Social Implications of Artisanal Purse Seine Practices on Dolphins at Ibaga Fishing Community, Akwa Ibom State, Nigeria

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Abstract: The study was set out to investigate some social implications of bonga purse seine fishing practices on dolphin inshore at Ibaga fishing community located Akwa Ibom State, southern Nigeria. Purposive sampling technique was adopted for selection of bonga purse seine fishermen. Structure questionnaire was administered to the fishermen through one-on-one interviews and focus group discussions. The fishermen were sampled at the shore after they have returned from the fishing trips. Majority of the fishermen considered dolphin as enemy because it destroys nets as they struggle to escape from incidental catch. Dolphin is not considered endanger animal by the fishermen. Among the negative perceptions and believe of the fishermen on dolphin is that it is a “spiritual” aquatic animal; it brings bad luck to fishermen; have some human resembled features such as blood, blood vein and internal organs; and believed to be an emotional animal and shed tears (cry) like human. There is no traditional/local or formal protective or conservation law against killing of dolphin in the ocean. The study recommends awareness and sesitisation programme on the true nature of dolphins among artisanal fishermen to correct their wrong perceptions on dolphin. Also, there is need for proper regulation of artisanal purse seine fishing in Nigeria Atlantic water.

Keywords: Dolphin, Bonga Fishing, Ibaga Community, Negative Perception

INTRODUCTION
Fishing in marine and in-land areas dominates occupation among the Gulf of Guinea and other coastal waters of West Africa (Ehinmore, 2014). This include Bonga (Ethmalosa fimbriata) fishing which constitutes most of the artisinal fish landings and caught in Nigerian coastal and inshore waters. Bonga artisanal purse seine fishery started in Nigeria in 1970s by migrant Ghanaian fishermen and largely replaced the gill net fishery that had been operating for decades. However, with its higher catch rates and a wider area of operations, this new fishery practice consequently led to rapid reduction of bonga and in the process the trawlers encircled dolphins in gillnets. Large numbers of Bottlenose dolphin (Tursiops truncates) and Common dolphin (Delphinus delphis) have been reported to be taken by process (Amborse and Obienu, 2016).

As reported by Uwagbae and Van Waerebeek (undated), dolphins were observed in Brass Island (4.316944°N, 6.222778°E) of Delta Island water of Nigeria. Small and large groups of dolphins of about 30 individuals have been observed on the island. The authors reported that dolphins in the area preferred shallow coastal and estuarine waters less than 20m deep. Most importantly, dolphins were mainly seen between February to June during the period that bonga fish (Ethmalosa fimbriata) were in season and caught in large quantity by artisanal fishermen. The reason for seeing dolphin in large numbers was that dolphin seems to feed on the bonga fish hence always after the net cast by the fishermen.

The consumption of bushmeat in west Africa, including cetaceans called 'marine bushmeat' has been reported (Alfaro-Shigueto and Van Waerebeek 2001; Van Waerebeek et al., 2000; Brashares et al., 2004; Clapham and Van Waerebeek, 2007). In a survey conducted by Uwagbae and Van Waerebeek (undated) in Brass Island, it was reported that dolphins are deliberately hunted, killed and their meat consumed. During the survey, the authors observed landing of a large-sized common bottlenose dolphin Tursiops truncatus on the shore of Imbikiri community. An average of 25 adult dolphins were caught per hunting trip. The dolphins were also sold to local marketers. This survey evidently shows that dolphins were deliberately hunted, captured, killed, traded and consumed by the coastal communities.

Under Chapter 108 of its ‘Endangered Species (Control of International Trade and Traffic) Act’, whales, dolphins and porpoises, and specifically the families Balaenopteridae, Physeteridae, Delphinidae, Ziphidae and Platanistidae are listed as animals on ‘First Schedule’ for which international trade is absolutely prohibited. This reflects the provisions of the Convention on the International Trade of Endangered Species of Fauna and Flora (CITES). Despite the foregoing, cetaceans are only partially protected in Nigeria. Furthermore, there is still lack of information on the perception of dolphins by artisanal bonga fisher folks along Nigeria coastal waters. This study therefore set out to investigate some social implications of bonga purse seine fishing practices on dolphin inshore. Specifically, the project is expected to document implications of bycatch capture activities as well as perceptions of artisanal fishermen on dolphin...
in coast of Eastern Nigerian Atlantic. This information will be handy and valuable in developing conservation strategy for the species among the fisher folks. Although conservation strategy is mostly effective when location specific, hence this study is focused on the artisanal purse seine fishermen at Ibaga fishing community located in Akwa Ibom State of Nigeria.

METHODOLOGY
The study was conducted at Ibaga fishing (Plate 1a & 1b) located in Akwa Ibom State, southern Nigeria. The community is located at the Eastern Nigerian Atlantic sea port where fishing dominates major occupation of the people. Purposive sampling technique was adopted for selection of bonga purse seine fishermen. Structure questionnaire was administered to the fishermen through one-on-one and focus group discussion. In-depth interview was conducted for selected key informants among the fishermen. The fishermen were sampled at the shore after they have returned from the fishing trips, especially when they were carrying out repair of their nets. On getting to a group of fishermen at the shore, the boat owner or head of the fishermen is first identified. This then proceeded with explanation of the project rationale and permission to conduct questionnaire administration and interview of the fishermen.

