

## **Title: Update on the cetaceans of Ghana through citizen science.**

### **Abstract**

In Ghana, sporadic studies, although hampered by technical and logistic difficulties, have revealed that the country's waters are home to several cetacean species. Poor knowledge on cetacean population trends in this unique upwelling region, and high demand for cetacean products for human consumption may lead to a potential decline, which may go unnoticed. It is therefore required to quickly improve and implement viable data driven conservation measures directed to effectively address these unmanaged threats. The project aims at gathering latest information on the poorly monitored cetacean populations to understand threats posed by interactions with fisheries and offshore operations

### **Introduction**



Fig 1: Interaction with fishermen at the Jamestown fishing harbour in Accra

Studies on cetaceans in Ghana is rare, making it difficult to understand cetacean species diversity and threats. Records of earlier threats observed to marine mammals were attributed to drift grill net fishing. Artisanal fishermen were intentionally capturing smaller dolphin species which was in high demand as marine “bush meat” or used as bait for sharks fishing. With the increase in coastal development at the onset of offshore oil discovery, there is an upsurge in deaths of cetaceans, with close to hundred deaths recorded in the last decade. Many conservation groups have attributed these deaths to offshore collision with vessels, but oil drilling companies discredited these claims. Seismic sound from oil drilling and vessel propellers are known to cause behavioural changes in cetaceans due to their reliance on sound for communication and navigation.

The poor knowledge on population trends of cetaceans in this unique upwelling region, together with a high demand for cetacean products for human consumption may lead to a potential decline of some species that may go unnoticed. It is therefore needed to quickly improve and implement viable data driven conservation measures directed at effectively addressing these unmanaged deaths and overexploitation of cetaceans, offshore the coast of Ghana.

### **Materials and Methods**

The research focused on the coast of Ghana which extend 550 km from Aflao to Axim. Ghana has three main categories of fish landing sites along the coast namely, industrial, Inshore, and artisanal landing sites. The Takoradi harbor, located to the west and the Tema harbours in the east are the two-industrial fishing harbours. These industrial vessel landing sites are equipped

with landing berth, net mending sheds, fish discharge sheds, fish market, offices, and a boatyard. Inshore landing sites are also well equipped. (FAO, 2004). Monthly surveys and administering of questionnaires were held at artisanal fish landing sites along the coast of Ghana where there is less supervision of activities and increase cases of cetacean deaths. The focus fishing communities were: Axim (4.8665° N, 2.2409° W), Shama (5.0195° N, 1.6269° W), Elmina (5.1053° N, 1.3421° W), Moree (5.1304° N, 1.2037° W), Winneba (5.3622° N, 0.6299° W), Jamestown (5.5341° N, 0.2139° W), Chorkor (5.5323° N, 0.2475° W), Akplamanya (5.7863° N, 0.3919° E), Keta (5.9031° N, 0.9868° E), Abotiake (5.9048° N, 0.98869° E).

