

Initial evidence of dolphin takes in the Niger Delta region and a review of Nigerian cetaceans

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Abstract

An interview survey among artisanal fishermen from Brass Island, Niger Delta, in 2008-2009 revealed, for the first time, regular takes of delphinids in Nigerian coastal waters. Three fishermen at Imbikiri, Brass Island, were identified as dedicated 'dolphin hunters'. Evidence is difficult to obtain but one video footage authenticated the landing of a live common bottlenose dolphin. Fraser's dolphin is suggested to occur offshore (probable sighting) but no other documented sightings of odontocetes are published, despite the massive exploration effort for hydrocarbons. A cow-neonate pair of humpback whales was sighted in western Nigeria, at the Togo border, on 9 September 2001 during a survey of the austral population that breeds in the Bight of Benin. In view of the abysmal state of knowledge, as to add to the inventory and zoogeography of Nigeria's cetaceans even baseline coastal surveys could yield significant insights. Particularly pressing is an in-depth assessment of the contemporary and historical presence (or absence), of the vulnerable Atlantic humpback dolphin *Sousa teuszii* and an estimate of the extent and composition of dolphin takes.

Keywords: dolphin captures, Nigeria, Brass Island, common bottlenose dolphin

Arguably the best documented cetacean from Nigeria may be *Pappocetus lugardi* Andrews, 1920 (Archaeoceti: Protocetidae) from the late Lutetian or middle Eocene of Port Harcourt, comprising a mandible type specimen (BMNH M11414) and a second fossil collected from Ameki, Nigeria (Halstead and Middleton, 1974). Indeed, despite Nigeria's 853 km coastline bordering the northern Gulf of Guinea, and the massive exploratory effort for hydrocarbons, the authors performed a thorough literature search but were confronted with an almost total lack of published information on extant cetaceans. Several earlier reviews had also been unable to confirm any well-documented records (Maigret, 1994; Jefferson *et al.*, 1997; Perrin and Van Waerebeek, 2007; Weir, 2010; Blench *et al.*, 2010). A group of 150 dolphins sighted 130km offshore of Nigeria (03°10.1'N, 06°47.0'E) in 1286m deep water, on 8 March 2004, were identified as 'probable' Fraser's dolphins *Lagenodelphis hosei* Fraser 1956 (Weir *et al.*, 2008; Van Waerebeek *et al.*, 2009). Reviews by Klinowska (1991, p.129) and Rice (1998) listed Nigeria as country of origin for the Atlantic humpback dolphin *Sousa teuszii* without supporting evidence, presumably the result of inference from the species' type locality (Cameroon). Maigret (1994, p. 314) remained equally vague in stating that 'fishing occurs in the area [Nigeria] where both the hump-backed dolphin and the manatee live and both are probably caught in the nets' and he suggested unknown numbers of incidental captures. Van Waerebeek *et al.* (2004) critically reviewed all potential sources and concluded after Van Beneden (1892) that despite historical reports of a 'fluvatile dolphin' no specimens existed, rather it followed from the misconception that the West African manatee *Trichechus senegalensis* appeared to have been classified as a dolphin. Nonetheless, Van Waerebeek *et al.* (2004) suggested *S. teuszii* most likely inhabited the Niger Delta before the large-scale oil exploration and extraction altered the coastal environment. Whether it occurs today in Nigeria is unknown.

The widespread consumption of bushmeat in West Africa, including of cetaceans or so-called 'marine bushmeat' (Alfaro-Shigueto and Van Waerebeek, 2001; Van Waerebeek *et al.*, 2000; Brashares *et al.*, 2004; Clapham and Van Waerebeek, 2007) and catches of small cetaceans

in nearby Ghana (Ofori-Danson *et al.*, 2003; Van Waerebeek *et al.*, 2009) and Togo, compelled the null hypothesis that 'small cetaceans are routinely exploited also in Nigeria'. The absence of any management and monitoring schemes also explains the lack of information. Below we discuss recent interactions and personal communications with artisanal fishermen in the Brass Island area of the Niger Delta and preliminary evidence that supports the null hypothesis as well as confirming the presence of coastal dolphins. We document two cetacean species, a mysticete and an odontocete for Nigerian waters.

