

## Flukes of resilience: new sightings of Atlantic humpback dolphin *Sousa teuszii* (Kükenthal, 1892), but bycaught bottlenose dolphins *Tursiops truncatus* (Montagu, 1821) in Benin

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### Abstract

The updated number of confirmed Atlantic humpback dolphin *Sousa teuszii* case records for Benin's coast (period 2013-2025) amounts to six, including five sightings and one live-stranding. If no re-sightings occurred, maximally 22 individuals were involved. However, the two 2025 sightings may have been the same pod. Group size was small (mean= 4.57; SD= 2.37; median= 5; range= 1–7; n= 6) compared to other monitored *S. teuszii* populations (Guinea, Senegal). The combination of scientific shore-based visual survey effort with incidentally recorded observations is starting to yield useful information. However, citizen reports must be carefully verified. The low cost of shore-based survey effort, compared to cost-intensive boat-based surveys, besides problematic logistics associated with the use of local canoes, represents a practical alternative in a resource-poor Global South reality. Implementation in other range states is greatly recommended.

Unexpectedly, the Cameroon dolphin population of *S. teuszii* in the Bight of Benin is showing signs of resilience in the face of anthropogenic threats. However, long-term sustainability is in question, whether the evidently small population will be able to cope with mounting fisheries pressure and potential hidden directed takes. Concern for the status of coastal common bottlenose dolphin

*Tursiops truncatus* in Benin is underscored. No free-ranging individuals were observed nearshore in 25 yrs, while at least two, and possibly three, individuals were registered killed in small-scale fisheries since 2023. Population structure, whether offshore or inshore morphs are involved, remains unstudied. Limiting fishing effort, especially beach-seining in suspected primary habitats and in Benin's two existing MPAs (*Bouche du Roy* and *Donaten*), could positively support conservation. Gentrification of beach front areas around Cotonou, which currently promotes low-impact beach tourism while locally reducing artisanal fisheries operations, could help provide a safer nearshore environment for coastal dolphins.

Key words: Bight of Benin, bycatch, Cameroon dolphin, shore-based visual surveys, *Sousa teuszii*, *Tursiops truncatus*, West Africa

## **Introduction**

The Atlantic humpback dolphin *Sousa teuszii* (Kükenthal, 1892) is an endemic delphinid to West and Central African inshore waters which ranges from Western Sahara (Dakhla Bay) in the northwest to southern Angola in the southeast (Van Waerebeek et al., 2003; 2004; Ayissi et al., 2014; Weir and Collins, 2015; Collins et al., 2017). Its status has been recognised as vulnerable for many years (e.g. Van Waerebeek et al., 2004; Weir et al., 2011; Ayissi et al., 2014), while it has been considered as 'Critically Endangered' by IUCN for almost a decade (Collins et al., 2017). In several countries, including Benin (Tchibozo et al., 2024) and Senegal (Minton et al., 2022), recent field research is yielding new sightings of apparently healthy free-ranging Atlantic humpback dolphins which raises good hope that the species, at least in some areas, may be more resilient than has been feared. With the proactive application of effective conservation strategies, such as establishment of protected areas, the future of *S. teuszii* is not yet a lost cause.

Although without providing specific records, Klinowska (1991) first listed Dahomey, Benin's precolonial kingdom, as a range state of the Atlantic humpback dolphin. The first inventory of Benin's cetaceans (Sohou et al., 2013) could not confirm the species for the country. A year later an opportunistic nearshore sighting of four animals on the central coast finally documented the suspected species' presence in Benin (Zwart and Weir, 2014). Subsequently the Gulf of Guinea population of *S. teuszii*, referred to as 'Cameroon dolphin', was re-discovered in southern Cameroon in 2011 (Ayissi et al., 2014; Van Waerebeek et al., 2017), 119 yrs after its original discovery in the country which led to the formal species description in 1892 by Kükenthal. First cases were registered also in Togo and Nigeria (Van Waerebeek et al., 2017), but not in Liberia, Ghana, Côte d'Ivoire and Guinea Equatorial, until today.

Encouraging evidence from recent shore-based surveys suggest that *S. teuszii* in some coastal areas, such as in Benin, may still be more common than thought despite the obvious threat from

fisheries, particularly net entanglement (Tchiboza et al., 2024; this paper). In the period 2022-2024, the CRGB /COREWAM-Benin field team visually surveyed large tracks of Benin's coastline, both by walking and stationary effort, focussing on coastal dolphins (Tchiboza et al., 2024). Below we report on the most recent observer effort (2025). Three new sighting records of Atlantic humpback dolphin were added, one each on Benin's eastern, western and central coasts. One is the first 'scientific' sighting in Benin, besides two new incidental sightings obtained through the now familiar 'citizen science' protocol. With great concern we also report on three documented cases of bycatch of common bottlenose dolphins *Tursiops truncatus* (Montagu), especially because no alive animals were seen.