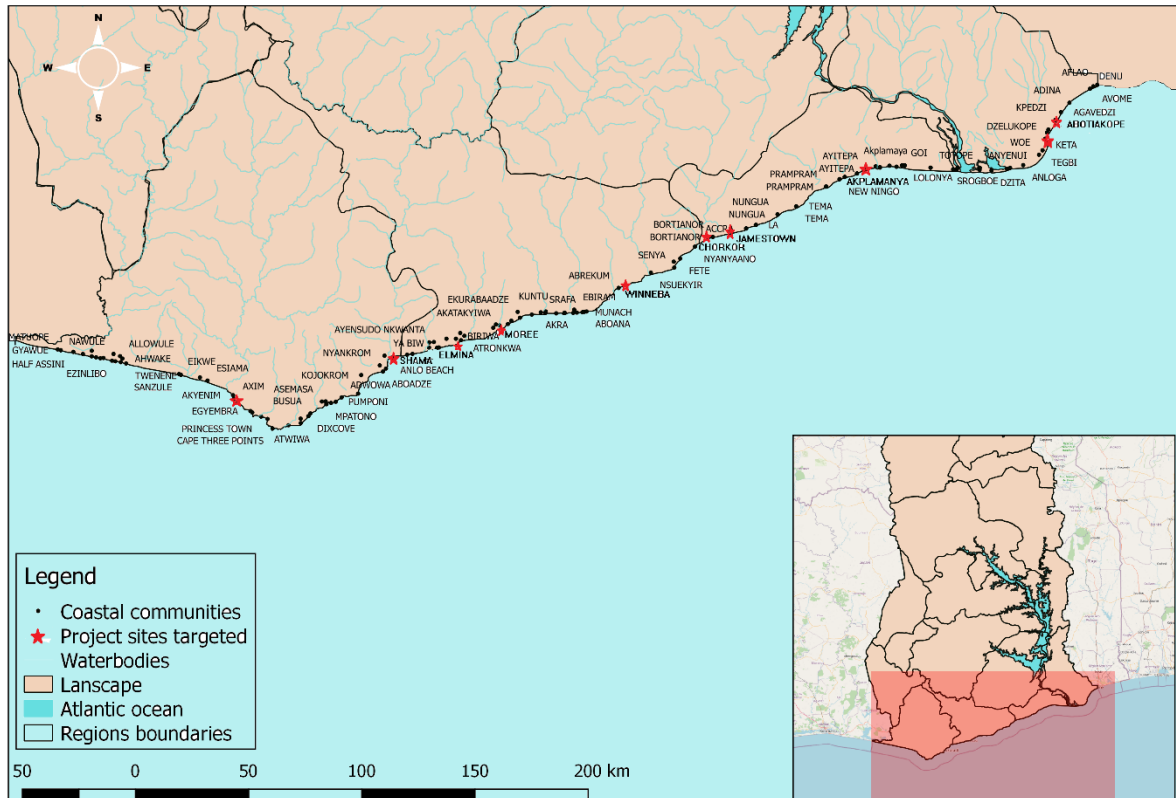


Fig 2: Map of research area for the project

## Checklist

### Delphinidae

#### 1. Common bottlenose dolphin, *Tursiops truncatus*

The common bottlenose dolphin is well known due to its presence in temperate and tropical seas. Relative to other dolphins, the common bottlenose has a wide head and body, a short beak, long flippers, and a moderately tall, falcate dorsal fin. At birth, the young bottle nose measures between 84-140cm and weighs between 14 and 20kg. At maturity, males are significantly longer and heavier than females. The average matured male is about 3.0m and weighs 450kg while the female is about 2.9m and weighs 250kg. Common bottlenose dolphins move in groups and feed on a wide variety of prey. They are known to also associate with other cetaceans like the pilot whale and are good divers, with diving ability of up to 200m.

The bottlenose is one of the most frequently sighted along the Ghanaian coast. Records of sighting dates to the 1950s. There have been sightings in other West African countries like Nigeria, Cote D'Ivoire and Benin. In Ghana, bottlenose stranding has been recorded at Dixcove in the western region in the past. More recent sighting was of a group of bottlenose dolphins entering Ghanaian waters from the Togolese territory about 800m offshore.

Globally the bottlenose dolphin remains abundant and widely distributed. But have been targeted in fisheries for over 100 years in some regions such as the black sea and eastern United States. They continue to be affected by pollutant discharge into seas, global warming, and gillnet entanglement. In Ghana, they rank as the third most landed cetacean by Ofori Danson and his research group in 2003. This is still true today with many coastal dwellers confirming multiple sighting of stranded common bottlenose dolphin during our survey.

## **2. Clymene dolphin, *Stenella clymene***

A naturally rare cetacean, the clymene dolphin is an Atlantic tropical seas dolphin with a shorter body size compared to other dolphin species. At maturity it measured up to 1.97m in males and slightly lower at 1.9m in females. The average body weight is 80kg for matured males and 75kg for matured females. Clymene dolphins have three distinct body coloration on everyone with a dark grey dorsal cape, light grey side, and a white belly.

Normally occurs in a group of individuals up to 50 although several groups of up to several hundred are occasionally recorded. The earliest specimen recorded in the Gulf of Guinea was at Keta in 1956 as bycatch from fishing. Thirteen (13) individuals have been recorded from stranding, offshore sighting, and bycatches at places like Apam, Axim and Winneba fish landings. Unconfirmed reports indicates that the Clymene dolphin is among the species taken in tuna purse seines off the Gulf of Guinea. Base in port monitoring in Ghana, the Clymene is the most taken cetacean representing 34% of all stranding and bycatches. Most of the bycatches were recorded to be by drift gillnets fishermen operating from Apam and Dixcove. The species was placed under monitoring and classified nationally as an CMS appendix II species requiring international collaboration for its protection due to the continuous exploitation. Our checks confirmed continues capture as confirmed by locals, but we did not have any reported incident during the duration of our study.

