

European Community Directive
on the Conservation of Natural Habitats
and of Wild Fauna and Flora
(92/43/EEC)

**Second Report by the United Kingdom under
Article 17
on the implementation of the Directive
from January 2001 to December 2006**

Conservation status assessment for :
**S1223: *Dermochelys coriacea* - Leatherback
Turtle**

Please note that this is a section of the report. For the complete report visit <http://www.jncc.gov.uk/article17>

Please cite as: Joint Nature Conservation Committee. 2007. *Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006*. Peterborough: JNCC. Available from: www.jncc.gov.uk/article17

S1223 *Dermochelys coriacea* Leatherback Turtle

Audit trail compiled and edited by JNCC and the UK Marine Inter-Agency Group

This document is an audit of the data and judgements on conservation status in the UK's report on the implementation of the Habitats Directive (January 2001 to December 2006) for this species. Superscript numbers accompanying the headings below, cross-reference to headings in the corresponding Annex B reporting form. This supporting information should be read in conjunction with the UK approach for species (see 'Assessing Conservation Status: UK Approach').

1. Range Information^{2.3}

Leatherback turtles are a rare but nevertheless regular visitor around the British Isles (Brongersma 1972) during the summer months. Recent studies have suggested that the waters of the UK represent the northerly limit of routine seasonal leatherback foraging migrations (McMahon and Hays 2006, Witt *et al.* 2006).

1.1 Surface area of range^{2.3.1}

Unknown

A distribution map was created from data collated in the 'TURTLE' database (Map 1.1). It can be seen that leatherback turtles have been recorded from all around the UK but large differences in concentrations between areas are also evident. The greatest concentrations of sightings and strandings are off Cornwall, Wales, and in the Solway Firth while the least are off the Channel and North Sea.

1.2 Date of range determination^{2.3.2}

Not applicable

1.3 Quality of range data^{2.3.3}

Poor

The 'TURTLE' database is an essential source of information for the UK and Eire, presenting all available records in a unified manner. It offers the basis for this report. The data were collected in an opportunistic manner with no measure of effort and the data quality is, therefore, assessed as poor.

1.4 Range trend^{2.3.4} and range trend magnitude^{2.3.5}

Unknown

Historical records of sightings and strandings have been collated in the database 'TURTLE' (Pierpoint and Penrose 2002). It is not possible to determine trends in range from this database because of the quality of recording effort.

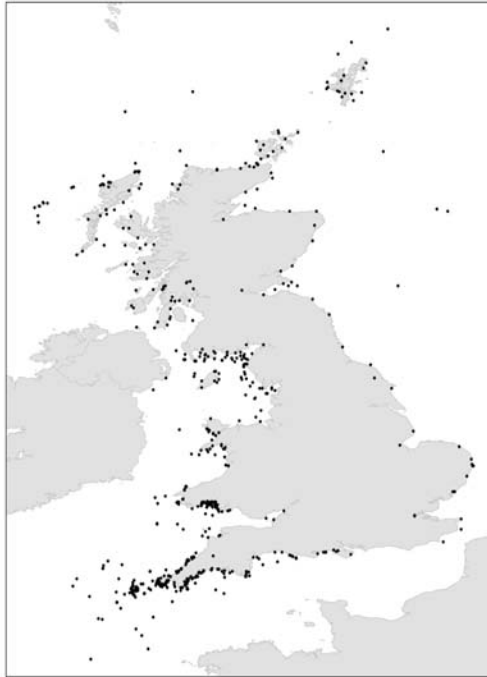
1.5 Range trend period^{2.3.6}

1994 – 2006

1.6 Reasons for reported trend in range^{2.3.7}

Not applicable

Map 1.1 Distribution of leatherback turtles *Dermochelys coriacea* reported in UK waters between 1954 and the present. Map redrawn from current 'TURTLE' database (R. Penrose *pers. comm.*)



1.7 Favourable reference range^{2.7.1}

Unknown

It would be inappropriate to suggest a favourable reference range on the basis of the information currently held.

1.8 Range conclusion^{2.8}

Unknown

Given the information available, it is not possible to make an informed judgement on the leatherback turtle's range in UK waters.

2. Population of the species^{2.4}

2.1 Population estimate^{2.4.1}

Unknown

Leatherback turtles are more frequently reported than any other marine turtle in British waters. Since 1954 to the present, there have been 618 leatherback turtles recorded in the UK. Records at sea make up the largest proportion (80%) with the remainder being stranded animals; in addition 75% of individuals were recorded alive.

However, the information available is not sufficient to estimate the size of the population.

Global nesting population size was estimated at around 35,000 females in 1995 (Spotila *et al.* 1996). About 80% of these were recorded from nesting sites in the Atlantic. However, at present, information is too vague to estimate what proportion of individuals nesting in the Atlantic are likely to use British waters as foraging grounds.

2.2 Date of population estimate^{2.4.2}

Not applicable

2.3 Method of population estimate^{2.4.3}

Not applicable

2.4 Quality of population data^{2.4.4}

Poor

Data in the database 'TURTLE' are largely derived from opportunistic sightings and therefore with no measure of effort they cannot be used to derive a population estimate.

2.5 Population trend^{2.4.5} and population trend magnitude^{2.4.6}

Unknown

The data available is insufficient for determining trends.

