

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 :
S1349: *Tursiops truncatus* - Bottlenose dolphin

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

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S1349 *Tursiops truncatus* Bottlenose dolphin

Audit trail compiled and edited by JNCC and the UK Inter-Agency Marine Mammal Working 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}

This species is found in many parts of UK waters, on the continental shelf and further offshore. Two prominent populations occur in UK inshore waters – Cardigan Bay (Wales) and on the Scottish east coast based around the Moray Firth (Reid *et al.* 2003). In addition, small groups appear to be resident or near-resident in waters off Cornwall, Dorset and the Western Isles of Scotland (Williams *et al.* 1996; Wood 1998; Grellier and Wilson 2003). They are also found in the outer shelf waters of Scotland and Ireland, in the Celtic Sea, English Channel as well as off the shelf west of Shetland, on the Rockall Bank and in the south-west Approaches (See Map 1.1. Reid *et al.* 2003; Weir *et al.* 2001).

1.1 Surface area of range^{2,3,1} **759,000km²**

Tursiops truncatus has been recorded throughout UK waters, the estimate for which is ~759,000km² (British Fishery limit extent).

1.2 Date of range determination^{2,3,2} **2006**

1.3 Quality of range data^{2,3,3} **Good**

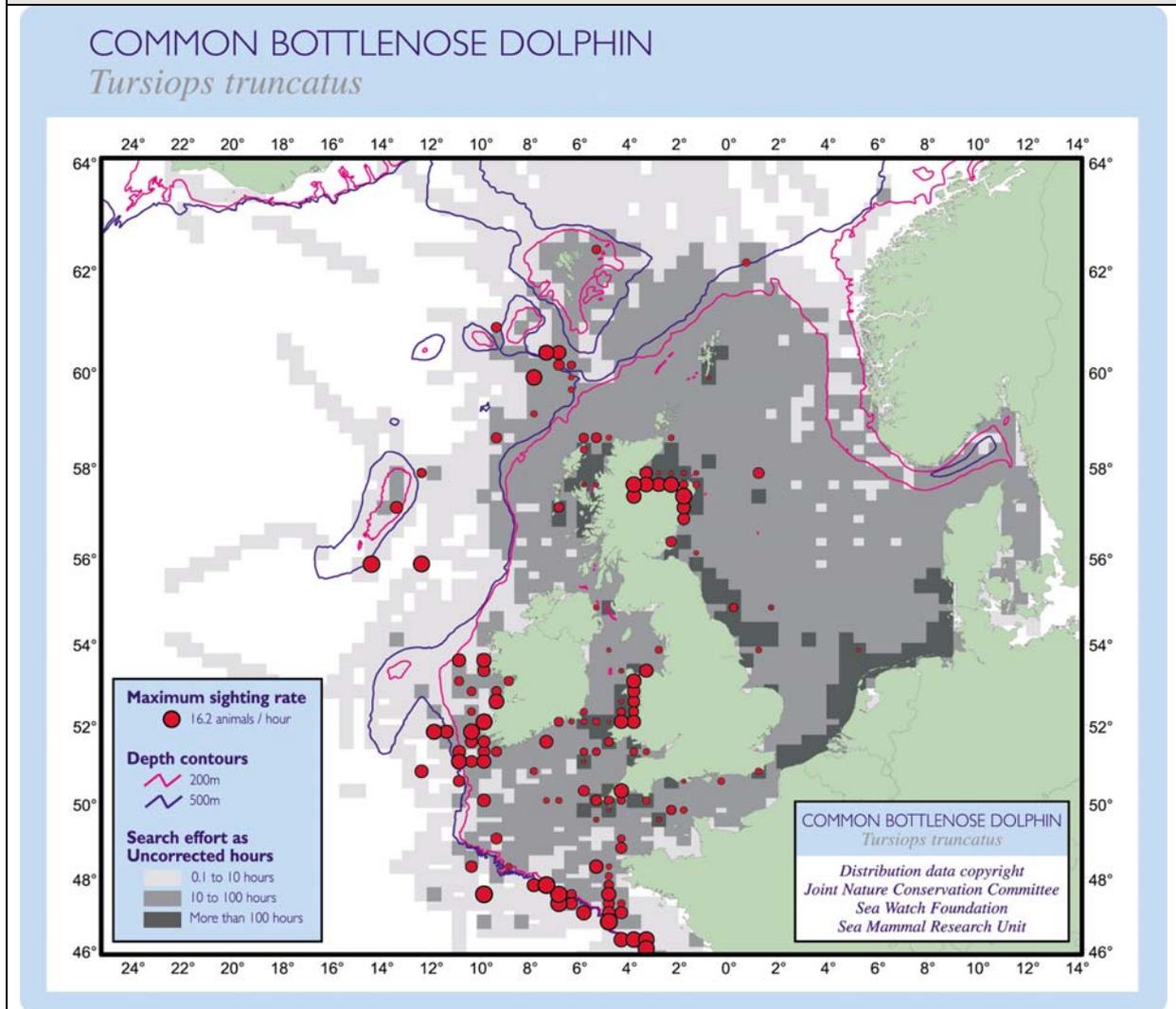
Bottlenose dolphin distribution in coastal and shelf waters has been studied for the last 15 years. Aberdeen University and the Sea Mammal Research Unit (SMRU) have studied the bottlenose dolphin population in the Moray Firth since 1989 primarily using photo-identification methods to study the size and status of the population (Hammond and Thompson 1991; Wilson *et al.* 1997, 1999). More recently, distribution and habitat use of *T. truncatus* in Cardigan Bay has also been studied (Baines *et al.* 2002; Evans *et al.* 2002).

