

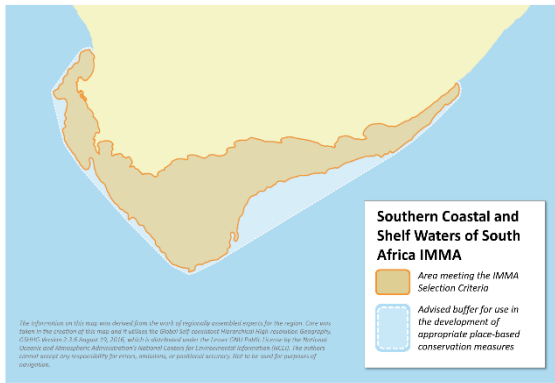
# Southern Coastal and Shelf Waters of South Africa IMMA

## Summary

The southern coast of South Africa represents one of the world's most productive marine regions, famed for its annual 'Sardine Run' which occurs along the southeast coast between May and June. This annual event supports a number of top predators, including common dolphins (*Delphinus delphis*), Indo-Pacific bottlenose dolphins (*Tursiops aduncus*), fur seals (*Arctocephalus pusillus*) and killer whales (*Orcinus orca*). The inshore waters, within 500m of the coast and with water depths of less than 25m, provide important year-round habitat for feeding and reproduction for endangered Indian Ocean humpback dolphins (*Sousa plumbea*) (Fig. 1). Furthermore, the waters over the continental shelf present important habitat for the inshore form of Bryde's whale (*Balaenoptera edeni*).

## Criterion A: Species or Population Vulnerability

Recent local (South Africa) and international (IUCN) Red List assessments have classified the Indian Ocean humpback dolphin as 'Endangered' in South African waters (Plön et al., 2016) as well as globally (Braulik et al., 2017). Analyses of photo-identification data of this species have indicated that national abundance may be well below previous estimates of 1000 individuals, with numbers possibly closer to 500 (Vermeulen et al., 2017).



## Area Size

166,700km<sup>2</sup>

## Qualifying Species and Criteria

Indian Ocean humpback dolphin – *Sousa plumbea*

Criterion A, B1

Bryde's whale - *Balaenoptera edeni*

Criterion C2

Indo-Pacific bottlenose dolphin –

*Tursiops aduncus*

Criterion B1, C3, D1

Common dolphin - *Delphinus delphis*

Criterion C2

Cape fur seal - *Arctocephalus pusillus*

Criterion C2

## Marine Mammal Diversity (D2)

*Sousa plumbea*, *Balaenoptera edeni*, *Tursiops aduncus*, *Delphinus delphis*, *Arctocephalus pusillus*, *Megaptera novaeangliae*, *Eubalaena australis*, *Orcinus orca*



Figure 1 – Indian Ocean humpback dolphins (*Sousa plumbea*) surfacing near the beach.

Photo: Brigitte Melly and Stephanie Plön

## **Criterion B: Distribution and Abundance**

### **Sub-criterion B1: Small and Resident Populations**

Available recent population size estimates for *Sousa plumbea* are generally small (James et al., 2015; Vermeulen et al., 2017; Bouveroux et al., 2018), ranging from as few as 41 animals (Greenwood, 2013) to a maximum of 466 (Karczmarski et al., 1999) recorded individuals. Matching of photo-identification catalogues between study sites along the coastline has indicated that national abundance may be well below previous estimates of 1000 individuals (Plön et al., 2016), with numbers possibly closer to 500 (Vermeulen et al., 2017). Within these isolated populations, numerous studies have documented reproductive activities of *Sousa plumbea* in the area, specifically Algoa Bay and Plettenberg Bay (Saayman et al., 1972; Saayman and Tayler, 1979; Karczmarski, 1997; Karczmarski et al., 2000; Plön et al., 2015; Koper et al., 2016; Melly et al., 2017; Bouveroux et al., 2018). Births appear to occur throughout the year, yet most have been reported in the austral summer and autumn (Dec–April) in Algoa Bay (Karczmarski, 1999). Movement between study sites was documented along the entire southern Cape coast between False Bay and Algoa Bay, yet no movement was reported to study sites further east, indicating possible population delineation (Vermeulen et al., 2017).

