

THE DECLINE OF INSHORE BOTTLENOSE DOLPHINS (*TURSIOPS TRUNCATUS*) IN SOUTHWEST ENGLAND

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INTRODUCTION

The bottlenose dolphin has a worldwide distribution in tropical and temperate seas in both hemispheres. Along the Atlantic seaboard of Europe, the species is locally fairly common near-shore off the coasts of Spain, Portugal, north-west France, western Ireland (particularly Galway Bay and the Shannon Estuary), North-east Scotland (particularly Moray Firth south to the Firth of Forth), South-west Scotland, in the Irish Sea (particularly Cardigan Bay), and in the English Channel (Reid *et al.*, 2003). A smaller group of inshore bottlenose dolphins are resident in the South West of England (Wood, 1998; Tregenza, 1992). Using verified records, this study aimed to identify trends in both the number of sightings and strandings for this species in the South West.

MATERIALS AND METHODS

All cetacean sightings are reported to Seaquest, a voluntary coalition of marine organisations, run jointly by Devon and Cornwall Wildlife Trusts (CWT, DWT). Cetacean strandings in Cornwall are recorded by the CWT Marine Strandings Network (MSN) and in Devon by DWT volunteers.

Reports recorded over 17 years, between 1990 and 2007, were analysed to compare the average number of sightings, average group size and strandings of bottlenose dolphins.

RESULTS

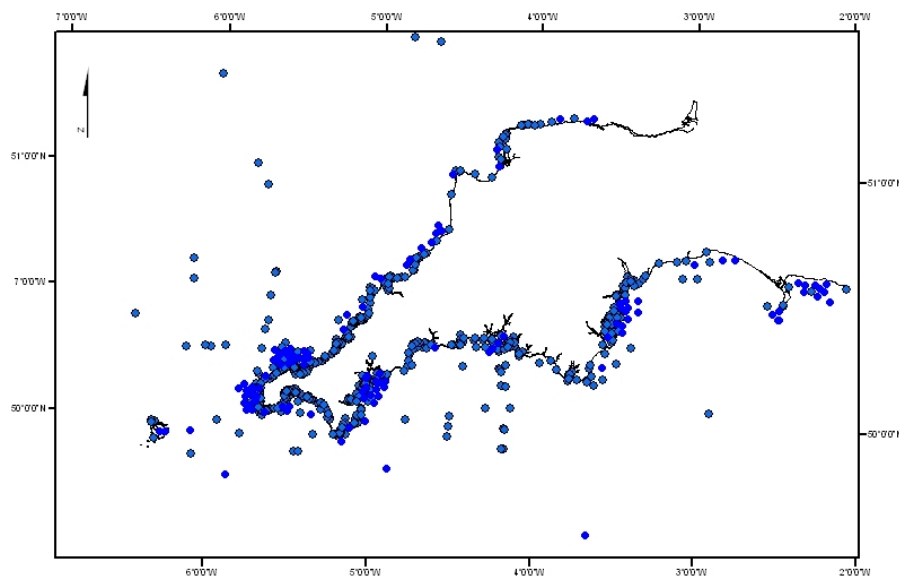


Fig. 1: All bottlenose dolphin (*Tursiops truncatus*) sightings (1990-2007)

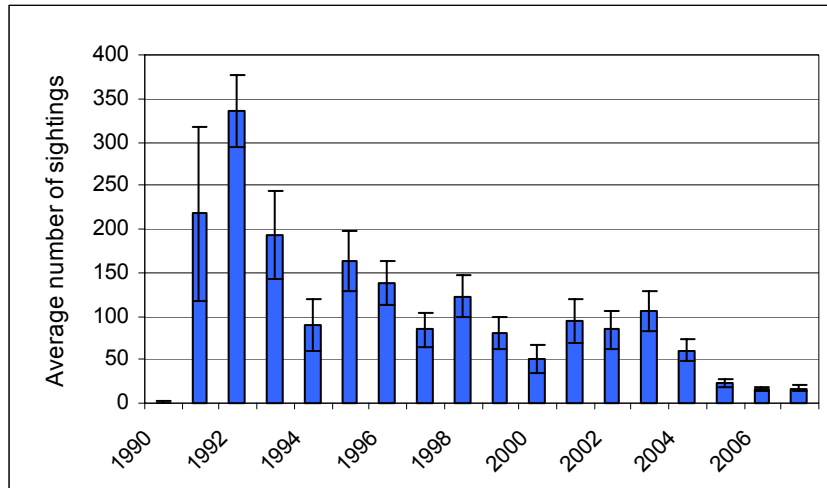


Fig. 2: Average number of sightings of bottlenose dolphins (*Tursiops truncatus*) by year (1990-2007) \pm standard error