The SCANS II survey has provided additional information on the abundance and distribution of this species in the European Atlantic continental shelf waters, in the summers of 2005 (Hammond and Macleod, 2006). In addition, the SeaWatch Foundation national sightings database includes opportunistic sightings at sea by a large number of, mainly amateur, observers, together with some effort related data. The occurrence and range of this species off the continental shelf is not so well understood.

1.4 Range trend^{2,3,4} and Range trend magnitude^{2,3,5} **Stable**

There has been no evidence of decline in range during recent years, or historically.

Map 1.1 Known distribution of *T. truncatus* in North East Atlantic. Please note that these maps potentially hide spatial and temporal variation. *From Reid et al. 2003.*



The overall range of this species in shelf waters does not seem to have increased or reduced in the last 25 years (Atlas, Reid *et al.* 2003 and SCANS II). Nevertheless, *T. truncatus* were absent or present in few numbers in some areas for some periods of time and more abundant in others, although no trends could be detected statistically (Evans *et al.* 2003). In addition, the abundance and distribution of recorded strandings since the late 1940s (Fraser 1974; Jepson 2006) do suggest that historically some large changes in distribution might have occurred for this species in UK coastal waters with their distribution believed to have contracted during the last century, particularly in the North Sea (Evans 1980; Verwey and Wolff 1982).

Photo-identification analyses results along with an observed increase in porpoises killed by *T. truncatus* along the eastern coast of Scotland, southwards of the Moray Firth, have suggested an expansion of range for the eastern Scotland population (Wilson *et al.* 2004). There seems likely to be great temporal and spatial variability in distribution in UK waters with this species as with many other cetaceans. Marine mammals are wide-ranging, with large spatio-temporal variations in distribution and therefore it is very difficult to detect trends in range, or

to know if apparent changes are long-term changes in range or in distribution within their range.

1.5 Range trend period^{2.3.6}

1994 – 2005

The reported trend has been informed by the cetacean Atlas (Reid *et al.* 2003) and latest SCANS survey, which encompass data from 1979 to 2005.