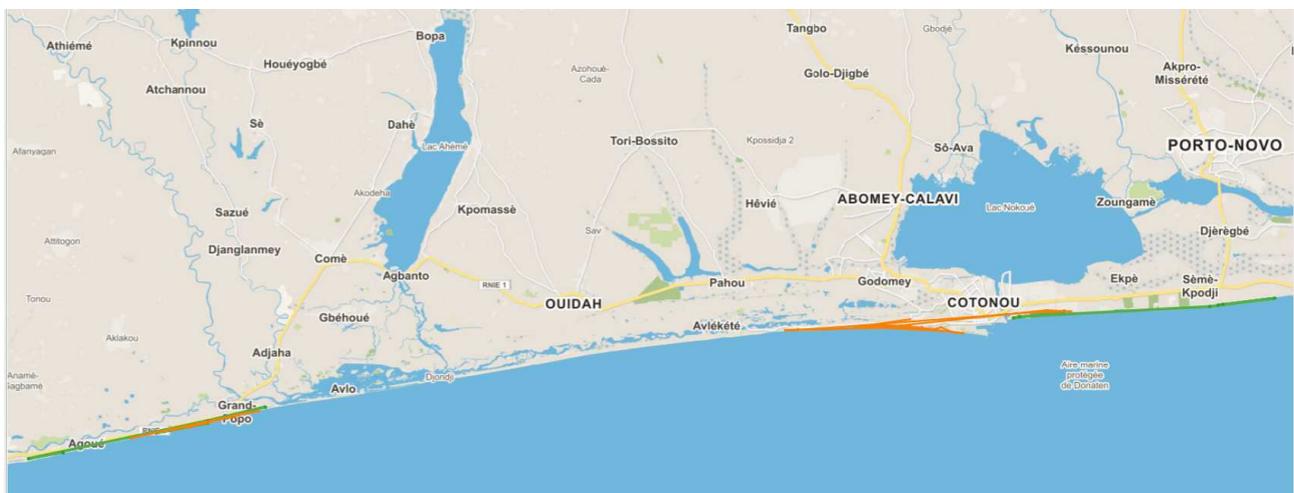
## Material and Methods

As in 2022-2024, the study area consisted of Benin's wide sandy beaches (Fig. 1) which border a 125 km open oceanic coastline on the Bight of Benin, Gulf of Guinea. The main purpose of the 2025 field work was to conduct visual surveys allowing a continual update of the status of *S. teuszii*, attempt to generate encounter rates (relative abundance) for future trends monitoring, and identify favourite habitat. Bamy et al. (2021) recommended annual surveys. Absolute abundance estimators via traditional boat-based strip-transect or line-transect surveys, are not economically feasible in the country. Methodology followed Tchiboza et al. (2024) for involving similar work since 2022. In 2025, dedicated shore-based visual surveys were implemented over 22 days in two field periods, an 8-day campaign during spring's dry season (27 March–3 April), and a 14 days survey (5–18 October), during the fall's short rainy season (*la petite saison de pluie*). The field work was selected to occur in two promising habitats (Fig. 2) which earlier yielded four *S. teuszii* records: (i) the Grand-Popo area near the Togo border (Van Waerebeek et al., 2017; Tchiboza et al., 2024) and (ii) the Fidjrossè area, a western suburb of Cotonou rapidly transforming from a former artisanal fisheries centre into a nascent residential and beach tourism hub, apparently translating into reduced fisheries pressure.

Two or three biologists searched nearshore waters by naked eye and 8x42 binoculars (Nordwald). When three observers were available, one acted as independent observer, moving 100m behind the leading two, checking for any missed dolphin pods. As before (Tchiboza et al., 2024) both modes, walking and stationary, were applied each day alternatingly but randomly, without a strict schedule. However, in practice, an estimated 75% of sea-scanning time occurred while slowly walking. Four encounter rates (relative abundance parameters) were calculated for 2025, based on field effort, namely number of sightings h<sup>-1</sup> observing (on effort), number of dolphins h<sup>-1</sup> observing, number of sightings km<sup>-1</sup> walking, number of dolphins km<sup>-1</sup> walking,



**Figure 1:** Study area. Seashore facing the Bight of Benin, consists of wide sandy beaches bordering an open oceanic coastline. During the short rainy season in October 2025, observation effort was often interrupted due to rain and poor visibility, such as during this thunderstorm on 12/10/2025.



**Figure 2:** Tracklines of shore-based visual surveys along the Beninese coast, implemented in 2025 (orange) and, for comparison, 2024 (green). An inland track through Cotonou center should be ignored. Same shorelines were surveyed multiple times over different days, hours and tidal cycles (see details for 2025 in Table 1; for 2024 in Tchiboza et al. 2024).

