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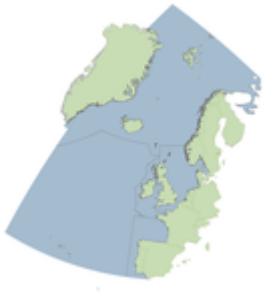
Status Assessment 2022 - Leatherback turtle

The present status assessment is based on limited data (both spatially and temporally). Therefore, trends could not be determined. Although, abundance estimates, trends in distribution and certain demographic characteristics could be inferred at the national levels, additional data will be necessary to conclude on the species status at the scale of the OSPAR Maritime Area. Overall, the north-west Atlantic leatherback population is in decline (IUCN red list) and is still significantly impacted by by-catch and marine litter.



OSPAR QSR2023

(/en/ospar-assessments/quality-status-reports/qsr-2023/)

Leatherback turtle		Distribution	Population size	Condition	Previous OSPAR status assessment	Status (overall assessment)
Region	I	?	?	?	•	Poor
	II	?	?	?	•	Poor
	III	?	?	←→[2,5]	•	Poor
	IV	?	?	←→[2,5]	•	Poor
	V	?	?	?	•	Poor

Leatherback turtle		By-catch/fishing	Litter/debris	Pollution	Collision	Threat or impact
Region	I	?	?	?	?	
	II	←→[2,5]	←→[2,5]	?	?	
	III	←→[2,5]	←→[2,5]	?	?	
	IV	←→[2,5]	←→[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/1889/leatherback_turtle.pdf)).

- **Global/regional importance**:The leatherback turtle occurs throughout the OSPAR Maritime Area, which is within its natural foraging range. The species is in decline, the IUCN lists the northwest Atlantic subpopulation, as “endangered” (The Northwest Atlantic Leatherback Working Group, 2019).
- **Pressures:** Fishing (by-catch); Marine litter (ingestion and entanglement); Contaminants; Collision (OSPAR Commission, 2020)
- OSPAR marine litter common indicator “litter ingested by sea turtles” adopted in 2019.

Last status assessment: 2009 (https://www.ospar.org/documents?v=7176) . Seasonal patterns in occurrence with a peak between August and October (Greater North Sea - Region II; Celtic Seas - Region III; and Bay of Biscay and Iberian Coast - RegionIV). Bay of Biscay and Iberian Peninsula identified as “high-use” areas. Most significant known by-catch attributed to pot fisheries, pelagic drift nets (banned since 2002) and longlines.

Geographical Range and Distribution

Records of leatherback turtles in the OSPAR Maritime Area occur throughout the year. A peak in occurrence was identified in United Kingdom, Irish and French waters between June and October, particularly in August (**Figure 1**).

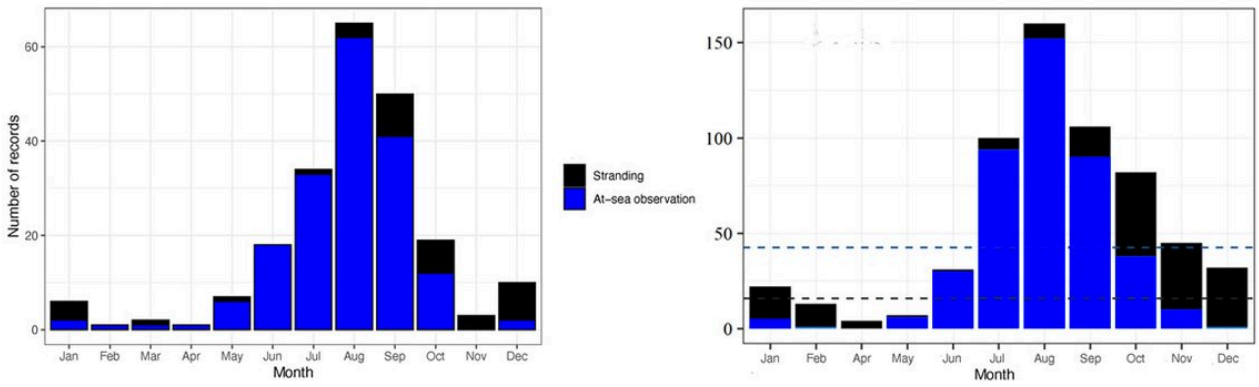


Figure 1: Monthly records of leatherback turtles in (a) UK and Irish (TURTLE database; n=216) and (b) French (CESTM database; n=605) waters between 2009-2019. The blue and black dotted lines represent the average numbers of stranding and at-sea observations.