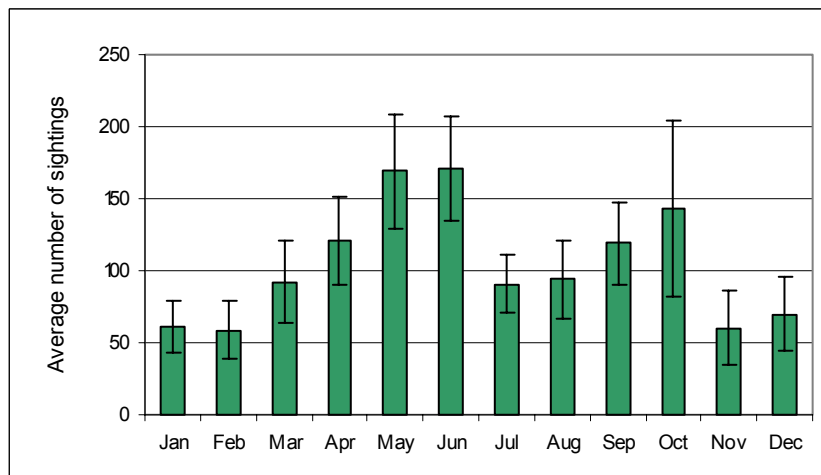


Fig. 3: Average number of sightings of bottlenose dolphins (*Tursiops truncatus*) by month (Jan-Dec) \pm standard error

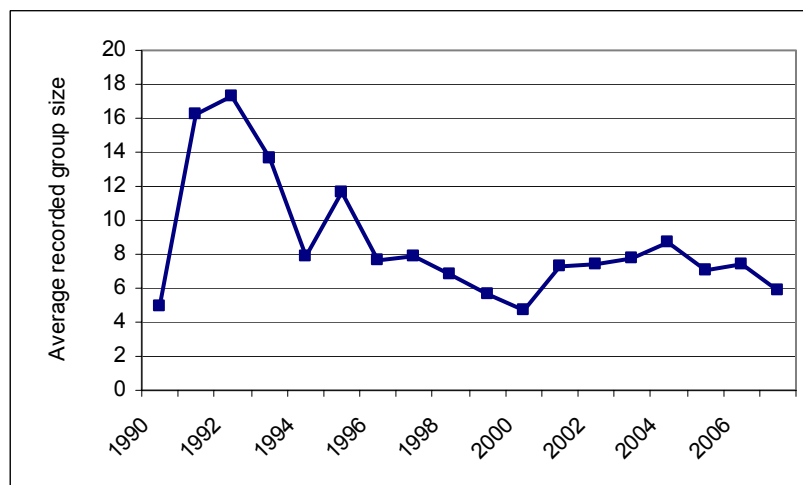


Fig. 4: Average number of group sizes observed in sightings made, by year (1990-2007) \pm standard error

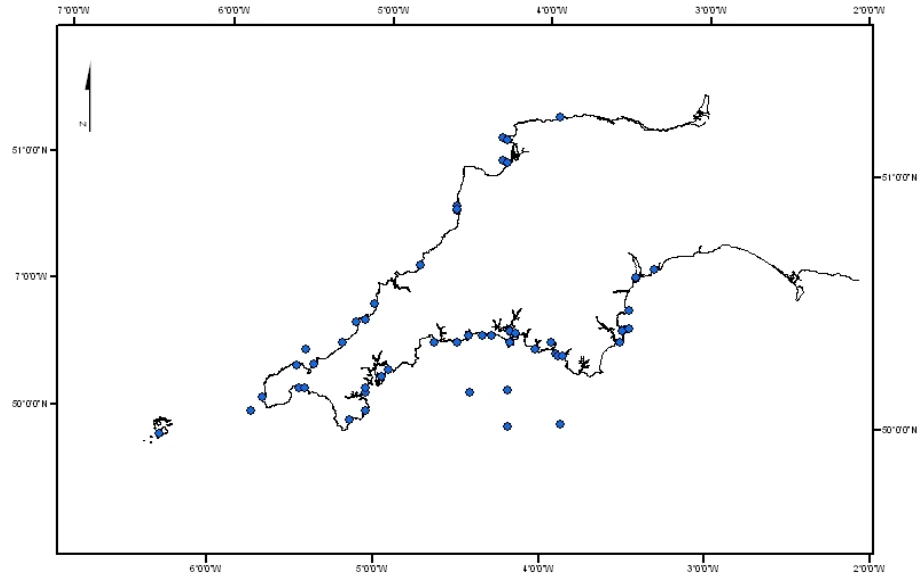


Fig. 5: All bottlenose dolphin (*Tursiops truncatus*) strandings (1990-2007)

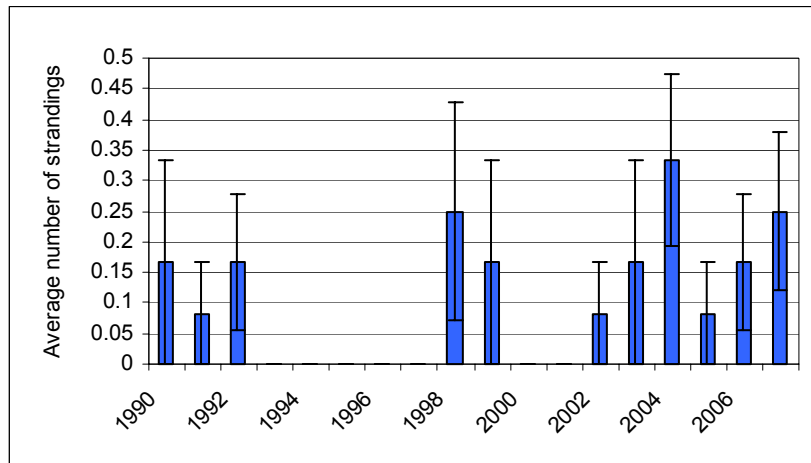


Fig. 6: Average number of strandings of bottlenose dolphins (*Tursiops truncatus*) per month in years (1990-2007) \pm standard error