## Results and Discussion

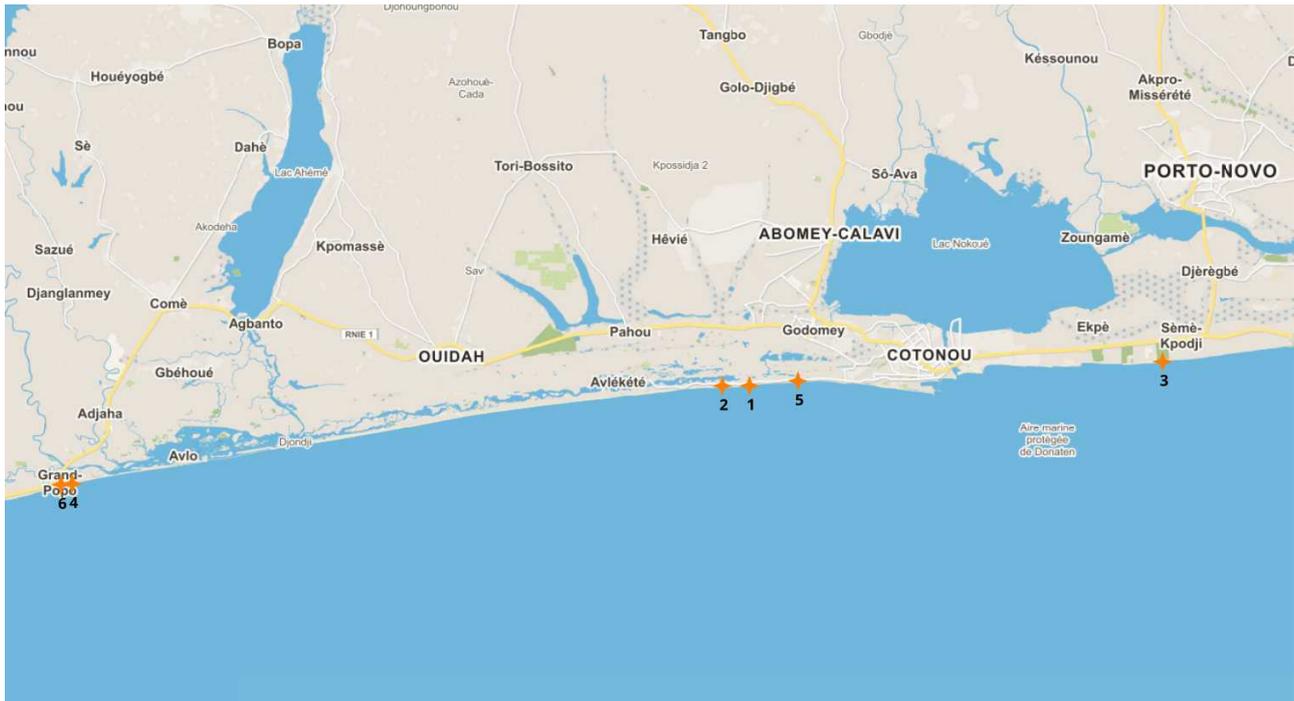
### **Effective observation effort**

In spring (27 March - 3 April) 2025, a total of 43h 07min (2,225 min) were effectively observed onshore, which included both slowly walking the shoreline (70.12 km) and stationary observations (25%). In October 2025, 59h 21 min (3,561 min) of surveying, covering 76.76 km of walking, were implemented. The total effective visual survey effort in 2025 thus amounted to 96h 26 min (5,786 min) while covering 146.88 km of coastline (Table 1). An important part of this distance consisted of re-sampling same stretches of suspected preferential habitat of *S. teuszii* over several days. Daily east-west movements allowed broad temporal coverage at all hours and different tidal conditions. The main areas targeted included the western end of the country around Grand-Popo and the central coast near Cotonou (Fig. 2).

Meteorological conditions, especially wind force, i.e. Beaufort sea state (SS) and rain, are important factors determining the efficiency of visual surveys as they may dramatically affect available 'on effort' time (Fig. 1). Considerable weather variation was noted between the surveys in March-April and October 2025. Winds were significantly stronger early in the year (mode SS= 3 Bf, median= 3; range 2-5 Bf), leading to unfavorable, higher SS conditions than in October (mode SS= 2 Bf, median= 2; range 0-4). Visibility was mostly good to excellent in both seasons. In October 2025, due to the short rainy season ("*petite pluie*"), occasional moderate to strong rain hampered surveying. A careful scheduling of field work is highly relevant as to maximize effective survey time. Potential seasonality in *S. teuszii* presence on Benin's coast, or possible habitat modifications, must be considered and examined.

### **New sightings of Atlantic humpback dolphin**

In 2025, two confirmed sightings of *S. teuszii* were registered in the study area (Fig. 3). A third sighting, made by tourists, for lack of precise information remained unconfirmed. We continue the count for confirmed cases from Tchiboza et al. (2024).



**Figure 3:** Sighting locations of *Sousa teuszii* groups in 2013 (Case 1, Zwart and Weir, 2014), 2024 (Cases 2,3,4, Tchibozo et al., 2024) and 2025 (Cases 5, 6; this paper) in Benin's nearshore waters. Details provided in text.

### Case 5

On 2 April 2025, at 13:45, the senior author in stationary observer position on a beach vantage point, 7m above sea level, at western Fidjrossé (N06.348650°, E002.331935°), spotted an inshore small group of 6–7 *S. teuszii* (best estimate= 6 dolphins). The initial sighting cue, by naked eye, was a diagnostic uniform gray upper body and dorsal fins with a distinct hump (Van Waerebeek et al., 2004), shown by all individuals, confidently excluding a mixed species sighting. Considering multi-directional movements of individuals and irregular speed outbursts, at ca. 300 m off an ocean-exposed beach, the dolphins were almost certainly foraging. No seabirds accompanied the group, as is normally the case even with confirmed feeding *S. teuszii* (Van Waerebeek et al., 2004). Within minutes of detection the dolphins moved fast away from shore towards deeper waters at an estimated distance of 1,000–1,200 m, where they resumed foraging behaviour. However, observations with binoculars, despite good visibility, were more difficult considering a SS = 3. The dolphins were last seen at 14:12. Body size and dorsal hump development indicated both adults and juveniles were present, but no calves. Diagnostic dorsal fin humps are more pronounced in the bigger, evidently older, individuals (Van Waerebeek et al., 2004; Weir et al., 2011). Although low-resolution and distant, photos permitted species authentication.

