

Area Size 56,568 km²

Qualifying Species and Criteria

Sperm whale - *Physeter macrocephalus* Criterion A; B (i, ii); C (i, ii); D (i)

> Cuvier's beaked whale - *Ziphius cavirostris* Criterion B (ii); C (i, ii); D (i)

Marine Mammal Diversity

Criterion D (ii)

[Stenella coeruleoalba, Grampus griseus, Delphinus delphis, Tursiops truncatus, Monachus monachus]

Summary

The Hellenic Trench is а long bathymetric feature in the eastern Mediterranean consisting of а continuous steep continental seaward slope, often bounding offshore linear trenches, troughs and basins, which reach 5 kilometres in depth. The area is the core habitat for Eastern Basin distribution of the Endangered Mediterranean sperm whale (Physeter *macrocephalus*) subpopulation. This eastern Mediterranean distribution accounts for some 200-250 animals threatened by potentially unsustainable ship-strikes. Additionally, the Hellenic Trench include sub-areas which include the largest among five high-density areas of Mediterranean occurrence for beaked whales Cuvier's (Ziphius cavirostris) that have suffered repeated mass stranding events in the area.

Hellenic Trench Important Marine Mammal Area – IMMA

Description

The Hellenic Trench is a long bathymetric feature in the eastern Mediterranean consisting of a more or less continuous steep continental slope sloping seaward, often bounding offshore trenches, troughs and basins which reach 5 km in depth. Sperm whales, Cuvier's beaked whales, and striped dolphins inhabit the area. Monk seals, Risso's dolphins, and common bottlenose dolphins are also present. The IUCN Red List classifies the Mediterranean sperm whale population as Endangered and declining. The area is the core habitat of the eastern Mediterranean sperm whale population unit, which accounts for 200-250 some animals threatened bv unsustainable ship-strikes. The area contains sub-areas which include the largest among five Mediterranean high-density areas of occurrence for Cuvier's beaked whales that have suffered repeated dramatic mass strandings in the area.

The Mediterranean population of sperm whales is small and densities are considerably lower than at equivalent latitudes elsewhere. Point estimates for the western Mediterranean vary between around 400 animals from photo-identification studies, which may be incomplete because of the limited sampling area, to around 1,000 animals from combined line transect surveys with incomplete coverage. Information from the western basin combined with an estimate of 200-250 for the eastern basin, suggest total sperm whale numbers in the Mediterranean are likely less than 2,000 (Frantzis et al., 2014a; Rendell et al., 2014; Lewis et al., 2017). This is also an isolated and genetically different population from conspecifics in the Atlantic Ocean (Engelhaupt et al., 2009). Considering its special characteristics and conservation status has been listed as an Endangered subpopulation in the IUCN Red List since 2012 (Notarbartolo di Sciara et al., 2012), with ship strikes and entanglement in

driftnets identified as their main threats followed by ingestion of plastic debris, anthropogenic noise, chemical pollution and disturbance by inadequately managed whale watching operations (Rendell and Frantzis, 2016). Nevertheless, no systematic monitoring or substantial conservation measures have been applied for these species throughout the Mediterranean Sea. In the eastern Mediterranean basin, the numbers of sperm whales are substantially lower than the western basin with only limited mixing between basins (Frantzis et al., 2011). The status of the conservation eastern subpopulation seems even more precarious due to the high rate of ship strikes (Frantzis et al., 2014b; Frantzis et al., 2015). Considering the high rate of photographic recapture, any estimate for the entire subpopulation of sperm whales living in the Greek Seas is unlikely to exceed 250 animals (Frantzis et al., 2014a). Since large scale surveys conducted over the entire eastern Mediterranean Basin indicate that the majority of the sperm whales concentrate along the Hellenic Trench (Boisseau et al., 2010; Lewis et al., 2007; Lewis et al., 2017) the total number of sperm whales for the eastern Basin is very likely to be in the very low hundreds. Recently, Lewis et al. (2017) provided an abundance estimate of 164 animals for the only eastern Mediterranean basin.

The Hellenic Trench appears to be the most important habitat for sperm whales in the eastern Mediterranean basin (Frantzis et al., 2014a; Lewis et al., 2017). These whales were observed to have a very pronounced association with certain bathymetric features along the Hellenic Trench: a strong and clear density peak around the 1,000 m depth contour (Frantzis et al., 2014a). In this area, solitary males, loose male aggregations and mainly long-term resident social units of sperm whales were observed feeding and breeding. High calving rate has been observed along the Hellenic Trench, as Frantzis et al. (2014a) reported that 15 of the 16 social units they observed between 1998 and 2009 had a calf with them at least once in that period, and that 79% of encounters with social groups included calves. However, calf presence does not necessarily lead to recruitment into the

adult population, since the same study reported that calf and juvenile mortality was likely to be high (>40% and >27% respectively).