One of us (MB) conducted a five-week interview survey in the period December 2008 to April 2009, meeting and discussing with local focus groups, i.e. artisanal marine fishermen and dolphin hunters from the fishing settlements on Brass Island, 15km east of the Niger Delta (Figure 1). The main communities surveyed were Imbikiri community in Twon, Okpoama seaside, Ilajekiri, Diama seaside, Ijaw-kiri, Oyankia, Igbabele and Beletiamama. Particular attention was paid to Imbikiri as it is locally reputed to host dolphin hunters. Fishermen were interviewed, with the help of photographs, about captures of Atlantic humpback dolphins. When it transpired that fishermen did not reliably differentiate between species, interviews were adjusted as to obtain information about (generic) dolphin captures. Specific questions included: 'Have you seen this animal [dolphin figure shown] at sea before; If so, where, how often, and have you seen it this year; What time of year do you see it most often; Describe its behaviour at sea; Have you seen it with any young ones; Have you caught it before; If so, how much did you sell it for; What food do they eat, especially what was their stomach contents when butchered'. In total, 18 fishermen were interviewed (Table 1a,b): three marine fishermen from Okpoama seaside, two fishermen each from Ilajekiri, Diama seaside, Ijaw-kiri, Oyankia, Igbabele and Beletiamama communities and three leading dolphin hunters from Imbikiri community. A video obtained demonstrated the landing of a large-sized common bottlenose dolphin *Tursiops truncatus* on the shore of Imbikiri community on 25 October 2008 (video grabs see Figure 2).

Insights gleaned from interviews are summarized as follows. Dolphins are regularly seen in an area centred around 04°N, 06°E on the south coast of the Niger Delta, Brass local government area, Bayelsa State. Small groups of 5-15 dolphins, and generally less than 20 individuals, were sighted between January 2008 and March 2009. On the coast of Brass Island (4.316944°N, 6.222778°E) travelling dolphin groups sometimes consisted of up to 30 individuals and at times attracted other, smaller, groups that briefly joined the larger group. Segregated herds of larger individuals (presumably adults) without calves, and groups of adults with calves were observed. Fishermen described 'mixed-species groups' of adults (including 'pot-bellied' individuals, possibly pregnant females) foraging and travelling together. Dolphins were captured with large-mesh drift gillnets, especially in February-March. Average catch per dolphin hunting trip was reported as 2-5 adults, once every 1-2 weeks, with a dolphin selling for an equivalent of EUR 150-300. Under such a regime, a hunter could take more than a hundred dolphins per annum. Animals when netted alive are killed and butchered (Figure 2). As in Ghana, most of the meat is utilized for human consumption. Boats are locally manufactured, open, wooden canoes powered by outboard engines. Fishermen reported that dolphins in the area prefer shallow coastal and estuarine waters less than 20m deep, particularly during the bonga fish (*Ethmalosa fimbriata*) season from February to June, a fish species they most probably feed on. Dolphins are said to occur also near the surf zone along open, sandy shores. Ghanaian fishermen who operate in Nigerian waters claimed that dolphins prefer habitat near sand banks and mangrove areas, especially in March. Some dolphins engage in prolonged dives and leap very high 'on sighting fishermen or when playing' [sic], a behaviour more consistent with *T. truncatus* than with *S. teuszii*. Dolphin hunters indicated that the stomachs of dolphins captured near Brass Island contained a large number of adult and small bonga fishes, mackerels, squids and, surprisingly, 'jellyfish'.

Besides *T. truncatus*, it is suspected that other dolphin species could be hunted as well, in particular Clymene dolphin *Stenella clymene* and pantropical spotted dolphin *Stenella attenuata*, the most frequently landed species in Ghana.

Challenging the long-held idea of a continuous range for *S. teuszii* in western Africa, Van Waerebeek *et al.* (2004) argued that its distribution was already fragmented and provisionally proposed eight small management stocks (subpopulations) within the known range limits of Western Sahara and southern Angola. Recent field data from Angola and Gabon (Collins *et al.*, 2004; Weir, 2007, 2010; Weir *et al.*, 2010) are congruent with the Van Waerebeek *et al.* (2004) premise. With the Niger Delta region comprising habitat (e.g. shallow estuarine waters, sand/mud banks, barrier islands) suitable to *S. teuszii*, we presume it is, or was, part of the species' range. Open sandy beaches stretch over large sections of the coasts off Benin and Togo but *S. teuszii*, till date, remains undetected there (Segniagbeto and Van Waerebeek, 2010). Nonetheless additional search effort is required before a definitive verdict is given. Substantial port monitoring in Ghana allowed the documentation of 16 species of small cetaceans (Debrah, 2000; Ofori-Danson *et al.*, 2003; Van Waerebeek *et al.*, 2009) but no *S. teuszii* were seen landed. It neither has been re-encountered in Cameroon since collection of the type skull in the Bay of Warships, near Douala, in 1890 (Kükenthal, 1892; Van Beneden, 1892). Admittedly, in Cameroon as in Nigeria, lack of records would also be consistent with the dearth of cetological field research.

