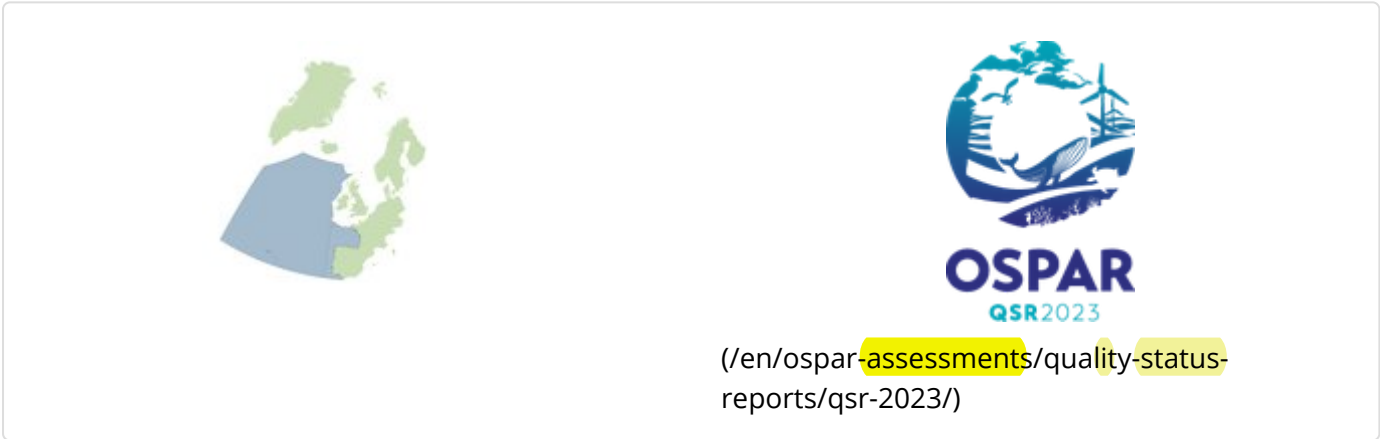


Status Assessment 2022 - Loggerhead turtle

The present status assessment is based on limited data (both spatially and temporally). Therefore, trends could not be determined. Abundance estimates, suggesting a stable long-term trend in juveniles' abundance in the Azores, as well as certain demographic characteristics could be inferred at the national levels. However, additional data will be necessary to conclude on the species status at the scale of the OSPAR maritime area. In particular, information in Areas Beyond National Jurisdiction is lacking. Loggerhead turtle populations are still significantly impacted by by-catch (especially by the pelagic longlines fishery) and marine litter.



Assessment of status		Distribution	Population size	Condition	Previous OSPAR status assessment	Status (overall assessment)
Region	I					NA
	II					NA
	III					NA
	IV	?	?	?	•	Poor
	V	?	?	?	•	Poor

Assessment of threats		By-catch/fishing	Marine litter/debris	Pollution	Collision	Climate change	Threat or impact
Region	I						NA
	II						NA
	III						NA
	IV	↔ ^{2,5}	?	?	?	?	
	V	?	?	?	?	?	

⊕ Table Legend

⊕ Method of Assessment

Confidence

Medium

Background Information

Year added to OSPAR List: 2008 (OSPAR 2008)

(https://www.ospar.org/site/assets/files/44263/loggerhead_turtle.pdf)).

- **Global/regional importance:** Loggerhead turtles are regularly recorded in the Bay of Biscay and Iberian Coast (Region IV) and the Wider Atlantic (Region V). The OSPAR Maritime Area comprises important oceanic developmental habitats for juveniles originating primarily from South-Eastern United States rookeries. Globally, the species is in decline and listed as vulnerable by the IUCN (Casale and Tucker, 2017).
- **Pressures:** Fishing (by-catch); Marine litter (ingestion and entanglement); Contaminants; Collision; Climate change (OSPAR Commission, 2020).
- OSPAR marine litter common indicator "litter ingested by sea turtles" adopted in 2019.

Last status assessment: 2015 (<https://www.ospar.org/documents?v=7384>). Oceanic juveniles follow oceanic fronts and commonly observed in Region V (especially in the Azores). Stranding in Region IV occur generally in the winter likely due to storms. Longline fisheries identified as the largest threat.

