



Abundance and Distribution of Coastal Bottlenose Dolphins

MSFD Descriptor: 1 - Biological diversity

MSFD Criteria: 1.1 - Species distribution; 1.2 - Population size; 4.3 - Abundance/distribution of key trophic groups/species



Key Message Coastal bottlenose dolphin populations declined through the 19th and 20th century and have remained low, but stable, in the 21st century. However, the population in the Sado Estuary (Portugal) has declined since monitoring began (1980s). Abundance and distribution of bottlenose dolphins (as top predators) is indicative of environmental health

Background

Cetaceans are an important component of marine biodiversity. In European waters there is a large wide-ranging population of offshore bottlenose dolphin, as well as several much smaller coastal populations.

This assessment considers changes in abundance and distribution of coastal populations of bottlenose dolphin; offshore bottlenose dolphins are considered in the assessment of Abundance and Distribution of Cetaceans .

Coastal populations of bottlenose dolphins reside in relatively small areas, close to shore. They have the potential to be exposed to a greater level of human activity due to their proximity to humans and due to the small size of the area they inhabit.

Bottlenose dolphins are long-lived top predators and are highly susceptible to change in their environment. Changes in abundance and distribution provide important information on the state of the population. Several populations of coastal bottlenose dolphin have been monitored for several decades, whereas monitoring for most is relatively recent (last ten years) or consists only of anecdotal information.

Bottlenose dolphins are vulnerable to the accumulation of pollutants through the food chain and to local disturbance from shipping, tourism, industrial development, and incidental bycatch in fishing gear. Underwater noise can have long and short-term effects on cetaceans (such as hearing loss or displacement from an area), but it is unclear to what extent coastal bottlenose dolphins are affected. The conservation status of bottlenose dolphin is assessed under the European Union Habitats Directive (Council Directive 92/43/EEC).



Results

Coastal bottlenose dolphins are observed along the Atlantic coast of Europe from Scotland in the north to Spain in the south. The overall population size of coastal bottlenose dolphins in the Greater North Sea, Celtic Seas and Bay of Biscay and Iberian Coast regions is between 3000 and 4000 animals. Few locations have been monitored on an annual basis. The most extensive assessment was undertaken on the Sado Estuary population in Portugal (since 1986), and indicates that the population is in decline. Annual mark-recapture estimates for populations in East Coast Scotland (United Kingdom: observed since 1990), indicate that the population is stable and may be showing signs of increase. Estimates from the wider Cardigan Bay (United Kingdom: observed since 2002), the Gulf of St Malo including the Channel Islands (France, United Kingdom: observed since 2010), Ile de Sein (France: observed since 1992) and the Shannon Estuary (Ireland: observed since 1997) indicate broadly stable populations. However, in several of these locations the trend was assessed on fewer than four data points. A summary of available data and population trends is shown in **Table 1** overleaf.

Image: Bottlenose dolphin *Tursiops truncatus* mother and calf © Peter GH Evans

Assessment Unit (AU)	Monitoring Requirements Permitting an Assessment		Population Trend
	Length of time series ≥ 10 years	≥ 4 Abundance assessments	
West Coast Scotland	No	No	No assessment
East Coast Scotland	Yes	Yes	Possible increase / stable
Coastal Wales	Yes	Yes	Stable
Coastal Ireland	Yes	Yes	Stable
Coastal Southwest England	No	No	No assessment
Coastal Normandy and Brittany	No	Yes	Increase / stable (indicative)
Northern Spain	No	No	No assessment
Southern Galician Rias (Spain)	No	No	No assessment
Coastal Portugal	No	No	No assessment
Coastal Portugal (Sado Estuary)	Yes	Yes	Decline
Gulf of Cadiz	No	No	No assessment

Table 1: Summary of available data and population trend for each assessment unit (AU) where an assessment has been made. It should be noted that the Sado Estuary population is considered to be a separate AU to the Coastal Portugal AU. The length of time series indicates whether the monitoring requirements have been met. If the time series is less than ten years in length and has fewer than four years of abundance estimates, no assessment was undertaken. Population trend indicates the result of the assessment (if undertaken).

Conclusion

Most populations of coastal bottlenose dolphins in the areas assessed are relatively small. In many coastal areas of the North-East Atlantic Ocean, populations declined or disappeared completely during the 19th and 20th centuries. Where trends could be assessed, the remaining populations show little long-term change with the exception of the declining population in the Sado Estuary in Portugal. The reasons for the decline in the Sado Estuary are unknown but could be related to estuarine pollution.

Bottlenose dolphins are vulnerable to the effects of persistent organic pollutants, with high levels occurring through bioaccumulation potentially inhibiting reproduction. Disturbance by recreational activities, such as whale watching, underwater noise, collision with ships and commercial fisheries are also identified as pressures for bottlenose dolphins.

Knowledge Gaps

Historical data on abundance and distribution of coastal bottlenose dolphins are either scarce or lacking. As a result, assessment was only possible for five populations of coastal bottlenose dolphin, with an indicative assessment provided for one other population. The time series of monitoring data was too short to undertake an assessment for the remaining populations. The connectivity between coastal bottlenose dolphins and wider-ranging offshore populations remains unclear. The impacts of human activities on these populations remain to be studied. Some coastal populations might be ephemeral.

This document was published as part of OSPAR's Intermediate Assessment 2017.

The full assessment can be found at www.ospar.org/assessments