

Main causes of mortality and temporal and geographic distribution of stranded sea turtles in the Catalan coast (2012-2021)

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OBJECTIVES

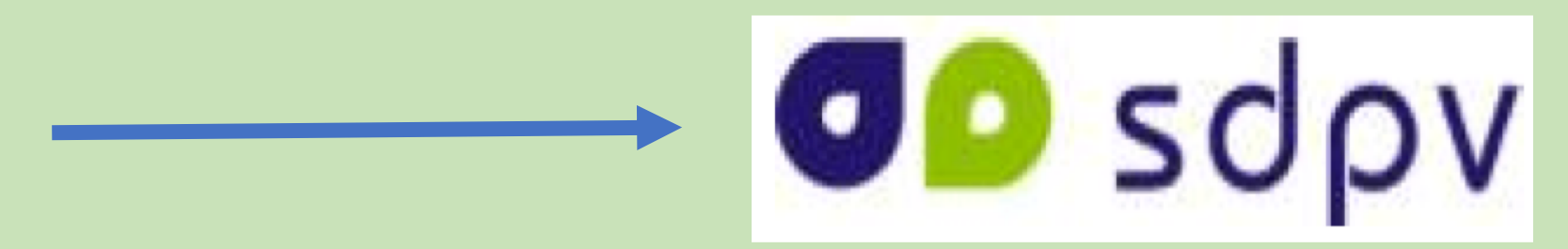
1. Determine the territorial and temporal distribution of stranded turtles of the Catalan coast during the period 2012-2021.
2. Determine the main causes of mortality of the stranded turtles.

MATERIAL AND METHODS

1. Turtle stranding record forms collected by rural agents and the creation of a single master file to work with the data.
2. Necropsy of the stranded turtles.

RESULTS AND CONCLUSIONS

agents rurals



A total of 531 turtles were stranded or accidentally bycatch in the Montsià region (municipalities of Sant Carles de la Ràpita, Amposta, Alcanar and Sant Jaume D'enveja), followed by Baix Ebre (n = 86), Tarragonès (n = 53). In 2017, we observe an increase of stranded or accidentally bycatch turtles. The year with a higher number of recorded stranded turtles is 2021. April and May are the months with the highest incidence.

