Risso's dolphin *Grampus griseus*

Biodiversity Action Plan

Background

The Risso's dolphin (*Grampus griseus*) is the largest delphinid species which regularly uses Manx waters each year. It is monitored by the voluntarily run charity Manx Whale and Dolphin Watch (MWDW) who have collected data on this and other cetaceans since 2006.

Description

The Risso's dolphin is a large, robust dolphin of around 3.5-4m in length, the world's fifth largest delphinid species with one of the tallest dorsal fins proportional to body size. They have a grey dorsal surface and a pale ventral surface. The dorsal surface will become scratched throughout life and can result in an almost entirely white appearance in some individuals. They are a worldwide continental shelf and slope odontocete with an apparent preference for deeper waters (400-1000m) and are usually found in groups of 7-15 animals.

British Isles Distribution

The Risso's dolphin is rare in the North Sea and the eastern portion of the English Channel but can be found in most other areas of British waters. There are particular hotspots around the Hebrides, Shetland, Orkney, Wales, and south and west Ireland, as well as the Isle of Man.

Isle of Man Distribution

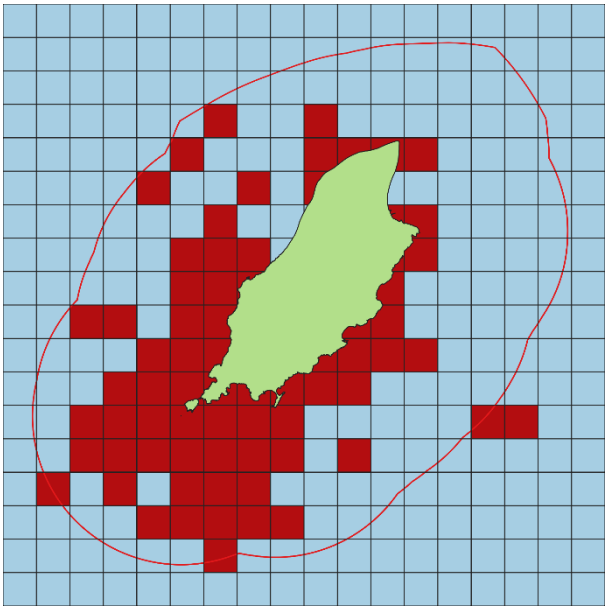

Figure 1: Risso's dolphin sighting presence from boat-based sightings and public sightings reported from 2006-2022 in Manx waters.

Through the surveys of MWDW since 2006 it has been established that the Risso's dolphin is the most commonly sighted dolphin species in Manx waters. There is no indication of a change in the Risso's dolphin status around the Isle of Man whilst being studied by MWDW. The species is observed every year, typically from March through to October and predominantly in the southwestern half of Manx waters.

Annual surveys show a consistent seasonal use of Manx waters which is important to note in contrast to such reports as SCANS II which did not record any Risso's dolphins in the Irish Sea during its summer survey (Hammond et al., 2013).

There is no robust population estimate for Risso's dolphins in Manx waters, but an indication is possible through current photo-identification work. The MWDW catalogue currently holds 78 well-marked individuals, 86 left sides, and 63 right sides giving a minimum of 164 and a maximum of 227 dolphins in the catalogue.

Habitat Range and Site Fidelity

Through photo-identification studies conducted since 2007 recognisable individuals have returned to Manx waters every year, indicating a strong level of seasonal site fidelity. Manx waters have in the region of a 40% resighting rate, which is higher than reported in other regions such as Cardigan Bay, Wales (18.6%, De Boer et al., 2013) and Isle of Lewis, Scotland (19.8%, Weir et al., 2019). Risso's dolphins are seen in Manx waters from March through to October each year, but it is unknown the areas they use when not here. Habitat range within Manx waters appears fairly consistent to the southern half of the island from Niarbyl to Douglas, but range outside of Manx waters is unknown.