Leatherback turtles have been reported in the Greater North Sea (Region II) to the Wider Atlantic (Region V) (**Figure 2**). The northern most observation was recorded near the Shetland islands.

In OSPAR Regions III and IV, leatherback turtles primarily occur off the Iberian coast and the Bay of Biscay, near coasts and estuaries.
Sightings and by-catch of leatherback turtles in the Azores are generally rare. Areas of high interaction with the Portuguese pelagic longline fleet were mainly observed between the Azores and the Iberian Peninsula.

Method of assessment: 1b

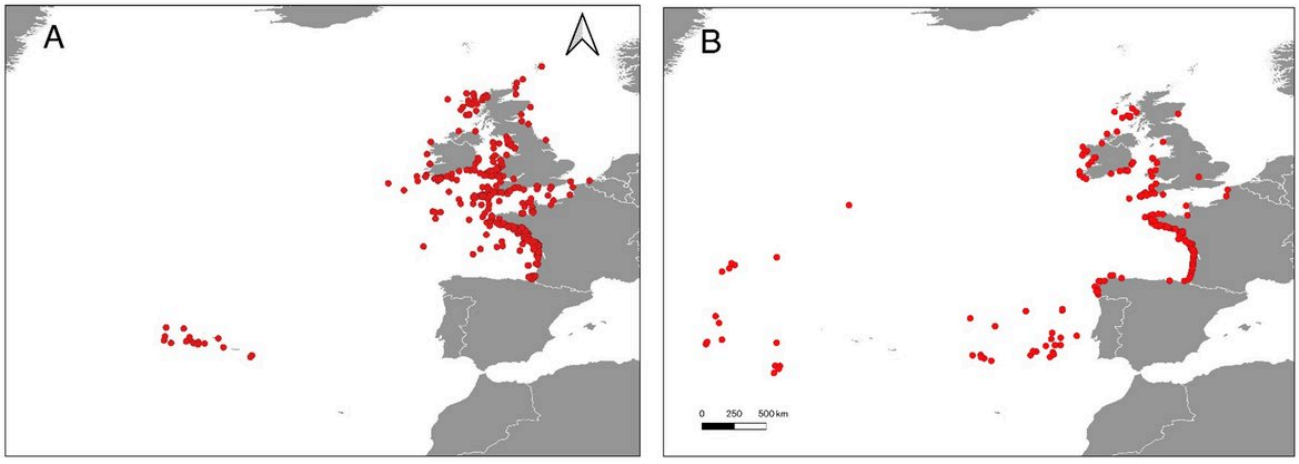


Figure 2: Distribution of (A) at-sea observations and (B) stranded/by-caught leatherback turtle sightings recorded by Contracting Parties between 2009 and 2019.

Population/Abundance

Leatherback turtles in the OSPAR Maritime Area mostly originate from the Northwest Atlantic Regional Management Unit (Roden *et al.*, 2017).

Some general trends in abundance have been inferred from stranding observations recorded by stranding networks and opportunistic at-sea observations. Detected trends differ regionally: overall, sightings have been decreasing since 2011 in the United Kingdom, while they have been increasing in France. In particular, the high number of strandings on the French coast in 2019 is likely due to frequent storms in the fall of that year (**Figure 3**).

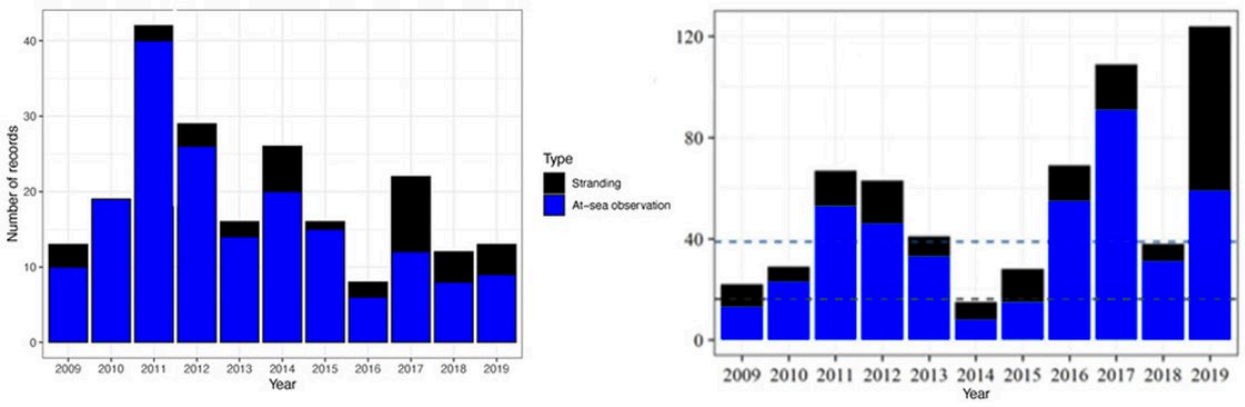


Figure 3: Annual records of leatherback turtles in (a) UK and Irish (TURTLE database; n=216) and (b) French (CESTM database; n=605) waters between 2009-2019. The blue and black dotted lines represent the average numbers of stranding and opportunistic at-sea observations.

