

**Agenda Item 5.1: ASCOBANS Baltic Recovery Plan - Implementation**

**Opportunistic Sightings of Harbour Porpoises (*Phocoena phocoena*) in the Baltic Sea; Second Season 2003**

**Submitted by: Germany**



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# Opportunistic Sightings of Harbour Porpoises (*Phocoena phocoena*) in the Baltic Sea; Second Season 2003

Petra Deimer\*, Hans-Jürgen Schütte\*, Sunhild Wilhelms\*\*, and Justin Cooke\*

\*GSM-Gesellschaft zum Schutz der Meeressäugetiere (Society for the Conservation of Marine Mammals), Kieler Str. 2, D-25451 Quickborn, Germany;

\*\*Bundesamt für Seeschifffahrt und Hydrographie (BSH, Federal Maritime and Hydrographic Agency), Bernhard-Nocht-Str. 78, D-20359 Hamburg, Germany

## Abstract

Starting in 2002, a public appeal was made to yachtspeople in the western Baltic to report opportunistic sightings of harbour porpoises. By 2003 the programme was well known in yachting circles and over 600 sightings were reported, totalling about 1,500 animals. The data indicate where harbour porpoises occur, and were analysed to provide indices of relative abundance. This information can be important for the designation of protected areas for harbour porpoise and other conservation measures.

## Introduction

The harbour porpoise (*Phocoena phocoena*) was once so common in the Baltic Sea that all or most bordering countries had directed porpoise fisheries during the 19<sup>th</sup> century (Berggren, 1994). Although there has been no porpoise hunting in the Baltic Sea since the 1940's, the population has continued to decline. The causes may include the commercial catching of porpoises historically (Kinze 1995), the periodic catastrophic mortality resulting from severe winter ice conditions (Teilmann and Lowry 1996), and habitat degradation (e.g. pollution, noise, decrease in prey abundance or quality; cf. Teilmann and Lowry). Whatever other factors may be involved, however, it is very likely that incidental mortality in fishing gear has played a major role in reducing porpoises to a small fraction of their historical abundance in the region, and is now helping to prevent their recovery (Jastarnia Plan 2002).

As further discussed in the ASCOBANS Recovery Plan for the Harbour Porpoises in the Baltic Sea, the problem of harbour porpoise conservation in the Baltic Sea is marked by scientific uncertainty. While recognising the need for more research and monitoring, the ASCOBANS Baltic Discussion Group (ABDG) and the Jastarnia workshop strongly emphasise that there is no need to wait for further research before implementing a by-catch reduction plan by reducing fishing efforts in certain fisheries (Recovery Recommendation, Jastarnia Plan 2002).

In addition to by-catch reduction, an increase in research and monitoring, and establishing marine protected areas, increasing public awareness has been identified as an essential part of the recovery plan: "Unless people are convinced that porpoises are present in their local waters, that these creatures are worth saving, and that the animals' existence is threatened, they are not likely to support recovery efforts." The elements of a comprehensive public awareness campaign are outlined in Appendix 3 of AC 9 D Doc 7.

## Data Collection

GSM-Gesellschaft zum Schutz der Meeressäugetiere (Society for the Conservation of Marine Mammals) has for the second season in 2003 (and 2002) made an appeal to the (mainly sailing) public in order to collect data of sightings in the Baltic. Once again the response of the project "Look out for Harbour Porpoises in the Baltic" was very positive. There have been 721 sightings registered in 2003 in co-operation with FTZ- Forschungs & Technologie Zentrum Westküste (Research and Technology Centre West Coast). 656 sightings are valid and have once again been transferred to official sea charts by BSH (Federal Maritime and Hydrographic Agency) (Fig. 1.) . There were around 100 sightings in 2002. The programme will continue in 2004 and GSM hopes for further or an even wider response due to the positive support it has seen already. The data are at the disposal of FTZ for further research.

Publication, maps and the questionnaire can also be found on the GSM web site ([www.gsm-ev.de](http://www.gsm-ev.de)) and in "calls for action" in pamphlets and news clips, published mainly in magazines like yachting magazines and local (coastal) media.

