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ICHTHYOLOGY

Smooth Hound Shark aggregation in the Kromme River estuary, St Francis Bay, Eastern Cape

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Abstract

An aggregation of Smooth Hound Sharks *Mustelus mustelus* was observed and photographed in an inlet off the Kromme River estuary, in the Eastern Cape, on 9 February 2019. Although such an observation was previously reported from the same location, the exact reason for this has not been confirmed. This short note suggests that the behaviour was related to mating.

Observation

On the afternoon of 9 February 2019, while on holiday in St Francis Bay, Eastern Cape, South Africa, my wife and I took a kayak out onto the Kromme River estuary to do some birding. We entered a small inlet on the north side of the river, about 1 km from the river mouth (Figure 1). The tide was incoming but still low and we paddled through a thick patch of Cape Eelgrass *Zostera capensis*, until we reached the open water of the inlet at 34° 8' 8.48"S, 24°49' 59.49"E. The first sighting of the sharks was made at 13h55 (the previous low tide had been at 12h20). New moon had occurred four days earlier, so the moon was waxing.

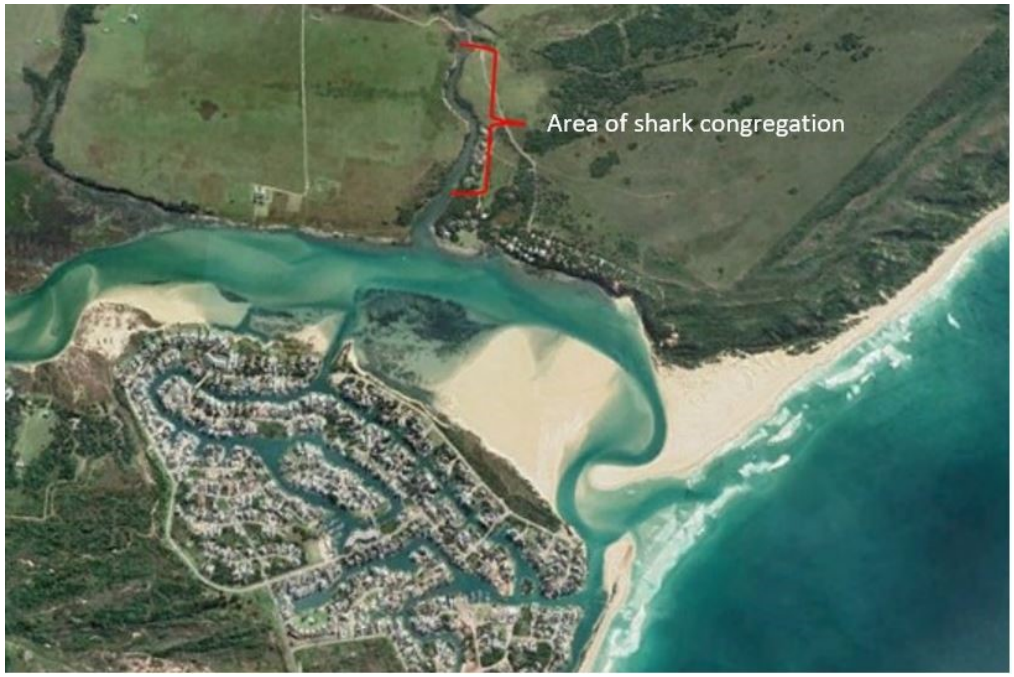

Figure 1: Kromme River estuary, St Francis Bay, Eastern Cape, South Africa

On entering the inlet, we saw a couple of shark dorsal fins breaking the surface in the distance. On closer inspection we saw that there were numerous sharks milling around. The water was murky so that they could only be seen them when they broke the surface; therefore it was not possible to make an accurate estimate of the number of sharks.

From where we first encountered them, we paddled upstream for about 500 m until a road crossing with a culvert prevented further access. We encountered sharks throughout this section; some in very shallow water, almost beaching themselves, before splashing back into deeper water. A minimum estimate of the number which were present was 50 sharks, but there were possibly many more.

