

## *Information for MAPS-Antarctic whale sighting data*

Author	Elke Burkhardt
Project	MAPS: Marine Mammal Perimeter Surveillance from RV Polarstern

### **Program description:**

Since 2005, AWI in cooperation with Reederei Laeisz, systematically and continuously logs all sightings of cetaceans near RV Polarstern in the Southern Ocean (Marine Mammal Perimeter Surveillance, MAPS). A corresponding sighting protocol is maintained by the nautical officer on duty on the bridge of the RV Polarstern. While the officers are advised to systematically log all sightings, no dedicated sighting efforts are taken. Neither does the ship follow a dedicated survey design.

The sightings hence are considered opportunistic sightings. However, in contrast to truly opportunistic sightings, logging occurs systematically and continuously and by a limited number of persons, who have received repeated briefing on marine mammal identification and generally several years of experience as nautical officers in the Southern Ocean.

Observations are made with the naked eye or handheld binoculars (7x50). Sightings were listed on a dedicated sightings form until Polarstern cruise ANT XXIV-4 ([Figure 1](#)). The paper form was replaced by electronic logs: WERUM Wallog for expeditions ANT XXV-1 through ANT XXV-4 ([Figure 2](#)); and AWI Walog (sic!) since ANT XXVI-1 ([Figure 3](#)).

*In-field* identification of sighted animals up to species level is aided by picture charts and common field guides. The fact that only 14 cetacean species are listed as true Antarctic species thereby greatly facilitates the identification effort. Additional *post-event* validation of the identification might be performed using photographs or a short video sequence if available.

For each cruise, the data sets are validated (test for plausibility of sighting location and time, standardization of species names, consideration of any "comments" and additional information (photo, video)) and entered into PANGAEA (one data set per cruise).

Within PANGAEA all data are aggregated relating to an "event label". Event labels used in Marine Mammal Observation contain information of the cruise, which animals were sighted as well as where and when sightings occurred.

Additional metadata information (atmospheric, oceanographic and operational conditions) may be accessed via the respective DOI's, as listed under "comments" on to each data set's description site.

### **Parameter: Whale Species [string]**

Abbreviation: Whale            Parameter no: 84756

As determined by the observer at the time of observation.

When supplementary information (e.g. photographs, videos, concurrent sightings in context of dedicated marine mammal sighting efforts) are available, a post event review of this information might result in modified "species" assignments. Some of the listed species don't qualify as "true Antarctic" species (e.g. harbour porpoise) but are mentioned here for the sake of completeness as they occur during transit cruises.

### ***Whale, unidentified***

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small). If this is not possible, the sighting is generically listed as "Whale, unidentified".

### ***Large whale, unidentified***

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small). If this is not possible, the sighting is generically listed as "Whale, unidentified".

### ***Small whale, unidentified***

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small). If this is not possible, the sighting is generically listed as "Whale, unidentified".

### ***Baleen whale, unidentified***

On occasion, it is not possible to identify the animal. The observer is asked to classify the sighting according to size (large/small) and additional key features for baleen whales (e.g. fluke, fin, number of blow holes). If this is not possible, the sighting is generically listed as "Whale, unidentified".

### ***Dolphins, unidentified***

On occasion, it is not possible to identify the animals up to species level. These sightings are generically listed as "Dolphins, unidentified".

### ***Balaenoptera borealis***

***Abbreviation: B. borealis***

Sei whale

### ***Balaenoptera physalus***

***Abbreviation: B. physalus***

Fin whale

### ***Balaenoptera aff. musculus***

***Abbreviation: (B. musculus)***

Blue whale

In the Southern Hemisphere, these sightings might comprise the Antarctic blue whale (*Balaenoptera musculus intermedia*) and the pygmy blue whale (*Balaenoptera musculus brevicauda*). At sea both are likely to be indistinguishable, and hence are listed as *Balaenoptera musculus*.

In the Northern Hemisphere only one subspecies, *Balaenoptera musculus*, exists.

### ***Balaenoptera musculus intermedia***

***Abbreviation: (B. m. intermedia)***

Antarctic blue whale

Sighting of blue whale with subsequent species identification as *Balaenoptera musculus intermedia* (Antarctic blue whale) on the basis of video/photo footage or opinion of expert onboard.

### ***Balaenoptera musculus brevicauda***

***Abbreviation: (B. m. brevicauda)***

Pygmy blue whale

Sighting of blue whale with subsequent species identification as *Balaenoptera musculus brevicauda* (pygmy blue whale) on the basis of video/photo footage or opinion of expert onboard.

***Balaenoptera aff. bonaerensis***

***B. aff. bonaerensis***

Minke whale

In the Southern Hemisphere, these sightings might comprise *Balaenoptera bonaerensis* (Antarctic minke whale) or *Balaenoptera acutorostrata ssp* (dwarf minke whale) as these are difficult to differentiate between at sea. If additional video/footage has led to a species identification of quality "certain", the correct scientific names are given as described below.