1.6 Reasons for reported trend in range^{2.3.7}

Not applicable

Although no apparent long-term large-scale changes in this species distribution seem to have taken place, some localised range extensions are likely to have occurred. Changes in relative distribution of prey resources were the most likely reason given to the apparent expansion in range for the eastern Scotland population (Wilson *et al.* 2004). Prey distribution, availability and abundance are major factors influencing the distribution of this species and cetaceans in general.

1.7 Favourable reference range^{2.7.1}

759,000km² (Equal to current)

The current range estimate is equivalent to the UK waters estimate. Hence, it is an appropriate baseline for the favourable reference range.

1.8 Range conclusion^{2.8}

Favourable

Range is stable and not smaller than the favourable reference range. Therefore, the conclusion for this parameter is Favourable.

2. Population of the species^{2.4}

2.1 Population estimate^{2.4.1}

8,000 individuals (UK and adjacent waters, shelf only)

A transfrontier approach to population size reporting has been adopted. The estimate reported above is a sum of broad regions (as defined by the SCANS II survey) that includes all the countries bordering the North Sea, Ireland and France. These areas included south central North Sea, north central North Sea, northern North Sea, western Scotland and Irish outer shelf, Celtic Sea, southern North Sea and Channel, Scottish Northern Isles, coastal western Scotland, Irish Sea, covering all of UK continental shelf waters.

SCANS II estimated absolute abundance to be about 650 in waters off northern and eastern Scotland, and about 7,300 in continental shelf waters off western Britain and around Ireland, with most animals in the Celtic Sea (Hammond and Macleod, 2006). The total abundance for the European Atlantic continental shelf was estimated to be 12,600 (CV = 0.27), with highest densities being recorded in the Celtic Sea and coastal areas of Spain and Portugal (Hammond and Macleod, 2006).

Abundance in UK coastal inshore waters has been reported as between 300 and 500 individuals (Reid *et al.* 2003), comprising mainly of residents in two areas (Moray Firth: 129 [95% CI = 110-174] and Cardigan Bay 213 [95% CI = 183-279]).

Genetic studies have indicated that the *T. truncatus* occurring in the pelagic waters of the North Atlantic belong to a large oceanic population (Qu erouil *et al.* 2007). Conversely, and although coastal populations around the UK are not genetically isolated, there is some evidence for geographic structuring (Parsons *et al.* 2002).

2.2 Date of population estimate^{2.4.2}

1999 – 2006

Wilson 1999

Baines *et al.* 2002

Thompson *et al.* 2004

Hammond and Macleod 2006

2.3 Method of population estimate^{2.4.3}

2 = extrapolation from surveys of part of the population, sampling

The SCANS II survey was carried out in the summer, by teams of observers onboard research ships and small aircraft. The ships and aircraft used line transect methods to collect distance sampling data to estimate the number of animals in the European Atlantic continental shelf area. Photo-identification mark-recapture methods were used for the more isolated and smaller inshore populations such as the ones in Cardigan Bay and the Moray Firth.

2.4 Quality of population data^{2.4.4}

Good

The SCANS II survey used techniques to minimise known biases together with extensive survey coverage and so provide the most precise absolute abundance estimates currently available and possible for cetaceans. For cetaceans it is impossible to obtain a full census. Photo-identification mark-recapture methods also provide the best abundance estimation technique available for more isolated and smaller inshore populations such as the ones in Cardigan Bay and the Moray Firth. Improvements to current surveillance would include monitoring the waters off the continental shelf which so far have little survey effort and extend effort in coastal areas outside summer months to all seasons.

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

Stable

Until recently, very few abundance estimates existed for this species in UK waters. However, in the last 15 years there has been no evidence to suggest a decline in the coastal populations (Evans *et al.*, 2003; Thompson *et al.*, 2004, 2006). The abundance and trends of offshore populations are not known.

