



The Return of *Phocoena phocoena* to North Germany's Rivers

A case study from the Weser River (2007 – 2009)

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Introduction:

Over one hundred years ago harbour porpoises were abundant along the German North Sea coast and regularly seen in the lower courses of large rivers. For example in the Ems and Weser Rivers porpoises were reported feeding on salmon (HÄPKE 1880, FOCKEN 1882) up to 70 kilometres upstream. Human impacts such as direct hunting had severely reduced the numbers of harbour porpoises by the 1950's. Moreover, many fish species disappeared from the rivers due to pollution and water regulation. Obstacles prevented migratory fish species from reaching their spawning grounds. A specific problem in the Weser River was severe salination caused by the Werra River potash plants. In 2005, we received the first reports on harbour porpoises in the Weser estuary. An increasing number of harbour porpoises has also been recorded in Dutch coastal waters since the late 1990's (CAMPHUYSEN 2004). Since 2007 more and more sightings of harbour porpoises entering the four large rivers, Ems, Jade, Weser and Elbe, have been reported.

Methods

In 2007 GRD launched a sighting scheme to determine the porpoises' riverine range in the Weser in co-operation with nature conservation authorities in Brake. The data are collected opportunistically and do not represent absolute numbers of harbour porpoises. Multiple sightings are possible. The data are not corrected for possible bias (e.g., due to actual media coverage).

The study area includes the outer Weser estuary from *Weser km 90* (with trailing walls accompanying its course), up all along the lower tidal river to *Weser km 0* in the harbour of Bremen where a weir obstructs the migration of porpoises and anadromous fish.