## **3. Pantropical spinner dolphin, *Stenella longirostris* (Perrin, 1990)**

Named after its spinning ability while leaping above sea surfaces, the pantropical dolphin has been long known by tuna fishermen who uses the Spinners as indicator species. The pantropical spinner dolphin is characterized by the flat melon and a long narrowed well-defined beak. At birth, they measure about 77cm long while the adult male grows up to 2.35m and weighs 78kg while the female grows up to 2.11m and weighs 65kg.

Records of specimen collected of the spinner dolphin in Ghanaian waters shows they are captured mostly along the western coast. Specimen have been recorded at Axim and Dixcove in the early 2000s. Samples from Cote D'Ivoire have also been studied to confirm the spinner dolphin presence in the Gulf of Guinea.

Even though abundant and widespread, the Pantropical Spinner dolphins are infrequently captured in Ghanaian waters with captures within a ten-year study period revealing their capture constitute about 3.5% of all cetacean capture in Ghanaian waters. This is in line with the global trend since spinners are found in deeper waters compared to other cetaceans. Our interview with fishermen from Winneba confirms regular sighting of the pantropical spinner dolphins offshore. Locals interviewed at Winneba had all not sighted the Spinners except for the fishermen.

## **4. Pantropical spotted dolphin, *Stenella attenuate***

One of the most abundant cetaceans on the planet even though the Pantropical spotted dolphin has been heavily reduced in some parts of the world due to incidental killing. With a moderately slender body, small dorsal fin and a long slender beak, this dolphin species is well studied by scientist globally. At birth, the dolphin measures up to 85 cm while the adult male measures 2.57m weighing 120 kg and the female measures 2.4m and weighs around 110kg.

The earliest recorded specimen of the pantropical spotted dolphin in Ghana was of a young species at Apam along the western coast of Ghana in 1999. Over twenty other specimens have

been recorded up to date. Within the Gulf of Guinea, this species has also been recorded in Cote D'Ivoire and Gabon. Gut content studies from the captured specimen indicated the dolphin has wide range of preys to include cephalopods, fish, molluscs, crustaceans, otoliths, among others. The pantropical dolphin population is under no threat globally but study by Ofori Danson and colleagues indicates a remarkably high capture of up to 17% of all cetacean captures in Ghanaian waters. This high captures in addition to many bycatches of these species in tuna fishing nets in pacific waters places the dolphin species in a red zone requiring extensive studies. Our survey frequent sighting at Mumford beach landing in the Central regional coast and at Goi in the Greater Accra regional coast of Ghana.

#### **5. Atlantic spotted dolphin, *Stenella frontalis* (G. Cuvier, 1829)**

Another species of the genus *Stenella* that is found in tropical seas, the Atlantic tropical dolphin as the name suggest is limited to the Atlantic Ocean. This dolphin also has a three-part colour pattern: a dark grey dorsal cape, a lighter grey zone on the sides that crosses over the back slightly forward of the middle of the caudal peduncle and a white belly. Adults have black and white spots on the belly and the sides respectively, with the tip of the beak always remaining white. The newly born is between 90-110cm while the adult male is 2.26m and the female measures averagely 2.29m. The adult male weighs around 140kg and the adult female weighs about 130kg.

Records from the University of Ghana Zoology Museum indicates the first specimen landed at Dixcove on the 19<sup>th</sup> of July 2000. Three years later another landed individual was photographed at Axim. Along the western coast of Africa, the Atlantic spotted dolphin has been periodically recorded from Cote D'Ivoire, Benin, Gabon, Namibia, Angola, and South Africa.

While this dolphin species is believed to not be in danger, there is little data on their abundance and mortality rate. Along the African coast, the largest recorded stranding resulted from fisheries in Mauritania. One Hundred and forty (140) individuals stranded dolphins of which at least 125 died (Nieri et al., 1999). Studies by Ofori Danson and team in Ghana indicated that they constituted around 5.2 % of all bycatches in Ghana. Two fishermen from the Tema fishing harbour confirmed sighting while coastal folks at Jamestown in Accra confirmed sighting of two stranded specimen within a single year.