The ‘resident’ groups in the Moray Firth and in Cardigan Bay are not closed, and individuals may leave or join from elsewhere. For example, a modelling based on a photo-ID study of the Moray Firth resident dolphins suggested that the population maybe declining at a rate of over 5% per annum (Sanders-Reed *et al.* 1999). However an increase in sightings off the Aberdeenshire coast (Stockin *et al.* 2006), the lack of an apparent trend in abundance from 1990 to 2005 (Thompson *et al.* 2004, 2006), and the re-identification of some individuals indicates a geographic expansion in range (Wilson *et al.* 2004) rather than a decline in abundance.

2.6 Population trend period^{2.4.7}

1994 – 2005

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

243 trapping, poisoning, poaching

313 Exploration and extraction of oil or gas

420 Discharges

490 Other urbanisation, industrial and similar activities

520 Shipping

690 Other leisure and tourism impacts not referred to above

621 nautical sports

701 water pollution

710 Noise nuisance

971 Competition

962 Parasitism

990 Other natural processes

It is likely that it is the combined action of the main pressures identified and not any one in particular that could potentially affect this species long-term viability in UK waters. Often with cetaceans it is difficult to link cause and effect when it comes to distinguishing natural from human impacts.

Fisheries can influence the status and distribution of cetaceans through the impacts on their prey. Incidental capture on fishing nets is also a problem. There have been two reported cases since 1996 in which dolphins are thought to have died through entanglement with illegal salmon fishing nets in the Moray Firth. The Special Area of Conservation (SAC) Moray Firth Management Scheme has addressed this issue.

The presence of high concentrations of contaminants in the body tissues of *T. truncatus* might reduce this species viability. Many contaminants have the potential to disrupt the endocrine system of cetaceans, affecting reproduction, growth and development (Reijnders *et al.* 1999). Environmental contaminants can also affect fish and other prey of cetaceans, potentially leading to a decrease in prey numbers. For example, particularly high concentrations of organochlorine compounds (particularly PCBs) have been found in *T. truncatus* from Wales (Law *et al.*, 1995).

Boat activities (e.g. shipping, dolphin watching and recreational) in coastal waters pose potential threats to *T. truncatus* by direct physical damage (collisions, and propeller damage) and by the sounds introduced into the environment. Behavioural reactions to boat traffic have been recorded in the Moray Firth and other areas, along with changes in habitat use and avoidance of previously preferred areas (Janik and Thompson, 1996; Nowacek *et al.* 2001; Lusseau, 2003; Constantine *et al.* 2004). Codes of conduct such as the Dolphin Space Programme in the Moray Firth have been implemented to reduce disturbance.

T. truncatus often attack *Phocoena phocoena* and it was speculated that these attacks could result from competitive interactions for food (Ross and Wilson, 1996, Spitz *et al.* 2006).

It is unlikely that any one of these pressures could affect this species long-term viability in UK waters, but the combined action of the pressures might possibly affect the species. Often with cetaceans it is difficult to link cause and effect, and to distinguish natural from human impacts.

2.10 Threats^{2.4.11}

210 Professional fishing

621 nautical sports

690 Other leisure and tourism impacts not referred to above

701 water pollution

962 Parasitism

971 Competition

990 Other natural processes

Bycatch, water pollution, nautical recreation and increased competition with other top-predators due to changes in prey availability and distribution may continue to affect this species but if controlled it should not threaten the long term viability of the species in UK waters.

2.11 Favourable reference population^{2.7.2}

8,000 individuals

This figure applies to the SCANS II survey areas that include UK waters (south-central North Sea, north-central North Sea, northern North Sea, western Scotland and Irish outer shelf, Celtic Sea, southern North Sea and Channel, Scottish Northern Isles, coastal western Scotland, Irish Sea and covering all of UK continental shelf waters). Best expert judgement is that current population is sufficiently large to be considered viable in the foreseeable future. However, more information is required on the number and trends occurring off the continental shelf.

2.12 Population conclusion^{2.8}

Favourable

Since there has been no apparent change in abundance of this species in coastal waters over the past 15 years, and the favourable reference population is equal to current, population is assessed as Favourable. However, more information is required on the number and trends occurring off the continental shelf.