## Case 6

The Case 6 consisted of an opportunistic, 'citizen science' observation (sensu Tchibozo et al., 2024) by Mr. Boris, a well-informed and trusted fisherman based at Grand-Popo (N06.27474°,E01.80745), western Benin. He reported a shore-based sighting of an estimated 7 Atlantic humpback dolphins at Grand-Popo on 15 April 2025. Dolphins slowly moved inshore in western direction. A cellphone video, although grainy, allowed to positively confirm the species, as characteristic dorsal fins with humps are evident. A copy is deposited with CRGB for authentication purposes. Interestingly, estimated group size in Cases 5 and 6 was the same (6–7) and sightings occurred only 13 days apart. It cannot be excluded nor confirmed that the same group was re-sighted. The distance between respective waypoints is approximately 47 km.

### **Unconfirmed incidental observation**

Bénin Tours (Cotonou) posted a short video <https://www.facebook.com/reel/692657970534987> that shows a small group of some 5 (range 5-7) humpback dolphins within the surf zone.

Unfortunately, two different locations were reported, Plage KP10 (6.358476°N,02.521592°E) and Plage Quartier JAK (6.354369°N,02.456650°E), which are 7.2 km apart. Temporal data were also inconsistent, both August and September 2025 were mentioned. An enquiry about the video's authorship, as to try resolve inconsistencies, remained unanswered, raising suspicions. Bénin Tours seemed fully unaware of the dolphins' identity, and referred to them as 'baleines'. A public comment questioned (unchallenged) whether video was truly filmed in Benin, as a foreign dialect could be heard. Considering the contradictory metadata, we reject this report as unreliable unless precise data emerge.

## Ecology

In coastal areas with extensive sand banks, e.g. around the Tristao Islands and Río Nuñez in northern Guinea-Conakry (Weir, 2015; Bamy et al., 2021) or in an estuarine/ riverine habitat, such as in the Siné-Saloum Delta, Senegal (Van Waerebeek et al., 2003, 2004; Weir, 2015; Minton et al., 2022), *S. teuszii* seems to approach the shoreline for foraging preferably with rising tides and avoids nearshore waters with ebbing tide, evidently to avoid stranding and becoming trapped. However, on oceanic coasts, with a steeper bathygraphic cline and no sandbanks, such as in Benin, the danger of running aground is largely absent and the ecological advantage of being able to ignore tides, and thus basically able to double inshore foraging opportunities, may predominate. For the three Benin sightings with accurate time and tide data (Table 1) two were associated with ebbing tides, and only one with rising tide, contrary to expectations.

**Table 2.** Confirmed sightings of *Sousa teuszii* on Benin's coast associated with precise timing (start of observation) and with tidal information derived from Tidechart. <https://www.tideschart.com/Benin/Littoral/Cotonou/>

Sighting	Date	Low tide	High tide	Sighting time	Tidal movement at sighting
“Case 2” of Tchibozo et al. (2024)	25 Oct. 2022	LT 22:44	HT 16:45	18:31	ebbing
“Case 4” of Tchibozo et al. (2024)	27 Nov. 2024	LT 08:25	HT 14:42	08:00	ebbing, only 25 min before low tide
“Case 5” (This paper)	02 April 2025	LT 13:21	HT 19:37	13:45	rising, but only 24 min after low tide

### Encounter rates

The only scientific observation (cum effort data) in Benin allows for the first time to estimate encounter rates (relative abundance) for *S. teuszii* in 2025. We estimate these from total visual shore-based survey distance covered and from effective observation time (see Table 1), namely: 0.68 sightings 100km<sup>-1</sup>, 4.08 dolphins 100km<sup>-1</sup>, 0.0103 sightings h<sup>-1</sup> and 0.0622 dolphins h<sup>-1</sup> observation effort. No other on-effort scientific sightings are available for Benin nor for adjacent countries. Evidently, these values are very low and are consistent with the rare occurrence of *S. teuszii* as concluded earlier from local knowledge and citizen science (Tchibozo et al., 2024). The complete absence of skeletal specimens of *S. teuszii* in Benin's (few) zoological collections also reflects these results.

The updated number (period 2013-2025) of confirmed *S. teuszii* records for Benin's coast amounts to six, including five sightings and one (refloated) live-stranding (Tchibozo et al., 2024; this paper) . If no re-sightings occurred, an estimated maximum number of 26 individuals could be involved. However, the two 2025 sightings (Cases 5 and 6) could have been the same pod. Both were estimated at 6–7 individuals and were sighted only 13 days apart, at some 47 km distance. The stranded specimen was the only individual that can be considered photo-identified. Group size was small (mean= 5.2; SD= 2.17; median= 6; range= 2–7; n= 5) compared to other monitored *S. teuszii* populations. For instance, mean group size at Tristao Islands (Guinea population) was 19.33 individuals (Bamy et al., 2021). Weir (2015) reported 5 sightings with a pooled minimum of 47 animals (mean= 9.4 dolphins per sighting) at the Río Nuñez Estuary, south of Tristao, still double than the mean Benin group size.