Prior to questionnaire administration and interview, pictures of cetaceans, containing different types of dolphins, shark and whale were shown to the fishermen. The reason for showing the pictures of different types of aquatic species to the fishermen is to confirm if they actually know dolphin and can identify it among the other animals. Also, this is to serve as guide to the fishermen and make sure they are providing right information.

RESULTS
Artisanal Purse Seine fishery
Artisanal purse seine fishery in Nigeria is an unregulated type of fishing dominated by Nigerian and migrant Ghanaian. The fishermen use Watsa boats (Plate 2) made from locally sourced wood and powered by 40 to 75 HP outboard gasoline engine attachment. Each of the boats has a name given by the owner and well decorated with colour paints and flags. The type of gear used is by the fishermen is Purse seine with floats (Plate 3). The purse seine nets used have a body mesh size of 25mm and bunt mesh size of 15mm. Length of the net is between 450 and 500m.

The fishermen carry out fishing activities at onshore, nearshore and offshore depending on the season of the year. Before embarking on fishing trip into the Atlantic Ocean, the fishermen usually load their boats with the fishing nets, drums of gasoline for the engine, and other fishing materials (Plate 4). The boats normally have a captain and on the average between 15 and 20 fishermen. Fishing is normally carried out from Monday to Saturday, while Sunday is resting day. This means that the fishermen carry out fishing 6 days per week from early in the morning around 5am to afternoon or evening that the fishermen return with their catch. In addition to Sundays which are used for resting, the fishermen, of which majority was Christian observed holiday during festivity periods observed by Christian faith. Depending on the quantity of catch, two or three operational sets are made per trip in inshore water.

On getting to the sea, the fishermen cast the net to circle the school of bonga, then the rope passing through rings at the bottom of the net is pulled aboard the vessel, closing the lower part of the net to form the shape of a “purse”. Some of the ways by which the fishermen know that the net has caught Bonga fish from afar include change in water color, and presence of dolphin and hovering of sea birds struggling to get their share of the catch. The attraction of dolphin to the net for bonga fish makes them vulnerable to incidental capture in purse seine. The dry and rainy (wet) seasons that are available in the study location affect fish availability, hence distance of fishing offshore and hours of fishing per trip. As informed by the fishermen, bonga fish is more available for catch within short distances in rainy season than dry season. On a single trip, the fishermen spent between 10 and 15 hours.

After each fish trip, the fishermen carry out fish maintenance in the form sowing of torn net and separation of tangled nets (Plate 5). Specifically, repair of torn net is very important to the fishermen and sometimes takes time to complete. The fishermen were aware that the status of their net directly determines the quantity of the fish they catch. Tear nets will lead to escape of fish during fishing in the ocean.

On fishing restriction, the fishermen informed that they are not allowed to fish near places where there are installations of petroleum companies. Also, there are restrictions on international water belonging to Cameroon. Specifically, the Bakasi Peninsula side at the Nigeria-Cameroon boarder has been considered a restricted area to Nigerians because the international water belongs to Cameroon. The area is therefore heavily guarded by Cameroon Navy. Nigerian or Ghanaian fishermen who are caught on this international water are arrested, prosecuted and most of the times have to pay fine before they are released.

Quantity of catches by Purse Seine fishermen
The fishermen use local measurement to calculate their catches. After a boat arrive the shore, some men (off-loaders) use big basins to off-load the fish (catch) from the boat to already waiting women or men who are the major buyers and wholesaler of the catch. The men that offload the fish were not paid monetarily; instead they
Plate 1a & b: Ibaga Fishing community, Akwa Ibom State

Plate 2: Watsa boats used for the Purse Seine Fishery at Ibaga fishing port

Plate 3: Net and floaters used by the Purse Seine fishermen on the Atlantic Ocean

Plate 4: Fishermen loading their Watsa boat and getting ready to go for fishing.

Plate 5: Fishermen carrying out repair of their net

Plate 6: Side view of a line from a boat arriving at night
were given small portion of the fish from the full-load basin they offload from the boat to the waiting buyers. This means that an off-loader will get equivalent of the small portions of the basin multiply by the number of basins he off-load.

Calculations used by the fishermen to sell the fish at the shore after return from the trip are given thus:

2 big basins by off-loaders = 1 place
10 places = 1 line

On a good day, a boat can off-load eight (8) to ten (10) lines. But normal catch is around three (3) to five (5) places. Low catch is less than a line (Plate 6). As at the time of this data collection, a place was sold by the fisherman for ₦3,000 to ₦4,000, while a complete line of the fish was sold for between ₦30, 000 and ₦40,000. When the fish are re-sold by the wholesalers to the retailers, the prices go higher. In most cases, the wholesalers take the fish for sale outside Ibaga port.