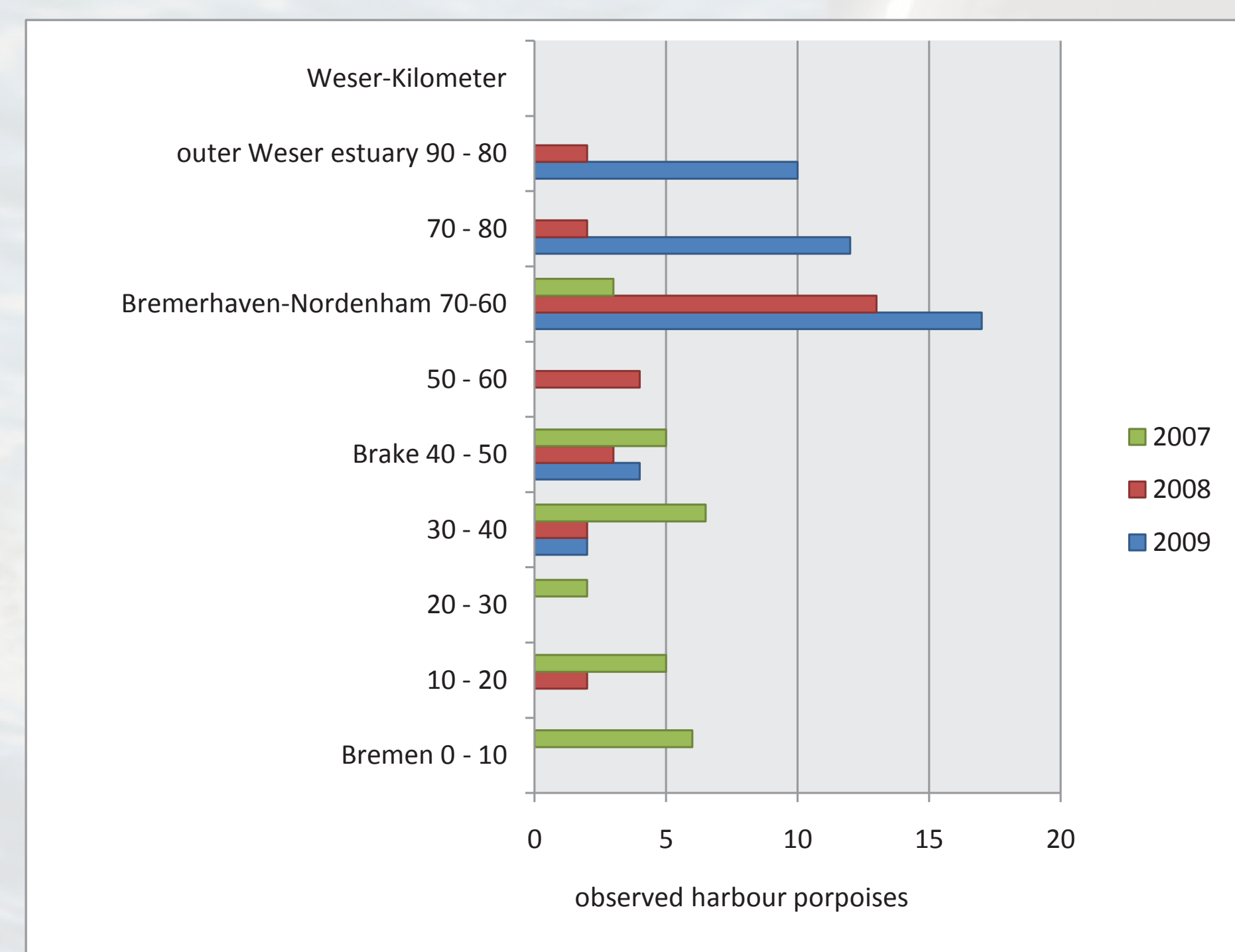


Fig. 3: Spatial occurrence of harbour porpoises in the Weser River from kilometre 0 to 90.

