Lagenorhynchus obscurus – Dusky Dolphin

Sara Golaski / Namibian Dolphin Project

Regional Red List status (2016)	**Least Concern*†**
National Red List status (2004)	Data Deficient
Reasons for change	Non-genuine change: New information
Global Red List status (2008)	Data Deficient
TOPS listing (NEMBA) (2007)	None
CITES listing (2003)	Appendix II
Endemic	No

*Watch-list Data †Watch-List Threat

This widespread, generalist species exhibits substantial intra-annual and geographical changes in its feeding behaviour and target prey species, resulting in multiple associations with other predatory species (Vaughn et al. 2007).

Taxonomy

Lagenorhynchus obscurus (Gray 1828)

ANIMALIA - CHORDATA - MAMMALIA - CETARTIODACTYLA - DELPHINIDAE - Lagenorhynchus - *obscurus*

Synonyms: *Clymenia obscura* (Gray 1868), *Delphinus breviceps* (Wagner 1846), *Delphinus fitzroyi* (Waterhouse 1838), *Delphinus obscurus* (Gray 1828), *Delphinus superciliosus* (Lesson & Garnot 1826), *Electra breviceps* (Gray 1868), *Lagenorhynchus breviceps* (Gray 1866), *Lagenorhynchus clanculus* (Gray 1846), *Lagenorhynchus fitzroy* (Bini 1951), *Lissodelphis panope* (Trouessart 1904), *Phocaena fitzroyi* (Philippi 1893), *Prodelphinus obscurus* (Flower 1885), *Prodelphinus petersii* (Lutken 1889), *Tursio obscurus* (Gray 1866), *Tursio panope* (Perez Canto 1896).

Common names: Dusky Dolphin (English), Vaaldolfyn (Afrikaans)

Taxonomic status: Species

Taxonomic notes: The genus *Lagenorhynchus* is polyphyletic and possibly an artificial genus which is likely to be split in due course (LeDuc et al. 1999; Harlin-Cognato 2010). Several recent phylogenies have shown that *L. obscurus* consistently groups with *L. obliquidens* (Pacific White-sided Dolphin) and separately to *L. australis* (Peale's Dolphin) and *L. cruciger* (Hourglass Dolphin). The two North Atlantic members of the genus (*L. albirostris*, the White-beaked Dolphin, and *L. acutus*, the Atlantic White-sided Dolphin) appear distinct from all other members of the genus. Current thinking would either split *L. obscurus* and *L obliquidens* into the genus *Sagmatius* (LeDuc et al. 1999; May-Collado & Agnarsson 2006) or make it an entirely new genus (Harlin-Cognato 2010).

Three subspecies of Dusky Dolphin are generally suggested based on both molecular (Harlin-Cognato et al. 2007) and morphological (Van Waerebeek 1993a, 1993b) differences: *L. o. obscurus* in southern Africa, *L. o. fitzroyi* in southern South America, and an un-named subspecies in New Zealand (Perrin 2002). Subspecies classification awaits formal description (Cipriano & Webber 2010).

Assessment Rationale

Large schools and frequent sightings of Dusky Dolphins in both the northern (Namibia) and southern (South Africa) Benguela suggest high abundance and more than 10,000 mature individuals. No major threats were identified, although an emerging threat of mid-water trawling requires monitoring. This species is thus listed as Least Concern. However, as more data is acquired about taxonomy, distribution, subpopulation size and trends, and the levels of bycatch, this species may require reassessment.

Regional population effects: There appears to be a gap in distribution of Dusky Dolphins along the continental shelf around the South Africa–Namibia border that is associated with the Lüderitz Upwelling Cell and Orange River Cone (Best 2007). This hiatus suggests that isolation of animals in South Africa and Namibia may occur.

Distribution

Across the Southern Hemisphere, Dusky Dolphins are widespread but occur in disjunct subpopulations off the coast of South America, the west coast of southern Africa, and New Zealand, with occasional sightings from sub-Antarctic Islands around Australia (Brownell & Cipriano 1999; Best 2007). They have also been recorded from around the Prince Edward Islands, Gough Island, the Falkland Islands and Amsterdam Island (Van Warebeek et al. 1995).

In the region of assessment, they occur in cool temperate waters on the continental shelf from western False Bay to the Orange River. This species is considered a year-round resident of the west coast of southern Africa, and is located most commonly over the continental shelf, in shallow waters between 0–50 m, but occasionally occurs over the shelf edge (Findlay et al. 1992).