#### **6. Long-beaked common dolphin, *Delphinus capensis capensis***

A well-studied cetacean, the long beak dolphin is known to occur near shores in tropical and temperate warm waters. A very social species with a school size that can range between (10) ten to a thousand individuals. The long beaked has a slender body with long beak and a tall falcate dorsal fin. At birth, they measure between 80 to 100cm while the adult male is 2.54m and female 2.24m.

Earliest records of long beaked common dolphin landing along Ghanaian shore were at the Dixcove fish landing site on the 18<sup>th</sup> of October 1999. Specimen was taken from another landing at Axim a year later curated at the University of Ghana Zoology Museum. Recorded sightings within the Gulf of Guinea, includes in Senegal, Cote D'Ivoire, Angola and Congo.

Even though their range is less extensive, and their aggregate is relatively lower, there is no indication of an immediate threat to their survival and distribution. This maybe due to the unavailability of in-depth information along the western and southern coast of Africa. Analysis on previously landed species in Ghana indicate direct hunting by harpooning and lancing. We did not come across any specimen during our study while none of the locals interviewed confirmed sighting the long beaked common dolphin.

#### **7. Fraser's dolphin, *Lagenodelphis hosei***

This dolphin has a robust body, a short, beak and a markedly small flippers and flukes. The dorsal fin is small and found at the mid body part and often falcated with erectile appearance. There

occur mostly in waters deeper than 3300 feet in the tropics worldwide. The school of Fraser's dolphin could range between a few hundred individuals to over one thousand. They are known to travel in a mixed school with melon headed dolphins.

A stranded 140cm calf at the Axim beach along the western coast in June 2000 is the earliest validated record in Ghana. Subsequently individuals have been recorded at Axim and Dixcove. In the wider Gulf of Guinea, recorded sightings in Nigeria, Angola, Senegal and as far as South Africa. Gut content study indicates they are selective feeders, surviving on silvery fishes, large eyed fishes, and solitary large body predatory fishes.

Because the Fraser's dolphin is pelagic and naturally rare near most coastlines, there is no known regular hunting or catching in large numbers of this species. There have been only occasional taking of the Fraser by fishermen in Ghana. Our interview with fishermen from Ghana indicates that they are rarely seen but they knew of their existence in deep waters off the coast of Ghana.

#### **8. Rough-toothed dolphin, *Steno bredanensis***

Found in open oceans in tropical latitudes, the rough-toothed dolphin rarely occurs close to land except near islands with steep drop-off near shores. It can be distinguished from other oceanic dolphins by the lack of crease at the base of the melon but a smoothly slopy head from the blowhole to the long narrow beak. It has an erect and tall falcated dorsal fin. The newly born is about 1 m long while the adult male measures 2.65m long and 160kg. The female is much shorter at 2.55m.

Earliest record was of two specimens found at Apam which were landed by fishermen operating in 1998. Since then other individuals have been recorded to be on sale at Apam between 1999 and 2003, making it a hub for fishermen catching of the rough-toothed dolphin. There have been records of sighting in other African countries especially in Cote D'Ivoire and Namibia. Gut content analysis indicate they are general feeders, surviving on preys to include squid, molluscs and fish remains.

The rough-toothed dolphin is not as widespread as other oceanic dolphins, and their population is known to be less. Small numbers are taken by dolphin hunters in Asia but stranding recorded in Ghana constitute 3.5% of all bycatches of fishing. An extremely intelligent species, they are known for stealing baits from fishing lines making them unpopular among fishermen. Our studies confirmed their presence at the western coast, Keta and Goi, where fishermen and locals confirm a few stranding within a year.

#### **9. Risso's dolphin, *Grampus griseus***



Fig 3: Illustration of Risso's dolphin by Uko Gorter

The distinctive beakless head shape and a body that is noticeably robust in the front half than the back, the Risso's dolphin is a relatively huge dolphin species found in tropical and warm temperate waters the world over. All adults have light grey to white markings on the underside. The newly born is about 1.1 to 1.5m long, adult females are 3.66m long while adult males are 3.83m long.

