Lampedusa Important Marine Mammal Area - IMMA

Description

Lampedusa, a small island of the Pelagie Archipelago, is located in the Sicily Strait, a key area within the Mediterranean Sea due to its peculiar and almost unique oceanographic, ecological and biological characteristics. The complex geomorphology and water circulation schemes contribute to the high productivity reported for the Sicily Strait, making it a biodiversity hotspot within the Mediterranean region. Intense fishing operations with potentially detrimental effects on the habitat at different spatial and temporal scales and on different taxa have been reported. The most frequently documented species is the common bottlenose dolphin whose population has been studied since the late 1990s. Interaction between this species and human activities (mostly fisheries) is reported to be particularly intense. Common and striped dolphins have been also recorded in waters around the Pelagie Archipelago Islands.

Fin whale occurrence in the waters around Lampedusa Island was first hypothesised to be seasonal, most likely only occurring during the late winter/early spring (Notarbartolo di Sciara et al., 2003; Notarbartolo di Sciara et al., 2016). Canese et al. (2006) and Panigada et al. (2017) subsequently confirmed Lampedusa coastal waters as a winter feeding ground (the species congregates in late February and early March), mostly feeding at the surface on the abundant euphausiid species Nyctiphanes couchii. Nevertheless, there is limited information on the presence and habitat use for this species. They favour upwelling and frontal zones with high zooplankton concentrations (Canese et al., 2006). Data collected during a telemetry study in the Strait of Sicily in 2013 and 2015 showed that potential feeding habitat for fin whales

Area Size
17,527 km²

Qualifying Species and Criteria

- Fin whale - *Balaenoptera physalus*  
  Criterion A; C (ii)
- Common bottlenose dolphin - *Tursiops truncatus*  
  Criterion A; B (i); C (i, ii); D (i)

Marine Mammal Diversity

- *Delphinus delphis*, *Stenella coeruleoalba*, *Monachus monachus*

Summary

Significant ecological and biological components coexist in a relatively limited area between the island of Lampedusa and the Tunisian coast, considered a biodiversity hotspot within the Mediterranean. Vulnerable Mediterranean fin whales (*Balaenoptera physalus*) are known to congregate in late February and early March in the coastal waters of the island, in the middle of the Strait of Sicily, to feed on the euphausiid *Nyctiphanes couchii*. In addition, vulnerable Mediterranean common bottlenose dolphins (*Tursiops truncatus*) have been recorded regularly in Lampedusa coastal waters, exhibiting strong site fidelity; they use the area for their complete life cycle, including feeding and reproduction. Many individuals of this population show a stable, well-structured interaction with local fishing gears, particularly bottom trawlers.
extends well beyond the near-shore waters of the island of Lampedusa. Satellite tagged fin whales remained in the area between Lampedusa and the coast of Tunisia for almost a month after tagging, engaging in feeding behaviour nearly 65% of the time, prior to moving northwards. The shape of the candidate IMMA comes from the data obtained from the satellite tagged whales (Panigada et al., 2017).

Lampedusa coastal waters are also important for common bottlenose dolphin, a species here showing regular presence and strong site-fidelity. A total of 746 encounters of bottlenose dolphins were recorded between 1996 and 2006. Group size ranged from 1 to 20 individuals. In terms of distribution, the most resident dolphins were sighted in various areas around the island, two of which showed very high densities (Pulcini et al., 2011). The preference shown by the bottlenose dolphin for the eastern coast of the island could be an ‘artefact’ due to the presence of an aquaculture cage during the period 1997–1999 (Pace et al., 2003, 2011; Pulcini et al., 2004). Fish-farms are known to attract bottlenose dolphins in this and other Mediterranean areas (Pace et al., 2011). Conversely, other highly used areas appear to represent important natural habitats, where feeding (some fishery-related) and social activities regularly occur (Pace et al., 2003, 2011).

**Criterion A - Species or Population Vulnerability**

The resident and genetically isolated population of Mediterranean fin whales, presumed to number at most in the low thousands (and possibly in decline), is subject to several threats including ship strikes, disturbance, noise and chemical contaminants with several potential negative effects at the population level (Notarbartolo di Sciara et al., 2016). The Mediterranean population has been listed as VU in the IUCN Red List according to the following considerations (Panigada and Notarbartolo di Sciara, 2012): the Mediterranean subpopulation, which is genetically distinct from fin whales in the Atlantic, contains fewer than 10,000 mature individuals; the subpopulation experiences an inferred continuing decline in number of mature individuals; all mature individuals are in one subpopulation.

In 2012, the IUCN Red List Authority classified the Mediterranean sub-population of common bottlenose dolphins as ‘Vulnerable’ according to the Red List criteria A2cde and based on a suspected population decline of at least 30% over the last 60 years (Bearzi et al., 2012). The species is listed in the Appendix II (Mediterranean population) of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), in the Appendix II (Strictly Protected Fauna Species) of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), and in the Annexes II and IV of the EU Habitats Directive (Council Directive 92/43/EEC).
Photo-identification work clearly shows that common bottlenose dolphin groups are regularly present along the Lampedusa coast. The (photographic) capture histories and the distribution of sightings clearly show a number of individual dolphins regularly use the study area. The most reliable population estimate, which dates back to 1998, was of 115 (93–163) animals. No other population estimates with similar precision are available but continued work proves the regular presence of the species in the area. Confidence in evidence available is very high thanks to the list of references provided.