Geographical Range and Distribution

Loggerhead turtles (primarily juveniles) occur all year round in Regions IV and V. In Region IV, a peak of observations occurs in the winter, due to stranding of, often, cold-stunned individuals (**Figure 1**).

Loggerhead turtles are most commonly reported in Region V, especially in Macaronesia (**Figure 2**).

Movements of loggerhead turtles tagged in the Azores extend beyond OSPAR Region V, and are characterised by distinct high-use areas, which appear to be seasonally associated with anticyclonic eddies (**Figure 3**).

No obvious changes in distribution have been detected since the last assessment.

Method of assessment: 1b.

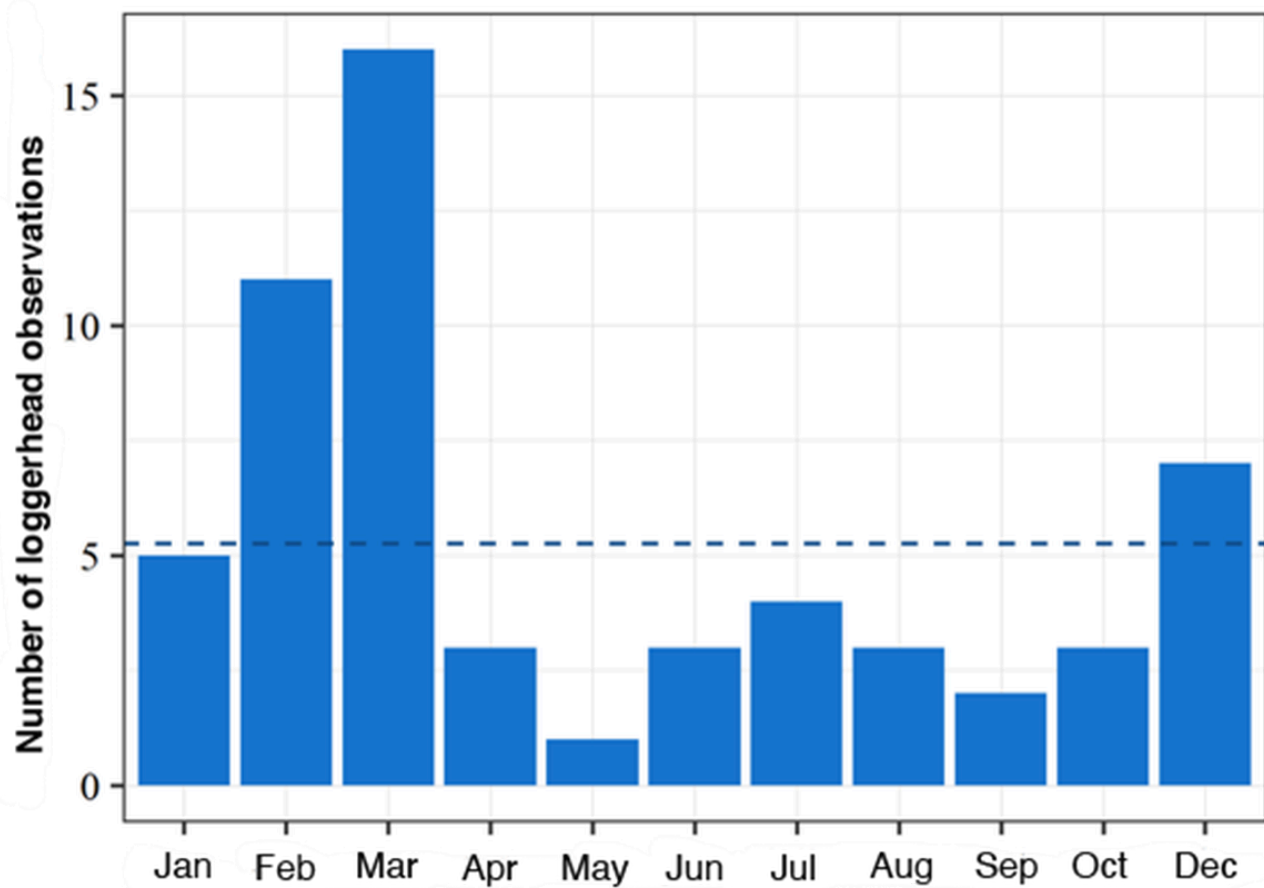


Figure 1: Monthly records of loggerhead turtles in French waters and coast from the CESTM database for the period 2014-2019 (n=58). The blue dotted line represents the average number of records.