## Records of common bottlenose dolphin

The very limited information on the presence of common bottlenose dolphin *Tursiops truncatus* in Benin's waters has been raised before (Sohou et al., 2013; Van Waerebeek et al., 2016; Tchiboza et al., 2024). The only confirmed nearshore (300 m) sighting of two individuals occurred 25 yrs ago (11 September 2001) near the Cotonou port, in 18m deep water (Van Waerebeek et al., 2012; Sohou et al., 2013). The *T. truncatus* population inhabiting the Bight of Benin is suspected to be highly vulnerable to fisheries interactions, as bottlenose dolphins were seen to approach nets. Only a single skeletal specimen, *i.e.* the incomplete mandibles of an old animal, of unknown origin except 'Benin', is curated at the Musée des Sciences Naturelles, Nature Tropicale, Akpakpa, Cotonou (Tchiboza and Van Waerebeek, 2007; Sohou et al., 2013; Van Waerebeek et al., 2016). Below we document two captures, the first of the species in Benin. Sohou et al. (2026) list another alleged case at Grand-Popo in March 2013, but no voucher material is available and its status is unconfirmed.

### *Capture 1*

23/01/2023. A young bottlenose dolphin was reportedly bycaught (Fig. 4) in a set gillnet (filet dormant or Tonga net) and landed near Cotonou's main port (Port de Pêche). Personnel of Nature Tropicale ONG ('Ecogardes') collected the carcass and buried it at a safe location, such that the skeleton can later be collected for educational exhibition at their museum.

### *Capture 2*

26/03/2023. A very large, evidently adult, bottlenose dolphin was captured in an unknown fishing device and landed in fresh condition on a beach east of the Port de Pêche, Cotonou (Fig. 5), presumably in a (vain) attempt to avoid confiscation at the port. Nature Tropicale ONG collected the specimen and buried it for later retrieval.



**Figure 4:** A freshly dead (status 2) juvenile common bottlenose dolphin *Tursiops truncatus* reported as a bycatch in a set gillnet. The beach landing in the vicinity of the Port de Pêche Cotonou on 23 January 2023 is likely a strategy to avoid confiscation of the carcass at the main port.



**Figure 5:** An adult common bottlenose dolphin, in fresh condition (status 2), landed east of the Port de Pêche, Cotonou, on 26 March 2023. The carcass was confiscated.

### Anthropogenic threats to dolphins

Genuine accidental captures in Benin are sometimes claimed as strandings, considering that captures, and their commerce and utilization, are illegal, although the law's interpretation is somewhat ambiguous (Sohou et al., 2013; Tchibozo et al., 2024). Freshly landed dolphin

carcasses when encountered by Beninese port authorities or police are usually confiscated (Tchiboza et al., 2024; Sohoun et al., 2026). However, artisanal fishermen believe and occasionally argue, that they should be allowed to utilize cetaceans for marine bushmeat if the animals were not captured intentionally. The issue is evidently complex, because how to determine with certainty that a capture was indeed accidental.

Insights obtained from landed specimens and interviews with fishers (Segniagbeto et al., 2014; Van Waerebeek et al., 2017; Tchiboza et al., 2024; this paper) strongly support the hypothesis that small-scale fisheries in the Bight of Benin (Benin, Togo, Nigeria) constitute the most severe threat to the long-term conservation of coastal dolphins, particularly *S. teuszii* and *T. truncatus*. The danger emanates not only from entanglements in fishing gear but also from inevitable prey competition for dwindling stocks of neritic fish species, in view of the acute problem of overfishing (Anonymous, 2023). No directed captures by harpooning of Atlantic humpback and bottlenose dolphins, nor other delphinids, have been documented in Benin, in contrast with Ghana (Van Waerebeek et al., 2009) and Nigeria (Uwagbae and Van Waerebeek, 2010) where it is commonplace. However, there is a well-documented case of a Cuvier's whale *Ziphius cavirostris* which was driven to shore and butchered for marine bushmeat (Sohoun et al., 2013, 2026).

As in 2022–2024 (Tchiboza et al., 2024), no cetacean bones were encountered among the flotsam during the 2025 beach surveys, not even small items such as desarticulated vertebrae, ribs or chevron bones, indicative of very few or no animals that are left to decompose on beaches.

