

# Yká Ulu IMMA

## Summary:

The Yká Ulu IMMA includes the south-east part of the Tierra del Fuego archipelago, the Burdwood Bank and surrounding waters at the southern tip of the south American continent. In this area, water masses from the Pacific and Atlantic Oceans and from the Antarctic Circumpolar Current converge. The presence of more than 20 species of marine mammal have been confirmed from the area. Of these, two species of dolphins (the Peale's dolphin *Lagenorhynchus australis* and the dusky dolphin *L. obscurus*) and two pinnipeds (the South American sea lion *Otaria byronia* and the South American fur seal *Arctocephalus australis*) have resident populations in the area. Additionally, different baleen whale species occur seasonally in the region (Humpback whale *Megaptera novaeangliae*, sei whale *Balaenoptera borealis* and minke whale *B. bonaerensis* and *B. acutorostrata*) and the occurrence of at least another six marine mammal species have been frequently recorded.

## Description:

The archipelago of Tierra del Fuego is located at the southern tip of South America. The largest island, Isla Grande of Tierra del Fuego, is shared by Argentina and Chile and delimited by the Strait of Magellan to the north and the Beagle Channel to the south. In this area, water masses from the Pacific and Atlantic Oceans and from the Antarctic Circumpolar Current converge and are then diluted by strong freshwater discharge from precipitation and glaciers through the rivers and the Magellan Strait (Piola & Rivas, 1997; Acha et al., 2004; Campagna et al., 2006).



## Area Size

70 106 km<sup>2</sup>

## Qualifying Species and Criteria

Peale's dolphin – *Lagenorhynchus australis*

Criterion B (2); C (2)

Dusky dolphin – *Lagenorhynchus obscurus*

Criterion B (1); C (1, 2)

South American sea lion – *Otaria byronia*

Criterion B (2); C (1,2)

South American fur seal – *Arctocephalus australis*

Criterion B (2); C (1,2)

Long-finned pilot whale –

*Globicephala melas edwardii*

Criterion C (2)

## Marine Mammal Diversity

Criterion D (2)

*Lagenorhynchus australis*, *Lagenorhynchus obscurus*, *Otaria byronia*, *Arctocephalus australis*, *Megaptera novaeangliae*, *Orcinus orca*, *Lagenorhynchus cruciger*, *Globicephala melas edwardii*, *Physeter macrocephalus*, *Balaenoptera borealis*, *Balaenoptera physalus*, *Balaenoptera bonaerensis*, *Balaenoptera acutorostrata*, *Mirounga leonina*

The Burdwood Bank is a submarine plateau on the North Scotia Ridge located over the southern Patagonian Shelf, about 150 km east of Isla de los Estados, Tierra del Fuego and 200 km south of the Falkland Islands (Malvinas). This IMMA is limited to the north by the Falkland Channel, a deep channel (up to 3,000 m in depth) which separates the bank from the Falkland Islands. Another channel, 130 km wide and as deep as 1,800 m, limits the bank along the east (Guerrero et al., 1999). The south boundary is the continental slope.

The bottom topography (that included canyons and seamounts) and the oceanographic conditions in the region generate fronts (such as the Patagonian cold estuarine zone and the Patagonian tidal frontal zone (Acha et al., 2004), upwelling zones and local circulation resulting in a high concentration of nutrients and high primary and secondary productivity. The phytoplankton and zooplankton communities enhance the development of large schools of fish, squids and crustaceans (Cousseau & Perrota, 1998; Haimovici et al., 1998) which sustain resident and transitory populations of apex predators including cetaceans, pinnipeds and marine birds (Croxall & Woods, 2002; Riccialdelli et al., 2020).

This IMMA includes the Marine Protected Areas Namuncurá/Burdwood Bank I and II and Yaganes (only the upper boundary) and the Natural Protected Area Peninsula Mitre.

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

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

Dusky dolphin *L. obscurus*

Historically, the presence of dusky dolphins has been considered occasional in the Tierra del Fuego Archipelago; but during the last two decades, they

have become very common in the southern Fuegian coast. From 2009 to 2017, the species was regularly sighted between November and May (Dellabianca et al., 2018). New vessel surveys during winter months confirmed the presence of the species year-round along the southern coast of Isla Grande de Tierra del Fuego (LECOVIS, unpublished data). Presence of younger calves have been observed in the area during late spring and summer months. It remains unclear if local individuals came originally from the Atlantic or Pacific Ocean populations, but groups sighted along the Tierra del Fuego Archipelago represent the southernmost resident population of the species worldwide.

### **Sub-criterion B2: Aggregations**

Peale's dolphin *Lagenorhynchus australis*

The presence of Peale's dolphins has been documented throughout the entire IMMA since the mid-70s (Goodall et al., 1997a), with the highest number of animals in the southern portion of the Tierra del Fuego Archipelago (Dellabianca et al., 2016). Systematic on-board surveys conducted from 2009 to date suggest that Peale's dolphins are resident in nearshore waters throughout the year (Ordoñez, 2019, unpublished data from the marine mammal group of the Laboratory of Wildlife Ecology and Conservation-LECOVIS-of CADIC-CONICET). The presence of calves has been reported from spring to autumn (Goodall et al., 1997b; Ordoñez, 2019). Peale's dolphins have been strongly associated with coastal giant kelp beds *Macrocystis pyrifera* which are largely extended along the southern coast of Tierra del Fuego (de Haro & Iñiguez, 1997; Goodall et al., 1997a; Lescrauwaet, 1997; Schiavini et al., 1997; Viddi & Lescrauwaet, 2005).