Sperm whale sightings and strandings in the Greek Seas (Frantzis, 2009).



Sperm whale distribution along the west and south Hellenic Trench (Frantzis et al., 2014a).



Sperm whale acoustic survey transects and detections in the eastern Mediterranean (Lewis et al., 2017).

The relatively high densities of sperm whales along the 1,000 m contour beside the Hellenic Trench coincide almost exactly with major foci of maritime traffic (Frantzis et al., 2014b).

Propeller marks and cut flukes have been observed on photo-identified sperm whales and the known numbers of sperm whale ship strikes in Greece alone illustrate the scale of the problem. Twenty three of the 28 sperm whales stranded in Greece since 1992 were examined, and 15 (65%) of these had either definite (12) or possible (3) collision marks on their bodies, indicating a ship strike as the likely cause of death (Frantzis et al., 2015). These figures inevitably represent a subset of the true mortality, since many victims of ship strike may never reach the shore. Such a rate of collisions is considered to be unsustainable for the Endangered Mediterranean population as a whole and has even more serious implications for the subpopulation of the eastern Mediterranean basin (Rendel and Frantzis, 2016). So far, no areas of equivalent importance of the Hellenic Trench to the eastern subpopulation have been found in the western Mediterranean Sea but Pirotta et al. (2011) do highlight the importance of waters off SW-W Balearic Islands.

The Hellenic Trench is the largest among five "High-density areas of occurrence" in the Mediterranean for a second-deep diver: the Cuvier's beaked whale (Podestà et al., 2016). It is also known from several dramatic mass stranding events of Cuvier's beaked whales, which coincided with the use of military sonar (Frantzis, 1998; Frantzis, 2004; Frantzis, 2015). The Mediterranean subpopulation of Cuvier's beaked whales is classified as "Data Deficient" in the Red List of IUCN (Cañadas, 2012), but experts are discussing to review this status in light of new evidence. Because of their elusive nature, the activities of Cuvier's beaked whales are less understood than those of sperm whales in the area. High observation rates have been recorded in the past (Frantzis et al., 2003). The western portion of the Hellenic Trench has been classified as a sensitive area by ACCOBAMS, to be avoided by Navies when using military sonar, because of its importance for Cuvier's beaked whales (ACCOBAMS 2013).

Despite this international effort, naval exercises and subsequent mass strandings of whales have continued in the area, with the most recent stranding event in April 2014 in south Crete (Frantzis, 2015).



The five important areas for Cuvier's beaked whales in the Mediterranean Sea (Podestà et al. 2016). The west and south Hellenic Trench is the largest among them.



Mediterranean Sea (ACCOBAMS Ziphius initiative, Cañadas et al., 2016).

This was the fourth time that Cuvier's beaked whales stranded during naval exercises conducted in the area of the Hellenic Trench in Greece since 1998, raising the recorded mortalities more than 45 whales (ACCOBAMS 2013). This number may be the "tip of the iceberg" (see Peltier et al., 2012), since the effect at the population level is unknown. However, the use of military sonar can have a very important impact (including many mortalities) on local population units and especially on those that are isolated from larger populations, as is the case of the Mediterranean beaked whales (Dalebout et al., 2005). Unpublished data indicate a dramatic decline in natural stranding events of Cuvier's beaked whales in the area after 1998. This decline may reflect a decline in the local population unit, suggesting that the impact of sonar is likely to be unsustainable. In 2002, the ACCOBAMS Parties adopted the Hellenic Trench as a potential pilot Marine Protected Area (MPA), following the proposal of the ACCOBAMS Scientific Committee, who reasserted the urgency to create this MPA in November 2006 and, in early 2007, refined the proposed boundaries (Agardy et al., 2007).



One of the many cases of ship strike with a sperm whale along the Hellenic Trench, 25 km north of Pylos in SW Peloponnese.



Cuvier's beaked whale mass stranding during military exercise south of Crete in April 2014.



Unborn calf from a female Cuvier's beaked whale of the mass stranding of April 2014.