3. Habitat for the species in the Biogeographic region or sea^{2.5}

T. truncatus occur in estuaries, coastal and offshore waters, on and off the continental shelf. This species is able to adapt to changing environmental conditions as individuals appear to have a high level of plasticity in their behaviour and diet. Cetacean habitats (e.g. feeding and breeding areas) vary temporally and spatially and are influenced by natural and anthropogenic factors (e.g. Ingram *et al.*, 2007; MacLeod *et al.*, 2007; Weir *et al.*, 2007). It is often difficult to determine what features characterise cetacean habitats and in quantifying their extent. Some studies in UK coastal waters have found that bottlenose dolphin occurrence hotspots are usually characterised by uneven topography and/or strong tidal currents (Wilson *et al.* 1997; Mendes *et al.* 2002; Hastie *et al.* 2004).

However, large scale factors might have direct and indirect effects on this species habitat use that are difficult to predict as it is difficult to identify what constitutes a human influenced or natural change.

In UK waters, the Moray Firth and Cardigan Bay have been designated as SACs for *T. truncatus* under the Habitats Directive. While the individuals using the two sites may range further afield for part of the year, dolphins are present throughout the year and recognised individuals have been seen over periods of several years. This repeated occurrence and continual presence indicate that the sites contain important habitat. More recently, the Llyn Peninsula/Sarnau SAC in Wales has had this species added as a qualifying feature. Management Schemes were put in place in these sites to set out a framework for the co-operative management of activities affecting the sites in order to achieve the establishment and maintenance of *T. truncatus*. The two Welsh SACs have been considered to be in a favourable condition whilst the Moray Firth SAC was designated as “unfavourable-recovering”. This was due to a decline in utilisation of the SAC due to an expansion of range along the Scottish east coast. The species is also recorded as present (“non-significant” presence) in a further six candidate SACs identified primarily for other marine features; these are Fal and Helford, Isles of Scilly Complex, Lundy, Pembrokeshire Marine/Sir Benfro Forol, Plymouth Sound and Estuaries, and St Kilda.

3.1 Surface area of habitat^{2.5.2}

Unknown

As with other cetaceans, the surface area of their habitat is difficult to quantify and may vary significantly seasonally and between years.

3.2 Date of estimation^{2.5.3}

Not applicable

3.3 Quality of data on habitat area^{2.5.4}

Poor

3.4 Habitat trend^{2.5.5}

Unknown

It is likely that the conservation status of coastal habitats utilised by *T. truncatus* in UK waters has improved in the last five years as a result of conservation measures undertaken in the context of the Habitats Directive (SAC network). However, there is no evidence to confirm this. Trend has therefore been reported as 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}

Favourable

Although there is an acknowledged difficulty associated with defining habitats for cetaceans, the judgement of Favourable was based on the relatively high spatial and temporal variability in the behaviour and ecology of all cetaceans. Additionally, where range and/or population is considered to be in a Favourable condition, it has been assumed that habitat must also be considered to be Favourable.

4. Future Prospects^{2.6}

Good prospects

“Species is expected to survive and prosper”.

Since 1994, conservation measures have been undertaken in the UK and adjacent waters, to protect, survey and monitor marine mammal abundance, health and distribution (see below); stable population trends indicate the effectiveness of such measures. Many human activities that have the potential to affect the assessed species are already regulated. Further, potential threats are not expected to affect long term viability (see Section 2.10), assuming that current conservation measures are maintained and further measures are taken should other pressures emerge. On this basis, prospects over the next 12 years have been identified as good.

Threats, Legislation and Conservation Action

It is important to stress that many human activities that have the potential to affect the assessed species are already regulated with the conservation of marine mammals and other wildlife in mind. Assuming that these measures are maintained and further measures are taken should other pressures emerge, then the future prospects for cetacean species in UK waters should be favourable. However, the effects of lesser understood impacts are hard to predict. Many cetaceans occurring in UK waters will also use waters of other Member States and those of non-Members, so coordination of conservation measures through, for instance ASCOBANS (Agreement on the Conservation of Small Cetaceans in the Baltic and North Seas) is essential to avoid activities in other waters affecting the animals occurring in UK waters.