Criterion C: Key Life Cycle Activities
Sub-criterion Ci: Reproductive Areas
Continuous or regular presence of common bottlenose dolphins, as well as a high ratio of immature animals in respect to adults, are reported all year round. A list of references providing the evidence needed is available at the end of this document. Social and reproductive activities regularly occur (Pace et al., 2003, 2011). These observations validate previous suggestions that this population habitually uses this area for mating and calving (Pace et al., 1999; Pulcini et al., 2004). Each age class was encountered during almost all months and field years. Parturition has never been observed, although it likely occurs given the observations of extremely small individuals (classified as newborns) showing foetal folds on the flanks and lacking basic motor-coordination skills. The relative frequency of occurrence of groups containing immature animals (in relation to all groups) did not vary annually.

Criterion C: Key Life Cycle Activities
Sub-criterion Cii: Feeding Areas
This is the only known winter feeding ground in the southern part of the Mediterranean for fin whales. Visual observation of whales actively engaged in surface feeding support this criterion choice. Telemetry data analysis have also confirmed the feeding behaviour of fin whales in the area (Panigada et al., 2017). Marine mammals exposed to high noise levels have shown different behavioural responses, such as interrupting feeding, altering vocalizations, or leaving important habitat (Gomez et al., 2016); in consideration that the Strait of Sicily is among the areas in the Mediterranean Sea with the highest naval traffic (Vaes and Druon, 2013), the potential negative effects on feeding fin whales should be further assessed and evaluated.

Dolphin focal group follows conducted in the area have allowed the frequent observation of dolphin groups actively feeding at the surface on schooling fish and cephalopods (sometimes thrown up in the air by dolphins). In addition, dolphin groups regularly associate with bottom trawlers (Pace et al. 1999; 2003; 2011). In Lampedusa, what seems more important for bottlenose dolphins is the shallowness of its feeding grounds, as they often host complex and rich food webs. Dolphins seem to spend as much time as possible close to those areas, as it increases their likelihood of finding preferential (demersal) prey (La Manna et al., 2016). Site-specific geomorphological factors combined with the geographical segregation of Lampedusa from the rest of the continental shelf waters may provide a plausible explanation. Furthermore, the strong association of bottlenose dolphins with trawls showed that these feeding patterns may be beneficial in that they reduce time required to forage and provides the animals with an easier way to obtain food. In addition, the observation of some mother-calf pairs associated to trawling boats suggested that bottlenose dolphins could have learned the advantages of following and feeding in conjunction with trawls (Pace et al., 1999; 2011).

Supporting Information


Pulcini, M., Pace, D.S., Triossi, F., La Manna, G., Galante, I., Fortuna, MC. 2013. Distribution and abundance estimates of bottlenose dolphins (Tursiops truncatus) around Lampedusa Island (Sicily Channel, Italy)- implications for their management. Journal of the Marine Biological Association 94(6): 1175-1184. DOI: 10.1017/S0025315413000842

Acknowledgements

The participants of the 2016 IMMA Regional Expert Workshop held in Chania, Crete, for the Identification of IMMAs in the Mediterranean Sea. Simone Panigada. Daniela Silvia Pace.

Suggested Citation: IUCN-MMPATF (2017) Lampedusa IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2017. PDF made available for download at https://www.marinemammalhabitat.org/portfolio-item/lampedusa/
Annex I
Supplementary Maps
## Annex II

### List of Primary and Secondary Species

#### Primary Species – Meet the IMMA Selection Criteria

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name of Species</th>
<th>Population / Subpopulation Name</th>
<th>IUCN Red List Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Tursiops truncatus</em></td>
<td>Common bottlenose dolphin</td>
<td>Mediterranean Subpopulation</td>
<td>Vulnerable</td>
</tr>
<tr>
<td><em>Balaenoptera physalus</em></td>
<td>Fin whale</td>
<td>Mediterranean Subpopulation</td>
<td>Vulnerable</td>
</tr>
</tbody>
</table>

#### Secondary Species – Do not individually meet the IMMA Selection Criteria but are present within the area

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name of Species</th>
<th>Population / Subpopulation Name</th>
<th>IUCN Red List Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Delphinus delphis</em></td>
<td>Common dolphin</td>
<td>Mediterranean Subpopulation</td>
<td>Endangered</td>
</tr>
<tr>
<td><em>Stenella coeruleoalba</em></td>
<td>Striped dolphin</td>
<td>Mediterranean Subpopulation</td>
<td>Vulnerable</td>
</tr>
<tr>
<td><em>Monachus monachus</em></td>
<td>Mediterranean monk seal</td>
<td>Global</td>
<td>Endangered</td>
</tr>
</tbody>
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