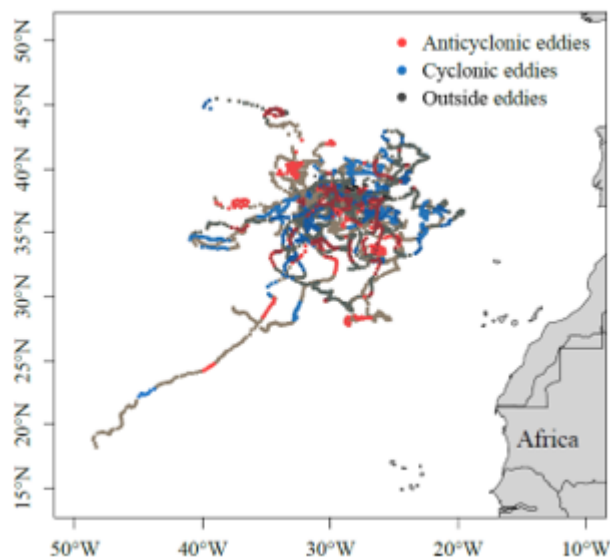


Figure 3: Locations of 28 tagged loggerhead turtles according to the type of eddy associated with each position: anticyclonic (in red), cyclonic (in blue) and outside eddy (in grey) (from Chambault et al. 2019).