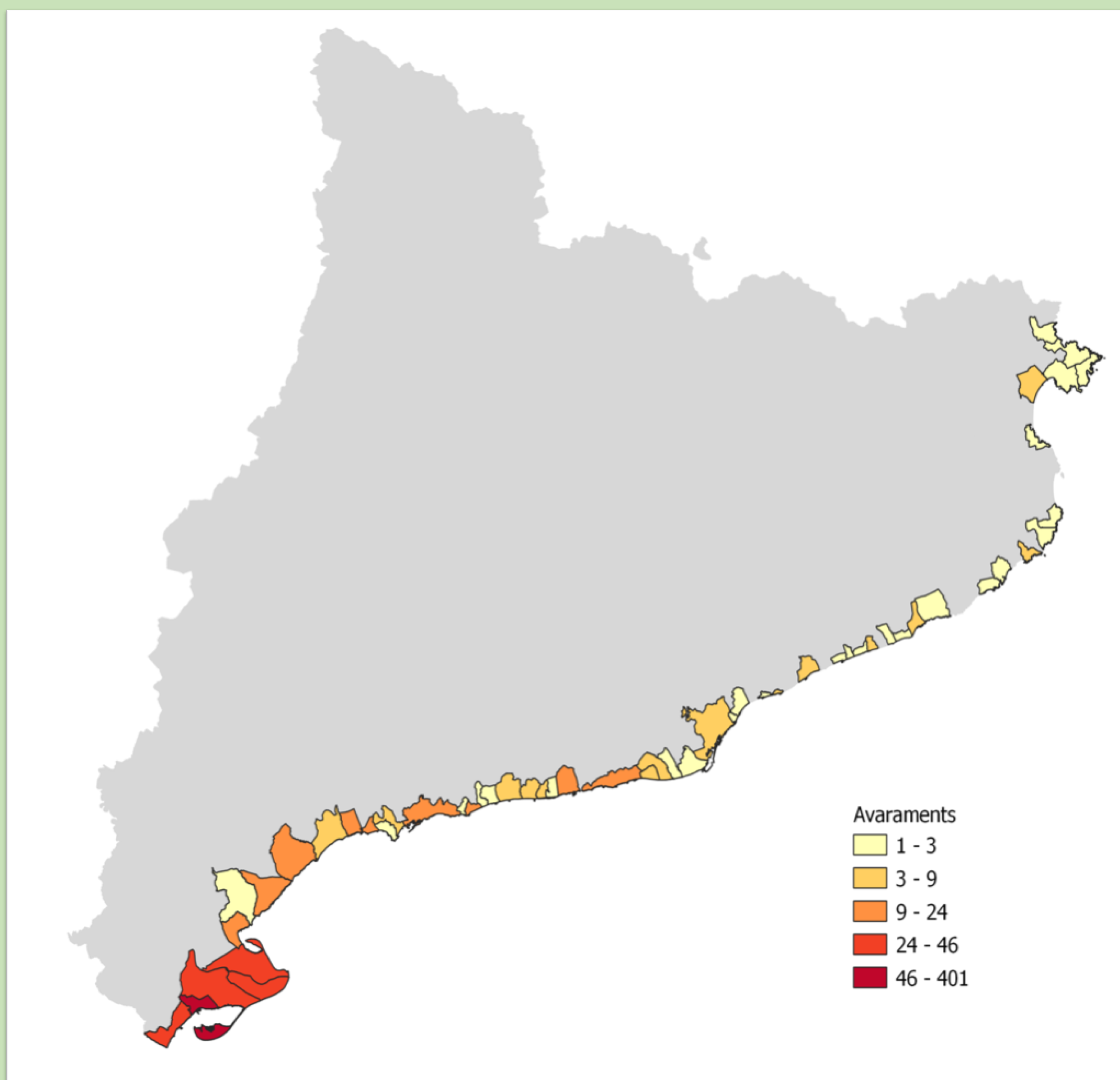


Figure 1. Map of Catalonia with coastal municipalities where turtles have been stranded or there have been cases of accidental bycatch.

The Delta del Ebre area is located on the continental shelf (Fig.7), far from the slope, where the risk of accidental bycatch is higher than on the slope. The rest of the Catalan coastal territories fish in the slope area, so the risk of bycatch is lower (Domènech et al., 2015; Àlvarez De Quevedo et al., 2010). In 2017, the *pla de la xarxa de rescat de fauna marina* was implemented, increasing the records of stranded or accidentally bycatch turtles.