From the proceeds of the catch, the captain first deducts all expenditures for the trip, such as fuel (gasoline), oil, fees for international water, etc and the remaining money is shared on percentages with the boat owner, captain and the boat crew.

Perceptions of dolphin by the fishermen

According to the fishermen, dolphin is found in abundance in the high sea and they did not believe that it is an endangered aquatic animal. There are some perceptions and misconceptions about dolphins among the fishermen and community dwellers at Ibaga. Different stories were narrated on dolphin most of which are hard to confirm scientifically. Among the negative perceptions and believe of the fishermen on dolphin is that it is a spiritual (and sometimes evil possessed) aquatic animal, and that it brings bad luck to fishermen. Dolphin is believed to have some human resembled features such as blood, blood vein and internal organs. Also, dolphin is believed to be an emotional animal and shed tears (cry) like human. All these features made some people not to eat dolphins.

Killing of Dolphin

The fishermen did not deliberately catch dolphin unless it finds its way into the net during the process of hauling. All the groups of fishermen where sampling was conducted have killed dolphins in the previous years. It was confirmed by one of the groups that they have killed a dolphin around February 2017. Some of the fishermen informed that to catch dolphin, one will need net having bigger mesh size and speed boat with at least 40 HP engine. This same net and boat could be used to catch other bigger fish such as shark, shiny-nose, among others.

When dolphin accidentally enters a net meant to catch bonga and other fish, it normally damage and destroy the net in the process of escaping from the net causing other fish already caught to escape. This is what makes the fishermen tagged dolphin as “enemy of fishermen that bring bad luck”. If the crew was able to drag dolphin caught in their net on board, it is not set free but rather killed and taken to the shore for sale or the flesh is cut into pieces and distribute to people in the community.

Eating and uses of dolphin

Dolphin is eaten by some people, and at the same time dislike but some people. Among the reasons while eating of dolphin was dislike by some people is that the flesh emits a particular “foul odour” that some people dislike. Some of the fishermen who dislike eating dolphin said the animal’s blood resemble that of human blood when cut open. Furthermore, some of the fishermen said dolphin is an emotional animal that shed tears and makes a distinct sound when it is being killed.

The fishermen informed that dolphin’s fin is used in production of a particular gum which is used in repair of the machine used in powering of the boat. Detail information on this could not be obtained as at time of this data collection.

Sale and sharing of killed dolphin

The fishermen informed that when dolphin is killed and brought on shore, there are some buyers who are ready to buy the flesh. There is no fix selling price for the animal but base on bargain between the fishermen and the buyer. Most of the time, the killed dolphin is not sold whole but cut into pieces. The flesh and other internal organs and intestines of the animal are eaten. After cutting, dolphin’s head is given to the village head as a sign of respect and honour. Dolphin’s flesh is smoked by the buyers as a way of preserving it as well as adding value to increase the selling price to the target consumers.

Prosecution against killing of dolphin

There is no traditional/local or formal conservation law against killing of dolphin in the study area. Also, there is no protective law or legislation preventing killing of dolphin in the ocean.

CONCLUSION

The study assessed impacts of bonga purse seine fishery on dolphin at the Eastern Nigerian Atlantic. In actual sense, the artisanal purse seine fishery in Nigeria is not regulated with implications on threatened aquatic animals one of which is dolphin. As informed by the fishermen at Ibaga, dolphins are not deliberately catch unless they find their way into the net during the process of hauling. However, there are misconceptions on dolphin among the fisher folks some of which further expose them to danger. Majority of the fishermen considered dolphin as enemy because dolphin tends to destroy nets as they struggle to escape from incidental catch thereby causing other fish already caught to escape. Dolphin that is caught in the
net is not set free but rather killed and taken to the shore for sale or share to people in the community.

Although some people do not like eating dolphin due to the “foul odour” of their flesh and emotional nature of the animal, however, dolphin is eaten by some people especially after smoking. There are buyers who are ready to buy the killed dolphin when brought to shore. Also, the community heads partook in eating of dolphins. The fishermen also informed that dolphin’s fin is used in production of a particular gum. The most striking part of this study is that dolphin is not considered endanger animal by the fishermen. There is also no traditional/local or formal protective or conservation law against killing of dolphin in the ocean.

From findings of this study, there is need for proper regulation of artisanal purse seine fishing in Nigeria Atlantic water. The regulation should overhaul the entire artisanal fishing activities on the coastal water body including the gears they use and the type of fish they catch and bring to shore. There is urgent need for formulation of conservation law and imposition of restriction against killing of dolphins and other threatened aquatic animals. After formulation of such laws, this should be accompanied with proper enforcement with corporation of community leaders. Above all, there is need for wide conservation education targeted at dolphins as well as awareness and sensitization on the true nature of dolphins to correct the wrong perceptions of the fishermen. Since Dolphins cause damages to nets during incidental catch, there should be an incentive for the fishermen to facilitate repair of such nets. Also, fishermen should be instructed to return any dolphin that are accidentally caught in their nets rather than killing.

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