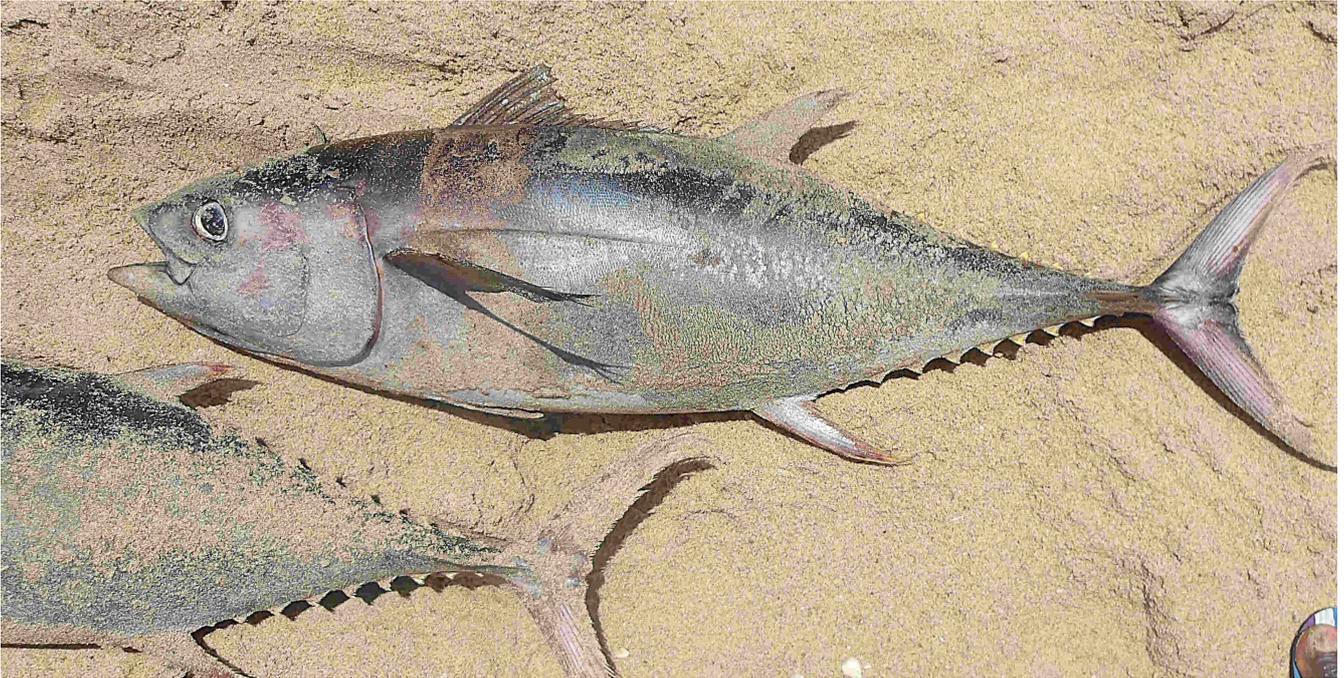
Artisanal fishing was universally operated from dug-out canoes (Fig. 6). Four types of fishing gear were most frequently encountered throughout the study period: beach seines, monofilament gillnets, multifilament driftnets and, to a lesser degree, purse-seines (see also Ambrose and Obienu, 2016). Most nets, and especially the beach seines and monofilament nets, were small-mesh. Some had stretched mesh size not wider than 1 inch (2.54 cm), evidently capturing many undersized, juvenile fishes.



**Figure 6:** Artisanal fishers hauling-in a dug-out canoe near Fidjrossé. The outboard-powered ‘pirogues’, occasionally propelled by sail, are the universally used vessel type in small-scale maritime fisheries in Benin and most of western Africa. Cotonou’s commercial port (Port de Pêche) is visible in the background (facing east).

The marine fisheries target species in Benin consist of fishes belonging to mainly four families, namely Sciaenidae (e.g. *Pseudolithus* spp.), Ariidae, Cynoglossidae and Polynemidae (Latifou et al., 2020). The species we observed showed a wide variety of sizes, but with a worrisome preponderance of juveniles just a few cm in length. The largest fishes seen measured ca. 50 cm, including juvenile barracuda *Sphyraena* sp., and immature yellow-fin tuna *Thunnus albacares* (Fig. 7). Smaller fish included croakers (‘bar’) *Pseudolithus* sp.

Beach seine sets involved 15–50 fishers and the catch volume per person, in most cases, seemed vastly insufficient to equally share among net-hauling participants. However, occasional productive sets yielding more numerous and bigger fish, and the limited fuel needed for each beach seine deployment, notwithstanding a large investment in time and labour, seems to incentivise fishers to continue using these nets intensively.



**Figure 7:** Two of at least 15 yellow-fin tuna *Thunnus albacares* taken in a beach seine set on Benin's central coast on 10/10/2025, besides many other, small, juvenile fishes. While infrequent, such successful sets seem to perpetuate the popularity of beach seining, which is however suspected as one of the main fishing arts causing *S. teuszii* mortality (bycatch).

No live sightings of *T. truncatus* were registered during the 2023-2025 field work (Tchiboza et al. 2024; this paper), raising serious questions on the conservation status of inshore common bottlenose dolphins. Notably two captures were recorded at an unknown distance from shore.

## Conclusions

1– The updated number (period 2013-2025) of confirmed *S. teuszii* records for Benin's coast amounts to six, including five sightings and one live-stranding. If no re-sightings occurred, a maximum number of 22 individuals were involved. However, the two 2025 sightings might have been the same pod. Group size is small (mean= 4.57; SD= 2.37; median= 5; range= 1–7; n= 6) compared to other monitored *S. teuszii* populations. For instance, mean group size in northern Guinea was 19.33 individuals (Bamy et al., 2021).

2– The combination of scientific shore-based visual survey efforts with incidental observations by citizens is yielding very useful information. However, one purported but unconfirmed, and potentially invalid, citizen observation underscores the need for careful screening. In view of AI, any graphic 'documentation' needs to be supported by credible and consistent metadata, lest the formal record risks contamination with fake cases. The low financial burden of shore-based visual survey effort, compared to cost-intensive boat-based effort and problematic logistics issues associated with the use of dug-out canoes (Tchiboza et al., 2024) represents a significantly positive factor in a resource-poor Global South reality. Implementation of shore-based surveys in other

range states is greatly recommended. Low-cost may entice local students to undertake thesis studies.