Seen in groups of 12 to 40 individuals, they have also been encountered in mixed schools with other dolphins. They are acrobatic and playful while resting near water surfaces. Commonly known to fishermen to the western part of Ghana, the Risso's dolphin is commonly referred to as the parrot dolphin in the local dialect. There have been recorded samples since 1999 at Axim, Dixcove and Apam. Captured are normally recorded in gillnets. Outside Ghana, they have been recorded in Cote D'Ivoire, Angola, Namibia, and South Africa.

Risso's dolphin are abundant, widely distributed and not immediately threatened globally. It is taken as bycatch in many kinds of fishing gears including drift gillnets, longlines, and trawls. In Ghana Risso dolphins are known to be regularly captured as bycatch of fishing with a study by Ofori Danson indicating around 6.9% constitute from all stranding.

#### 10. Melon-headed whale, *Peponocephala electra*

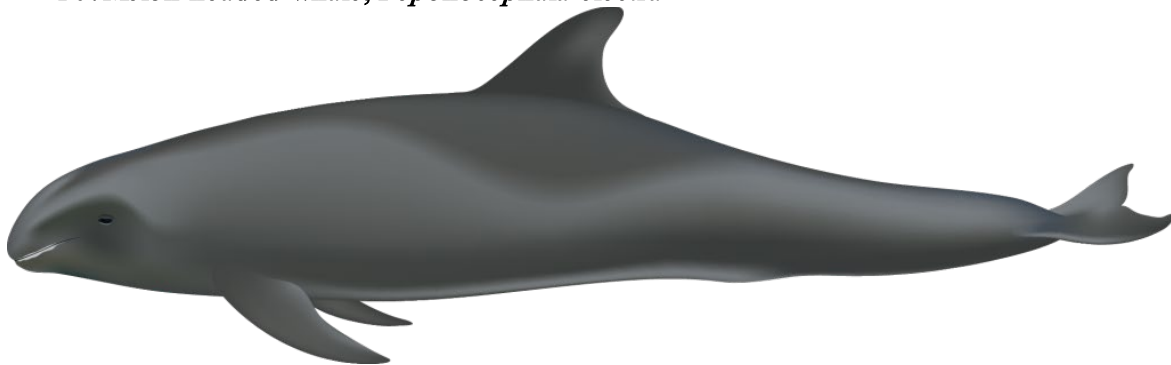


Fig 4: Illustration of melon-headed dolphin by Uko Gorter

This tropical dolphin species has a robust body that tapers noticeably at both ends. The head is small with little to no beak and a rounded melon head. They appear completely dark in complexion except for variable light grey or white ventral markings and often light grey, pink or white lips. It measures at 1m long and at a weight of 15kg at birth while adult males are 2.65m long, adult females are up to 2.75m long.

They are widely distributed throughout deep tropical/subtropical waters worldwide. They are found near shore mostly around oceanic islands, such as Hawaii, French Polynesia, and the Philippines. Their diet includes pelagic and mesopelagic squid, small fishes, and crustaceans. They are a highly social species and usually travel and forage in large groups of 100 – 500 individuals. Melon-headed whales forage at night and rest during the early hours of the morning. Females reach sexual maturity by age seven, giving birth to one offspring every three to four years after a 12-month gestation period.

Earliest records of melon headed dolphins in Ghana was from pictures taken by G Assiffuah in 1994 of one adult female and the baby at Shama in the Western region of Ghana. Other landing records from Dixcove in 2000 and 2002. On the 4<sup>th</sup> of April 2021, sixty-four individuals stranding at Benwire shore near Axim in the Western region of Ghana. This was the first of such high number of stranded individuals recorded in tropical Africa and was the focus of many conservation concerns globally considering the first local response was to capture the stranded animals as bushmeat.

Globally, the abundance of melon-headed dolphins is known in just two places in the Eastern Pacific and the western Gulf of Mexico. Between the 1960s and 1990s at the Solomon Islands,

a substantial number of melon-headed dolphins were hunted for their teeth which was used in making necklaces and currencies.

#### **11. Pygmy killer whale, *Feresa attenuate***

The pygmy killer whale is moderately robust in the upper part of the body while the lower part remains slender. They have no beak with a rounded head that extends forward of the front mouth. The tall upright and falcated dorsal fin is located slightly behind the midback. They appear dark with white areas on the lips and belly. This is a tropical species found throughout the tropical world with the length at birth 80cm and the maximum length of the male at 2.6m and female 2.5m. Their overall lifespan is unknown.