Abundance estimates have been calculated from aerial surveys. Specifically, leatherback turtle densities have been estimated in Irish waters (0,06 individuals per 100 km^2) (Doyle *et al.,* 2008) and the Bay of Biscay (**Figure 4**). In the case of Ireland, density estimations were extrapolated to an estimated 2 000-3 000 leatherback turtles passing through or residing in Irish waters each year - which may be equivalent to 2 to 5% of the Atlantic population.

At this time, trends in leatherback turtle abundance cannot be inferred for the whole OSPAR Maritime Area.

Method of assessment: 1b

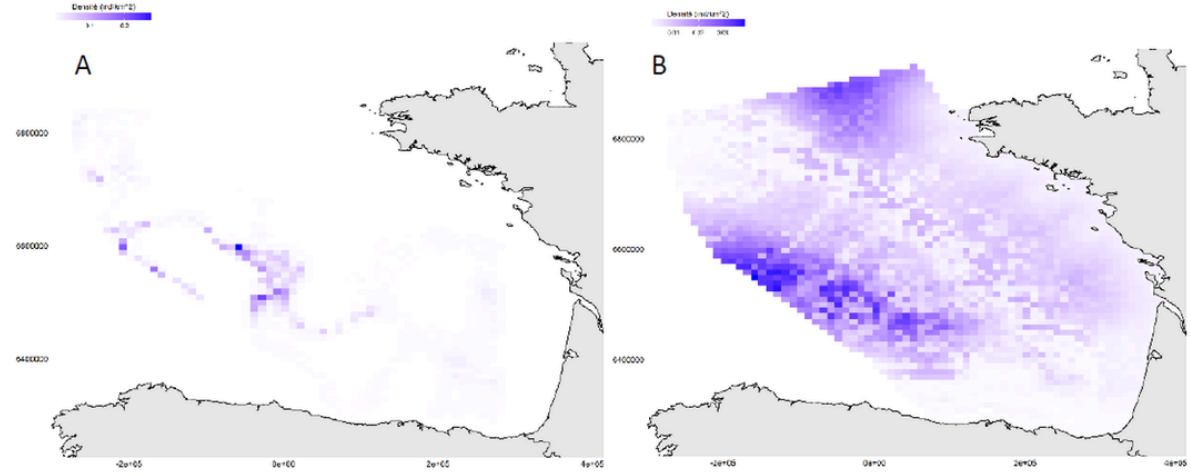


Figure 4: Number of leatherback turtles per km² in the Bay of Biscay in a) winter 2011 b) and summer 2012. (Simian and Artero, 2018)

Condition

Due to its low reproductive rate and late age of sexual maturity, potential recovery of the species is predicted to be slow. Although surveys at tropical nesting beaches suggest an increase in the number of nesting adult females (Stewart *et al.*,2011 and Nalovic *et al.*,2020), the available data are currently not sufficient to assess trends (past and future).

Body size data from stranding and capture records in the United Kingdom (1910 to 2018) and France (2009 to 2019) suggest that records are of subadults and adults.

In the summer months, leatherback turtles frequent foraging grounds in the OSPAR Maritime Area. In Regions III and IV, peak occurrence appears to coincide with that of jellyfish (Houghton *et al.*,2006) with large and diverse aggregations of jellyfish documented in the Pertuis Breton (Bay of Biscay) and off southwest England and Wales (Lee *et al.*,2013; Pikesley *et al.*,2014; Fossette *et al.*,2015). Limited records, predominately of dead animals, outside the peak season suggest that these regions may not represent suitable habitat for leatherback turtles in the winter, likely due to water temperatures and food availability (Botterell *et al.*,2020).

No breeding or nesting areas have been observed within the OSPAR Maritime Area.

Method of assessment: 1c

Threats and Impacts

By-catch represents the main anthropogenic threat to leatherback turtles, followed by interaction with marine debris (entanglement and ingestion). For instance, 6 to 8% of records in France and the United Kingdom were by-caught individuals and 40% of necropsied individuals contained marine debris.