Ship-board surveys in Benin's coastal waters in 1999-2002 led to the discovery of a breeding population of humpback whales *Megaptera novaeangliae*, now known to extend west to at least eastern Côte d'Ivoire (Van Waerebeek *et al.*, 2001, 2009) and, probably, as far north-west as Guinea (Bamy *et al.*, in press). KVV sighted an adult humpback whale with a neonate at 06.35135°N, 2.73503°E¹, 2.8km from shore, in western Nigerian waters that form the maritime border with Benin, on 9 September 2001 (12:36h) during a dedicated cetacean survey. Water depth (echosounder) was 17m. The whales engaged in unhurried, non-directional milling and assumed twice a position where the adult (presumed cow) juxtaposed perpendicularly with the calf's body, its head pointing to the adult's posterior body, interpreted as nursing. The calf, then closely approached the idling vessel, as if driven by curiosity, followed by the adult.

So limited are cetacean data that even low-budget, baseline coastal surveys could quickly yield a more accurate assessment and significantly add to the inventory of Nigerian cetaceans. Of the 18 cetacean species documented in coastal Ghana (Ofori-Danson *et al.*, 2003; Van Waerebeek *et al.*, 2009) all are potentially distributed in Nigerian waters.

Cetaceans are only partially protected in Nigeria. 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, Ziphiidae 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). Under the Sea Fisheries Decree (N°71 of 1992) "fish" means any aquatic creature whether fish or not and includes shell fish, crustaceans, turtles and aquatic mammals. All motor fishing boats within territorial waters or its EEZ must be duly registered and licensed. To our knowledge, Nigeria has not yet signed the CMS Memorandum of Understanding concerning the Conservation of the Manatee and Small Cetaceans of Western Africa and Macaronesia. Most recently (Mr. Dokubo, pers. comm. to MU, 12 March 2010), dolphin captures have increased near Brass Island, following the economic downturn and a decrease in fish sales. Most fishers of Imbikiri community appear to have resorted to catching dolphins, smoking and selling their meat as food, as is the case in Ghana (Debrah, 2000; Ofori-Danson *et al.*, 2003).

Nigeria has a human population of 150 million and although the agriculture sector employs about 2/3 of the country's total labour force and provides a livelihood for about 90% of the rural population, it is also a major producer of fish. Yet it is a food-deficit nation and imports large

¹ Coordinates of whales estimated from observer position, bearing and estimated distance.

amounts of grain, livestock products as well as fish (IFAD, 2010). Despite its plentiful agricultural resources and oil wealth, poverty affects 70% of the population and has increased since the late 1990s, a socio-economic factor thought to pose a major structural threat to the conservation of terrestrial and aquatic wildlife, including cetaceans. Until root issues are addressed, the long-term survival of Nigeria's coastal cetaceans could become irreversibly compromised by unmanaged and possibly unsustainable exploitation and habitat deterioration.

Acknowledgements

The authors are grateful for the diligent collaboration from fishermen communities in the Brass Island region. This preliminary work was conducted following the framework of the Memorandum of Understanding concerning the Conservation of the manatee and Small Cetaceans of Western Africa and Macaronesia concluded under the auspices of UNEP/CMS at Lomé, Togo, in October 2008. Varda B.V. (Amsterdam) supported KVV during manuscript drafting.

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Figure 1. The study area in the Niger Delta, southern Nigeria. Modified from a map generated with GMT (Generic Mapping Tool; www.aquarius.ifm-geomar.de).