3– Shore-based visual surveying can generate encounter rates which, with increasing effort, may allow comparison of relative abundance between areas and time periods. If applied in more range states with similarly accessible shorelines it could attain an efficiency in trends analysis comparative to boat-based surveys at a fraction of the cost.

4– The Cameroon dolphin population of *S. teuszii* present in Benin is showing signs of resilience in the face of formidable anthropogenic threats. However, it remains unclear whether the unassessed, but evidently small, population will be able to cope with mounting fisheries pressure, prey competition, net and plastic debris entanglements and potential directed takes hidden as 'strandings' (Sohou et al., 2026). Combined these may represent an unsustainable source of mortality.

5– Concern about common bottlenose dolphin *T. truncatus*, is rising since no free-ranging individuals have been observed in decades. At least two, possibly three, individuals were killed in small-scale fisheries operations.

6– Increased dolphin protection by limiting certain fishery arts (e.g. beach seines) at key coastal stretches, such as at the two existing MPAs 'Bouche du Roy' and 'Donaten', or known primary dolphin-occupied habitats in Benin, could positively support conservation. Ongoing gentrification of beach front areas in both eastern and western Cotonou, gradually converting to residential quarters which promote benign beach tourism and reduce fishery pressures, unexpectedly may help provide stretches of safe nearshore habitat for coastal dolphins.

7– Although only through bycatch evidence, common bottlenose dolphins are confirmed to be still present in Benin's coastal waters. Population structure, whether they consist of offshore or inshore population, or both, will require dedicated research (morphology, genetics) with adequate sample sizes.

### **Declaration of Conflict of Interest**

The authors declare no conflict of interest during the present field research.

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### Author contributions

Conceptualization of this study was led by K.V.W., S.T. and H.Y.L., while amplified by J.B. and Z.S. Field work was implemented by K.V.W., S.T. and H.Y.L. Contacts with local sources in the field was maintained by S.T., Z.S. and J.B. Information on *T. truncatus* captures was compiled by J.B. and Z.S. Data analysis and drafting of an initial draft was realized by K.V.W. supported by S.T. and H.Y.L. All authors contributed to the further redaction of the manuscript and approved the final version. Financial aspects and legal authorizations were administrated by S.T. and H.Y.L. Beninese institutional backing was assured by S.T., Z.S. and J.B.

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**Table 1.** Details of shore-based visual effort data on Benin's western and central coast during 2025. WPT = waypoint, BF = Beaufort sea state.