They are usually in a school of up to fifty individuals but occasionally contain a higher number. Almost nothing is known about feeding and reproduction in the Pygmy Killer Whale. According to Ofori Danson & Debrah (2009), An adult sized pygmy killer whale was landed at Dixcove on 31 Dec 2007 and was photographed by fisheries observer, Amiah Johnson. An estimation of abundance is known for the eastern Tropical Pacific of which 40,000 individuals have been recorded. Recorded as bycatch in Sri Lanka, Cabo Verde, Lesser Antilles. Indonesia and Philippines are a cause for concern since the species may be naturally rare. None of our respondents confirmed sighting the pygmy killer whale.

#### **12. Killer whale, *Orcinus orca***

The killer whale is now an icon species thanks to exposure on television, music videos and oceanariums. By the 1960s, the killer whales were feared and persecuted however a number of individuals brought under captivity and trained, transformed the public view of the killer whales. The body is very robust and the largest known delphinid. The colour pattern consists of highly contrasting areas of black and white. The killer whale is considered the most widely spread cetacean and is not limited either by temperature nor depth.

They measure between 2.2 to 2.6m and 160kg at birth while the adult male is 9m long and weighs 5600kg. The adult female is slightly smaller at 7.9m long and weighs a substantially less than the male at 3800kg. The skull of an adult killer whale is present at the Animal Biology and Conservation Science Department of the University of Ghana. According to the curator it has been in the collection for many years, and was collected at an unknown location in Ghana, in 1956. Observers on industrial tuna purse-seiners reported a few sightings off the coast of Liberia, La Côte d'Ivoire, Ghana, and Gabon. The only killer whale, reported taken in the Gulf, was off Abidjan in 1958 (Cadenat, 1959). No captures are on record in Ghana, but the skull kept at UOG is derived from a bycatch. The killer whale is not endangered but there are concerns that intensive whale-watching operations may influence the behaviour of Killer Whales shifting the species away from their preferred habitats. The Washington and British Columbia population are threatened by pollution, heavy ship traffic and reduced prey abundance. Whalers in Indonesia, Japan and Greenland continue to hunt and kill small numbers. Even though the global impact of these killings is little, the effect on local populations could be substantial. Throughout the area of our sampling, fishing affirmed sighting the killer whale at sea, but no landing or bycatch was confirmed.



Fig 5: Illustration of adult killer whale by Uko Gorter

### 13. False killer whale, *Pseudorca crassidens*

This whale has a slender body with small rounded or bluntly conical head and a long straight mouthline. Their falcated dorsal fin is slender and erect and can be more than 50cm high. Their flippers are widespread at the base than the tip. The false killer whale has a distinctive hump. The body is dark except for light areas on the throat and chest along the ventral midline. They occur in all tropical and warm temperate waters including the Mediterranean, Red Sea, Gulf of Mexico, and the Seas of Japan. They are a gregarious species with between 10 to 20 individuals forming a group. They have a low reproductive rate with one study showing calving interval to be up to seven years long. The length at birth is between 1.6m to 1.9m while the adult male is up to 6m and weighs 1360kg.

In 2003, three false killer whales were landed as bycatch at Apam and was documented for the first time. A skull, kept at the Zoological Museum, Amsterdam, was collected from stranding near Assini (05° 07'25" N, 03° 06'40" W) in Côte d'Ivoire, in March 1970 (van Bree, 1972). There also another stranding recorded at Cap Esterias (00° 37' N, 09° 29' E), northern Gabon, on 29 July 1992, (Van Waerebeek & De Smet 1996). Stranding has also been recorded in Benin and Liberia at 04° 48' N, 11° 24' W, on the 8 Nov 1961. However, nine sightings from Angola within an 8-month period (Weir, 2007). Findlay et al. (1992) reported a mass stranding near Lüderitz, Namibia.

They are hunted opportunistically in Indonesia and West Indies, and they are also killed accidentally in various fisheries. In the 1960s, Japanese fishermen are on records to kill up to nine hundred individuals of False Killer Whales because they were interfering with their yellowtail fisheries. There are an estimated 16,500 individuals in the eastern tropical Pacific and at least 500 off Hawaii and a few hundreds in the northern Gulf of Mexico. Their conservation status in the Gulf of Guinea is unknown. In Ghana, the species is rarely captured in drift gillnets. A false killer whale at Cap Esterias, Gabon, stranded again after re-floating and locals then butchered it for food (Van Waerebeek & De Smet, 1996).