As of 2022 we have had photographic matches to the south of the Isle of Man (Wales, Cornwall) but never to the north (Scotland) suggesting any ranging and mixing happens to the south. Genetically the UK population of Risso's are distinct to those found in the Mediterranean (Gaspari et al., 2007).

Ecology - Diet

Literature suggests the diet of the Risso's dolphin is almost entirely squid with feeding mostly taking place at night (Baird, 2009). Analysis of the stomach contents of an animal stranded in Devon showed a presence of *Eledone cirrhosa* (curled octopus), *Sepia officinalis* (common cuttlefish), *Loligo forbesii* (veined squid), *Todaropsis eblanae* (lesser flying squid), and *Todarodes sagittatus* (European flying squid) indicating a cephalopod diet which is not exclusively squid (Clarke and Pascoe, 1985). Off Bardsey Island, Wales, Risso's have been seen consistently feeding over an area of horse mussel reef which may indicate this habitat is of some importance for finding their preferred prey (Wharam and Simmonds, 2008).

There have been no diet studies specifically in Manx waters, so it is unknown the composition of their diet or the proportional importance of the prey species here.

Commuting

As odontocetes Risso's dolphins are not known to undertake long-distance migrations. However, they do move into Manx waters seasonally with sightings rarely falling outside of March to October. It is unknown where they go when not in Manx waters but they are suspected to move south and photo-identification matches have never been made to populations to the north (Hebrides).

Breeding

Manx waters appear to be an important nursery area for Risso's dolphins, with around 25% of the sightings each year containing calves or juveniles. Groups are often encountered which are exclusively female-calf pairs which fits with observations in the Azores of segregation of calving and nursing dolphins (Hartman et al., 2014). Small calves with visible foetal folds are observed suggesting that the area is important for newborns and birthing may take place shortly before they are seen in Manx waters.

Legal protection

Under international conventions the Risso's dolphin is listed on Appendix II of CITES and Appendix II of the Bern Convention. It is also covered by the Bonn Convention under the terms of the Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas (ASCOBANS) which was extended to the Isle of Man in 2017.

Risso's dolphin, and all cetaceans, are protected by Manx law under Schedule 5 of the Manx Wildlife Act through which it is an offence to intentionally or recklessly kill, injure, take, or disturb any scheduled species.

Threats

Current factors affecting this species may include:

Physical Disturbance

There is unlikely to be a large effect from net by-catch in Manx waters due to the types of fishery present. There is a pair trawl which operates in Manx waters which does have the potential for by-catch. Risso's dolphins are known to be taken as bycatch in several fisheries around the world. In the UK, for 24 stranded dolphins bycatch was identified as the cause of death for five individuals and entanglement for one individual (Dolman et al., 2009). Risso's dolphins are very rarely found stranded on the Manx coastline.

Acoustic Disturbance

Risso's dolphins, as all cetaceans, will be sensitive to underwater noise which has the potential to cause injury or disturbance. This can lead to displacement from foraging areas, reduced foraging success, and increased energy expenditure. They are likely to be susceptible to loud noises caused by both military and seismic activity as well as activities such as pile driving. Marine mammals can also be affected by temporary or permanent auditory threshold shifts on exposure to loud noise and masking of biologically important sounds (prey and conspecifics) due to chronic noise such a ship traffic. Small odontocetes have been seen to show lateral spatial avoidance to seismic airguns (Stone and Tasker, 2006).

Chemical Pollution and Marine Litter

Limited research has been undertaken on containment burdens in Risso's dolphins however they are likely to be affected through exposure to bioaccumulated contaminants such as cadmium, copper and zinc found in their cephalopod prey. Risso's dolphins have been known to ingest marine debris (Shoham-Frider et al., 2002).

Habitat Degradation

Any effects of habitat degradation are likely to be felt through consequent changes to prey range, availability, and quality. It has been suggested that horse mussel (*Modiolus modiolus*) reef beds are of importance to Risso's dolphins due to the presence of cephalopods, such as *A. subulata* which lay their eggs on hard surfaces.