In the UK, the Habitats Directive is being implemented by identifying and protecting appropriate sites and monitoring bycatch. To further implement the directive, a surveillance strategy for cetaceans is being developed linking to a proposed Joint Cetacean (data handling) Protocol that hopes to get contributors from different countries in Europe in order to enable transboundary approaches to evaluating the conservation status of cetaceans. It is expected that an update of the *Atlas of cetacean distribution in north-west European waters*, published by Joint Nature Conservation Committee (JNCC) in 2003, will result from this project. In 2005, the UK was a major supporter of the EU LIFE Nature project SCANS-II project which completed a survey for cetaceans in the European Atlantic continental shelf and will make recommendations for monitoring cetacean populations. A new project, CODA 2007 (Cetacean Offshore Distribution and Abundance) aims to estimate abundance of cetaceans, and investigate their habitat preferences in European Atlantic waters off the continental shelf to the north of Portugal.

The UK is implementing the European Council Regulation EC 812/2004, which lays down measures concerning incidental catches of cetaceans in fisheries, and more generally the bycatch obligations within the Habitats Directive. The *UK small cetacean bycatch response*

strategy was published in 2003 and is being implemented through research and monitoring into the extent of bycatch and mitigation measures.

Legislation has been reviewed in order to provide these species with extra protection from disturbance. In addition, Scottish Natural Heritage (SNH) recently produced the *Scottish Marine Wildlife Watching Code*, designed to protect and promote enjoyment and to raise awareness about how best to watch marine wildlife with minimal disturbance.

JNCC has developed guidelines aimed at minimising the risk of acoustic disturbance to marine mammals from seismic surveys that are being implemented by the Department of Trade and Industry. Further guidance will be developed in 2007-2008 on other activities that disturb cetaceans. The UK Ministry of Defence (MOD) has undertaken a number of measures during 2005 to address the potential impact of military sonar and noise in the marine environment.

The UK government funds a national strandings scheme which aims to provide a co-ordinated approach to the investigation of cetacean strandings in order to assess the number and trends of stranded cetaceans, and potential causes of death.

As a response to the 1992 Convention on Biological Diversity the UK has developed biodiversity action plans (BAP) for all cetacean species. The long term goal of these plans is to increase the range and number of cetaceans in UK waters, ultimately via reducing anthropogenic mortalities and impacts. The UK has been committed to supporting several international agreements and conventions on the conservation of marine mammals and the marine environment in general (e.g. ASCOBANS, The Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR)).

The UK's position within the International Whaling Commission (IWC) has been, amongst others, to support the moratorium on commercial whaling, to work towards placing the issue of environmental threats to cetaceans permanently on the IWC agenda and to ensure that international trade in whale products is prohibited.

4.1 Future prospects conclusion^{2.8}

Favourable

5. Overall Assessment^{2.8}

Favourable

All four parameters have been assessed as Favourable. Therefore, the overall assessment is also Favourable.

Table 5.1 Summary of conclusions

Parameter	Judgement	Grounds for Judgement (in accordance with Annex C)	Reliability*
Range	Favourable	Range is stable and not smaller than the favourable reference range	2
Population	Favourable	Population is stable and not less than the favourable reference population	2
Habitat	Favourable	Area of habitat is sufficiently large and habitat quality is suitable for the long-term survival of the species	3
Future Prospects	Favourable	Main pressures and threats to the species are not significant; species expected to remain viable over the next 12 years	2
Overall Assessment	Favourable	All Favourable or three Favourable and one Unknown	2

*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.

6. Other relevant information^{2.7.4}

A transfrontier approach to population size reporting has been adopted. Estimate given as a sum of broad regions (as defined by the SCANS II survey), which include UK waters. These also include all the countries bordering the North Sea, Ireland and France.

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