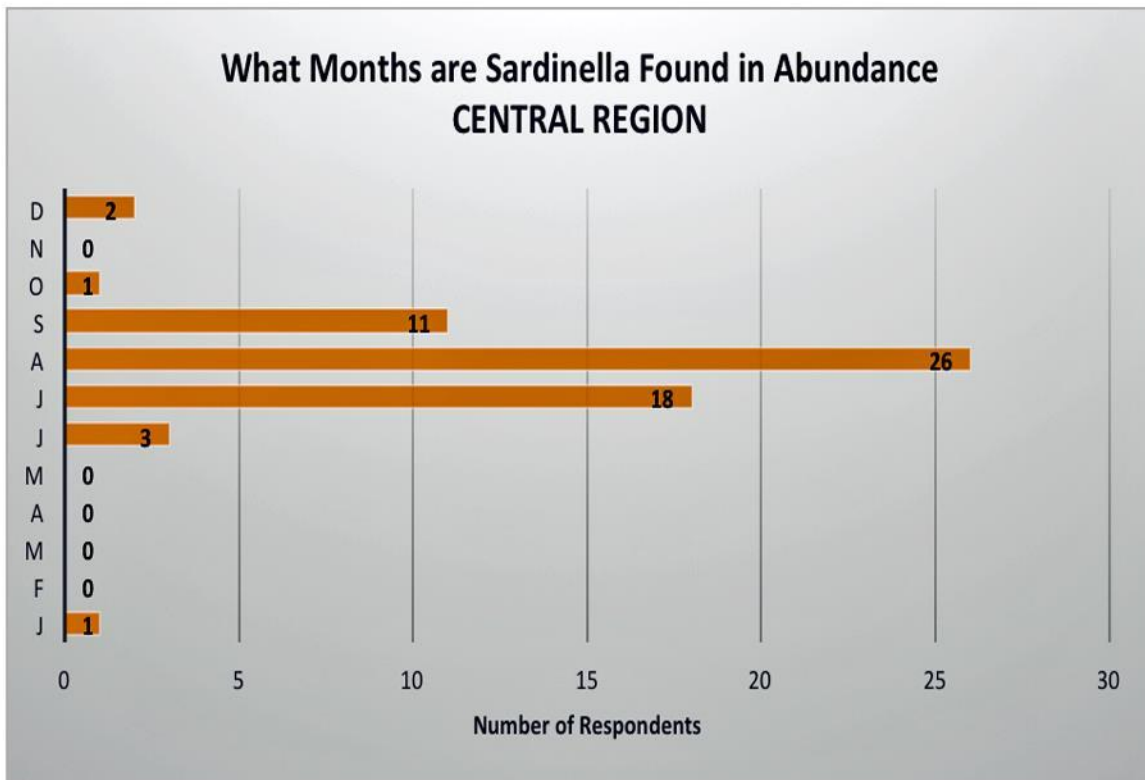
In summary, the results of the LEK study were accepted by the fishermen as a true representation of their views on Sardinella Fisheries in Ghana. They showed appreciation to Hen Mpoano and the Sustainable Fisheries Management Project for actively involving fishermen in the planning and decision making process on issues that directly affected them. They hoped that the suggestions would be implement to improve the fishing industry to make it more sustainable and profitable.