### **Criterion C: Key Life Cycle Activities**

#### **Sub-Criterion C2: Feeding Areas**

The 'Sardine Run' is a well-documented annual phenomenon whereby large schools of sardine (*Sardinops sagax*) migrate along the Southern and Eastern Cape coastline (including the area known as the Wild Coast) into the waters of KwaZulu-Natal (O'Donoghue, 2009; O'Donoghue et al., 2010a). This migration and aggregation of associated predators (Fig. 2) is believed to start in the area off Mossel Bay and move along the shelf eastward, nearly to Durban (O'Donoghue et al., 2010a; O'Donoghue et al., 2010b; O'Donoghue et al., 2010c). The 'Sardine Run' has become increasingly spatio-temporally variable, but usually occurs in May and June, during the austral winter (O'Donoghue et al., 2010b; O'Donoghue et al., 2010c; Caputo et al., 2017).

A number of marine predators, such as common dolphins (*Delphinus delphis*; Ambrose et al., 2013), Indo-Pacific bottlenose dolphins (*Tursiops aduncus*; Cockcroft et al., 1990; Caputo et al., 2017), and Bryde's whales (*Balaenoptera edeni*) follow and feed on the migrating schools of sardine (Penry et al., 2011; Penry et al., 2016). In addition, Cape fur seals (*Arctocephalus pusillus*) feed in the 'Sardine Run' (Huisamen et al., 2012).

### **Criterion D: Special Attributes**

#### **Sub-criterion D2: Diversity**

The IMMA contains habitat that supports an important diversity of species. The following species have been documented from within the area:

Indian Ocean humpback dolphin (*Sousa plumbea*; Plön et al., 2016), the inshore form of Bryde's whale (*Balaenoptera edeni*; Penry et al., 2016), Indian Ocean bottlenose dolphin (*Tursiops aduncus*; Cockcroft et al., 2016), common dolphin (*Delphinus delphis*; Plön and Cockcroft, 2016), Cape fur seal (*Arctocephalus pusillus*; Kirkman et al., 2016), humpback whales (*Megaptera novaeangliae*; Peters and Barendse, 2016), killer whales (*Orcinus orca*) and southern right whales (*Eubalaena australis*; Best, 2007; Barendse and Carvalho, 2016).

### **Supporting Information**

Ambrose, S.T., Froneman, P.W., Smale, M.J., Cliff, G. and Plön, S. 2013. 'Winter diet shift of long-beaked common dolphins (*Delphinus capensis*) feeding in the sardine run off KwaZulu-Natal, South Africa'. *Marine Biology*, 160:1543–1561.

Best, P.B. 2007. *Whales and Dolphins of the Southern African Subregion*. Cape Town: Cambridge University Press. 338 pp.

Bouveroux, T., Melly, B., McGregor, G. and Plön, S. 2018. 'Another dolphin in peril? Photo-identification, occurrence and distribution of the endangered Indian Ocean humpback dolphin (*Sousa plumbea*) in Algoa Bay'. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 28, 3: 723–732.