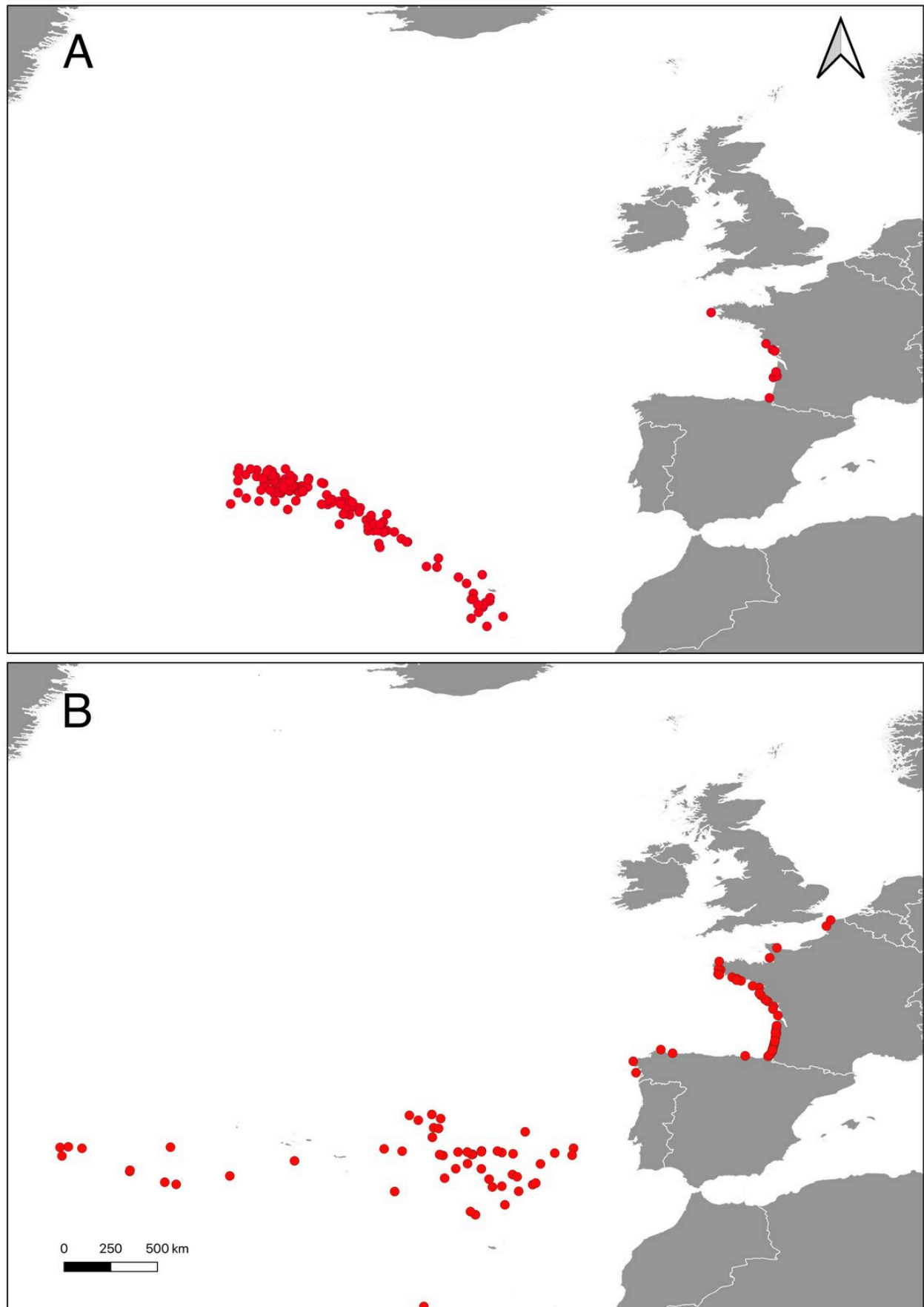


Figure 2: Distribution of (A) at-sea observations and (B) stranded/by-caught loggerhead turtle sightings recorded by Contracting Parties between 2014 and 2019.

Population/Abundance

Loggerheads recorded in Regions IV and V mainly originate from the northwest Atlantic sub-population (mostly South Florida; Least Concern (Ceriani and Meylan, 2017)) and, to a lesser extent, Cape Verde (Endangered (Casale and Marco, 2015)) rookeries (Monzón-Argüello *et al.*, 2012) (**Figure 4**).

In France, 58 loggerhead turtles (i.e. stranded, by-caught and drifting at sea individuals) have been recorded between 2014 and 2019, with a peak in 2016 (highest number since 2001; **Figure 5**) (Dell'Amico, 2020).

In the Azores, the most recent estimate of abundance (2017) is 5 187 individuals (2 170 to 12 399 95% CI; 46% CV; Area=32 804 km²) obtained from a ship-based census (MISTIC SEAS II) (Saavedra *et al.*, 2018).

Additionally, the trend in relative abundance estimated from standardised visual transects on opportunistic platforms between 2001 and 2015 was stable over the long term and closely tracked nest counts realised with a 3 year-gap in Florida rookeries (**Figure 6**) (Vandeperre, 2019).

There are no global abundance estimates for Regions IV and V.

Method of assessment: 1a and b.