## **Analysis**

For the purpose of analysis, the data from the summer months (May through September) in 2003 were used, divided into four geographical areas, labelled for convenience Kieler Bucht, Mecklenburger Bucht, Store Bælt and Lille Bælt (Fig. 1.). The Fredericia Channel, a small area with a very high density of sightings, was omitted because the narrow waterway makes it a special case. Records to the north and east of these areas were not used.

In the case of records without exact geographical co-ordinates, approximate positions were inferred from descriptive information on the locations of the sightings. Records with exact and inferred positions are distinguished in Fig. 1.

The group size for each sighting was taken as the mean of the minimum and maximum estimated number of animals present. This is probably an underestimate of the true group size, but may still be useful for comparative purposes.

The data contain the sightings only, not the search effort expended. In order to relate the records to relative abundance of porpoises in time and space, it is necessary to use indices based on net effort inferred from the records (Cooke, 1984).

To construct a net effort measure, the records from each vessel were grouped into 4-hour periods (8-12; 12-16; 16-20). The unit of net effort is a vessel-period with at least one porpoise sighting. The net number of sightings in a period is the number of sightings excluding the first in the period. The Net Encounter Index is the net sighting rate per unit of net effort. The Net Encounter Index times the mean group size yields an index of porpoise abundance.

Table 1 shows the number of records by area along with the numbers of net sightings and net effort periods and the resulting abundance index.

Analyses of variance of the encounter index and mean group size were conducted using areas, months, and area/month interactions. Terms were selected according to the minimum AIC criterion. The results were that the encounter index was area-dependent but not month-dependent, while the mean school size was month-dependent.

Fig. 2. shows the estimated Net Encounter Index by area, and Fig. 3 shows the estimated mean group size by month, in each case with 95% confidence intervals. The reasons for a lower mean group size in mid-summer are not known.

The abundance of porpoises appears to be greater in the Store Bælt than in the other three areas. The higher concentration of sightings in the Lille Bælt and the Kieler Bucht as seen on the map is thus mainly due to concentration of effort in these areas, not to a higher porpoise density. The Net Encounter Index appears to be low in the Mecklenburger Bucht but has a large variance.

The Net Encounter Index is a less effective measure of porpoise density in areas where the density is low, as may be the case in the Mecklenburger Bucht and further to the east. For these areas, it will be important in future to collect some measure of search effort along with the data.

## **Discussion**

As in 2002 most sightings originate from the Western Baltic. There is good reason, as most sailors at least from Germany traditionally mainly visit the Western Baltic (amount of marinas, touristic development, wind situation, security). Although we drew attention to the fact that data from the eastern Baltic Sea are very important, we received hardly any reports east of the Darsser Schwelle. We will try to find yachtspeople who sail further to the east and would be prepared to report sightings in the eastern Baltic.

In order to increase awareness of the sightings program, the company „jump-design“ in collaboration with GSM has developed not only a poster and a book mark in 2003, which will again be distributed together with the questionnaire (developed last year) to clubs and harbour masters through the sailing association and marinas. A

special pennant (Fig. 4.) will be presented to selected participants. The project was presented at a press conference March 30th to the media in Hamburg. A further media release is planned in accordance with ASCOBANS for the 3rd Saturday in May, for the „day of the harbour porpoise“.

A further goal of GSM once again is to find contributors who are very engaged in the sightings program in order to collect more detailed data. Behavioural observations and data logs of the complete track route of individual voyages (including data on no sightings) will be included so that knowledge of “sightings per unit effort” can be gathered. Thus, we hope to be able to help generate abundance estimates of harbour porpoises in the Baltic Sea, which are currently missing or incomplete. Further on we hope to co-operate with other institutions working on comparable projects, like in Sweden. Again, we are very sorry that the Danish programme “Look out for Whales and Dolphins in Danish Waters”, which has been taken up as a model, has been terminated.

Although there is no doubt that opportunistic observations and reports have to be interpreted cautiously, the information collected through our sightings may well have scientific relevance and may help conservation efforts, since they will supplement the official aerial and on-board abundance sightings such as SCANS II.