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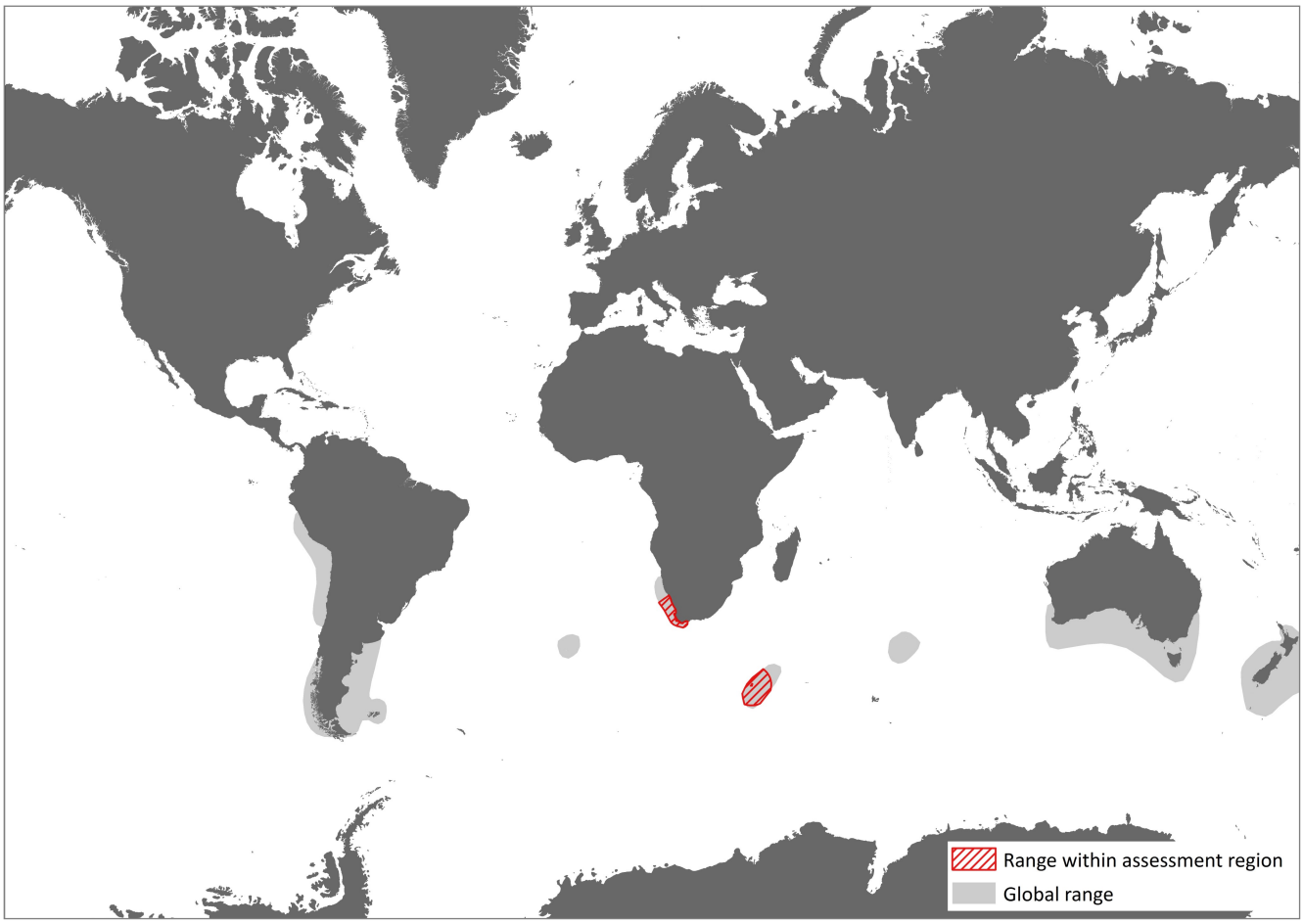

Figure 1. Distribution range for Dusky Dolphin (*Lagenorhynchus obscurus*) within the assessment region (IUCN 2008)

Population

Although direct abundance estimates exist, sighting rates produced during coastal surveys directed at Heaviside's dolphins show regular occurrence of large groups throughout the southern Benguela, with up to 0.9 groups / km searched seen in St Helena Bay (Elwen et al. 2010). Although not seen as frequently close to shore in Namibia, Dusky Dolphins are amongst the most frequently encountered species on the Namibian continental shelf, and are commonly spotted off South Africa's west coast (Simon Elwen, Namibian Dolphin Project, unpubl. data). Dusky Dolphins are known to gather in schools of up to 800 (Findlay et al. 1992; Best 2007). The high sighting rate and large group sizes suggest a population of over 10,000 mature individuals.