Criterion A - Species or Population Vulnerability

The Mediterranean sperm whale population is classified as an "Endangered" subpopulation in the IUCN Red List (Notarbartolo di Sciara et al., 2012), and faces a number of threats and is inferred as declining (Notarbartolo di Sciara et al., 2012). Furthermore, genetic studies (Drouot et al., 2004a; Engelhaupt, 2009) indicate that the Mediterranean subpopulation is likely to be isolated from that of the Atlantic and therefore particularly vulnerable to the impact of human activities. The principal threats are from ship strikes (Frantzis et al., 2014b; Frantzis et al., 2015) and entanglement in driftnets followed by

ingestion of plastic debris, anthropogenic noise, chemical pollution and disturbance by poorly managed whale watching operations (Rendell and Frantzis, 2016).

Surveys indicate that the majority of sperm whales within the eastern Mediterranean basin concentrate along the Hellenic Trench (Boisseau et al., 2010; Lewis et al., 2007; Lewis et al., 2017). Estimates of 164 to 250 animals using the area from 12 years of photoidentification within the area (Frantzis et al., 2014a) are similar to the total abundance estimate for the entire eastern Mediterranean (Lewis et al., 2017), this together with evidence from photo-identification suggest that animals from across the entire eastern Mediterranean use the area. Furthermore, within the Hellenic Trench whales were observed to have a very pronounced density peak around the 1,000 m isobath, which was typically within 3–10 km of the coastline (Frantzis et al., 2014a). Such concentrations are vulnerable to anthropogenic threats shipstrikes and noise in particular.

Criterion B: Distribution and Abundance Sub-criterion Bi: Small and Resident Populations

The area is a core habitat for a resident population of sperm whales in the eastern Mediterranean, with most of these animals being resident in or visiting the area. Frantzis et al. (2014a) obtained a minimum of 164 live animals from 12 years of photo-identification within the area, producing an estimate of 200 to 250 animals (Frantzis et al., 2014a) using the area - this is similar to the total abundance estimate for the entire eastern Mediterranean of 164 animals (excluding animals too young to echolocate) (Lewis et al., 2017) suggesting that animals from across the entire eastern Mediterranean use the area. This together with photo-ID evidence suggests the area is a core habitat either occupied or visited by most of the eastern Mediterranean subpopulation of sperm whales. It is occupied consistently by long-term resident social units of sperm whales together with solitary males and loose male aggregations (Frantzis et al., 2014a). Although the eastern Mediterranean basin subpopulation is smaller than that in the western basin, the entire Mediterranean population is small (Rendell et al., 2014; Frantzis et al., 2014a; Lewis et al., 2017), such that numbers of sperm whales using the area are a substantial portion of the whole Mediterranean population. While there are many photographic recaptures of individuals within the individual western and eastern Mediterranean basins (e.g. Carpinelli et al., 2014; Rendell et al., 2014) there are only three cases of animals moving from the western basin to the eastern basin (Frantzis et al., 2011) suggesting that though not isolated the western and eastern subpopulations are predominantly separate.

Criterion B: Distribution and Abundance Sub-criterion Bii: Aggregations

Within the Hellenic Trench whales were observed to have a very pronounced density peak over the 1,000 m isobath on the slopes on the landward side of the trench (Frantzis et al., 2014a). This combination of slope, aspect and depth appears to represent a significant zone for aggregating sperm whales in the eastern Mediterranean making the Hellenic Trench the core habitat for the subpopulation of the entire eastern basin (Frantzis et al., 2014a; Lewis et al., 2007; Lewis et al., 2017). Such consistent and predictable aggregations can enable effective management actions to reduce the risk of ship strikes through minor routing changes which are recognised by the IMO as the most effective way to address the ship strike issue (IMO, 2016).

Criterion C: Key Life Cycle Activities Sub-criterion Ci: Reproductive Areas

The area appears to be the core habitat for sperm whale calving and nursing. Calves (≤2 years old) were present in 79% of social unit encounters, accounting for 17% of social unit members within the area (Frantzis et al., 2014a). Observations of 15 newborns indicate a mid-summer calving season which would

imply a mating season from late winter to late spring (Frantzis et al., 2014a). Though no observations of mating within the area have been reported, this mating season lies outside the normal fieldwork season, which may explain the lack of such observations so far.

Calves have been observed in sightings of Cuvier's beaked whales and also have repeatedly stranded along the Hellenic Trench including newborns bearing foetal folds, the most recent being on the Island of Rhodes in September 2016 (Frantzis, unpublished data). During the last mass stranding of Cuvier's in south Crete in April 2014, a fully formed foetus was found in a necropsied stranded female animal (Frantzis, 2015). These data show that the area constitutes a reproductive area for the species.