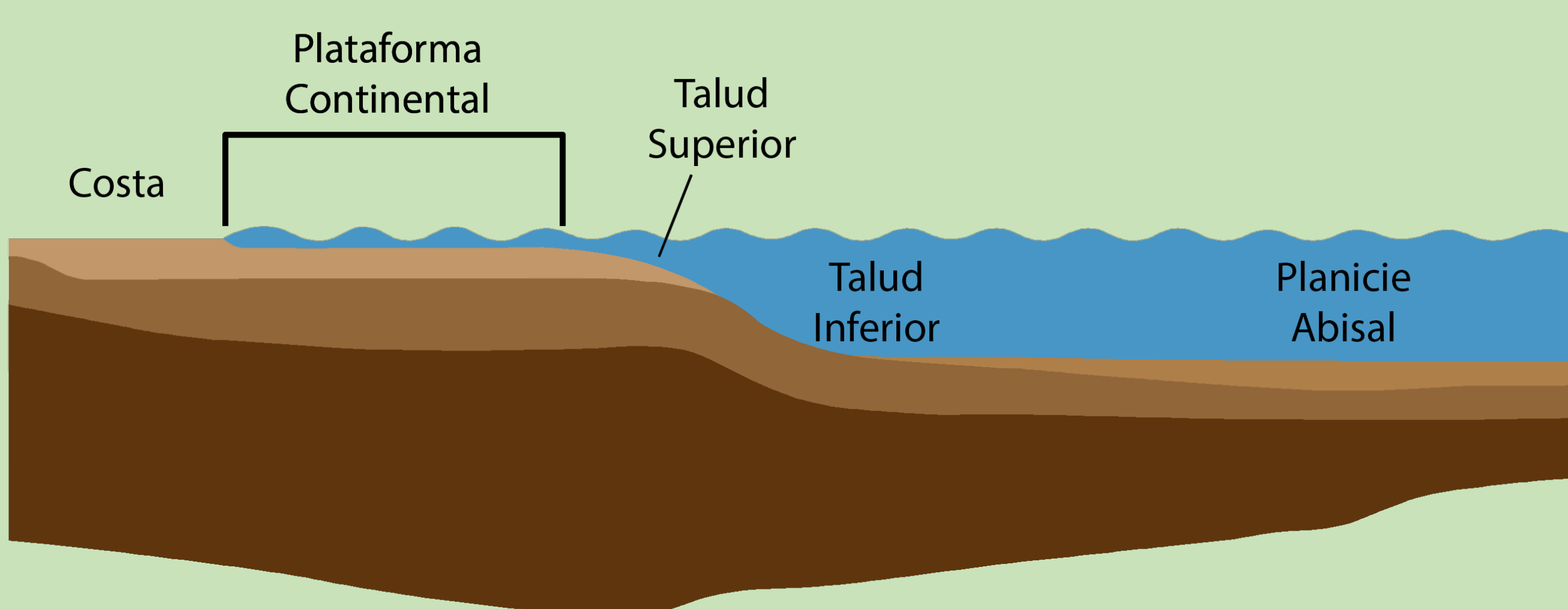


Figure 7. Image showing where the continental shelf and slope are located (León Hormiga, 2020, June 6).

