The Effectiveness and Influence of Training on Marine Mammal and Turtle Data Collection Within Ghanaian Waters

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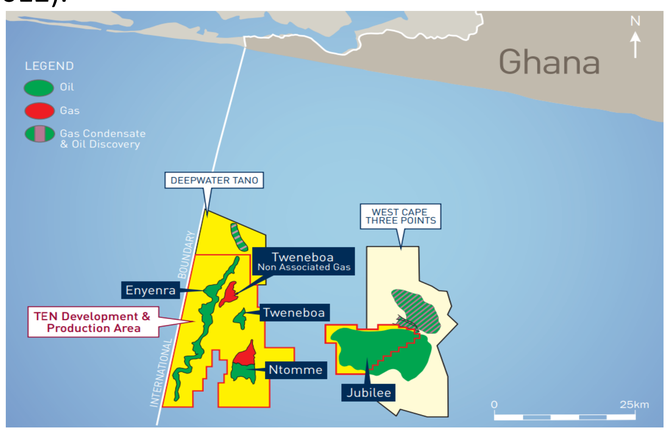
Poster ID: 396

Opportunistic sightings data collection is a valuable tool for providing key information about local marine mammal and turtle species in poorly studied regions.

Introduction

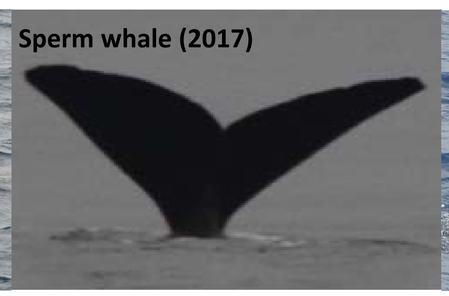
Tullow Ghana Limited (TGL) have been collecting opportunistic marine mammal and turtle sightings data in the Jubilee oil field and Tweneboa-Enyenra-Ntomme (TEN) fields from 2010 to 2018 (excluding 2012).



Data has been analysed in annual sightings reports by Gardline Limited to support the TGL Environmental Impact Assessments issued to the Ghanaian government.

Methodology and Training

- Gardline have run 5 marine mammal and turtle identification and observation techniques training course (2x 2010, 2x 2013, 2017 and 2018), training over 50 people trained from TGL and Navy
- 2-3 day training course covering:
  - Basic acoustics and its effect on marine animals
  - Marine mammal and turtle ID and behaviours
  - Completing sightings forms
  - Observation and monitoring techniques
- Opportunistic data was collected by TGL and Navy personnel working on offshore platforms and security vessels. Observations were conducted in conjunction with monitoring for other objects e.g. fishing gear.
- In the event of a marine animal sighting observers completed a standardised form including the date and time, vessel position, species identification, number of individuals, behaviour and details of features used to identify the animals. Where feasible, photographs were taken.
- Species identification was verified by Gardline marine biologists and a level of certainty given – definite, probable or possible.



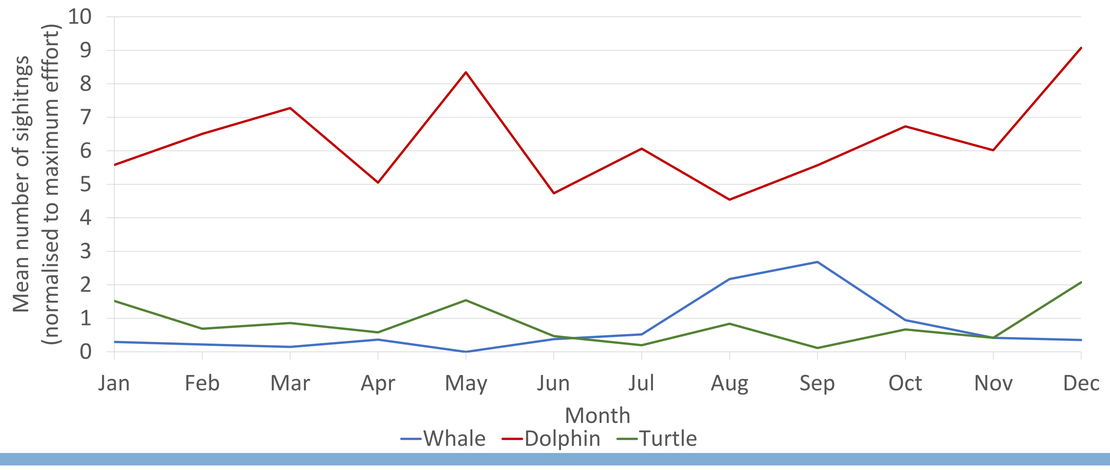
Results

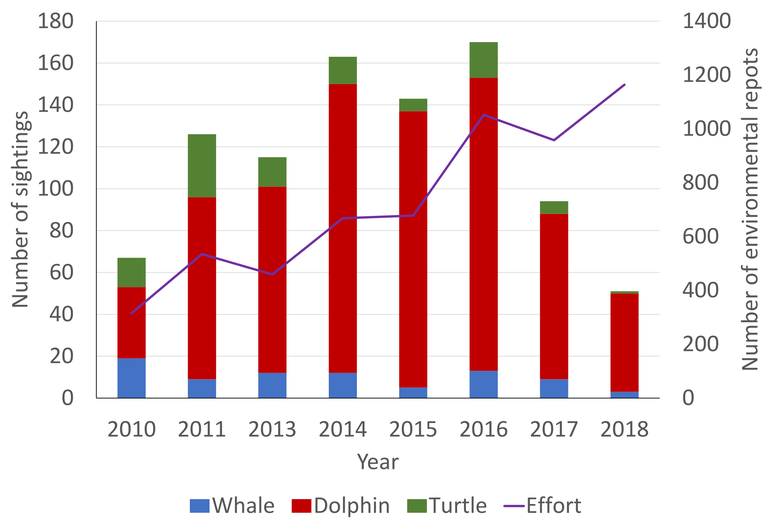
Species Identification

- Sightings dominated by dolphin species: 90% dolphin sightings, 11% turtle, 9% whales
- 18 species of marine mammal recorded, 15 with definite identification, 3 probable
- Short-finned pilot whale was the most frequently sighted odontocete species.
- Humpback whale was the most regular sighted mysticete species. Regular humpback mother and calf presence from July to December – breeding area for southern hemisphere and represent north-western most range of population
- 1st known confirmed sightings of sperm whale in the area.
- 4 turtle species, 3 definite: green turtle, olive ridley turtle and leatherback turtle

Seasonality

- Highest dolphin peak occurs in December with second peak in May.
- Whale sightings peak August to September.
- Decline in dolphin sightings coincides with increase in whale sightings.
- Turtle sightings peak December to January and also in May.





Inter-annual Variability

- Opportunistic effort so varying number of days of effort conducted each year.
- Greatest effort in 2018 (1164) yet lowest number of sightings report (51).
- Dolphin sightings dominated in all years, particularly high from 2014-2016 (<130).
- Whale sightings greatest in 2010 (19).
- Turtle sightings greatest in 2011 (30).

Conclusion

- Following training there has been an increase in both sightings and good quality photographs, as well as an improvement in accurate species descriptions and identification. Sightings decline in years following higher staff turnover.
- Participants keen to pass on knowledge to other crew members offshore so the benefits are further reaching than just for those attending the course.
- **8 years of data collection have resulted in 929 sightings of marine mammals and turtles. This contributes to the largest dataset of marine mammal sightings for Ghanaian waters and shows the importance of opportunistic data collection in improving knowledge of species in poorly studied regions.**