Date	Start Location	Start position	Start WPT	Start time	Dest. Time	Destination position	Dest. WPT	Final stop time	Direction	Observers	effort distance (km)	effort duration	Effort duration (min)	Weather	Bf
27/03/2025	Grand Popo	N06.266777°, E001.781826°	31	16:00:00	17:08:00	N06.260972°, E001.750286°	47	18:21:00	west & return	KVW, ST	8.28	2h 21min	141	sunny & clouds	4
28/03/2025	Grand Popo	N06.266777°, E001.781826°	31	09:00:00	14:05:00	N06.275168°, E001.813714°	48	14:05:00	east	KVW	NA	[5h 05min]	[305]	mostly sunny	2
28/03/2025	Grand Popo	N06.275168°, E001.813714°	NA	16:00:00	17:33:00	N06.266777°, E001.781826°	31	17:33:00	west	KVW	NA	[1h 33min]	[93]	mostly sunny	2
28/03/2025	Grand Popo	N06.266777°, E001.781826°	31	09:00:00	17:33:00	N06.275168°, E001.813714°	48	17:33:00	east & return	KVW	10.82	6h 38min	398	mostly sunny	3
29/03/2025	Grand Popo	N06.266777°, E001.781826°	31	14:08:00	stationary	N06.260966°, E001.750304°	49	16:59:00	west & return	KVW	7.88	2h 59min	179	mostly sunny	3-4
30/03/2025	Grand Popo	N06.266777°, E001.781826°	31	09:02:00	NA	N06.266777°, E001.781826°	31	10:07:00	stationary	KVW	0	1h 05min	65	cloudy	4-5
30/03/2025	Fidjrossé	N06.346705°, E002.364134°	52	13:15:00	NA	N06.348556°, E002.331429°	51	16:19:00	west & return	KVW	7.53	3h 04min	184	cloudy with sun	3
31/03/2025	Fidjrossé	N06.346705°, E002.364134°	52	09:10:00	11:49:00	N06.343403°, E002.391046°	53	11:49:00	east & return	KVW	5.97	2h 39min	159	sunny, cloudy	3
01/04/2025	Fidjrossé	N06.346705°, E002.364134°	52	09:15:00	11:22:00	N06.347435°, E002.317152°	52	14:42:00	west & return	KVW	10.92	4h 27min	267	mixed sunny/cloud	3-4
02/04/2025	Fidjrossé	N06.346705°, E002.364134°	52	08:40:00	12:31:00	N06.347435°, E002.317152°	52	16:48:00	west & return	KVW	11.44	8h 08min	488	mostly covered	3
03/04/2025	Fidjrossé	N06.346705°, E002.364134°	52	09:00:00	14:44:00	N06.347569°, E002.364613°	56	14:44:00	west & return	KVW	7.28	5h 44min	344	cloudy	2
<b>Total:</b>											<b>70.12</b>	<b>43h 07min</b>	<b>2225</b>		
05/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	17:21:00	17:30:00	N06.346458°, E002.373592°	57	17:50:00	east & return	KVW,ST,HL	10.62	6h 01min	361	cloudy	4-5
06/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	08:40:00	10:51:00	N06.347473°, E002.918971°	58	14:44:00	west & return	KVW,ST,HL	3.87	2h24min	144	cloudy	1
07/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	08:45:00	14:16:00	N06.342975°, E002.397850°	61	14:16:00	east only	KVW,ST,HL	10.33	7h 29min	449	cloudy	3
08/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	09:53:00	12:22:00	N06.347473°, E002.918971°	58	17:24:00	west & return	KVW,ST,HL	9.79	4h 04min	244	drizzle	2
09/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	08:39:00	10:53:00	N06.341533°, E002.408016°	62	14:45:00	east & return	KVW,ST,HL	9.51	7h 11min	431	cloudy	1-3
10/10/2025	Togbé	N06.346760°, E002.365652°	63	09:15:00	12:15:00	N06.343967°, E002.259991°	64	16:26:00	west & partial retur	KVW,ST,HL	5.42	5h 27min	327	sunny, cloudy	2-4
11/10/2025	Akpakpa	N06°358849°, E002.463646°	67	09:44:00	12:05:00	N06.359764°, E002.497054°	68	15:38:00	east & return	KVW,ST,HL	3.98	2h 52min	172	sunny	1
12/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	09:41:00	10:25:00	N06.347995°, E002.355432°	70	14:07:00	west & return	KVW,ST,HL	3.99	2h 5min	125	.unny -- thunderstor	1-5
13/10/2025	Grand Popo	N06.266777°, E001.781826°	31	15:01:00	17:06:00	N06.261297°, E001.751895°	72	17:06:00	west & return	KVW, ST	3.8	2h 5min	125	covered/sun	1-2
13/10/2025	Grand Popo	N06.266777°, E001.781826°	31	17:06:00	18:00:00	stationary CLB beach	31	18:00:00	stationary	KVW	0	54 min	54	covered/sun	2
14/10/2025	Grand Popo	N06.266777°, E001.781826°	1	09:05:00	11:57:00	N06.273382°, E001.806044°	73	11:57:00	east & return	KVW, ST	NA	2h 52min	172	sunny	1
14/10/2025	Grand Popo	N06.266777°, E001.781826°	31	15:20:00	16:25:00	N06.272576°, E001.802453°	74	16:25:00	west & return	KVW	NA	1h 5min	65	covered/sun	1-2
14/10/2025	Grand Popo	N06.266777°, E001.781826°	31	17:04:00	17:40:00	stationary CLB beach	31	17:40:00	stationary	KVW	0	36min	36	covered	2
14/10/2025	Grand Popo	N06.266777°, E001.781826°	31	09:05:00	17:40:00	N06.273382°, E001.806044°	73	17:40:00	east & return	KVW	8.14	4h04min	244	covered/sunny	1-2
15/10/2025	Grand Popo	N06.266777°, E001.781826°	31	06:36:00	07:30:00	ST without GPS	NA	07:30:00	west	ST	1.72	54min	54	covered	1
15/10/2025	Grand Popo	N06.266777°, E001.781826°	31	07:07:00	07:30:00	stationary CLB beach	31	07:30:00	stationary	KVW	0	4h 21min	241	covered	1
15/10/2025	Grand Popo	N06.266777°, E001.781826°	31	07:30:00	14:45:00	N06.272794°, E001.802434°	76	14:45:00	west	KVW, ST	1.5	47min	47	covered/sun	1
15/10/2025	Grand Popo	N06.266777°, E001.781826°	31	17:02:00	17:49:00	stationary CLB beach	31	17:49:00	stationary	KVW	0	1h 35min	95	covered/sun	1
16/10/2025	Grand Popo	N06.266777°, E001.781826°	31	07:10:00	08:45:00	stationary CLB beach	31	08:45:00	stationary	KVW	0	55min	55	sunny +clouds	2
16/10/2025	Grand Popo	N06.266777°, E001.781826°	31	10:05:00	11:00:00	N06.272576°, E001.802453°	74	11:00:00	east	KVW, ST	4.78	2h 30min	150	cloudy	2
16/10/2025	Grand Popo	N06.272576°, E001.802453°	74	12:10:00	13:06:00	N06.277129°, E001.823336°	77	15:36:00	east	KVW, ST	1.79	56min	56	cloudy	2
16/10/2025	Grand Popo	N06.277129°, E001.823336°	77	14:50:00	15:36:00	N06.266777°, E001.781826°	31	15:36:00	west	KVW, ST	1.47	46min	46	cloudy	2
17/10/2025	Grand Popo	N06.266777°, E001.781826°	31	09:14:00	10:26:00	N06.267359°, E001.781690°	79	11:03:00	west & return	KVW, ST	4.26	1h 37min	97	sunny	1
18/10/2025	Fidjrossé	N06.346705°, E002.364134°	52	08:12:00	12:39:00	N06.342736°, E002.397145	82	13:47:00	east & return	KVW	7.54	3h 40min	220	covered	2
<b>Total:</b>											<b>76.76</b>	<b>59 h 21min</b>	<b>3561</b>		