***Balaenoptera bonaerensis***

**Abbreviation: *B. bonaerensis***

Antarctic minke whale

Sighting of "Minke whale" with subsequent species identification as *Balaenoptera bonaerensis* (Antarctic minke whale) on the basis of video/photo footage or opinion of expert onboard.

***Balaenoptera acutorostrata ssp.***

**Abbreviation: *B. acutorostrata ssp.***

Dwarf minke whale

Sighting of "Minke whale" with subsequent species identification as *Balaenoptera acutorostrata ssp.* (Dwarf minke whale) on the basis of video/photo footage or opinion of expert onboard.

***Balaenoptera acutorostrata***

**Abbreviation: *B. acutorostrata***

Common minke whale

Sighting of "Minke whale" with subsequent species identification as *Balaenoptera acutorostrata* on the basis of video/photo footage or opinion of expert onboard.

In the Northern Hemisphere "Minke whale" sightings are listed as *Balaenoptera acutorostrata*.

***Megaptera novaeangliae***

**Abbreviation: *M. novaeangliae***

Humpback whale

***Eubalaena australis***

**Abbreviation: *E. australis***

Southern right whale

***Physeter macrocephalus***

**Abbreviation: *P. macrocephalus***

Sperm whale

***Globicephala melas***

**Abbreviation: *G. melas***

Long-finned Pilot whale

***Orcinus orca***

**Abbreviation: *O. orca***

Killer whale                      key: Orca

***Ziphiidae spp.***

Beaked whale, unidentified

Species identification for beaked whales is extremely difficult due to their elusive behavior. Therefore sightings are frequently identified only to the family level Ziphiidae. For the Antarctic treaty region (south of 60°S), the family of Ziphiidae includes:

<i>Berardius arnouxii</i>	Abbreviation: <i>B. arnouxii</i>	Key: Arnoux's beaked whale
<i>Hyperoodon planifrons</i>	Abbreviation: <i>H. planifrons</i>	Key: Southern bottlenose whale
<i>Mesoplodon layardii</i>	Abbreviation: <i>M. layardii</i>	Key: Strap-toothed whale

***Lagenorhynchus cruciger***

**Abbreviation: *L. cruciger***

Hourglass dolphin

***Lissodelphis peronii***

**Abbreviation: *L. peronii***

Southern right whale dolphin

***Cephalorhynchus commersonii***

**Abbreviation *C. commersonii***

Commerson's dolphin

***Phocoena phocoena***

**Abbreviation: *P. phocoena***

Harbour porpoise

***Stenella attenuata***

**Abbreviation *S. attenuata***

Pantropical spotted dolphin

***Delphinus delphis***

**Abbreviation *D. delphis***

Short-beaked common dolphin

**Parameter: Certainty of identification [string]**

Abbreviation: Certainty      Parameter no: 84757

As determined by the observer at the time of sighting.

When supplementary information (e.g. photographs, videos, concurrent sightings in context of dedicated marine mammal sighting efforts) are available, a post event review of this information might result in modified "certainty of identification" assignments with respect to the original data.

***definite***

Used if unambiguous characteristics (e.g. fluke, flippers, shape of blow, fin, color) have been observed *in-situ*, possibly supported by video/photo footage.

***probable***

Used if identification is supported by evidence strong enough to establish presumption but not proof of species.

***possible***

Used if the presumed identification has an indicated potential to be correct.

**Parameter: Number of individuals      [#]**

Abbreviation: Ind [#]      Parameter no: 84758

The number of individuals is binned according to the options given in the data acquisition software: 1, 2, 3, 4, ≥5, ≥10, ≥20, ≥50. More precise values may exist, due to observer comments.

## Walbeobachtungen von Bord RV Polarstern

Weißer Felder: Bitte ausfüllen,

Grüne Felder: Bitte ausfüllen falls möglich

<b>Datum</b>		<b>Uhrzeit</b>																																	
<b>Schiff:</b> <b>RV Polarstern</b>		<b>Beobachter</b>																																	
<b>Position</b>		<b>Wassertiefe</b>																																	
<b>Walart</b>		<b>Sicherheit der Bestimmung der Art</b>  sicher / wahrscheinlich / möglich (zutreffendes bitte einkreisen)																																	
<b>Gesamtzahl an Tieren:</b>  <b>Beschreibung</b> (wie z.B. Größe, Kopfform, Färbung und Muster, Größe, Form und Position der Rückenfinne, Richtung und Form des Blas)  <b>Verhalten</b>  ausweichend / annähernd / Kurs haltend (zutreffendes bitte einkreisen)  taucht unter Schiff durch: Ja/Nein		<b>Anzahl ausgewachsene Tiere</b>																																	
		<b>Anzahl Kälber</b>																																	
		<b>Photo oder Videoaufnahmen</b>  Ja/Nein (zutreffendes bitte einkreisen)																																	
		<b>Schwimmrichtung relativ zum Schiff</b>  <div style="text-align: center;">  </div>																																	
<b>Aktivität des Schiffes</b>  <input type="checkbox"/> Fahrt ..... kn, Kurs.....°T <input type="checkbox"/> auf Station		<b>Schwimmrichtung geographisch:</b>																																	
		<b>Entfernung vom Schiff</b>																																	
		<b>Akustische Aktivitäten</b>																																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;"></th> <th style="width: 10%;">an</th> <th style="width: 10%;">aus</th> <th style="width: 10%;">unbekannt</th> </tr> </thead> <tbody> <tr><td>DoLog</td><td></td><td></td><td></td></tr> <tr><td>DWS-Lot</td><td></td><td></td><td></td></tr> <tr><td>Hydrosweep</td><td></td><td></td><td></td></tr> <tr><td>Parasound</td><td></td><td></td><td></td></tr> <tr><td>Simrad EK 60</td><td></td><td></td><td></td></tr> <tr><td>ADCP</td><td></td><td></td><td></td></tr> <tr><td>AirGuns</td><td></td><td></td><td></td></tr> </tbody> </table>			an	aus	unbekannt	DoLog				DWS-Lot				Hydrosweep				Parasound				Simrad EK 60				ADCP				AirGuns			
	an	aus	unbekannt																																
DoLog																																			
DWS-Lot																																			
Hydrosweep																																			
Parasound																																			
Simrad EK 60																																			
ADCP																																			
AirGuns																																			
<b>Windrichtung und Stärke</b>	<b>See</b>	<b>Sichtweite</b>																																	