Ziphiidae

### 14. Cuvier's beaked whale, *Ziphius cavirostris*

With the widest distribution of all beaked whales, the Cuvier Beaked Whale has a rotund body shape with a short beak compared to other beak whales. The dorsal fin is relatively small, falcate,



and set about two third of the way back on the body. The body is generally dark grey to reddish brown, with some countershading. Common on most adults' bodies are the white oval scars caused by bites from cookie cutter sharks or possible lampreys. At birth, the Cuvier beaked whale measures about 2.7m and weighs between 250-300kg. The maximum length of the adult is 7m with the male weighing 2600kg while the female weighs 3000kg. The Cuvier beaked whale could live beyond 60 years. Almost nothing is known about reproduction in this species.

First record of capture in Ghana was May 1994 at Axim which was photographed by D. Vanderpuje. The sighting in Ghana was also the first full records of the Cuvier beaked whale in the Gulf of Guinea. There have been sightings in southwest of Luanda, Angola, at 07° 15.84' S, 11° 07.79' E as reported by Weir (2006b). Three other sightings have been recorded at Angola but all in deep seas off the continental shelf. There are records of sighting in Namibia and from the Atlantic coast of South Africa (Findlay et al., 1992; Ross & Tietz, 1972). None of the fishermen we interviewed confirmed sighting the species.

Due to the rare nature of this beaked whale, there are a few estimates of its abundance, Surveys off the west coast of the United States indicates a population numbering into thousands. They have been hunted in Japan, the Lesser Antilles, Indonesia and Taiwan. Entanglement in drift gillnets set in deep waters is quite regular. It is suspected that the Cuvier beaked whale are vulnerable to noise, and this affects their survival in areas of intense military operations, and recreational activities. Mass stranding in the Bahamas have been linked to military exercises. There is no information on their conservation status in West Africa and the single capture among many bycatches in Ghana indicates that impact from bycatch could be negligible (Ofori Danson & Debrah, 2009).

#### **15. Dwarf sperm whale, *Kogia sima***

The Dwarf sperm whale is similar to the Pygmy in appearance. It has a false gill between the eyes and the flipper with a small narrow mouth and underslung lower jaw. The dorsal fin is falcated and prominent. This whale species is present in all tropical and warm temperate seas worldwide. The dwarf whale is 1m long at birth while the adult measures up to 2.7m and weighs 210kg. They dwarf whale is not considered gregarious. They move slowly and frequently exhibit aerial displays. They prey on cephalopods, crustaceans, and fishes. The gestation period is around one year, and females could be lactating even while pregnant.

Earliest record in Ghana was from 1998 at the beach in Apam in the Central region of Ghana (Ofori Danson & Debrah, 2009). Two unidentified species were photographed by fisheries observers, one at Shama in March 1994 and another at Apam on 10 April 2003. In South Africa where the species is limited to the South Coast between Cape Columbine and about 28° E. Stranded specimens of the dwarf sperm whale are recorded north to at least Cape Cross and in Namibia, at 22° S (Ross, 1984; Ross et al., 1985; Findlay et al., 1992). Other individuals have been reviewed in Senegal and other countries in West Africa in some detail (Maigret & Robineau, 1981).

The dwarf sperm whale has never been the focus of commercial whaling but have been haunted in Indonesia, Japan, and the Lesser Antilles by shore-based whalers. A number of stranded dwarf sperm whales were examined to have their guts blocked by ingesting plastic. In Ghana and West Africa there is no data on their conservation status but believed to be abundant compared to other tropical whale species. Our checks with fishermen from Aflao, Mumford and Axim indicate sighting offshore but no recent stranding or bycatch.

#### **16. Sperm whale, *Physeter macrocephalus***

The sperm whale is the largest of the toothed whale with a length of 4m at birth and weight of 1000kg. The adult male is about 18.3m long and weighs 57000kg while the adult female is 11m long and weighs 24000kg. There has very distinct sexual dimorphism. It is distributed globally stretching from the Arctics to Antarctica. The sperm whale has a disproportionately large

head, especially in males. The skin is often wrinkled compared to the smooth skin of other whales. There are 2 to 10 short deep grooves on the throat. Stable long-term groups of females form the core unit of Sperm whale society. Matured females give birth between 4 to 6 years period and gestation period is up to 18 months.