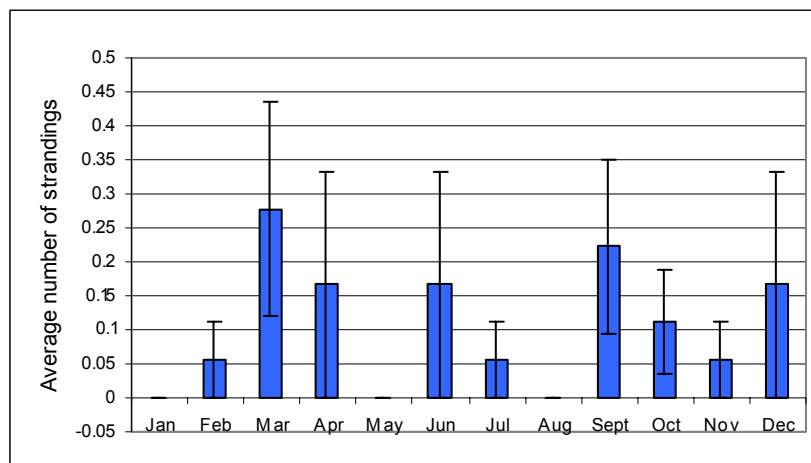


Fig. 7: Average number of strandings of bottlenose dolphins (*Tursiops truncatus*) by month (Jan-Dec) \pm standard error

Sightings of bottlenose dolphins were found to be uniformly distributed around the coast of Cornwall and Devon. There was a peak in sightings during May, June and October.

There has been a significant decrease of 93% in sighting numbers and 70% in average group sizes since 1990. Since 1990 we have had 23 stranded bottlenose dolphins reported; 57% of these have been during the past 6 years. There was no obvious pattern in the strandings throughout the year, though strandings were highest in March and September.

Between September 1990 and December 2004 inclusive, entanglement in fishing gear was the most common cause of death in UK stranded cetaceans subjected to detailed post-mortem examination (Jepson *et al*, 2005). Between 2000-2004 a total of 116/190 (61.1%) were found to have been bycaught, 113 of these (59%) were found in the South West (Jepson *et al*, 2005).

Post mortem examination of a bottlenose dolphin in 2005 revealed evidence of entanglement in monofilament fishing gear (Loveridge & Loveridge, 2005). The post mortem of another bottlenose dolphin in 2007 identified marks suggestive of net entanglement and the tail had been cleanly severed.

CONCLUSIONS

Given the likelihood of an increase in sightings due to greater awareness and observation by the public, the apparent decrease in sightings and average group size of bottlenose dolphins over the past 17 years is substantial and extremely disturbing. It has already been established that significant numbers of other cetacean species, including the harbour porpoise (*Phocoena phocoena*) and the common dolphin (*Delphinus delphis*) are subject to bycatch in fixed monofilament nets (Tregenza, 2000; Tregenza, *et al*, 1997; Kirkwood *et al*, 1997; IWC, 1994; Jefferson & Curry, 1994; Reeves & Leatherwood, 1994; Woodley & Read, 1991). While other causes of death such as disease and intraspecific aggression have been identified for the bottlenose dolphin (Jepson *et al*, 2005), examination of carcasses on the beach and by post mortem indicate that these nets also pose a real threat to the inshore bottlenose dolphins in the South West. As the size of this group of bottlenose dolphins has gradually declined over the years, leaving an average group size of 6 animals, the loss of any individual, regardless of cause, will have a significant impact on this group.

Further research is desperately needed to investigate the true cause of the decline in the South West, whether through entanglement in fishing nets, disease, pollutant burdens decreasing fertility and survival of offspring, decreasing prey stocks or another as yet unidentified major threat to the population.

Until this can be carried out the precautionary principle should be applied to the conservation and management of inshore bottlenose dolphins in the region to prevent the continuing decline in their numbers.

ACKNOWLEDGEMENTS

The data analysed for this study was provided by the volunteers of the Cornwall Wildlife Trust Marine Strandings Network and Devon Wildlife Trust's strandings group. These volunteers are also acknowledged for their dedicated work in retrieving carcasses for post mortem, without which diagnosis of the cause of death among stranded cetaceans would not be possible. Thanks are also due to Ray Dennis, Seaquest Southwest sightings database coordinator for Cornwall. We are grateful to the Institute of Zoology for permission to access post mortem reports and to the Natural History Museum for their support.

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