The European Union's Council Directive 92/43/EEC (Habitats & Species Directive) requires the designation of special conservation areas for harbour porpoises (listed on Annexes II and IV). In the German EEZ (Exclusive Economic Zones – 12-200 nautical miles from the coast) of the Baltic Sea six areas so far are under discussion of being proposed as protected areas for harbour porpoises, sandbanks, reefs and birds ([www.HabitatMareNatura2000.de](http://www.HabitatMareNatura2000.de)). The sightings data collected by the GSM confirm the Nature 2000 pSCI proposals in the German EEZ for the Fehmarnbelt and the Kadetrinne, as well as the proposal by Schleswig-Holstein for a pSCI in the Flensburger Förde. As noted above we still lack data of sightings from the eastern parts of the Baltic Sea, i.e. until now our data cannot be used to suggest or verify protected areas east of the Darss Sill.

It is expected that the impending review of the Common Fisheries Policy (CFP) will finally deal with the issues related to interactions between fisheries and ecosystems. The European Commission is dealing with the problem of cetacean by-catch. Agreed plans to establish wind parks on the German coastline and in other areas as well as ongoing gravel digging and gas and oil drilling may have additional impact on cetaceans and other marine life. The report of the German Advisory Council on the Environment (SRU) strikes a negative balance with respect to the Marine Environment Protection in the North and Baltic Seas (2004).

#### ACKNOWLEDGEMENTS

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Fig. 1. Opportunistic sightings of harbour porpoise in the western Baltic Sea from pleasure craft in 2003