The sharks seemed to be swimming in groups and in circles, sometimes within touching distance of the kayak. They however did not seem to take any notice of the kayak; on a couple of occasions, they actually collided with the kayak where the water was too shallow for them to pass underneath. The sharks were all estimated to be on the length range c. 1400 mm–1500 mm. I took a video and it can be observed at this link: https://drive.google.com/file/d/19fh2sI0G28ssT0r5s-nkPR7xuBL40YFt/view?usp=sharing

None of the sharks we saw had more than a few spots on them. Also, the size of the second dorsal fin in comparison with the main dorsal fin and the position of the pelvic fin in relation to the second dorsal fin matched that of the Smooth Hound Shark *Mustelus mustelus*. Photographs and still-frames from the video footage which I took (Figure 2 & 3) were sent to the South African Shark Conservancy (SASC), which confirmed the identify of the species as Smooth Hound Shark *Mustelus mustelus*.

On leaving the inlet we noticed one shark laying still in the eelgrass with its dorsal fin exposed. On reaching the shark we found that it had swam into a discarded plastic shopping bag. The bag was tightly wrapped over its head and gills, but the shark was still alive. It was what I assume to be an adult female; i.e. no claspers. We managed to remove the plastic bag, but the shark was very tired and most likely half suffocated. With a lot of effort, we however managed to push her into deeper water, where she eventually swam off quite strongly.

Discussion

Sharks had been spotted in exactly the same area one year before, in February 2018 (Keartes 2018). Although the sharks in this earlier observation were reported to be Sharptooth Hound Sharks (Spotted Gully Sharks) *Triakis megalopterus*, this identification is incorrect. From the video in Keartes (2018), it is clear that they are also Smooth Hound Sharks.

Although hound sharks are known to enter estuaries, the reason for their presence in these numbers and for the specific behaviour

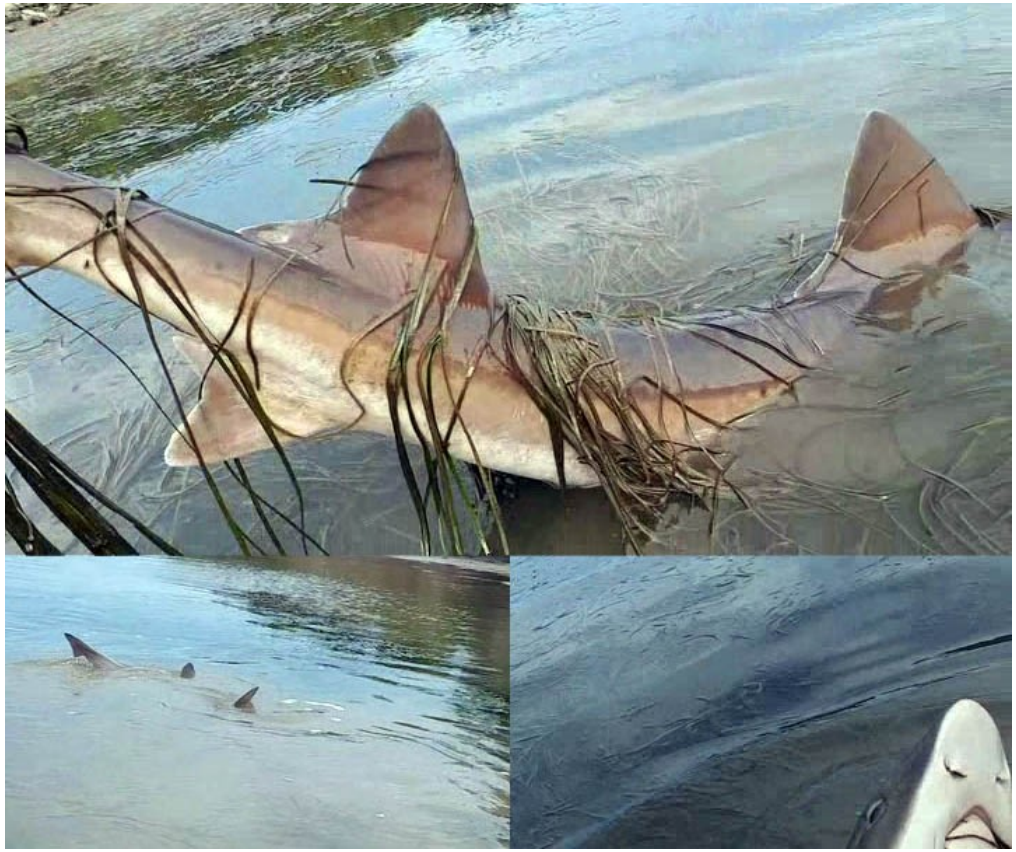

Figure 2: Frames from the video available at https://drive.google.com/file/d/19fh2sI0G28ssT0r5s-nkPR7xuBL40YFt/view?usp=sharing, submitted to the South African Shark Conservancy where the species was confirmed as Smooth Hound Shark *Mustelus mustelus*. The video was taken on an inlet off the Kromme River, St Francis Bay, Eastern Cape, on 9 February 2019.

