



## Area Size

583 km<sup>2</sup>

## Qualifying Species and Criteria

Fraser's dolphin – *Lagenodelphis hosei*

Criterion B (2); C (1)

Spinner dolphin – *Stenella longirostris*

Criterion B (2); C (1)

## Other Marine Mammal Species

### Documented

*Globicephala macrorhynchus*, *Grampus griseus*,

*Stenella attenuata*, *Tursiops truncatus*

## Summary

The Buleleng IMMA is located at the northern shores of Bali in Indonesia. The depth contour drops off to 200 m between 2-5 km from the shore and to 500 m between 5-8 km from the shore. These sloping submarine areas create an important environment for spinner dolphins (*Stenella longirostris*) and Fraser's dolphins (*Lagenodelphis hosei*). In the western (Lovina) section of the IMMA dolphins are likely attracted by bathymetry features, while in the Tejakula (eastern) section dolphins are likely facilitated by both bathymetry and steep slopes. Both of these locally occurring populations are consistently observed feeding, and calves are regularly observed. The IMMA is also regularly inhabited

# Buleleng IMMA

## Summary, continued.

by at least four more species, and a Lovina-based dolphin watching tourism industry may threaten these dolphin species. The Buleleng IMMA encompasses the Lovina MPA and the Tejakula MPA.

## Description

The Buleleng IMMA is located at the northern shores of Bali Province in Indonesia, at the western edge of the Coral Triangle. The contour drops off to 200 m between 2-5 km from the shore and to 500 m between 5-8 km from the shore. This combination of gentle and steep slopes creates an environment for spinner dolphins (*Stenella longirostris*) and Fraser's dolphins (*Lagenodelphis hosei*) (Mustika, 2011; Purba, 2018, *pers. comm.*). Anecdotal information suggests that the two species travel ~ 40 km between the western (Lovina) and eastern sections (Tejakula). The IMMA is also regularly inhabited by at least four more species of cetaceans including Risso's dolphin (*Grampus griseus*), Short-finned pilot whale (*Globicephala macrorhynchus*), Pantropical spotted dolphin (*Stenella attenuata*) and Bottlenose dolphin (*Tursiops truncatus*). (Mustika, 2011). The Buleleng IMMA encompasses two MPAs (i.e. the Lovina MPA and the Tejakula MPA), but the IMMA boundaries have been extended to include the 1,000 m depth contour, beyond the political boundaries that made up both MPAs, due to the sighting of Fraser's dolphins in the 1,000 m bathymetry.

## Criterion B: Distribution and Abundance

### Sub-criterion B2: Aggregations

Spinner (*Stenella longirostris*) and Fraser's (*Lagenodelphis hosei*) dolphins have been regularly observed aggregating at the Lovina and Tejakula sections of the Buleleng IMMA (Mustika, 2011; Purba, 2018, pers. comm.). No abundance estimations have been produced but the observations were made systematically using line transects (Mustika, 2011; Purba, 2018, pers. comm.) or point samplings. The regular aggregations of these species have led to the development of dolphin watching industries in both sections (the late 1980s in Lovina and early 2000s in Tejakula).



Figure 1: *Stenella longirostris* observed in Lovina.  
Photo: Putu Liza Mustika, James Cook University



Figure 3: *Stenella longirostris roseiventris*.  
Photo: Putu Liza Mustika, James Cook University



Figure 4: Hauling *Jukung*.  
Photo: Purwanto, The Nature Conservancy



Figure 2: *Lagenodelphis hosei* in Tejakula.  
Photo: Putu Liza Mustika, James Cook University

## Criterion C: Key Life Cycle Activities

### Sub-Criterion C1: Reproductive Areas

Calves of both species have been regularly observed in both sections of the Buleleng IMMA, with occasional neonate dolphins also being observed. The calves in the Lovina section were regularly sighted since late 2007 until mid-2010 (Mustika, 2011), although no further surveys have been made ever since. The calves in the Tejakula section have also been sighted during Mustika's two field visits in 2011 and 2012 (Purba, 2018, pers. comm) and during Purba's study in the area (Purba, 2018, pers. comm).

## Supporting Information

Mustika, P.L.K., 2011. Towards sustainable dolphin watching tourism in Lovina, Bali, Indonesia (Doctoral dissertation, James Cook University).

Mustika, P.L.K., Birtles, A., Everingham, Y. and Marsh, H., 2015. Evaluating the potential disturbance from dolphin watching in Lovina, north Bali, Indonesia. *Marine Mammal Science*, 31:808-817.

Purba, A.O. 2018. Personal communication. Udayana University, Denpasar, Bali.

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**MARINE MAMMAL  
PROTECTED AREAS  
TASK FORCE**



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