

DBO Marine Mammal Watch Protocol-Sue Moore/UW, Jan 2023 version

A visual watch for marine mammals is generally conducted during daylight hours when the ship is in transit between sampling stations; this effort can be augmented by ~10 minute scans around the ship each hour when the ship is on station. The watch stander adopts a position on the bridge, on whichever side is least intrusive to the ship's captain and crew. The single observer stands a watch using naked eye and handheld binoculars to scan a 120° arc forward of the ship (abeam, to +30° of the bow) out to the horizon when the ship is underway; this can be augmented by 360° scans around the ship when on station. If two people are available to stand watch, the full 180° arc forward of the ship should be scanned to the horizon. The watch stander can be assisted by other scientific party personnel and the ship's crew whenever possible. A watch is curtailed when sea state exceeds Beaufort 05 (wind speed ~25kts), or visibility is reduced to < 1km by precipitation/fog.

All marine mammal sightings are noted by (i) time, (ii) position, (iii) species and (iv) number of animals (Table 1). Position can be read directly from the ship's GPS, or linked from a handheld unit to a laptop computer, if available. All marine mammals are identified to species when possible, but observers are encouraged to enter sightings as 'unidentified' if they are uncertain. If there are many animals in a group (as often happens when walrus are sighted), a high-low estimate of animals can be noted.

Associated environmental conditions to routinely note on the data form include: (v) an estimate of ice cover (percent), (vi) sea state (Beaufort scale), (vii) weather and (viii) approximate visibility range (Table 1). In lieu of sightings, the ship's position and environmental conditions should be noted once per hour or whenever there is a change in ice cover, sea state, weather, visibility, or noteworthy biophysical features (e.g. obvious convergence zone). Photos should be taken whenever possible to verify species identification and to augment humpback whale (fluke) or killer whale (eye patches, dorsal fins & saddles) photo catalogs.

A short cruise report is required, to include a summary table of watch effort and sightings, short descriptive text of cruise highlights, maps depicting marine mammal distribution and photos, whenever possible. A sample report is attached.

DBO Marine Mammal (MM) Watch Data Codes

Reason for Entry (RFE)

- 1 = Station: position of ship during ocean sampling operations
- 2 = Position on Search: position of ship when weather, sea state &/or visibility conditions change
- 3 = Sighting on Search: position of ship when animal is seen

Ice Cover (Ice) = decimal percent

Sea State (SS) = Beaufort scale

Weather (WEA)

- 1 = clear
- 2 = partly cloudy
- 3 = fog
- 4 = overcast
- 5 = precipitation
- 6 = low ceiling
- 7 = haze
- 8 = glare

Visibility (VIS)

- 1 = < 1 km
- 2 = 1-2 km
- 3 = 2-3 km
- 4 = 3-5 km
- 5 = 5-10 km
- 6 = unlimited

Species

- | | | |
|---------------------|----------------------------------|-----------------------|
| 1 = bowhead whale | 11 = walrus | 21 = Steller sea lion |
| 2 = gray whale | 12 = bearded seal | 22 = fur seal |
| 3 = beluga | 13 = ringed seal | 23 = harbor seal |
| 4 = fin whale | 14 = spotted seal | |
| 5 = humpback whale | 15 = ribbon seal | |
| 6 = minke whale | 16 = unidentified cetacean | |
| 7 = right whale | 17 = unidentified pinniped | |
| 8 = killer whale | 18 = sperm whale | |
| 9 = harbor porpoise | 19 = Dall's porpoise | |
| 10 = polar bear | 20 = Pacific white-sided dolphin | |