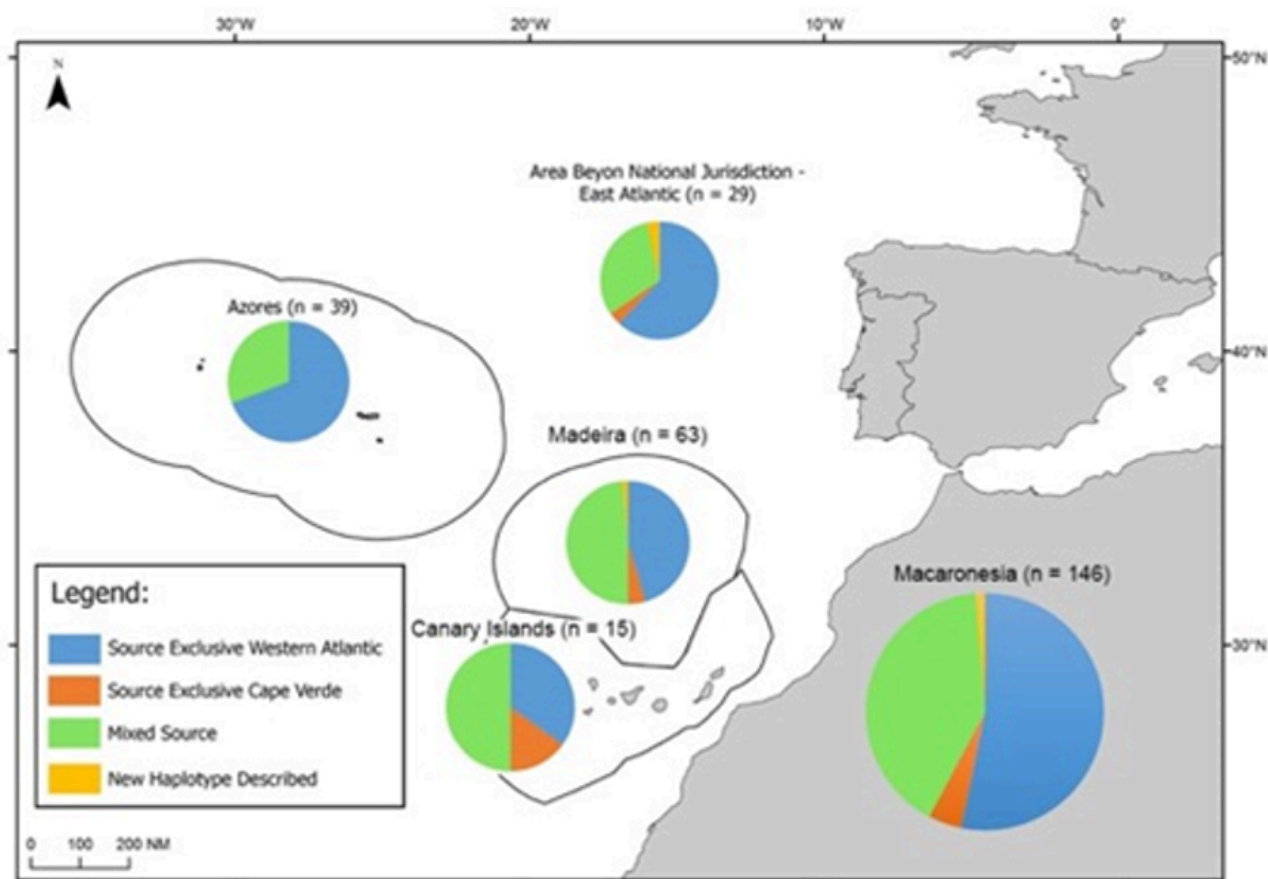


Figure 4: Summary of haplotype frequencies. Two new haplotypes were identified in Areas Beyond National Jurisdiction – East Atlantic and Madeira (MISTIC SEAS II project).