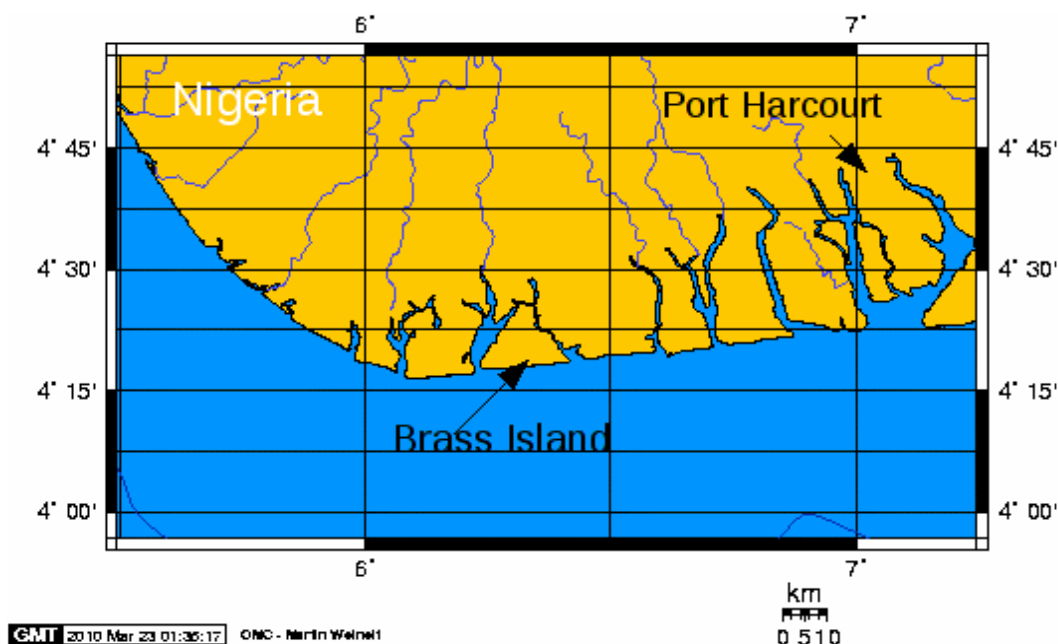


Table 1a. Responses to questions discussed with artisanal fishermen and dedicated dolphin hunters (at Imbikiri), after showing drawings of Atlantic humpback dolphins. However, responses apply to delphinids in general as fishermen did not clearly distinguish between species.

Community	No. & Type of Fishermen Interviewed		Questions Asked and Responses																	
	Artisanal Fishermen	Dolphin Hunters	Have you seen this animal at sea before?			Where did you see it?			How many times have you seen it?			Have you seen it this year?			What time of the year in particular?			Describe its behaviour at sea?		
			Yes	No	Answer Unclear	Coast	Mid-Sea	High-Sea	0 -10	10 - 20	20 - ∞	Yes	No	Answer Unclear	Jan. -April	May -Aug .	Sept. - Dec.	Travel (Slow or Fast)	Blowing (B) or Feeding (F)	Leaping
Imbikiri	-	3	3			1	1	1		1	2	3			3			1(S)	1(B)	1
Okpoama seaside	3	-	3			1	1	1		2	1	3			2	1		1(F)	1(F)	1
Ilajekiri	2	-	2			1		1			2	2			2			1(S)	1(B)	
Diana seaside	2	-	2			1		1		2		2			2				1(B)	1
Ijaw-kiri	2	-	1		1	1			1			1					1			1
Oyankia	2	-	2			1	1			1	1	2			1	1		1(S)	1(F)	
Igbabele	2	-	2			1		1			2	2			2			1(S)		1
Beletiana	2	-	2				1	1		1	1	2			1		1		1(F)	1
TOTAL	15	3	17		1	7	4	6	1	7	9	17			13	2	2	S=4, F=1	F=3, B=3	6

Table 1b. Responses to further questions discussed with artisanal fishermen and dolphin hunters of Imbikiri. (Exchange rate: 202 Naira= 1.00 Euro).

Community	No. & Type of Fishermen Interviewed		Questions Asked and Responses																				
	Artisanal fishermen	Dolphin Hunter	Have you seen dolphins with any young ones?			Have you caught it before?			How many have you seen together? (group size)			How many do you catch per trip?				How much did you sell it for? (in Nigerian Naira)				What food did they eat when butchered? (stomach contents)			
			Yes	No	Answer Unclear	Yes	No	Answer Unclear	5 - 10	10 - 20	20 -30	0	1-2	2-4	4-5	₦0	₦15,000 - ₦30,000	₦30,000 - ₦45,000	₦45,000 -₦60,000	None	Bonga Fish	Bonga & Mackerel	Fish + squids
Imbikiri	-	3	2		1	3			1	1	1				3			1	2		2	1	
Okpoama seaside	3	-	3			2		1		2	1	1	2				1	1		1			1
Ilajekiri	2	-	1		1		2		2			1	1				1			1			
Diana seaside	2	-	1	1			2		2				1	1		2				2			
Ijaw-kiri	2	-		1			1		1			1				1				1			
Oyankia	2	-		1			2		1		1												
Igbabele	2	-	1		1		2		1	1		2											
Beletiana	2	-	1		1	1	1		1		1												
TOTAL	15	3	9	3	4	6	10	1	9	4	4	5	4	1	3	3		3	3	3	3	1	1

Figure 2. Video frames documenting the landing of an exhausted but live common bottlenose dolphin *Tursiops truncatus* at Imbikiri, Brass Island coastal area in the Niger delta, Nigeria, on 25 October 2008, to be butchered for human consumption. Some fishermen are locally known as 'dolphin hunters'.