2.6 Population trend period^{2.4.7}

1994 – 2006

2.7 Reasons for reported trend in population^{2.4.8}

Not applicable

2.8 Justification of % thresholds for trends^{2.4.9}

Not applicable

2.9 Main pressures^{2.4.10}

210 Professional fishing

211 Fixed location fishing

213 Drift-net fishing

2.10 Threats^{2.4.11}

210 Professional fishing

211 Fixed location fishing

213 Drift-net fishing

2.11 Favourable reference population^{2.7.2}

Unknown

It would be inappropriate to suggest a favourable reference population on the basis of information currently held.

2.12 Population conclusion^{2.8}

Unknown

Information is too scarce to make an informed judgement on the status of leatherback turtle populations in UK waters.

3. Habitat for the Species in the Biogeographic Region or Sea^{2.5}

Leatherback turtles visit UK waters during their foraging migrations. The wide-ranging extent of these migrations is only recently becoming apparent through tagging studies. They feed exclusively on jellyfish and other gelatinous zooplankton throughout their life cycle (Davenport, 1998) and UK waters offer a rich foraging habitat (Hays *et al.* 2004a). Associations between leatherback turtles and jellyfish concentrations have been reported and are the focus of current research interest (Houghton *et al.* 2006, Witt *et al.* 2006).

Leatherback turtles exhibit physiological and anatomical adaptations (large body size, insulating thick fat deposits, counter-current heat exchangers) that are unique among reptiles and allows them to conserve heat and maintain a warm core even in cool surrounding waters (Frair *et al.* 1972, Paladino 1990). Nonetheless, cold temperatures remain an ultimate physiological barrier to their northerly distribution. Some individuals have been recorded in much cooler waters such as in Iceland and Norway, but these are considered to be exceptions (McMahon and Hays 2006). Indeed recent studies have suggested that the waters of the UK represent the northerly limit of routine seasonal leatherback foraging migrations (McMahon and Hays 2006, Witt *et al.* 2006).

Leatherback turtles breed in the tropics where females nest every two to three years.

3.1 Surface area of habitat^{2.5.2}

Unknown

3.2 Date of estimation^{2.5.3}

Not applicable

3.3 Quality of data on habitat area^{2.5.4}

Poor

Studies on associations between turtles and jellyfish aggregations are just now starting to happen. Overall, there is still very little information and there is no information on habitat quality/ habitat changes.

3.4 Habitat trend^{2.5.5}

Unknown

3.5 Habitat trend period^{2.5.6}

1994 – 2006

3.6 Reasons for reported trend in habitat^{2.5.7}

Not applicable

3.7 Suitable habitat for the species (in km²)^{2.73}

Unknown

3.8 Habitat conclusion^{2.8}

Unknown

Information is too scarce to make an informed judgement on the leatherback turtle's habitat status in UK waters.

4. Future Prospects^{2.6}

Unknown

The UK makes up a part of the foraging range utilised by this wide migrating species; while the prey is available all year round, leatherback turtles visit only during the warmer months of the year. It has been envisaged that through climate change increased seawater temperature might allow them to utilize UK waters for longer (McMahon and Hays, 2006).

The Atlantic population of leatherback turtles is believed to be the last stronghold for this species which is globally critically endangered and particularly so in the Pacific where Spotila *et al.* (2000) are warning of the threat of extinction.

In the North Atlantic, incidental capture by fisheries is the greatest threat both in pelagic and shelf waters. Entanglement in pelagic long-line fisheries is relatively common (Pierpoint 2000); often turtles are still able to swim to the surface while entangled and so a large proportion is able to escape or be freed but their fate is far from certain as capture may result in life-threatening injuries. More directly deadly is fishing gear anchored on benthos as turtles are drowned once they become entangled. Indeed in the UK, the highest known incidence of bycatch is recorded for inshore pot fisheries for crustaceans and whelk. Capture in NE Atlantic tuna drift net fishery is also of considerable concern (Pierpoint 2000). While data are still too sparse to be able to evaluate the severity of UK fisheries bycatch to the overall population, a reduction of incidental capture in northern latitude coastal and shelf fisheries would assist the recovery of this species worldwide as advocated in Canada by James *et al.* (2005).

Since the most significant threats to this species occur outside UK waters and thus future prospects will be determined by international conservation efforts.

4.1 Future prospects conclusion^{2.8}

Unknown

5. Overall Assessment^{2.8}

Unknown

Leatherback turtles are globally critically endangered. However, data are too scarce to assign CS in any category for this species within UK waters. Scientific efforts towards an increased understanding of leatherback ecology in UK waters should be supported

Table 5.1 Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Unknown	No or insufficient reliable information available	N/A
Population	Unknown	No or insufficient reliable information available	N/A
Habitat	Unknown	No or insufficient reliable information available	N/A
Future Prospects	Unknown	No or insufficient reliable information available	N/A
Overall Assessment	Unknown	All unknown	N/A

*1=High, 2=Moderate, 3=Low

High – Expert opinion is that the concluding judgement accurately reflects the current situation based on a professional understanding of the species. For range, population, and habitat, quality of data used to establish the current estimate has been identified as Good; data used to inform trends is comprehensive and up to date.

Moderate – A greater understanding of the feature, or the factors affecting it, is required before a confident concluding judgement can be made by experts. For range, population, and habitat, the current estimate and/or trend are based on recent, but incomplete or limited survey data; or alternately, a comprehensive, but outdated (pre-1994) review.

Low – Judgements, and comprising estimates, are based predominately on expert opinion.

N/A – Assessment conclusion is Unknown, on the basis of insufficient reliable information

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