- Braulik, G.T., Findlay, K., Cerchio, S., Baldwin, R. and Perrin, W. 2017. '*Sousa plumbea*. The IUCN Red List of Threatened Species 2017: e.T82031633A82031644' [Online]. Available at: <http://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T82031633A82031644.en>. (Accessed: 19 June 2019)
- Caputo, M., Froneman P.W., Du Preez, D., Thompson, G. and Plön, S. 2017. 'Long-term trends in cetacean occurrence during the annual Sardine Run off the Wild Coast, South Africa'. *African Journal of Marine Science*, 39:83–94.
- Cockcroft, V., Natoli, A., Reisinger, R., Elwen, S., Plön, S., Hoelzel, R. and Atkins, S. 2016. 'A Conservation Assessment of *Tursiops aduncus*'. In: M.F. Child, L. Roxburgh, D. Raimondo, E.D.L San, J. Selier, H. Davies-Mostert (eds.) *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust.
- Cockcroft, V.G., Ross, G.J.B. and Peddemors, V.M. 1990. 'Bottlenose dolphin *Tursiops truncatus* distribution in Natal's coastal waters'. *South African Journal of Marine Science*, 9:1–10.
- Greenwood, G. 2013. 'Population changes and spatial distribution of Indo-Pacific humpback dolphins (*Sousa chinensis*) within the Plettenberg Bay area'. BSc Hons Thesis. South Africa: Nelson Mandela University.
- James, B.S., Bester, M.N., Penry, G.S., Gennari, E. and Elwen, S.H. 2015. 'Abundance and degree of residency of humpback dolphins *Sousa plumbea* in Mossel Bay, South Africa'. *African Journal of Marine Science*, 37: 383–394.
- Huisamen, J., Kirkman, S., van der Lingen, C., Watson, L.H., Cockcroft, V.G., Jewel, R. and Pistorius, P.A. 2012. 'Diet of the Cape fur seal *Arctocephalus pusillus pusillus* at the Robberg Peninsula, Plettenberg Bay, and implications for local fisheries'. *African Journal of Marine Science*, 34:431–441.
- Karczmarski, L. 1997. 'Description of selected behaviours of humpback dolphins *Sousa chinensis*'. *Aquatic Mammals*, 23: 127–133.
- Karczmarski, L., Winter, P.E.D, Cockcroft, V.G. and McLachlan, A. 1999. 'Population analyses of Indo-Pacific humpback dolphins *Sousa chinensis* in Algoa Bay, Eastern Cape, South Africa'. *Marine Mammal Science*, 15: 1115–1123.
- Karczmarski, L., Cockcroft, V.G. and McLachlan, A. 2000. 'Habitat use and preferences of Indo-Pacific humpback dolphins *Sousa chinensis* in Algoa Bay, South Africa'. *Marine Mammal Science*, 16: 65–79.
- Kirkman, S.P., Hofmeyr, G.J.G., Seakamela, S.M. and Pistorius, P.A. 2016. 'A conservation assessment of *Arctocephalus pusillus pusillus*'. In: M.F. Child, L. Roxburgh, E. Do Linh San, D. Raimondo, H.T. Davies-Mostert (eds.) *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust.
- Koper, R.P., Karczmarski, L., du Preez, D. and Plön, S. 2016. 'Sixteen years later: Occurrence, group size, and habitat use of humpback dolphins (*Sousa plumbea*) in Algoa Bay, South Africa'. *Marine Mammal Science*, 32: 490–507.
- Melly, B.L., McGregor, G., Hofmeyr, G. and Plön, S. 2017. 'Spatio-temporal distribution and habitat use of cetaceans in Algoa Bay, South Africa'. *Journal of the Marine Biological Association of the UK*, 98: 1065–1079.
- O'Donoghue, S.H. 2009. *The Sardine Run: Investigating sardine and predator distribution in relation to environmental conditions using GIS and remotely sensed products*. Durban: University of KwaZulu-Natal. 136 pp.
- O'Donoghue, S.H., Drapeau, L., Dudley, S.F.J. and Peddemors, V.M. 2010a. 'The KwaZulu-Natal sardine run: Shoal distribution in relation to nearshore environmental conditions, 1997-2007'. *African Journal of Marine Science*, 32: 293–307.
- O'Donoghue, S.H., Drapeau, L. and Peddemors, V.M. 2010b. 'Broad-scale distribution patterns of sardine and their predators in relation to remotely sensed environmental conditions during the KwaZulu-Natal sardine run'. *African Journal of Marine Science*, 32: 279–291.

O'Donoghue, S.H., Whittington, P.A., Dyer, B.M. and Peddemors, V.M. 2010c. 'Abundance and distribution of avian and marine mammal predators of sardine observed during the 2005 KwaZulu-Natal sardine run survey'. *African Journal of Marine Science*, 32: 361–374.

Penry, G., Findlay, K. and Best, P.B. 2016. 'A conservation assessment of *Balaenoptera edeni*'. In: M.F. Child, L. Roxburgh, E. Do Linh San, D. Raimondo, H.T. Davies-Mostert (eds.) *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust.