It remains uncertain whether the groups around oceanic islands, for example, those around the Prince Edward Islands, are discrete or regularly mix with animals in other areas (Brownell & Cipriano 1999). Model-based estimates of generation time are 16.4 years (Taylor et al. 2007).

Current population trend: Unknown

Continuing decline in mature individuals: Unknown

Number of mature individuals in population: Estimated at over 10,000 individuals

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: Unknown

Severely fragmented: No

Habitats and Ecology

The Dusky Dolphin is a resident coastal species, most commonly located over the continental slope and shelf (Jefferson et al. 1993; Aguayo et al. 1998). Along the west coast of southern Africa, its distribution is associated with the continental shelf and cool waters of the Benguela Current. Research indicates that they favour sea surface temperatures between 10°C and 18°C (Brownell & Cipriano 1999). They use a wide range of habitats within the Benguela Current depending partly on age and reproductive status, from extreme nearshore to shelf edge, with corresponding flexibility in prey usage. Dusky Dolphins usually rest and socialise in shallow waters, but utilise deeper marine habitats when feeding (Wursig & Wursig 1980).

Dusky Dolphins take a wide variety of prey, mainly Piscine and Cephalopods. Food remains from 36 dolphins from South Africa included Horse Mackerel *Trachurus* sp. (34.7% by mass), Hake *Merluccius* sp (22.9%) and Lantern Fish *Lampanyctus* sp. (12.8%) with Sardine (*Sardina pilchardus*), Arrow Squid (*Nototodarus sloanii)* and Chokka Squid (*Loligo reynaudii)* also taken occasionally (Best & Meÿer 2010). Stomach contents tend to either consist of prey associated with the epipelagic zone (surface schooling fish such as Sardine, Anchovy (*Engraulidae* sp.) and Horse Mackerel or even such nearshore inhabitants as Mullet, *Liza richardsoni*) or mesopelagic prey (those associated with the deep scattering layer such as myctophids, *Lampanyctys* and *Diaphus* or Hatchet Fish *Maurolicus*), suggesting that Dusky Dolphins use at least two foraging strategies.

Group sizes within South Africa have been recorded from 2 to 800 (mean 35.3, Best 2007), although the vast majority of groups encountered consist of fewer than 20 individuals (Best & Meÿer 2010). The species is known to form nursery groups consisting entirely of mother-calf pairs. These nursery groups are most common in late summer with peak occurrence of 38% in February (Best & Meÿer 2010), coinciding with a birth season in January to early February, estimated from the reproductive status of dead females and stranded neonates (Best & Meÿer 2010). Calf size at birth has been recorded at approximately 0.86 m, and strandings data revealed highest calf percentage in January and February (Skinner & Chimimba 2005).

Ecosystem and cultural services: This species is a flagship species for conservation and ecotourism on the west coast of South Africa.

Use and Trade

There is no known trade in this species within the region under consideration.

Threats

This species may be susceptible to both offshore and inshore threats. Globally, Dusky Dolphins are threatened by entanglement in gillnets, particularly in mid-water trawls. In the assessment region, they are caught in mid-water trawls, purse-seines and set nets but these are considered a minor threat and mortality numbers are unknown. However, there is an emerging threat related to the mid-water trawling fisheries in the southern Benguela. Both fishermen and cetaceans are drawn to areas of high prey density, and trawling fishing boats often make hunting easier for cetaceans. However, with the benefits of increased feeding success comes the additional risk of entanglement. Trawl fisheries not only influence target species and their immediate predators, but also the rest of the food web. For example, trawl fisheries may directly target Hake (*Merluccius* spp.), which is a predator of Anchovy, also a common prey item of Dusky Dolphins. Six Dusky Dolphins were reported to have died as a result of bycatch in gillnets during one year between 1986 and 1998 (Best & Meÿer 2010).

A recent collapse (mid-2000s) in South Africa's Sardine stocks due to overexploitation may threaten prey availability for Dusky Dolphins (Coetzee et al. 2008), and is expected to have resulted in a diet change for this species. Additionally, harmful algal blooms caused by dinoflagellates may be increasing in frequency and severity in the southern Benguela current as a result of climate change (Van der Lingen et al. 2015). This was found to have an indirect effect on the condition of Sardine, a top prey item for this species (Van der Lingen et al. 2015).

Current habitat trend: Water temperatures along the west coast have become cooler over the past 20–30 years (Mead et al. 2013), where simultaneously oxygen concentrations have decreased (Moloney et al. 2013). The specific effects of these patterns on Dusky Dolphin distribution, either directly or indirectly through resource shifts, have not been documented and should be monitored.

