

Area Size

20,217 km²

Qualifying Species and Criteria

Sperm whale - *Physeter macrocephalus*
Criterion A; C (iii)

Fin whale - *Balaenoptera physalus*
Criterion A; C (iii)

Marine Mammal Diversity

[*Orcinus orca*, *Stenella coeruleoalba*,
Delphinus delphis, *Tursiops truncatus*,
Globicephala melas]

Summary

This area represents a migratory corridor for Vulnerable fin whales (*Balaenoptera physalus*) in the northern Alborán Sea and Strait of Gibraltar. Fin whales migrating from the inner Mediterranean Sea towards the Atlantic Ocean and vice versa use this corridor bidirectionally, as shown by regular sightings and satellite tagging. This area also encompasses a large portion of the migration routes used by the Endangered Mediterranean subpopulation of sperm whales (*Physeter macrocephalus*) between the Western Mediterranean and their Ligurian Sea feeding grounds.

Alborán Corridor Important Marine Mammal Area – IMMA

Description

This area encompasses most of the waters below 1000m in the Northern Alborán Sea and Strait of Gibraltar. The borders were designed mainly based on the satellite tracks, land-based tracks in the Strait of Gibraltar and fin whale (*Balaenoptera physalus*) sightings in the Alborán Sea. Fin whales use this area as a bi-directional migration corridor, mainly swimming southwest in summer and mainly northeast in winter. This was shown by long-term recorded observation in the Alborán Sea and the Strait of Gibraltar as well as satellite tagging of a few individuals.

In the Alborán Sea, vessel surveys have gathered data in this area from 1992 to 2011 (20 years), all seasons but mainly in summer. In the Strait of Gibraltar, annual dedicated vessel surveys were performed from 1999 to 2016 (more than 60,000 km sailed), including more than 4,000 observations and photo-identification. Land-based surveys focusing on large cetaceans were carried out in summer and in winter in 2009-2013. Five individuals were tagged in summer (3 whales) and winter (2 whales) in the Strait of Gibraltar with Spot5 satellite tags. The two winter tags passed through the Alborán Corridor.

This area also encompasses a large portion of the migration routes used by the Mediterranean subpopulation of sperm whales (*Physeter macrocephalus*) between the Strait of Gibraltar and Ligurian Sea feeding grounds.

Criterion A - Species or Population Vulnerability

The fin whale Mediterranean subpopulation is listed as Vulnerable in the IUCN Red List of Threatened Species. After several decades of research, it is still unclear which

subpopulation or which portion of the subpopulations inhabiting the Mediterranean Sea might use this migration corridor on their way from/to the Atlantic Ocean (Notarbartolo di Sciara et al. 2016). However, a large portion of migrating fin whales do use the proposed cIMMA regularly.

The sperm whale Mediterranean subpopulation is listed as Endangered in the IUCN Red List of Threatened Species. This area encompasses a large portion of the migration routes used by sperm whales between the Strait of Gibraltar and Ligurian Sea feeding grounds.

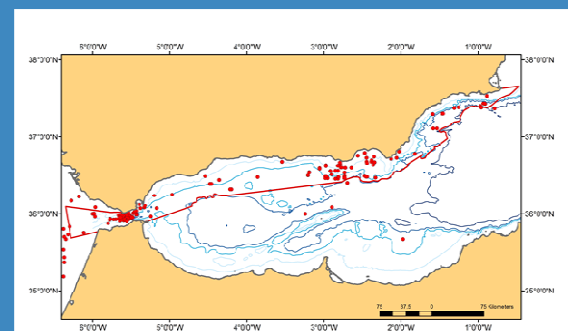
Criterion C: Key Life Cycle Activities

Sub-criterion Ciii: Migration Routes

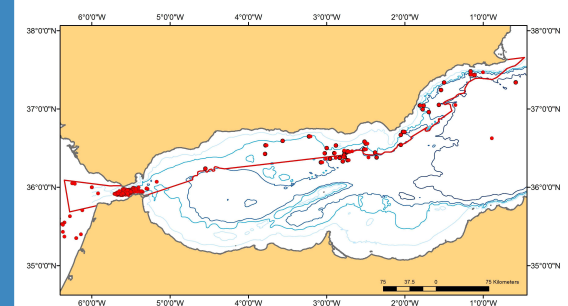
Fin whales use this area as a bi-directional migration corridor, in summer mainly swimming SW and in winter mainly NE. This was shown by long-term recorded observation in the Alborán Sea and the Strait of Gibraltar as well as satellite tagging of a few individuals. In the Alborán Sea, vessel surveys have gathered data in this area from 1992 to 2011 (20 years), all seasons but mainly in summer (Alnilam-ANSE, unpublished data). In the Strait of Gibraltar, annual dedicated vessel surveys were performed from 1999 to 2016 (more than 60,000 km sailed), including more than 4,000 observations and photo-identification. Land-based surveys focusing on large cetaceans were carried out for 9 weeks in summer and 5 weeks in winter in 2009-2012 and summer 2013 (Gauffier et al. 2012, Gauffier et al. In review, CIRCE, unpublished data). Five individuals were tagged in summer (3 whales) and winter (2 whales) in the Strait of Gibraltar with Spot5 satellite tags. The two winter tags passed through the proposed IMMA, whilst another satellite tag also passed through the proposed IMMA (Bentaleb et al. 2011).