In OSPAR Region V, the pelagic longline fishery is the main threat to leatherback turtles. In the period 2015 to 2019, 29 by-caught individuals (Mean CPUEn: 0.04 +- 0.20 SD Ind./1 000 hooks) were reported as part of the COSTA project (COnsolidating Sea Turtle conservation in the Azores) observer program for the Portuguese fleet. Leatherback turtles were mostly entangled in the lines and were released in the water, in apparently good condition.

Overall, leatherback turtles regularly get entangled in the ropes of creels and pots or navigation buoys, and captured in fishing gear (*i.e.* long lines, trawl, trammel and drift nets).

Although collisions are often lethal, few records exist and their impact on the species is uncertain.

To date, little is known on the impact of contaminants on leatherback turtles (Camacho *et al.*,2017 and Claro and Girard, 2020).

While insufficient information is currently available to estimate the evolution of threats over time, current pressures are considered likely to continue into the foreseeable future.

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.

Leatherback turtles are protected under national legislations in several Contracting Parties (United Kingdom, France, Portugal and Spain). Moreover, in the UK, the leatherback turtle is a Priority Species under the UK Post-2010 Biodiversity Framework for 2011-2020. (https://jncc.gov.uk/our-work/uk-post-2010-biodiversity-framework/)

Leatherback turtles are also listed under the EU Habitats and 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 Habitats Directive is currently being carried out. This initiative includes the development of measures that will be included in the management plans of EU Natura 2000 sites and the EU MSFD.

Guides for on-board handling and release of captured animals have been developed for fishermen (e.g. training guide developed in France by Aquarium La Rochelle (http://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/)).

In the United Kingdom and Ireland, the “Turtle Code (https://www.euroturtle.org/turtlecode/turtlecode.pdf)” promotes the reporting of all turtle encounters and provides practical advice on how to deal with sick/entangled turtles.

Finally, in Spain, management plans for Special Areas of Conservation and a National Plan for the reduction of by-catch are being elaborated.

Cf. OSPAR Commission (2020) for details.

Conclusion (including management considerations)

Currently the distribution, population size and demographic features of leatherback turtles in the OSPAR Maritime Area are unknown due to insufficient data. Leatherback turtles are predominantly recorded in Regions II, III and IV in the summer months, coincident with abundant jellyfish on which they prey.

Most data available are opportunistic at-sea observations and stranding records, resulting in a limited ability to determine trends.

Limited estimations of abundance are based on occasional multi-taxa aerial surveys.

Evidence of pressures and threats is also limited due to the small number of records. Moreover, the most significant threats to leatherback turtles are thought to occur outside Contracting Parties national waters, at or near the species’ nesting beaches, and from fishing activities in international waters of the North Atlantic (Fossette *et al.*, 2014). Consequently, future prospects for the species are likely to be determined by international conservation efforts, in which OSPAR could usefully play an important part.

Although the species is in decline globally, positive trends in the Northwest Atlantic RMU (Stewart *et al.*,2011 and Nalovic *et al.*,2020) have been detected. Further work is thus required throughout the North Atlantic to establish the full status of this species.

Overall, the timing of OSPAR status assessments of leatherback turtle is proposed to be six years. It would be relevant to develop an OSPAR common indicator on by-catch of sea turtles.

Knowledge Gaps

Important knowledge gaps remain regarding the demography, range, migratory habits and habitat utilisation of this species in the north-east Atlantic.

Similarly, knowledge of the impact of threats is limited. Although there is evidence of significant by-catch of leatherback turtles in long-line fisheries in the Pacific, there is little qualitative or quantitative data available in the north-east Atlantic. Interaction with fisheries may not be effectively reported at present and further efforts are required at national and international levels to improve fishery observer programs and minimise the risk of impact (Hamelin *et al.,* 2017).

More importantly, 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.

There is a need to reinforce and improve monitoring programs. Efforts should in particular be allocated to dedicated or multi-taxa at-sea surveys. Stranding, by-catch and at-sea records (including citizen science), along with post-mortem, should continue. A review of the current state of flow and access of turtle observations and survey data for Contracting Parties would be of benefit. This could result in proposals to ensure existing observation and survey data for Leatherback turtles are being utilised to address knowledge and data gaps.

Reverse drift models could be developed to identify the death location of stranded carcasses (Santos *et al.,*2018). 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 of leatherbacks in the OSPAR Maritime Area and beyond.

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/Leatherback turtle

(https://www.ospar.org)