Prey Changes

Risso's dolphins are likely to be highly dependent on prey distribution, particularly if the area is important for calves and juveniles as lactating females will need to feed regularly. Any changes in prey density or distribution in Manx waters is likely to have large effects on the dolphin population in the area.

Climate Change

Climate change may not directly affect Risso's dolphin distribution around the Isle of Man, but any effects will likely be felt through consequent changes in prey distribution and abundance.

Reason for BAP

As top marine predators cetaceans are good ecosystem indicators. Though only five cetacean species regularly use Manx waters there are aspects of their ecology which are poorly understood and they face numerous threats.

Aims

The aim of this BAP is to ensure the ongoing monitoring of Risso's dolphin as an internationally protected species and as part of the Manx cetacean community with ambitions to improve knowledge gaps wherever possible.

Linked BAPS

It is advised that this action plan is taken forward in conjunction with species action plans for other marine megafauna species:

It may also be of relevance to link species action plans for cephalopod species of known prey importance for the Risso's dolphin:

Common cuttlefish – *Sepia officinalis*

Harbour porpoise – *Phocoena phocoena* Minke whale – *Balaenoptera acutorostrata* Bottlenose dolphin – *Tursiops truncatus* Common dolphin – *Delphinus delphis* Seals (grouped) – *Halichoerus grypus* and *Phoca vitulina* Basking shark – *Cetorhinus maximus*	(European common squid - *Alloteuthis subulata*) (Veined squid - *Loligo forbesii*) (Lesser flying squid - *Todaropsis eblanae*) (Curled octopus - *Eledone cirrhosa*) (Horse mussel – *Modiolus modiolus*)

Delivery Options	**Active**	**Challenges**
Land-based surveys ○ Surveys at locations around the Isle of Man since 2006. Dependent on suitable weather conditions and the availability of staff and volunteers with transport to reach sites	Yes	Staff funding
Boat-based surveys ○ Ad-hoc surveys in Manx waters since 2007. Dependent on suitable weather, the availability of a boat skipper and staff and volunteers	Yes	Staff funding Boat fuel funding Boat skipper availability
Public sightings scheme ○ Collation of sightings reported by members of the public into an online database	Yes	Staff funding
Acoustic surveys ○ MWDW does not currently undertake any acoustic surveys in Manx waters but owns a towed-hydrophone to introduce these when possible	No	Staff funding Boat fuel funding Boat skipper availability
Photo-identification study ○ MWDW currently conducts photo-identification of Risso's dolphin and compiles a catalogue for Manx waters	Yes	Staff funding
Strandings ○ Strandings are monitored on behalf of DEFA by Manx Wildlife Trust (MWT), with data being fed to the Cetacean Stranding Investigation Programme (CSIP) in the UK. Strandings are reported by members of the public to MWDW and MWT and communicated to an MWT managed stranding volunteer network ○ No Risso's have yet been further sampled due to infrequency of strandings	Yes No	Funding for sample testing
Annual review and update of this document	June 2024	

Delivery Plan	
Action	**Lead**

Land-based surveys ○ Ongoing use of the same survey sites to allow continuity of data collection and possible detection of any long-term population changes	MWDW
Boat-based surveys ○ Continuation of ad hoc surveys whenever possible ○ Re-introduction of line-transect surveys throughout Manx territorial waters to generate population estimates	MWDW
Public sightings scheme ○ Continued collection of public sightings to maintain long-term dataset, and increased awareness of species identification and reporting	MWDW
Acoustic surveys ○ Introduce towed-hydrophone surveys alongside transect surveys to generate population estimates	MWDW
Photo-identification study ○ Continue compilation of Manx catalogue, undertake matching to other British Isles catalogues, and produce a publicly available photo-identification catalogue	MWDW
Strandings ○ Continued monitoring of strandings ○ Very few Risso's dolphins ever strand around Manx shores, but the rarity would make any samples of particular interest. Chemical contaminant sampling and stomach content analysis would be important to assess as well as retrieving samples for genetic analysis	MWT/DEFA

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