Fig. 4: Dead male harbour porpoise found at Nordenham 2008 © N. Hartfil

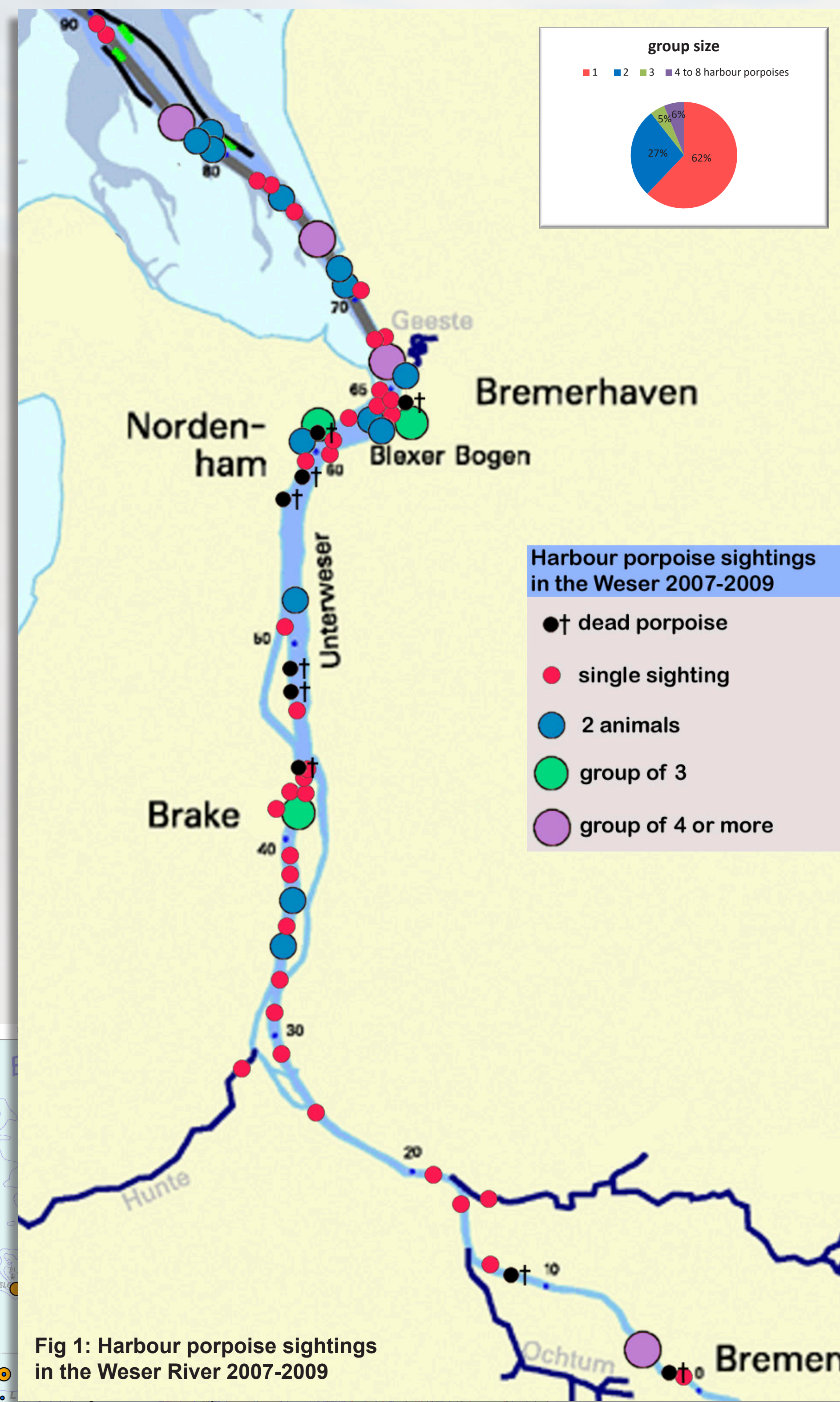


Fig 1: Harbour porpoise sightings in the Weser River 2007-2009

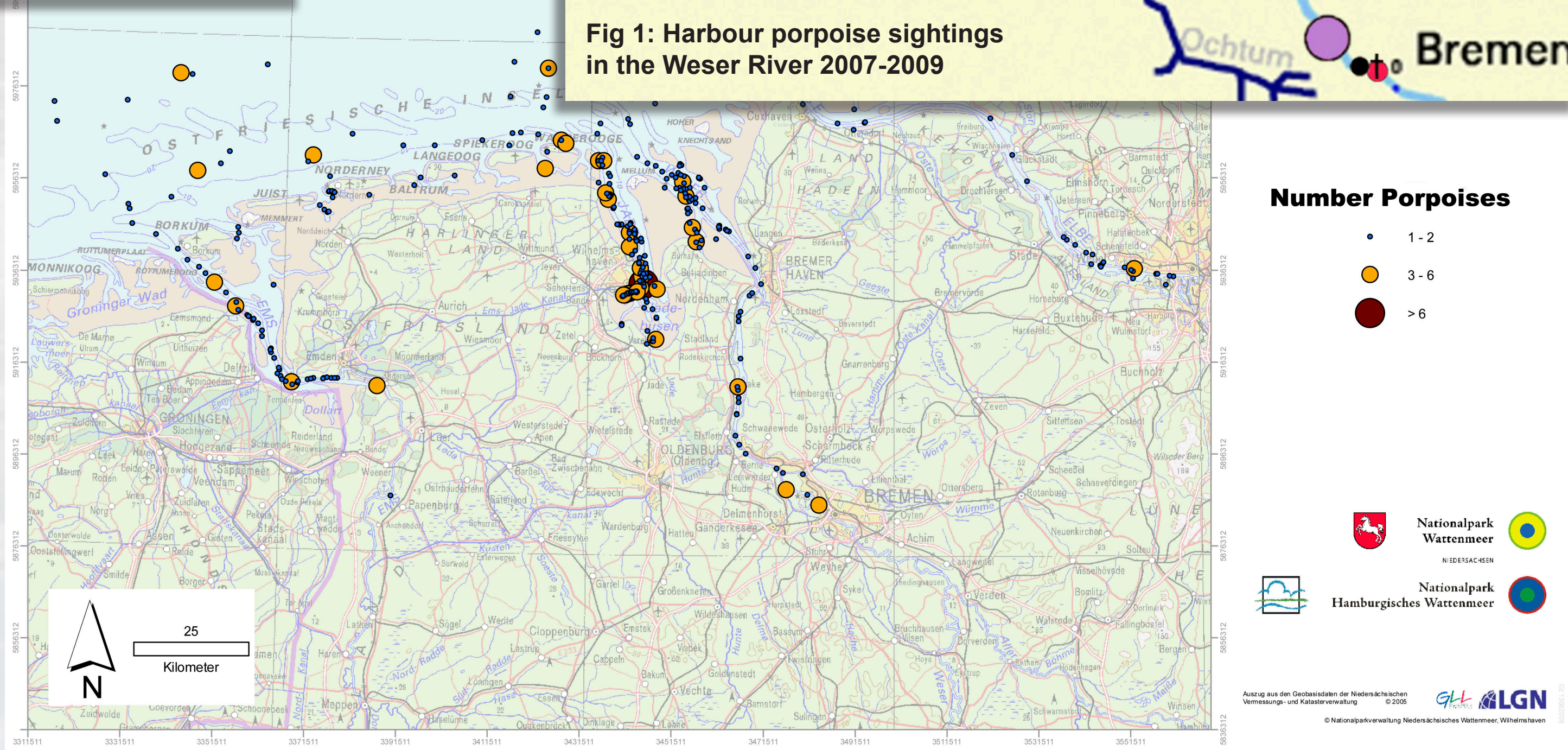


Fig. 5: Porpoise sighting at the North Sea Coast © Wadden Sea National Park of Lower Saxony, by courtesy of the Administration

Results

118 harbour porpoises during 66 sightings were reported in the study area between 2007 and 2009 (fig 1). Concentrations can be found in the *Blexer Bogen* (between Bremerhaven and Nordenham) and in an area around the city of Brake.

Most sightings (62 %) involved single individuals, about 27 % groups of two. Only rarely (11%) larger groups of up to 8 porpoises were reported. Such groups and even mother-calf-pairs were mainly seen in the *Blexer Bogen*. Further upstream mostly single individuals or groups of two harbour porpoises were observed, occasionally venturing into the Weser tributaries.

A clear seasonal occurrence is demonstrated in fig. 2 with most sightings occurring in April and May.

Differences between the years can be seen in fig. 3. While in 2007 most of the sightings occurred off Nordenham and upstream, with sightings all along the river up to the harbour of Bremen, in 2009 most sightings were made downstream of Nordenham (*Blexer Bogen* and the outer estuary). The difference in the distribution of the sightings is significant (chi-square test: $p < 0.001$).

In the study period 9 dead harbour porpoises were found at the Weser banks (fig. 4). In some cases observers reported that porpoises were struck by speed boats or big waves of container ships washed them ashore. Fast moving vessels pose a threat to harbour porpoises and have a high potential for disturbance and even collision (KOSCHINSKI 2007).