Gesammelte Aufzeichnungen bitte bei Anlaufen B'hvn an Olaf Boebel, AWI (0471-4831-1879)

Figure 1: Copy of paper form for systematic recording of opportunistic cetacean sightings. In use for ANT XXII, ANT XXIII and ANT XXIV.



Figure 2: Screenshot of Werum Wallog program for systematic recording of opportunistic cetacean sightings in use for ANT XXV.

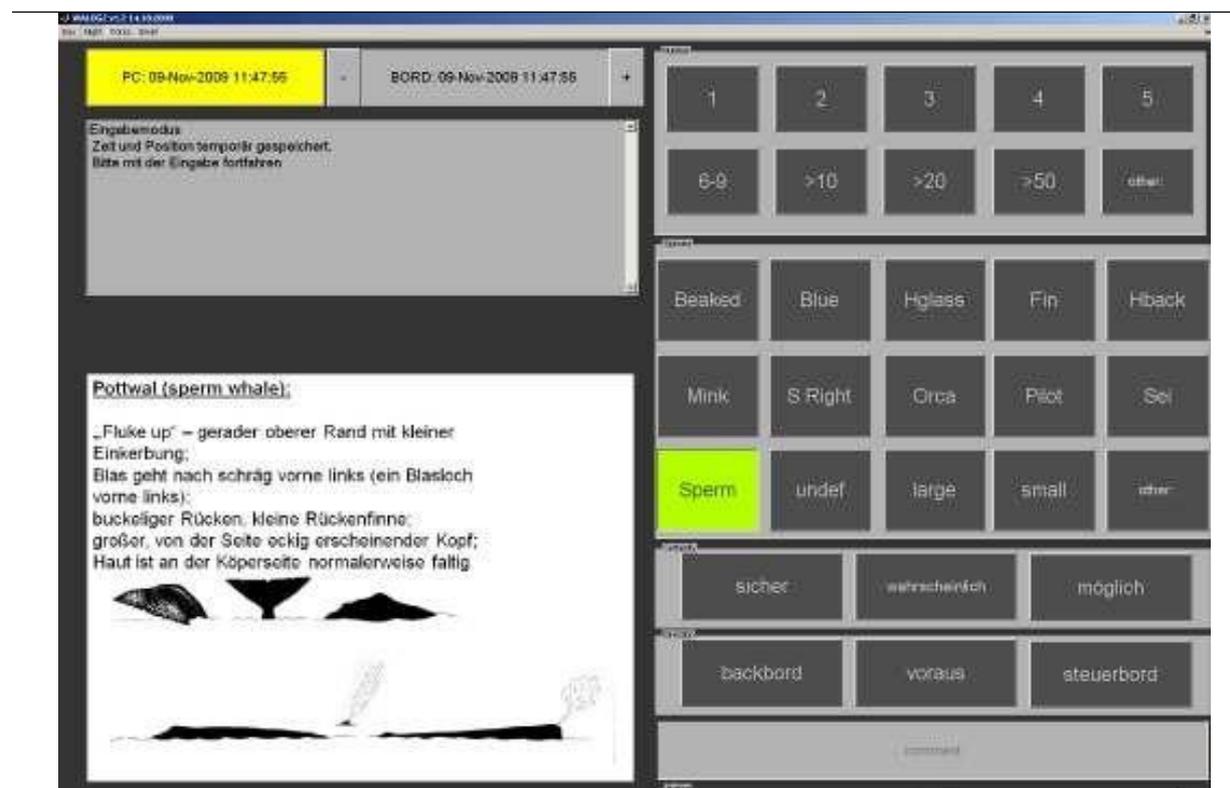


Figure 3: Screenshot of AWI Walog program for systematic recording of opportunistic cetacean sightings in use since ANT XXVI.