Figure 1: Peale's dolphin (*Lagenorhynchus australis*) leaping out of the water in the Tierra del Fuego Archipelago. Photo credit: Gabriela Scioscia



Figure 2: South American sea lions (*Otaria byronia*) swimming in the Tierra del Fuego Archipelago. Photo credit: Natalia A. Dellabianca





Figure 3: South American fur seals (*Arctocephalus australis*) on rookeries in Isla Grande of Tierra del Fuego. Photo credit: M Natalia Paso Viola

South American sea lion *Otaria byronia* and South American fur seal *Arctocephalus australis*

Both species are resident in the IMMA and many rookeries and breeding colonies are found along the southern and eastern coast of Isla Grande of Tierra del Fuego and Isla de los Estados (Crespo et al., 2015; Milano et al., 2020a,b). The last abundance estimate was 7684 and 9550 individuals for sea lion and fur seal respectively, and both species show an increasing population trend (Milano et al., 2020b).

### **Criterion C: Key Life Cycle Activities Sub-criterion C1: Reproductive Areas**

South American sea lion *Otaria byronia*

There are many South American sea lion colonies in this IMMA, and ten colonies were confirmed as breeding colonies in the last aerial survey conducted in 2012 (Milano et al., 2020a).

South American fur seal *Arctocephalus australis*

All breeding colonies (for pupping, nursing, courtship and mating) of this species within the IMMA are on or around Isla de los Estados (Crespo et al., 2015; Milano et al., 2020b).

## Sub-criterion C2: Feeding Areas

Long-finned pilot whale *Globicephala melas edwardii*

Heatmaps created by combining sighting survey data from the IMMA region, showed that the southeast sector of Tierra del Fuego, eastern sector of the Staten Island and waters adjacent to the Burdwood Bank are the main areas with higher sighting density

records for long-finned pilot whales (Becker et al., 2021). All these areas have water depths between 200 and more than 3400 m. Studies based on the carbon and nitrogen stable isotope composition in bone collagen of stranded Long-finned pilot whale specimens from Tierra del Fuego reveal that the long-finned pilot whale is mainly a teutophagous species. Oceanic squids such as *Martialia hyadesi*, *Kondakovia longimana* and *Histioteuthis* spp. showed the greater isotopic contribution to its diet (Becker et al., 2021). In the same study, the southeast part of Tierra del Fuego, eastern part of the Isla de los Estados and the slope break around the Burdwood Bank offer suitable habitats and feeding areas for this species.



Figure 4: Long-finned pilot whales (*Globicephala melas edwardii*) surfacing in Tierra del Fuego. Photo credit: Sabrina Harris



Peale's dolphin *Lagenorhynchus australis*

Demersal and bottom fishes such as zoarcids and notothenioids, nearshore pelagic species such as *Odontheistes* spp. as well as octopus and squid species have been identified as important prey for this species in Tierra del Fuego and it is likely that the highly productive waters in this IMMA support important feeding areas for this species (Schiavini et al., 1997; Riccialdelli et al., 2010).

South American sea lion *Otaria byronia* and South American fur seal *Arctocephalus australis*

There are numerous haul out sites and pupping areas for both of these species in the IMMA, and the waters surrounding each haulout are heavily used for foraging trips. Trophic studies identified the squat lobster *Munida gregaria* and the fuegian sprat *Sprattus fuegensis* as among the most important prey for both species although a trophic segregation has been suggested (Paso Viola & Raya Rey, 2016).

## Criterion D: Special Attributes Sub-Criterion D2: Diversity

These productive waters support at least 14 species of marine mammals, including both cetaceans and pinnipeds, including humpback whale *Megaptera novaeangliae*, sei whale *Balaenoptera borealis*, fin whale *B. physalus*, minke whales *B. bonaerensis* and *B. acutorostrata*, Hourglass dolphin *Lagenorhynchus cruciger*, killer whale *Orcinus orca*, Long-finned pilot whale *Globicephala melas edwardii*, dusky dolphin *L. obscurus*, Peale's dolphin *L. australis*, South American sea lion *Otaria byronia*, southern elephant seal *Mirounga leonina*, South American fur seal *Arctocephalus australis* and sperm whale *Physeter macrocephalus* (Falabella et al., 2009; Dellabianca, 2014; Dellabianca & Torres, 2015, 2016, 2017; Torres et al., 2018; Dellabianca et al., 2023; Paso Viola, unpublished data).



Figure 5: Sei whale (*Balaenoptera borealis*) surfacing in this IMMA. Photo credit: Mónica A. Torres



Figure 6: Fin whale (*Balaenoptera physalus*) blow sighted in Tierra del Fuego waters. Photo credit: Gabriela Scioscia



Figure 7: Sperm whale (*Physeter macrocephalus*) sighted in Tierra del Fuego waters. Photo credit: Mónica A. Torres





Figure 8: Hourglass dolphin (*Lagenorhynchus cruciger*) sighted in Tierra del Fuego waters. Photo credit: Mónica A. Torres

## Supporting Information

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MARINE MAMMAL  
PROTECTED AREAS  
TASK FORCE



WHALE AND  
DOLPHIN  
CONSERVATION



INTERNATIONAL  
CLIMATE  
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Bundesministerium  
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