This area encompasses a large portion of the migration routes used by Mediterranean sperm whales between the Strait of Gibraltar and Ligurian Sea feeding grounds, as can be seen in Figure and by satellite tracking of 2

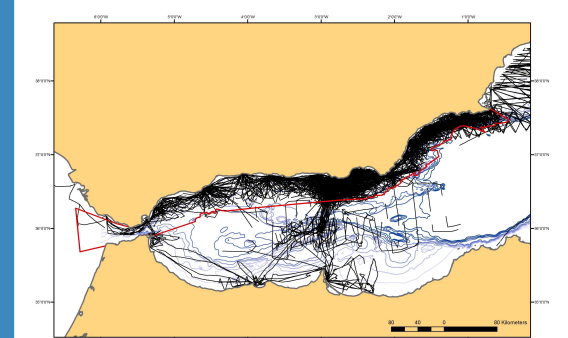
individuals from the Strait of Gibraltar to the NW Mediterranean Sea.



Observations of *B. physalus*, bathymetric contours are 200m, 600m, 1000m, 2000m. (CIRCE, ANSE, ALNILAM, NURC, unpublished data).



Observations of *P. macrocephalus*, bathymetric contours are 200m, 600m, 1000m, 2000m. (CIRCE, ANSE, ALNILAM, NURC, unpublished data).



Research Vessel/Airplane Survey Effort (CIRCE, ANSE, ALNILAM, NURC, unpublished data)

Supporting Information

Bentaleb, C., Martin, M., Vrac, M., et al. 2011. Foraging ecology of Mediterranean fin whales in a changing environment elucidated by satellite tracking and baleen plate stable isotopes. MEPS: 438:285-302.

De Stephanis, R. et al. 2008. Summer spatial distribution of cetaceans in the Strait of Gibraltar in relation to the oceanographic context. *Marine Ecology Progress Series*, 353, 275-288.

de Stephanis, R., et al. 2012. Critical Habitat for Sperm Whales in The South-West Mediterranean Sea. 26th Ann. Meeting European Cetacean Society, Galway, Ireland, 26-28 March 2012.

Gauffier, et al. 2012. Winter presence of large cetaceans in the Strait of Gibraltar. 26th Ann. Meeting European Cetacean Society, Galway, Ireland, 26-28 March 2012.

Gauffier, P. et al. 2009. An update on fin whales (*Balaenoptera physalus*) migration through intense maritime traffic in the Strait of Gibraltar. *International Whaling Commission document SC/61/BC6*, Madeira,

Portugal. 4 pp. Available at <http://iwcoffice.org/>.

Notarbartolo di Sciara, et al. 2016. Fin Whales, *Balaenoptera physalus*: At Home in a Changing Mediterranean Sea? *Advances in Marine Biology*, 75: 75-101.