Criterion C: Key Life Cycle Activities Sub-criterion Cii: Feeding Areas

The area is an important feeding area for the eastern Mediterranean sperm whale subpopulation. Solitary males, loose male aggregations and members of long-term resident social units of sperm whales were observed feeding in the area (Frantzis et al., 2014a), with foraging and feeding activities being confirmed acoustically.

The area and in particular the Cuvier's beaked whale sub-area is an important feeding area. Since Cuvier's has the same feeding habits as sperm whales and both species inhabit the area because of the presence of their prey. Long lasting deep feeding dives have been repeatedly observed along the Hellenic Trench (Frantzis, unpublished data) and stomach contents of stranded animals had as primary prey species the three meso- and bathypelagic species that are also found in sperm whale stomachs of stranded sperm whales in the very same area (Histioteuthis bonnellii, H. reversa, Octopoteuthis sicula, see Lefkaditou and Poulopoulos, 1998; Rendell and Frantzis, 2016).

Criterion D: Special Attributes

Sub-criterion Di: Distinctiveness

The Mediterranean population of sperm whales are genetically and culturally different from conspecifics in the Atlantic Ocean. The Mediterranean population of sperm whales is both genetically isolated and different from conspecifics in the Atlantic Ocean (Engelhaupt et al., 2009). In addition, at the local level of the eastern Mediterranean, social units are likely to be resident and may not migrate out of this basin (Frantzis et al., 2014). Some codas (distinctive communication sounds) produced by males and social units in the Hellenic Trench have not been recorded in the western Mediterranean so far (Frantzis and Alexiadou, 2008; Rendell and Frantzis, 2016). This is an indication that cultural evolutionary processes may have affected coda dialects differently in the eastern Mediterranean basin compared to the western Mediterranean, since coda repertoires are almost certainly acquired by cultural transmission (Rendell et al., 2012), a process that occurs at the core of social units.

The Mediterranean population of Cuvier's beaked whales are genetically different from conspecifics in the Atlantic Ocean (Dalebout et al., 2009).

Criterion D: Special Attributes Sub-criterion Dii: Diversity

The area includes important habitat for seven marine mammal species: sperm whale, Cuvier's beaked whale, striped dolphin, Risso's dolphin, common dolphin, Common bottlenose dolphin (Frantzis, 2009; Boisseau et al., 2010) and monk seal (Legakis and Maragkou, 2009). It is possible that rough toothed dolphins also use the area as they have been sighted in neighbouring areas with similar habitats (Kerem et al., 2016). Therefore, the area is rich in marine mammal diversity.

Supporting Information

ACCOBAMS 2013. Report of the Fifth Meeting of the parties to ACCOBAMS, Tangier 5-8

November 2013. Recommendation 8.6: Recommendation on the conservation of Cuvier's beaked whales in the Mediterranean. "Areas of Special Concern for Beaked Whales" (ASC-BW) and mitigation protocols for anthropogenic activities using intense underwater sound sources. Appendix 1: Mediterranean beaked whale mortality events associated with naval manoeuvres and/or use of military sonar.

Agardy, T., Aguilar, N., Cañadas, A., Engel, M., Frantzis, A., Hatch, L., Hoyt, E., Kaschner, K., LaBrecque, E., Martin, V., Notarbartolo di Sciara, G., Pavan, G., Servidio, A., Smith, B., Wang, J., Weilgart, L., Wintle, B. and Wright, A. 2007. A Global Scientific Workshop on Spatio-Temporal Management of Noise. Report of the Scientific Workshop. 44pp.

Boisseau, O., Lacey, C., Lewis, T., Moscrop, A., Danbolt, M., McLanaghan, R., 2010. Encounter rates of cetaceans in the Mediterranean Sea and contiguous Atlantic area. J. Mar. Biol. Assoc. United Kingdom 90, 1589–1599.