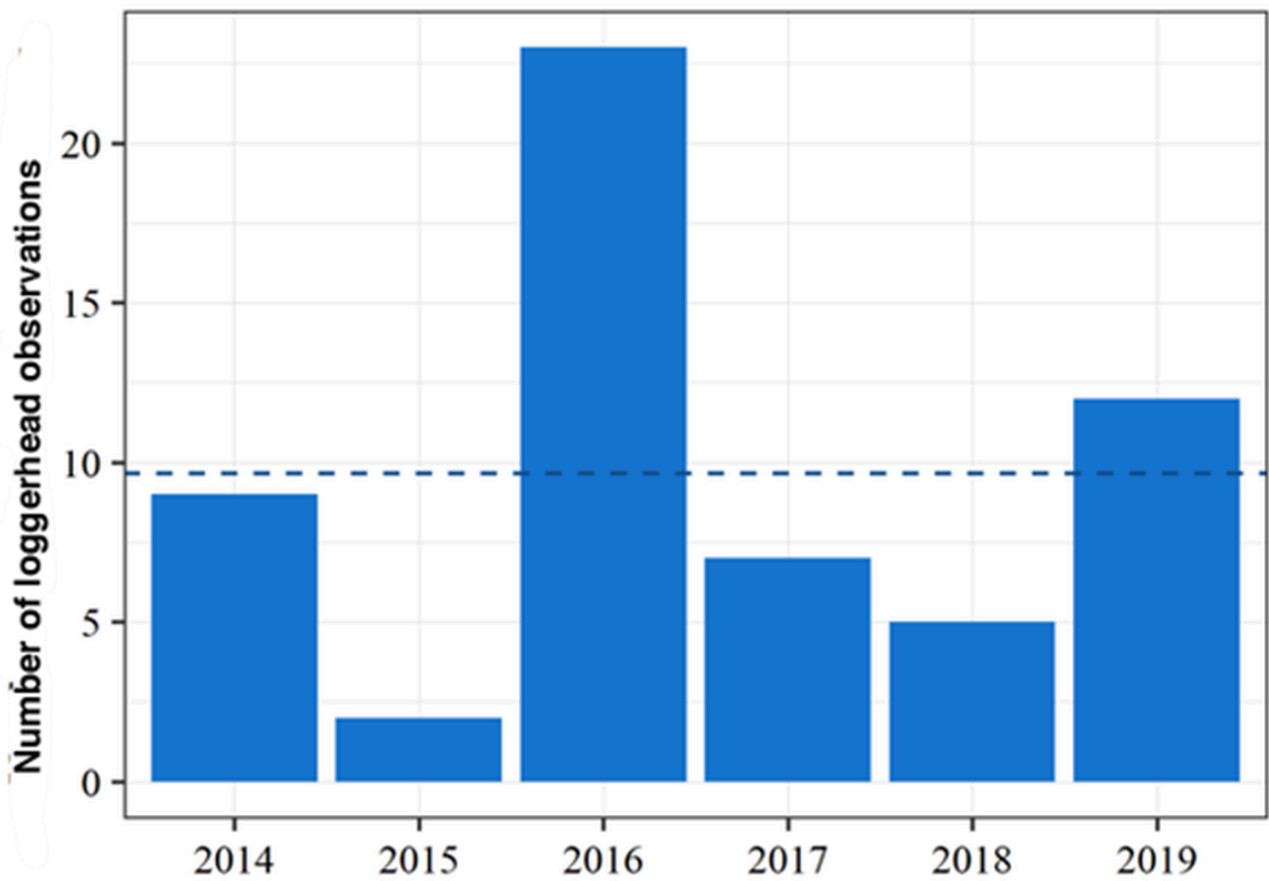


Figure 5: Loggerhead turtle records by year in the CESTM database for the period 2014-2019 (n=58). The blue dotted line represents the average number of records.