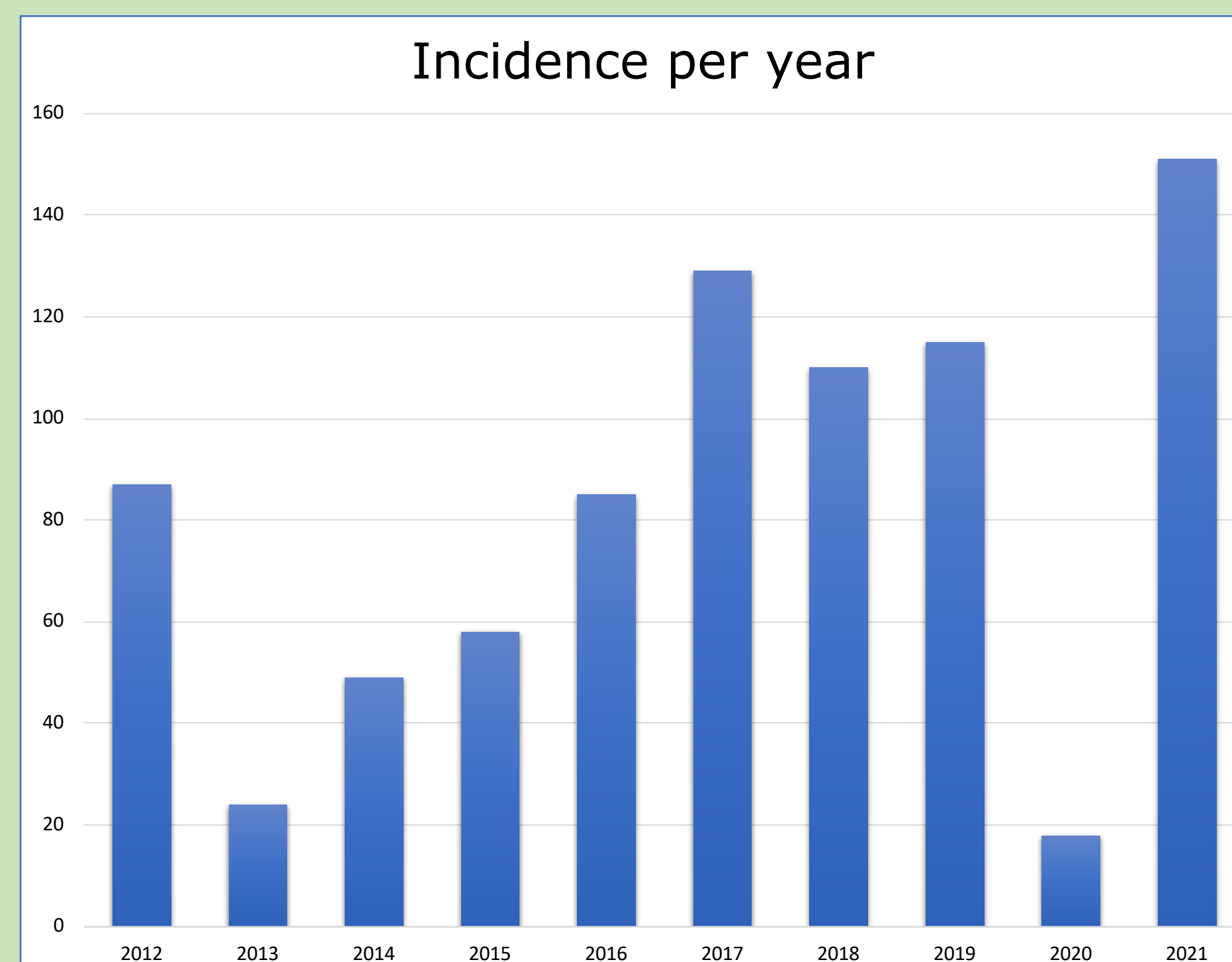


Figure 2. Stranding Incidence Graph per year

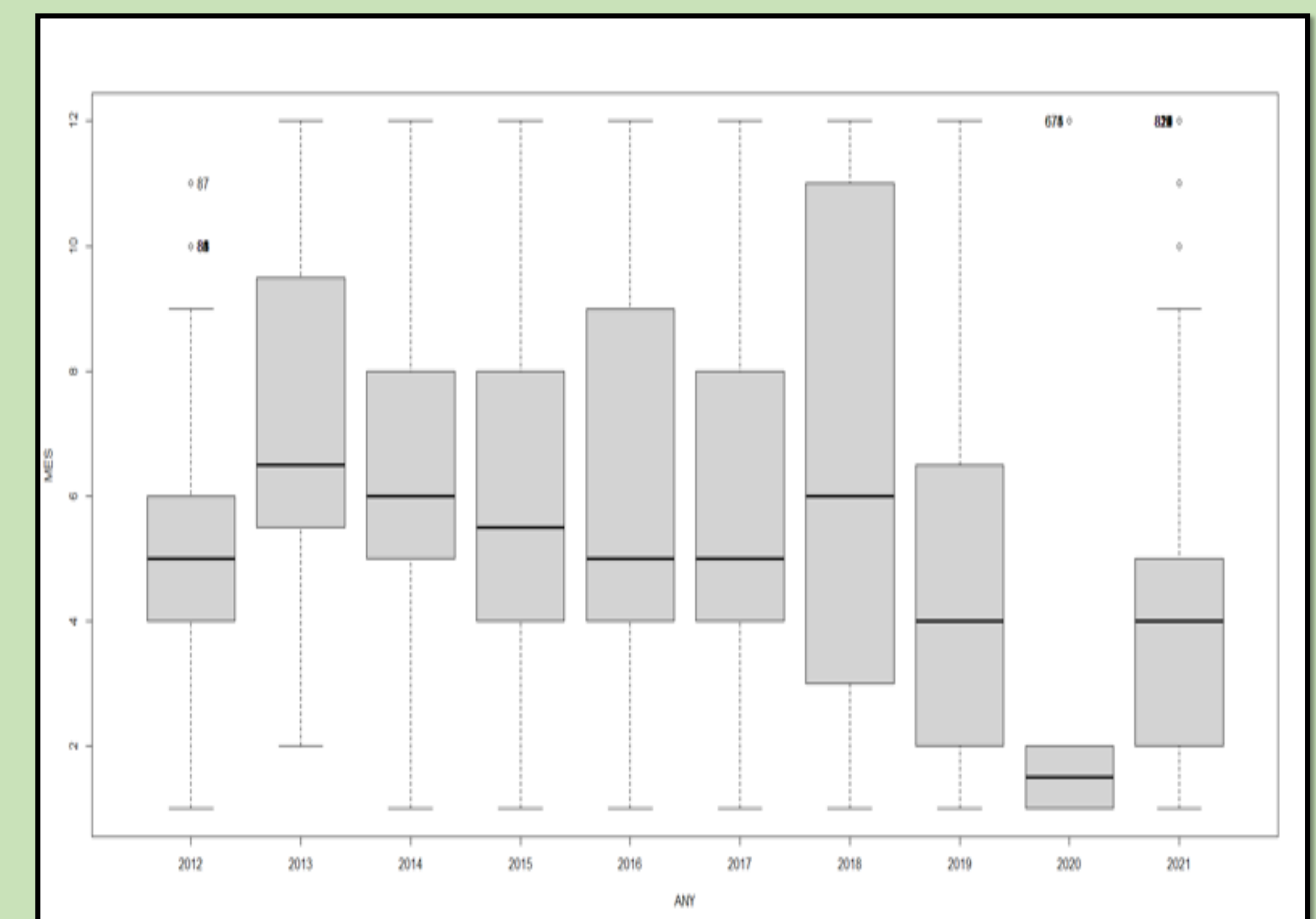


Figure 3. Scatter plot of stranded turtles per month each year

Most of the collected turtles were juveniles (56%), while adults were a minority (39%).