The earliest record of sperm whale in Ghana was of the carcass of a stranded individual at Osu in July 1994. Other decomposed carcasses have been recorded in Dixcove and Ada shores between 2000 and 2002. Interviews with fishermen confirmed frequent sighting between Keta and Ada in eastern shores of Ghana. From August through October, sperm whales were hunted in Gabon (Slijper et al., 1964). Between January and May, their density peaked off the coast of Angola. Sperm whales were spotted exclusively seaward off the shelf break by Weir (2007), and they were particularly concentrated to the west of the Congo River mouth. Only sperm whales along the southwest coast of South Africa have detailed natural history information (Best, 1967).

Globally, whaling has caused a major reduction in the population of sperm whales. Because of the long-term parental investment in offspring, the population of the sperm whale grows slowly, and a population is unable to recover from exploitation. Their body oil is an exceptional lubricant used in submarines. Today the greatest threat to sperm whales is entanglement in fishing gears and collision with ships. They are listed as Vulnerable on the IUCN Redlist with many tens of thousands in the world's oceans. Long-fishing targeting tuna and sharks complain of regular preying on their catch by sperm whales (Van Waerebeek, 2007).

#### **17. Humpback whale, *Megaptera novaeangliae***

The most familiar of the great white whale with numerous sightings along the coast of Ghana between September and November each year. They are the best studied large whale simply because individuals can be identified by their markings. It has a large robust body with the head and lower jaw having variable number of protuberances called tubercles. The baleen plates are black with up to 400 per side. Ventral pleats of up to 22 extend from the tip of the lower jaw to the umbilicus. The body is black above and black, white, or mottled. The humpback whale is found worldwide in all major oceans. They occur primarily in coastal and continental shelf waters although they are also known to feed around some seamounts and migrating whales often pass-through deep waters. At birth it is between 4 to 4.6m long and weighs 680kg while the adult is between 16 and 17m and weighs 40,000kg. It has a life span of about 50 years.

Irvine (1947) saw a whale that looked like a humpback whale in September 1938 at Prampram; however, the species was not confirmed until Van Waerebeek & Ofori-Danson (1999) presented a photo of a neonate stranded at Ada (05° 48.5' N, 00° 38' E) in September 1997, photographed by a Ghana Wildlife Department officer. There was no external harm on the emaciated calf, thus it was either sick or unable to nurse. On August 22, 2005, another neonate became trapped in Lomé, Togo, on Ghana's eastern border. 2007 (Tchibozo & Van Waerebeek). On October 18, 2006, a humpback whale of adult size (approximately 12 m) stranded in Ada Foah (05° 46' 33.15" N, 0° 36' 58.86" E) (Phillip Allman, pers. comm. to Van Waerebeek, email 28.08.2008). On the 24th of September 2008, a humpback whale was spotted breaching frequently near Fort Iron Cross, Dixcove (Ofori Danson & Debrah, 2009).

Humpbacks were hunted extensively by commercial whalers in the 20<sup>th</sup> century, during which time they were reduced to about 10% of their original population worldwide. Approximately 200,000 individuals were killed between 1904 to 1983. Currently, most humpback population are recovering. The Northern Atlantic population is about 11,600 individuals, about 8000 individuals in the Northern Pacific and at least 17,000 in the southern hemisphere. They are now hunted in small numbers by isolated aborigine fisheries and many die from entanglement in fish gears.



Fig 6: Illustration of the humpback whale by Uko Gorter

### Discussion and Conclusion

The study confirmed almost all the seventeen cetacean species were present, but sighting have been rare for some species to include clymene dolphin, long beaked dolphin, pygmy killer whale and Cuvier beaked whale. Locals were familiar with the humpback whale and some western coastal communities could even pinpoint where at sea the humpback whales will appear at time periods within the year. The stranding of the melon headed whales and the local reaction highlighted the low level of awareness on the significance of cetaceans and the approaches to rescuing stranded animals. This study has highlighted the significance of coastal dwellers to the study and conservation of cetaceans in Ghana. Going forward we will be advocating for the use of citizen science approach for studying marine and freshwater megafaunas to include cetaceans.

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