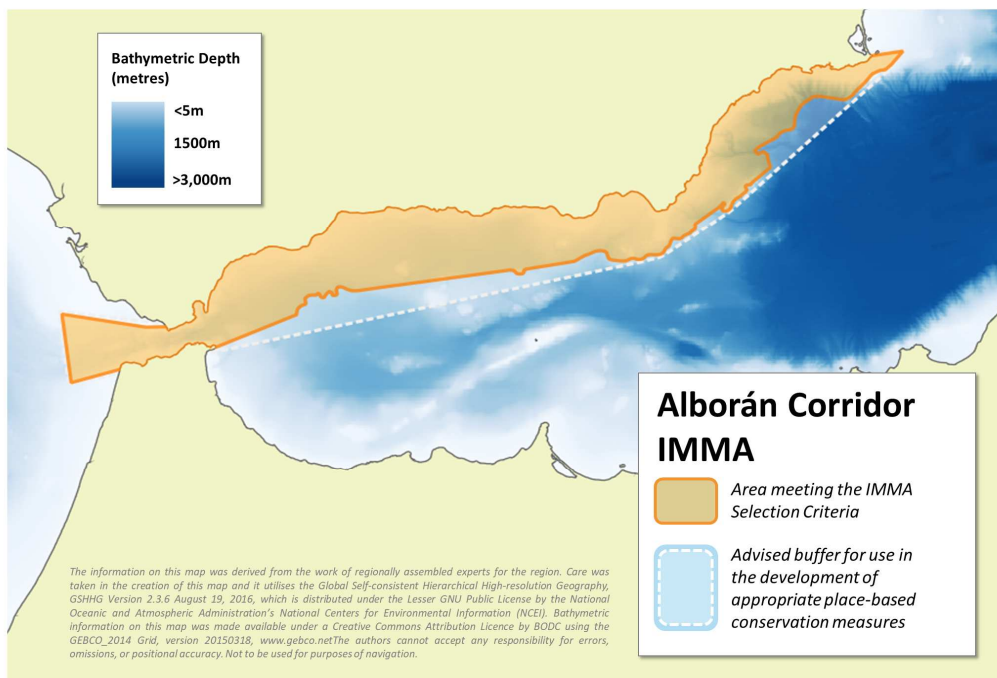
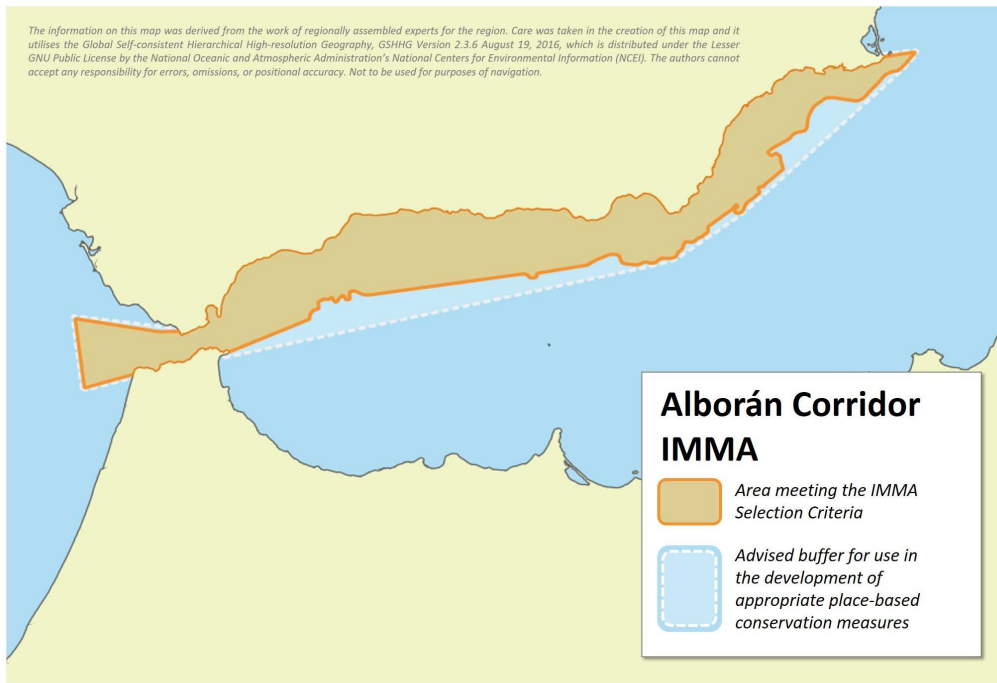
Acknowledgements

The participants of the 2016 IMMA Regional Expert Workshop held in Chania, Crete, for the Identification of IMMAs in the Mediterranean Sea. Pauline Gauffier. Ana Cañadas.



Annex I

Supplementary Maps



Annex II

List of Primary and Secondary Species

Primary Species – Meet the IMMA Selection Criteria

| Scientific Name | Common Name of Species | Population / Subpopulation Name | IUCN Red List Status |
|-------------------------------|------------------------|---------------------------------|----------------------|
| <i>Physeter macrocephalus</i> | Sperm whale | Mediterranean subpopulation | Endangered |
| <i>Balaenoptera physalus</i> | Fin whale | Mediterranean subpopulation | Vulnerable |

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

| Scientific Name | Common Name of Species | Population / Subpopulation Name | IUCN Red List Status |
|------------------------------|---------------------------|---|--|
| <i>Orcinus orca</i> | Killer whale | Strait of Gibraltar killer whale population | ‘Vulnerable’ in the Spanish National Catalogue of Endangered Species (Royal Decree 139/2011) |
| <i>Stenella coeruleoalba</i> | Striped dolphin | Mediterranean Subpopulation | Vulnerable |
| <i>Delphinus delphis</i> | Common dolphin | Mediterranean subpopulation | Endangered |
| <i>Tursiops truncatus</i> | Common bottlenose dolphin | Mediterranean Subpopulation | Vulnerable |
| <i>Globicephala melas</i> | Long-finned pilot whale | Mediterranean Subpopulation | Data Deficient |