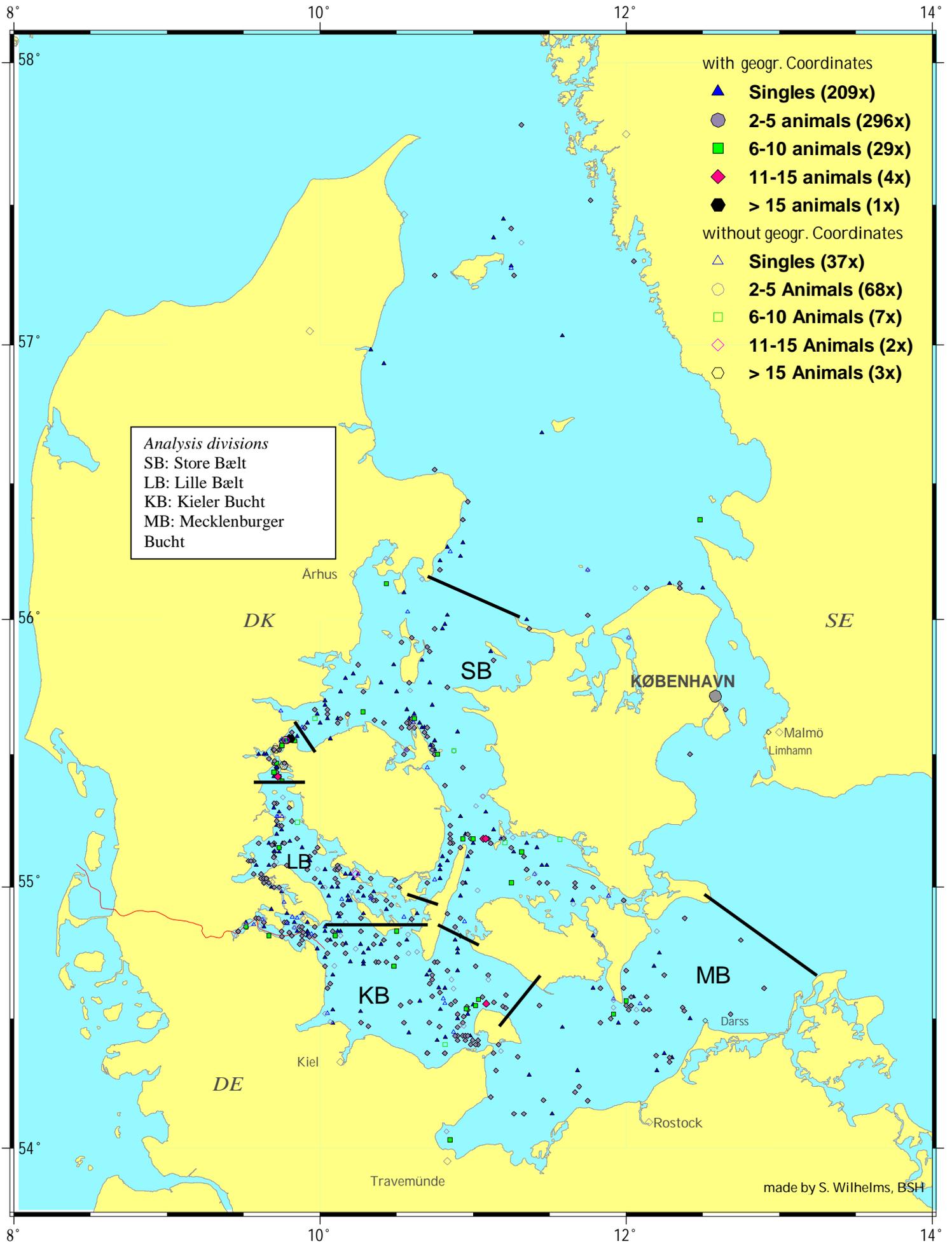


Table 1. Summary of results by area

	Area	Sightings	Net periods	Animals	Abundance index
KB	Kieler Bucht	147	125	331	0.396
LB	Lille Bælt	106	97	220	0.193
MB	Mecklenburger Bucht	49	48	129	0.055
SB	Store Bælt	167	121	408	0.929

Fig. 2.

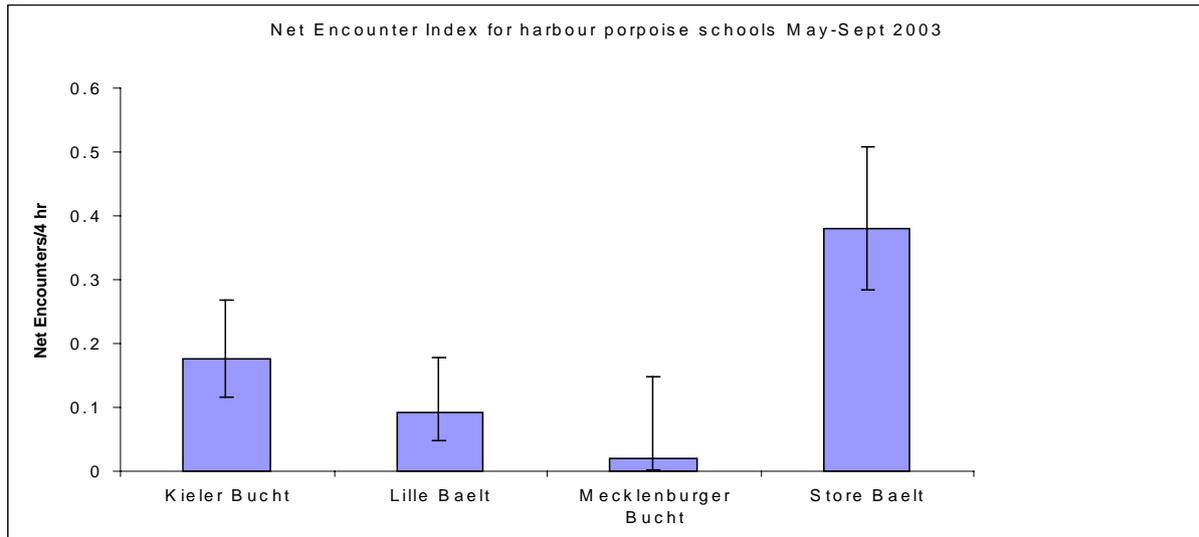


Fig. 3.