Conservation

The species is listed in Appendix II of the Conventional on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Marine Living Resources Act (No. 18 of 1998). Within the assessment region, this species' distribution falls within the West Coast National Park MPA. Recent bycatch in gillnets occurs at an unknown level and needs to be investigated. An investigation resolving population structure is required. Taxonomy requires clarification.

No direct research is occurring on Dusky Dolphins in South Africa, other than ongoing recording and dissection of stranded animals attended to by Department of Environmental Affairs (DEA) and the University of Pretoria MRI/South African Museum team. Abundance, habitat use and acoustic behaviour is currently under study in Namibia through the work of the Namibian Dolphin Project (Elwen and colleagues).

Recommendations for managers and practitioners:

- Fisheries bycatch occurs at levels that are suspected to be low. The level of bycatch should be clarified and the emerging threat with respect to the mid-water trawl sector should be monitored.

Research priorities:

- More research is required focusing on the distribution of Dusky Dolphins and possible

Table 1. Threats to the Dusky Dolphin (*Lagenorhynchus obscurus*) ranked in order of severity with corresponding evidence (based on IUCN threat categories, with regional context)

Rank	Threat description	Evidence in the scientific literature	Data quality	Scale of study	Current trend
1	*5.4.3 Fishing & Harvesting Aquatic Resources:* accidental bycatch from fisheries, especially purse seine and set nets.	-	Anecdotal	-	-
2	*5.4.4 Fishing & Harvesting*: Loss of prey base from fisheries	Sekiguchi et a l 1992	Indirect	National	Increasing: Commercially-targeted fish species feature prominently in the diet of Dusky Dolphins.
3	*11.1 Habitat Shifting & Alteration*: climate change may exacerbate shifts in prey base	Mead et al. 2013	Simulation	National	West coast becoming cooler.
		Moloney et al. 2013	Simulation	National	West coast oxygen levels decreasing.

Table 2. Conservation interventions for the Dusky Dolphin (*Lagenorhynchus obscurus)* ranked in order of effectiveness with corresponding evidence (based on IUCN action categories, with regional context)

Rank	Intervention description	Evidence in the scientific literature	Data quality	Scale of evidence	Demonstrated impact	Current conservation projects
1	*2.1 Site/Area Management*: inshore net management, and monitor mid-water trawls.	Elwen et al. 2010	Anecdotal	-	-	-
2	*2.1 Site/Area Management*: monitor purse seine industry.	Elwen et al. 2010	Anecdotal	-	-	-
3	*2.1 Site/Area Management*: zoning boat traffic to reduce disturbance.	-	-	-	-	-

existence of population structure between South Africa and Namibia (see below).

- Bycatch in commercial fisheries is not well quantified and current estimates are needed, especially for the purse-seine industry in both South Africa and Namibia and the mid-water trawl industry.
- Taxonomy requires clarification at a global level.
- Estimate of total population size would be useful to allow a better understanding of the role of Dusky Dolphins as top predators in fisheries models.
- Research priorities include distribution clarification, and subpopulation abundance and trends. It is necessary to better understand the apparent hiatus in distribution around the Orange River mouth and establish whether the South African and Namibian stocks are separate; there is particular need to gather genetic data from the Namibian animals.
- The taxonomy of the Dusky Dolphin is unresolved from genus through to subspecies level and requires clarification.

Encouraged citizen actions:

- Use information dispensed by the South African Sustainable Seafood Initiative to make good choices when buying fish in shops and restaurants, e.g. wwfsa.mobi, FishMS 0794998795.
- Save electricity and fuel to mitigate CO2 emissions and hence rate of climate change.
- Buy local products that have not been internationally shipped.
- Reduce boat speed in harbours.
- Report sightings on virtual museum platforms (for example, iSpot and MammalMAP) to help with mapping geographical distribution.

Data Sources and Quality

Table 3. Information and interpretation qualifiers for the Dusky Dolphin (*Lagenorhynchus obscurus*) assessment

Data sources	Field study (literature), Indirect information (expert knowledge)
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Expert consensus
Risk tolerance	Evidentiary

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Assessors and Reviewers

Simon Elwen[1], Claire Relton[2], Stephanie Plön[3]

[1]University of Pretoria, [2]Endangered Wildlife Trust, [3]Nelson Mandela Metropolitan University

Contributors

Shanan Atkins[1], Matthew F. Child[2], Ken Findlay[3], Mike Meÿer[4], Herman Oosthuizen[4]

[1]Private, [2]Endangered Wildlife Trust, [3]University of Pretoria, [4]Department of Environmental Affairs

Details of the methods used to make this assessment can be found in *Mammal Red List 2016: Introduction and Methodology*.