Penry, G.S., Cockcroft, V.G. and Hammond, P.S. 2011. 'Seasonal fluctuations in occurrence of inshore Bryde's whales in Plettenberg Bay, South Africa, with notes on feeding and multispecies associations'. *African Journal of Marine Science*, 33: 403–414.

Peters, I.T. and Barendse, J. 2016. 'A conservation assessment of *Eubalaena australis*'. In: M.F. Child, L. Roxburgh, E. Do Linh San, D. Raimondo, H.T. Davies-Mostert (eds.) *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust.

Plön, S., Atkins, S., Conry, D., Pistorius, P., Cockcroft, V. and Child, M. 2016. 'A Conservation Assessment of *Sousa plumbea*'. In: M.F. Child, L. Roxburgh, E. Do Linh San, D. Raimondo, H.T. Davies-Mostert (eds.) *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust.

Plön, S. and Cockcroft, V. 2016. 'A conservation assessment of *Delphinus capensis capensis*'. In: M.F. Child, L. Roxburgh, E. Do Linh San, D. Raimondo, H.T. Davies-Mostert (eds.) *The Red List of Mammals of South Africa, Swaziland and Lesotho*. South Africa: South African National Biodiversity Institute and Endangered Wildlife Trust.

Plön, S., Cockcroft, V.G. and Froneman, P.W. 2015. 'The natural history and conservation of Indian Ocean humpback dolphins (*Sousa plumbea*) in South African waters'. *Advances in Marine Biology*, 72: 143–162.

Saayman, G.S. and Tayler, C.K. 1979. 'The socioecology of humpback dolphins (*Sousa sp.*)'. In: H.E. Winn, B.L. Olla (eds.) *Behaviour of Marine Mammals*, pp. 165–226. New York: Plenum Press.

Saayman, G.S., Bower, D. and Tayler, C.K. 1972. 'Observations on inshore and pelagic dolphins on the south-eastern Cape coast of South Africa'. *Koedoe*, 15: 1–24.

Vermeulen, E., Bouveroux, T., Plön, S., Atkins, S., Chivell, W., Cockcroft, V., Conry, D., Gennari, E., Hörbst, S., James, B.S., Kirkman, S., Penry, G., Pistorius, P., Thornton, M., Vargas-Fonseca, A. and Elwen, S. 2017. 'Indian Ocean humpback dolphin (*Sousa plumbea*) movement patterns along the South African coast'. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 28, 1: 231–240.



Figure 2 – Huge numbers of humpback whales (*Megaptera novaeangliae*) congregate off the coast of South Africa. Photo: Amy S. Kennedy

## Acknowledgements

We would like to thank the participants of the 2019 IMMA Regional Expert Workshop held in Salalah, Oman for the identification of IMMAs in the Western Indian Ocean and Arabian Seas, and the Environment Authority, Oman. Funding for the identification of this IMMA was provided to the Global Ocean Biodiversity Initiative by the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) supports this initiative on the basis of a decision adopted by the German Bundestag. Support was also provided by Whale and Dolphin Conservation and the Tethys Research Institute.



**MARINE MAMMAL  
PROTECTED AREAS  
TASK FORCE**



**IMMA**

Supported by:



Federal Ministry for the  
Environment, Nature Conservation,  
Building and Nuclear Safety



based on a decision of the German Bundestag

Suggested Citation: IUCN-Marine Mammal Protected Areas Task Force, 2020. Southern Coastal and Shelf Waters of South Africa IMMA Factsheet.  
<https://www.marinemammalhabitat.org/wp-content/uploads/imma-factsheets/WesternIndianOcean/southern-coastal-and-shelf-waters-of-south-africa-WesternIndianOcean.pdf>. Downloaded on (day month year).

PDF made available for download at  
<https://www.marinemammalhabitat.org/wp-content/uploads/imma-factsheets/WesternIndianOcean/southern-coastal-and-shelf-waters-of-south-africa-WesternIndianOcean.pdf>