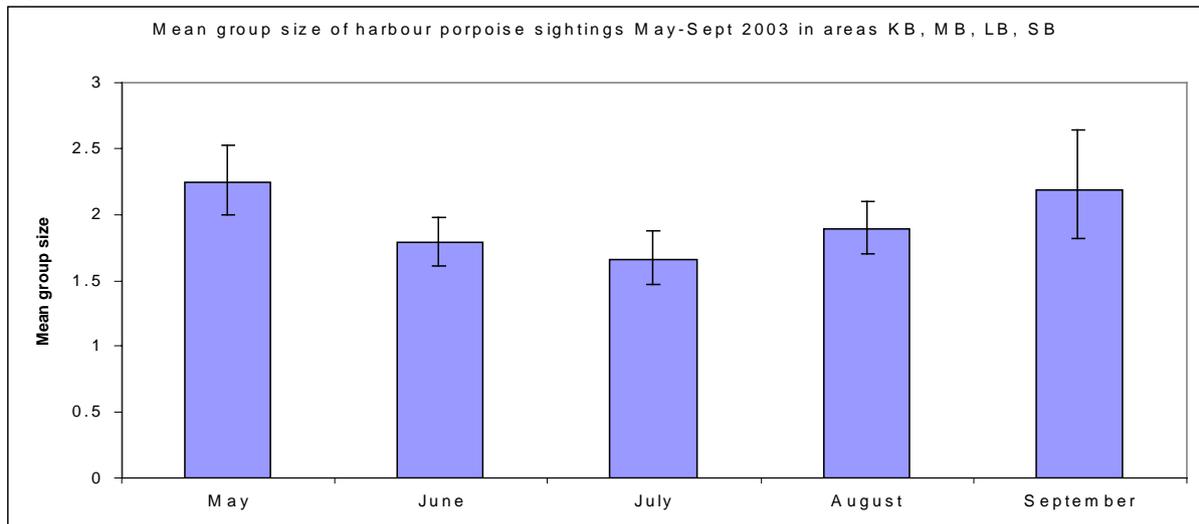
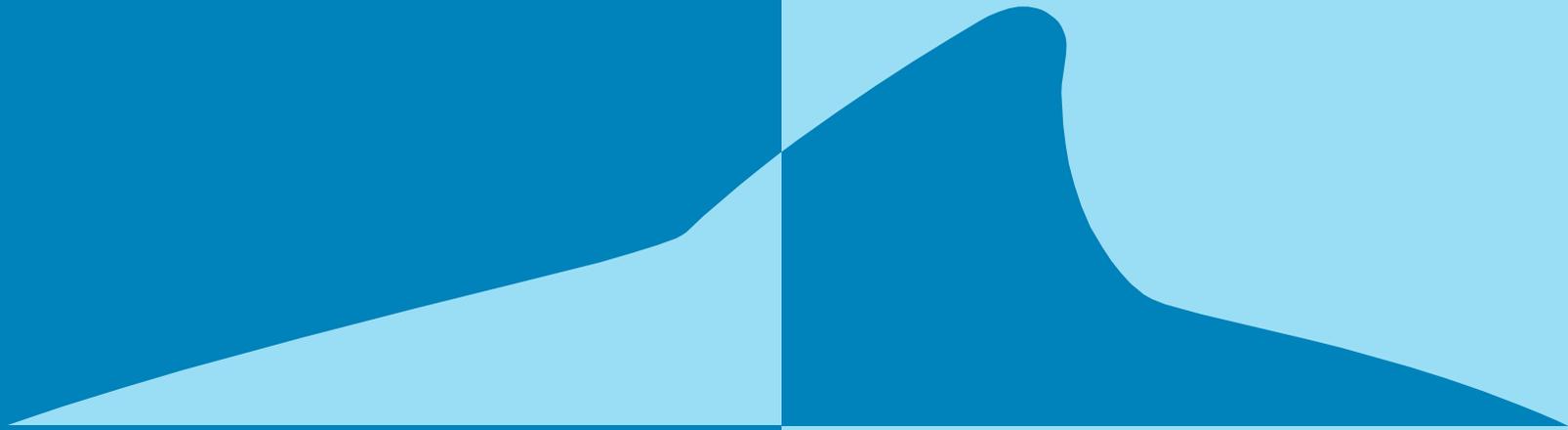


Fig. 4. Pennant for participants in the GSM opportunistic sightings programme. (overleaf)



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