Cañadas, A., 2012. Ziphius cavirostris (Mediterranean subpopulation). The IUCN Red List of Threatened Species 2012: e.T16381144A16382769. http://dx.doi.org/10.2305/IUCN.UK.2012-1.RLTS.T16381144A16382769.en

Cañadas, A. et al. 2016. ACCOBAMS Collaborative effort to map high-use areas by beaked whales in the Mediterranean. ACCOBAMS Report (available from ACCOBAMS)

Carpinelli, E., Gauffier, P., Verborgh, P., Airoldi, S., David, L., Di-Méglio, N., Cañadas, A., Frantzis, A., Rendell, L., Lewis, T., Mussi, B., Pace, D. S. and De Stephanis, R. 2014. Assessing sperm whale (Physeter macrocephalus) movements within the western Mediterranean Sea through photoidentification. Aquatic Conserv: Mar. Freshw. Ecosyst., 24: 23–30. doi: 10.1002/aqc.2446

Dalebout M.L., Robertson K.M., Frantzis A., Engelhaupt D., Mignucci-Giannoni A.A., Rosario-Delestre R.J., Baker S.C., 2005.Worldwide structure of mtDNA diversity among Cuvier's beaked whales (Ziphius cavirostris): implications for threatened populations Molecular Ecology, 14: 3353-3371.

Engelhaupt, D., Hoelzel, A.R., Nicholson, C., Frantzis, A., Mesnick, S., Gero, S., Whitehead, H., Rendell, L., Miller, P., De Stefanis, R., Cañadas, A., Airoldi, S. and Mignucci-Giannoni, A.A. 2009. Female philopatry in coastal basins and male dispersion across the North Atlantic in a highly mobile marine species, the sperm whale (Physeter macrocephalus). Mol Ecol. 18: 4193–4205.

Frantzis A., 1998. Does acoustic testing strand whales? Nature, 392: 29.

Frantzis, A., Alexiadou, P., Paximadis, G., Politi, E., Gannier, A., Corsina-Foka, M., 2003. Current knowledge of the cetacean fauna of the Greek Seas. J. Cetacean Res. Manag. 5, 219–232.

Frantzis A., 2004. The first mass stranding that was associated with the use of active sonar (Kyparissiakos Gulf, Greece, 1996). In: Proceedings of the workshop: "Active sonar and cetaceans ". 8 March 2003, Las Palmas, Gran Canaria. ECS newsletter 42 (special isssue): pp. 14-20.

Frantzis, A., Alexiadou, P., 2008. Male sperm whale (Physeter macrocephalus) coda production and coda-type usage depend on the presence of conspecifics and the behavioural context. Can. J. Zool. 86, 62–75. doi:10.1139/Z07-114

Frantzis, A., 2009. Cetaceans in Greece: Present status of knowledge. Initiative for the Conservation of Cetaceans in Greece, Athens, Greece, 94 pp.

Frantzis A, Airoldi S, Notarbartolo di Sciara G, Johnson C, Mazzariol S., 2011. Inter-basin movements of Mediterranean sperm whales provide insight into their population structure and conservation. Deep Sea Research I 58: 454–459.

Frantzis, A., Alexiadou, P., Gkikopoulou, K.C., 2014a. Sperm whale occurrence, site fidelity

and population structure along the Hellenic Trench (Greece, Mediterranean Sea). Aquat. Conserv. Mar. Freshw. Ecosyst. 24, 83–102.

Frantzis, A., Leaper, R., Alexiadou P., and Lekkas, D., 2014b. Distribution patterns of sperm whales in relation to shipping density in the Hellenic Trench, Greece. Paper presented to IWC Scientific Committee, Bled, Slovenia, 12-24 May 2014, SC/65b/HIM07

Frantzis, A., Leaper, R., Paraskevi, A., Lekkas, D., 2015. Update on sperm whale ship strike risk in the Hellenic Trench, Greece. Paper presented to IWC Scientific Committee, San Diego, CA, USA, 22 May-3 June 2015, SC/66a/HIM06.

Frantzis, A., 2015. Short report on the mass stranding of Cuvier's beaked whales that occurred on the 1st of April 2014 in South Crete, Greece, during naval exercises. FINS 6.1, 10-11. (The Newsletter of ACCOBAMS).

IMO. 2016. Draft report of the Marine Environment Protection Committee on its Sixty-Ninth Session. MEPC 69/WP.1.

Laran, S., Pettex, E., Authier, M., Blanck, A., David, L., Doremus, G., Falchetto, H., Monestiez, P., Van Canneyt, O. and Ridoux, V. 2015. Seasonal distribution and abundance of cetaceans within French waters- Part I: the northwestern Mediterranean, including the Pelagos sanctuary. Manuscript accepted for publication in Deep-Sea Res Part II.

Legakis A., Maragkou P., 2009. The Red Book of Threatened Animal Species of Greece. Hellenic Zoological Society. 528 p. (in Greek)

Lefkaditou E., Poulopoulos Y., 1998. Cephalopod remains in the stomach-content of beaked whales, Ziphius cavirostris (Cuvier, 1823), from the Ionian Sea. Rapp. Comm. Int. Mer. Médit. 35, p. 460.