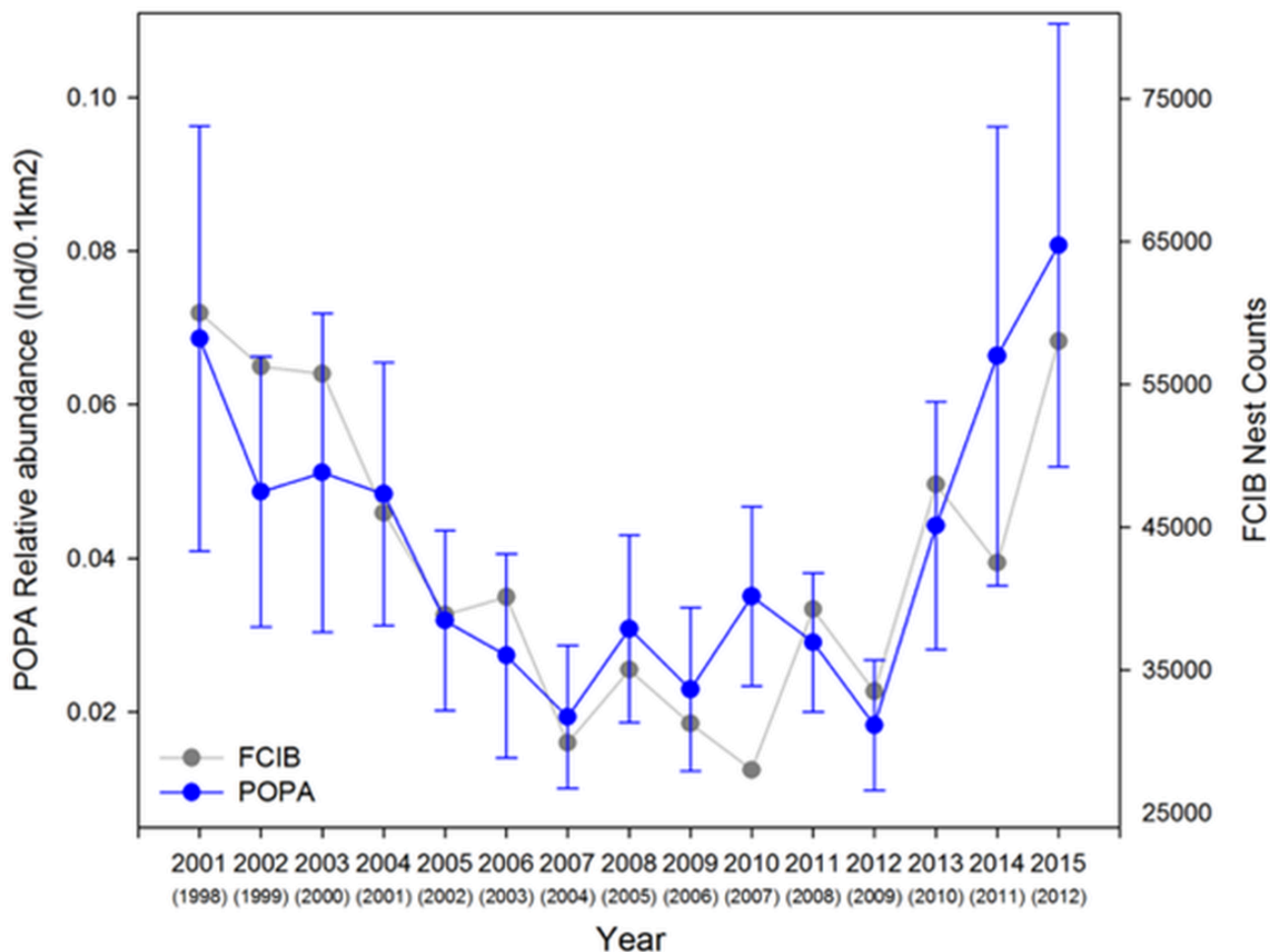


Figure 6: General additive mixed model-derived annual indices of relative abundance (Ind./0,1 km²; \pm BSE) of loggerhead turtles in the Azores calculated from the POPA (Programa de Observação das Pescas dos Açores) visual sightings database (2001-2015), compared with annual nest counts from Florida core index beaches (Index Nesting Beach Survey - Florida Fish and Wildlife Conservation Commission; 1998-2012). The X-axis shows the year of the POPA sightings, matched with the year from the annual nest counts from Florida core index beaches in parentheses, assuming a 3-year lag. Blue – POPA visual sightings; Grey - annual nest counts from Florida core index beaches (from Vandeperre et al. 2019).

Condition

Due to its low reproductive rate and late age of sexual maturity, potential recovery of the species is predicted to be slow.

No breeding/nesting areas have been observed in the OSPAR Maritime Area.

Data from stranding records in Region IV suggest that recorded loggerhead turtles were immature (average Straight Carapace Length = 34 cm in France). This observation was confirmed with skeletochronology analyses (Avens and Dell'Amico, 2018).

Overall, available data are currently not sufficient to assess trends (past and future).

Method of assessment: 1c.

Threats and Impacts

The main threat to loggerhead turtles is by-catch by the pelagic longline fishery. In Region V, the COSTA (CONsolidating Sea Turtle conservation in the Azores) project observer program for the Portuguese fleet has collected data on 789 fishing sets (804 843 hooks) in the period 2015 to 2019 and reported 43 by-caught individuals (Mean CPUE: 0,16 +- 0,85 SD Ind./1 000 hooks). Mortality was 22% of by-caught individuals, with an additional 11% of turtles released in weak condition

Although the Spanish longline fishing fleet operating in Region IV has drastically reduced fishing effort, experts consider that the threat of by-catch continues to affect the species.

Marine debris ingestion is also a significant threat to loggerhead turtles during the oceanic-pelagic stage (53% and 83% of individuals necropsied in France and Azores, respectively, had ingested marine debris (Pham *et al.*, 2017)). Entanglement of loggerhead turtles in marine litter is also occasionally observed.

Although cold-stunned turtles may be particularly vulnerable to collision, insufficient data are available to evaluate the impact of this and other threats (pollution (Camacho *et al.*, 2017; Claro and Girard, 2020) and climate change).

Cf. OSPAR Commission (2020) for details.

Measures that address key pressures from human activities or conserve the species

The following list of measures was derived from the Contracting Parties implementation reporting, completed by national expert additions.

Loggerhead turtle are listed under the EU Habitats and EU MSFD Directives, and measures aimed at addressing major threats to this species were or will be adopted in the frame of these Directives.