ANNEX

Large format sample result printout



Months Sardinella are found in Abundance in Central Region

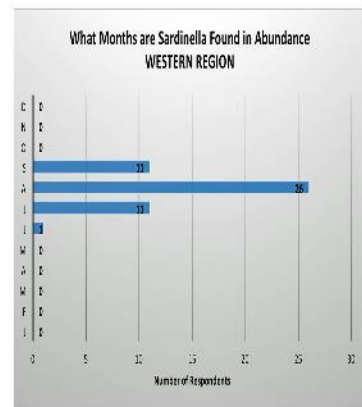
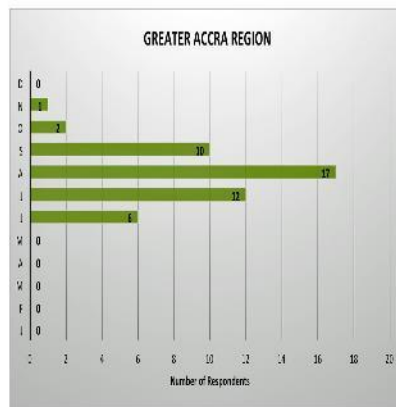
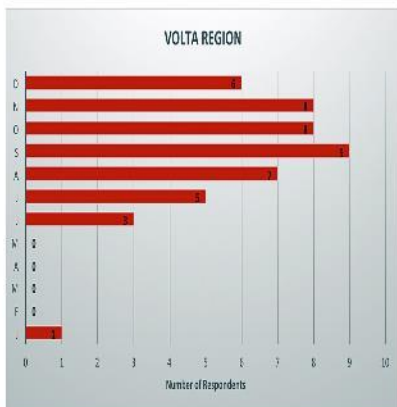
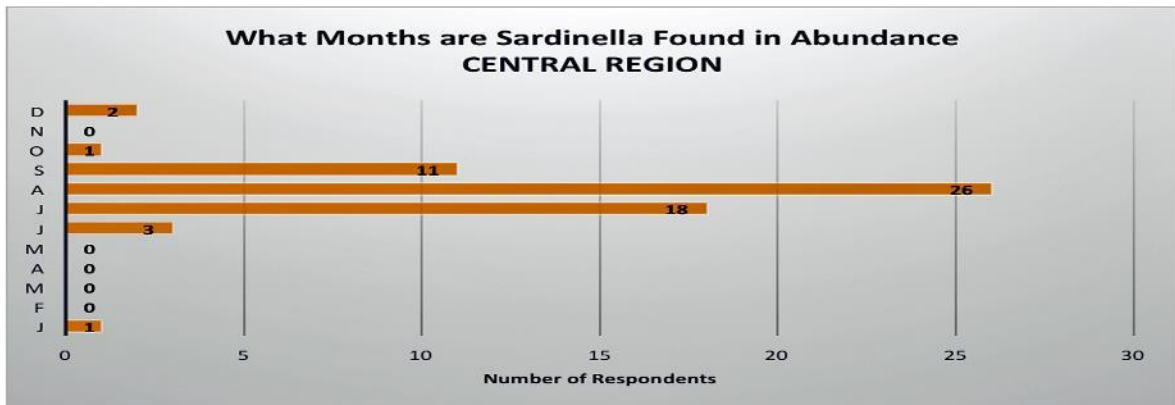


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Months Sardinella are found in Abundance in Central Region Compared to other Regions



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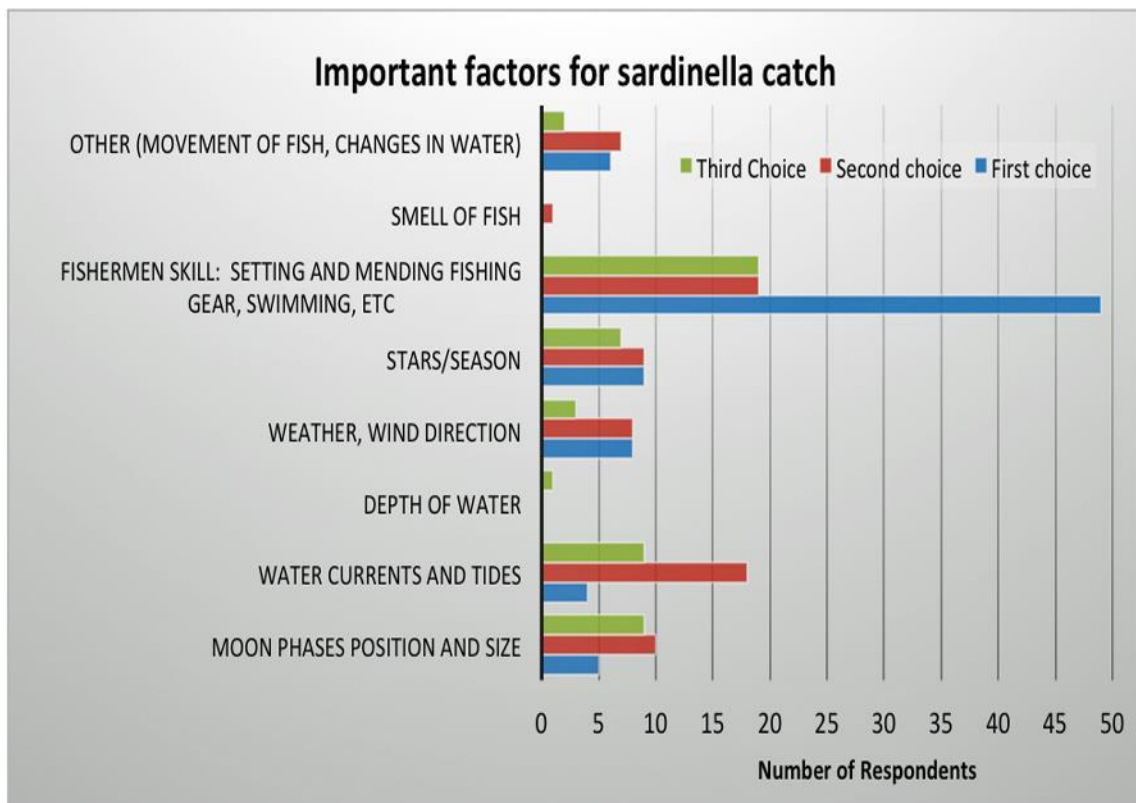