Lewis, T., Gillespie, D., Lacey, C., Matthews, J., Danbolt, M., Leaper, R., McLanaghan, R., Moscrop, A., 2007. Sperm whale abundance estimates from acoustic surveys of the Ionian Sea and Straits of Sicily in 2003. J. Mar. Biol. Assoc. United Kingdom 87, 353–357.

Lewis, T., Boisseau, O., Danbolt, M., Gillespie, D., Lacey, C., Leaper, R., Matthews, J, McLanaghan, R., Moscrop, A., 2017. Abundance estimates for sperm whales in the Mediterranean Sea from acoustic line-transect surveys. Journal of Cetacean Research and Management. Open Research Exeter, https://ore.exeter.ac.uk/repository/handle/10 871/27538

Notarbartolo di Sciara, G., Frantzis, A., Bearzi, G., Reeves, R., 2012. Physeter macrocephalus (Mediterranean subpopulation), in: IUCN Red List of Threatened Species. Version 2013.1. Downloaded on 04 February 2013 from www.iucnredlist.org., In: IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4. Downloaded from www.iucnredlist.org.

Öztürk A. A., Tonay A., Dede A. 2013. Sperm whale (Physeter macrocephalus) sightings in the Aegean and Mediterranean part of Turkish waters. J. Black Sea/Mediterranean Environment Vol. 19, No. 2: 169-177.

Peltier H., Dabin W., Daniel P., Van Canneyt O., Dorémus G., Huon M., Ridoux V., 2012. The significance of stranding data as indicators of cetacean populations at sea: Modelling the drift of cetacean carcasses. Ecological Indicators 18: 278–290.

Pirotta, E., Matthiopoulos, J., MacKenzie, M., Scott-Hayward, L., Rendell, L., 2011. Modelling sperm whale habitat preference: a novel approach combining transect and follow data. Mar. Ecol. Prog. Ser. 436, 257–272.

Podestà, M., Azzellino, A., Cañadas, A., Frantzis, A., Moulins, A., Rosso, M., Tepsich, P., Lanfredi, C., 2016. Cuvier's beaked whale (Ziphius cavirostris) presence and threats in the Mediterranean Sea, in: Notarbartolo di Sciara, G., Podestà, M., Curry, B.E. (Eds.), Mediterranean Marine Mammals Ecology and Conservation. Adv. Mar. Biol. 75, Elsevier, pp. 103–140.

Rendell, L., Mesnick, S.L., Dalebout, M.L., Burtenshaw, J., Whitehead, H., 2012. Can genetic differences explain vocal dialect variation in sperm whales, Physeter macrocephalus ? Behav. Genet. 42, 332–43. doi:10.1007/s10519-011-9513-y

Rendell, L., Simião, S., Brotons, J.M., Airoldi, S., Fasano, D., Gannier, A., 2014. Abundance and movements of sperm whales in the western Mediterranean basin. Aquat. Conserv. Mar. Freshw. Ecosyst. 24, 31–40.

Rendell, L., Frantzis, A., 2016. Mediterranean sperm whales, Physeter macrocephalus: The precarious state of a lost tribe, in: Notarbartolo di Sciara, G., Podestà, M., Curry, B.E. (Eds.), Mediterranean Marine Mammals Ecology and Conservation. Adv. Mar. Biol. 75, Elsevier, pp. 37–74.

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Trench IMMA. Full Accounts of Mediterranean IMMA Factsheet. IUCN Joint SSC/WCPA Marine Mammal Protected Areas Task Force, 2017.

PDF made available for download at www.marinemammalhabitat.org/portfolioitem/hellenic-trench/

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
Physeter macrocephalus	Sperm whale	Mediterranean subpopulation	Endangered
Ziphius cavirostris	Cuvier's beaked whale	Mediterranean subpopulation	Data Deficient

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
Stenella coeruleoalba	Striped dolphin	Mediterranean Subpopulation	Vulnerable
Grampus griseus	Risso's dolphin	Mediterranean Subpopulation	Data Deficient
Delphinus delphis	Common dolphin	Mediterranean subpopulation	Endangered
Tursiops truncatus	Common bottlenose dolphin	Mediterranean Subpopulation	Vulnerable
Monachus monachus	Mediterranean monk Seal	Mediterranean Subpopulation	Endangered