For instance, in France, an analysis of the risks of interaction between fishing activities and species listed in the EU Habitats Directive is currently being carried out. This initiative includes the development of measures that will be included in the management plans of Natura 2000 sites and the MSFD.

Guides for on-board handling and release of captured animals have been developed for fishers (e.g. training guide developed in France by Aquarium La Rochelle (<https://gtmf.mnhn.fr/wp-content/uploads/sites/13/2016/05/fiches-24032014-HD.pdf>)). Training courses on how to handle captured turtles and on by-catch reduction techniques are also organized in Spain (i.e. Fundación Lonxanet (<http://www.fundacionlonxanet.org/>)) and Portugal (i.e. COSTA project (<http://costaproject.org/en/>)).

In the Azores, a recent ban on wire leaders (2018, JO Portaria nº116/2018) and the mandatory use of circle hooks (2020, JO Portaria nº116/2018) for the pelagic longline fishery may affect the impact and fishing pressure.

In Spain, a National Strategy for the conservation of marine turtles will be approved in the coming months. Moreover, management plans for Special Areas of Conservation and a National Plan for the reduction of bycatch are being elaborated.

Cf. OSPAR Commission (2020) for details.

Conclusion (including management considerations)

Overall, the abundance of loggerheads in the OSPAR Maritime Area is unknown.

However, data show that juveniles are common in Region V, especially in the Azores, where the long-term abundance trend appears to be stable (2001 to 2015) and follows the trend in nest productivity at major Florida rookeries (Dell'Amico, 2020).

In Region IV, the occurrence and distribution of loggerhead turtles could only be assessed with stranding and by-catch records, and opportunistic at-sea surveys. In France, the greatest number of individuals was recorded during the winter months, coincident with a decrease in temperatures, leading immature turtles to drift to shore, and sometimes die.

The main pressures affecting loggerheads are by-catch in the surface longline fishery and interaction with marine litter. Both pressures are currently being monitored, but long time series are still lacking. Therefore, monitoring programs on by-catch (including fishery observer programs) need to be improved and measures to reduce threats must be implemented. Efforts aiming at increasing the survival of captured individuals should be prioritized. This would include encouraging reporting of incidental capture by fishermen and training them on how to safely release by-caught turtles. Additionally, Stranding networks and rescue centres should be reinforced.

The timing of OSPAR status assessments of loggerhead turtle is proposed to be six years. OSPAR common indicators should be developed to facilitate the assessment of this species. It would be relevant to develop OSPAR common indicators on by-catch and population abundance of sea turtles.

Knowledge Gaps

Existing monitoring programs in Region V must continue to achieve long time-series. In Region IV, in addition to data collection by stranding networks, the organisation of dedicated at-sea surveys to estimate abundance should be a priority.

Information on condition and health aspects of the species are uncertain (including age/size structure) due to insufficient data. It is necessary to define reliable indicators of the species condition and adequate monitoring programs.

Information on fishing effort and mortality are also lacking. Access to effort (VMS) data for the European surface longline fleets, including in the Area Beyond National Jurisdiction in Region V, and studies to estimate post-release mortality are required.

Reverse drift models should be developed to identify the death location of stranded carcasses. Moreover, strategies aiming at measuring the impact of contaminants on marine turtles should be developed (Claro and Girard, 2020). Finally, satellite tagging studies would help to increase knowledge on the movements and distribution of loggerheads to identify habitats, improve abundance estimations and knowledge on seasonal distribution.

Method used

Main source of information:

1. OSPAR data assessment only
2. Assessment derived from third party assessment
3. Assessment derived from a mix of OSPAR data assessment and assessments from third parties

Assessment is based upon:

- a) complete survey or a statistically robust estimate (e.g. a dedicated mapping or survey or a robust predictive model with representative sample of occurrence data, calibration and satisfactory evaluation of its predictive performance using good data on environmental conditions across entire species range);
- b) based mainly on extrapolation from a limited amount of data (e.g. other predictive models or extrapolation using less complete sample of occurrence and environmental data);
- c) based mainly on expert opinion with very limited data;
- d) insufficient or no data available.

References

Sheet reference:

BDC2022/Loggerhead turtle



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