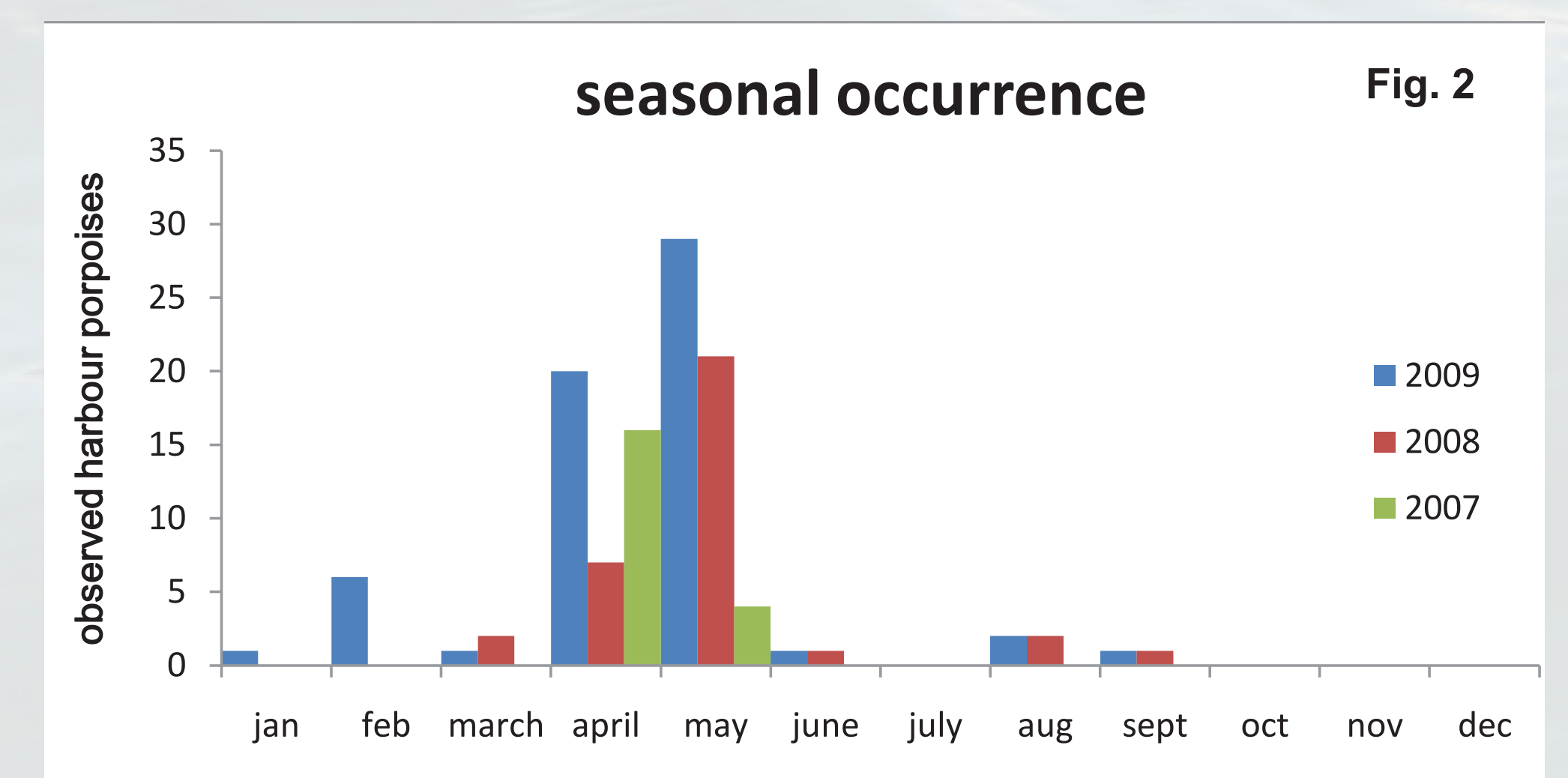


Fig. 2

Discussion

The return we demonstrated for the Weser River also can be seen in other rivers. Fig. 5 shows harbour porpoise sightings from 2001 to 2008 along the Lower Saxony coast including our data. The courses of the rivers Ems, Jade, Weser and Elbe are evident from the sighting marks. The occurrence in the Weser River roughly coincides with the maximum presence of harbour porpoises in coastal waters of Lower Saxony (cf. KOSCHINSKI 2007, CAMPHUYSEN 2004)

Following the food?

The reasons why the small cetaceans nowadays enter these rivers more frequently are unclear. Maybe they follow migrating fish shoals or are attracted by the abundance of fish species that have been returning to the rivers due to improved water quality in the past decades following the EU-Water Framework Directive. In addition, overfishing and habitat destruction in the North Sea coastal waters may force the porpoise populations to exploit other food resources. Today around 50 marine fish species are found in the haline areas of the Weser. First surveys indicate a change of the marine fish fauna during the last 10 years which is possibly caused by the climate change, (RBC Weser 2010).

Future methods

In order to obtain systematic information on the temporal and spatial distribution of harbour porpoises in March 2010 2 C-PODs from Chelonia Ltd. will be installed in the Weser at a distance of about 30 kilometres. Monitoring porpoise echolocation activity may also help to obtain additional information on their behaviour (e.g., by logging typical feeding-like click trains).

References:

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