displayed during this sighting, is however not clear. Smooth hound sharks are mainly active at night (Steel 1998), and therefore to encounter such a large aggregation in daylight seemed unusual. In Keartes (2018) it was suggested that the most likely explanation seemed to point to be something to do with reproduction, possibly either mating or giving birth. Keartes (2018) reported that the sharks were present in this area every year, suggesting that they might be returning to the same spot, on annual basis.

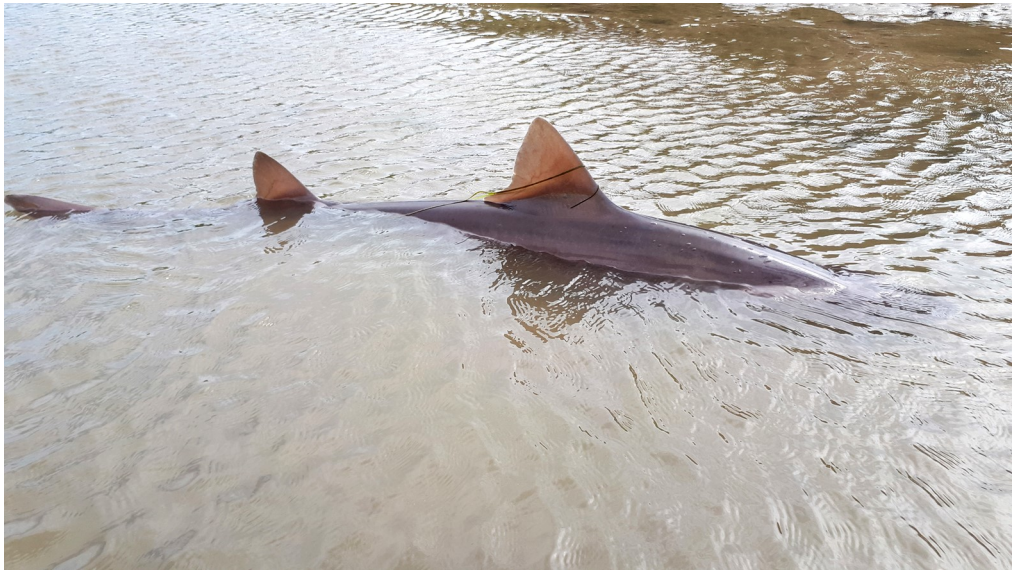

Figure 3: Photograph showing the size of the second dorsal fin in comparison with the main dorsal fin, confirming the identification of the species as Smooth Hound Shark *Mustelus mustelus*, Kromme River, St Francis Bay, Eastern Cape, on 9 February 2019.

The fact that these sharks were confirmed to be present at least two years in a row, in exactly the same spot, at the same time of year (late summer) seems to suggest that they return to this site for a specific reason.

Smooth hound sharks are ovoviviparous and have a gestation period of 9–11 months, with the largest percentage of term-ready young being recorded from October to November (Smale & Compagno 1997). The average litter size is 11.5 pups, but varies between two and 23, with larger females having larger litters than smaller females (Smale & Compagno 1997). Given the above, it is unlikely that the sharks were there to give birth, because it is wrong time of the year.

Mating however occurs at the beginning of the calendar year (Smale & Compagno 1997), the time at which this observation was made. Smooth hound sharks reach sexual maturity at 950–1350 mm in males and 1250–1400 mm in females (Smale & Compagno 1997). All of the sharks observed were within this size range and therefore judged to be sexually mature. It thus seems likely that the reason that shark aggregations were observed in the Kromme River in February 2018 and 2019 were for mating purposes.

Two recommendations follow from these observations. Firstly, a need to keep plastic out of the environment. Secondly, there is a recommendation that the role of the Kromme River estuary in the annual cycle of Smooth Hound Shark be investigated, and that the conservation status of the estuary be adjusted in relation to these findings.

Acknowledgements

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