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Knowledge Required to Fish Sardinella



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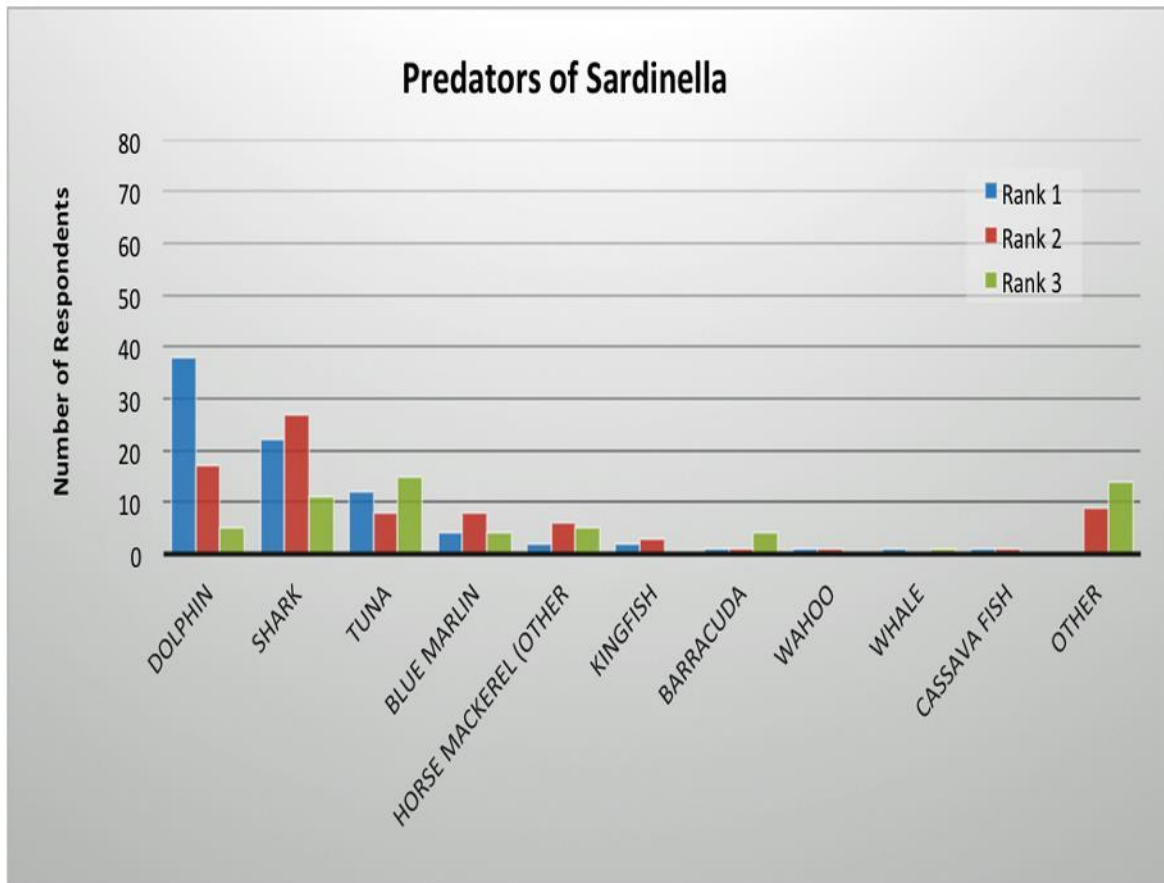


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Predators of Sardinella



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Activity pictures