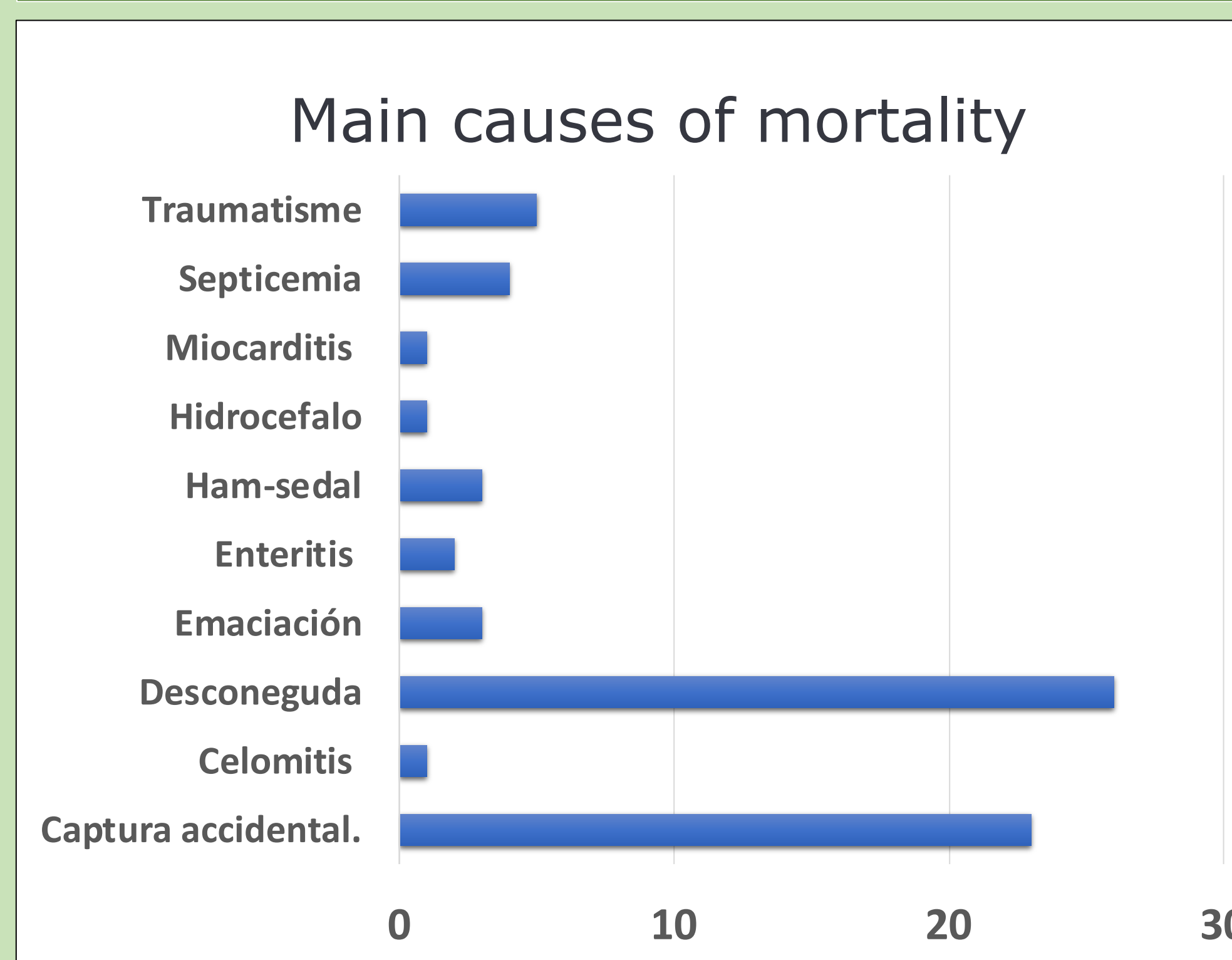


Figure 4. Graph where the main causes of mortality and their percentage are shown.

Accidental bycatch is the main known cause of death. Turtles experience a sudden rise that causes them to suffer from decompression sickness a generalized barotrauma (Párraga, 2014). This can be detected with CT and X-rays. Trawling and longline fishing gear are the main culprits (Àlvarez De Quevedo et al., 2010). If the hooks and lines of the longline remain in the oral cavity, they can cause intussusceptions in the intestines.



Figure 5. X-ray N-601-17, air seen in the venous sinuses and atria of the heart.



Figure 6. TC N-601-17, Cardiac Atria.



Figure 7. N-00207-15 intestinal loops in accordion and ulcerated.

Bibliography:

Parraga, D. G. (2014). Antifungal PK in birds View project Sea Turtles Physiology and Pathology View project.

<https://www.researchgate.net/publication/356415763>

Lvarez De Quevedo, I. A., Cardona, L., De Haro, A., Pubill, E., Aguilar, A., Álvarez De Quevedo, I. A., Cardona, L., & Aguilar, A. (2010). Sources of bycatch of loggerhead sea turtles in the western Mediterranean other than drifting longlines. <https://academic.oup.com/icesjms/article/67/4/677/680975>

Domènech, F., Álvarez de Quevedo, I., Merchán, M., Revuelta, O., Vélez-Rubio, G., Bitón, S., Cardona, L., & Tomás, J. (2015). Incidental catch of marine turtles by Spanish bottom trawlers in the western Mediterranean. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 25(5), 539–550.

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