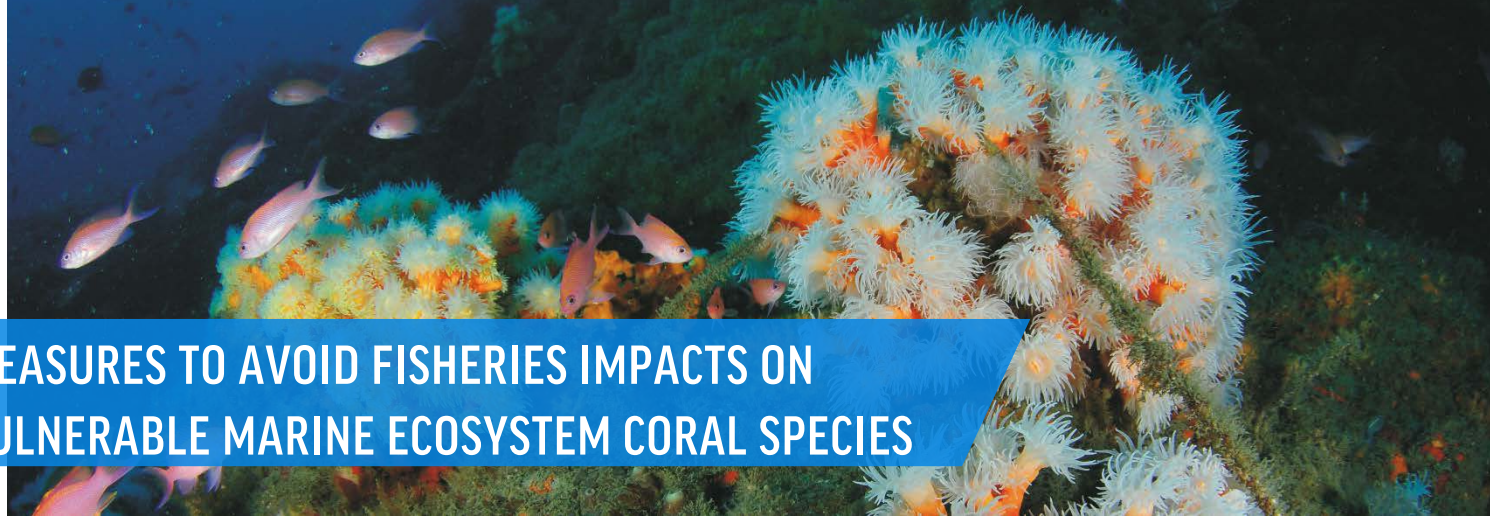


MEASURES TO AVOID FISHERIES IMPACTS ON VULNERABLE MARINE ECOSYSTEM CORAL SPECIES

General Fisheries Commission for the Mediterranean 2020

A GFCM DECISION TO PROTECT VULNERABLE MARINE ECOSYSTEMS (VMEs) FORMED BY CORALS

The last GFCM Commission (Athens, November 2019) adopted ***Resolution GFCM/43/2019/6 on the establishment of a set of measures to protect vulnerable marine ecosystems formed by cnidarian (coral) communities in the Mediterranean Sea***. It responds to the growing impact of demersal fisheries on threatened coral species, representing a significant risk to their conservation. In parallel, the Resolution also pursues objectives related to:

- the implementation of the **MoU between GFCM and UNEP-MAP** (Barcelona Convention) that aims at closer cooperation among Regional Sea Conventions, including on the mitigation of fisheries impacts on marine habitats and species;
- meeting objectives of the ***GFCM Text Agreement*** Art 8.b.iv in relation to the protection of VMEs;
- delivering commitment 37 of the ***MedFish4Ever Declaration*** "*to establish a proper ecosystem-based fisheries management framework by ensuring adequate protection of vulnerable species and sensitive habitats*".

"Bottom trawling and dragging nets across the seafloor have the greatest impact on Mediterranean anthozoans"

IUCN Red List of Mediterranean anthozoans (2017)

The 2019 Resolution creates, for the first time, a region-wide framework to avoid significant adverse impacts (SAIs) from fishing activities on VMEs. In that respect, transitional measures should be implemented for species listed in Table 1. **Oceana recommends that work continues in 2020 with the following tasks in particular**:

- To identify "VME priority zones" in the GFCM area, using the best available information, to implement the GFCM Resolution;
- To consolidate pilot projects that support data collection and the development of possible management measures (including threshold levels, move-on rules, and levels of scientific observer coverage);
- To finalise the GFCM Mediterranean geodatabase on VME indicator features and species and the process of producing advice to the SAC;
- To collect information on the known occurrences of listed species to populate the GFCM VME database.

Mechanical disturbance from fishing may lead to changes in the trophic structure and the functions of benthic communities

Orejas & Jiménez (2019)

THREATENED CORAL SPECIES, VME INDICATOR TAXA AND LIKELY IMPACTS FROM FISHING GEAR

The table below presents the main fishing gear and its likely interactions with VME coral species, according to scientific literature and official documents (Otero *et al.* 2014; Salvati *et al.* 2014; UNEP-MAP-RAC/SPA 2013). Abandoned gears also pose a threat to all of these species. Additionally, anchoring for specific metiers may produce impacts on benthic habitats.

Gears according to DCRF version 2018.1


OTB. Bottom otter trawls

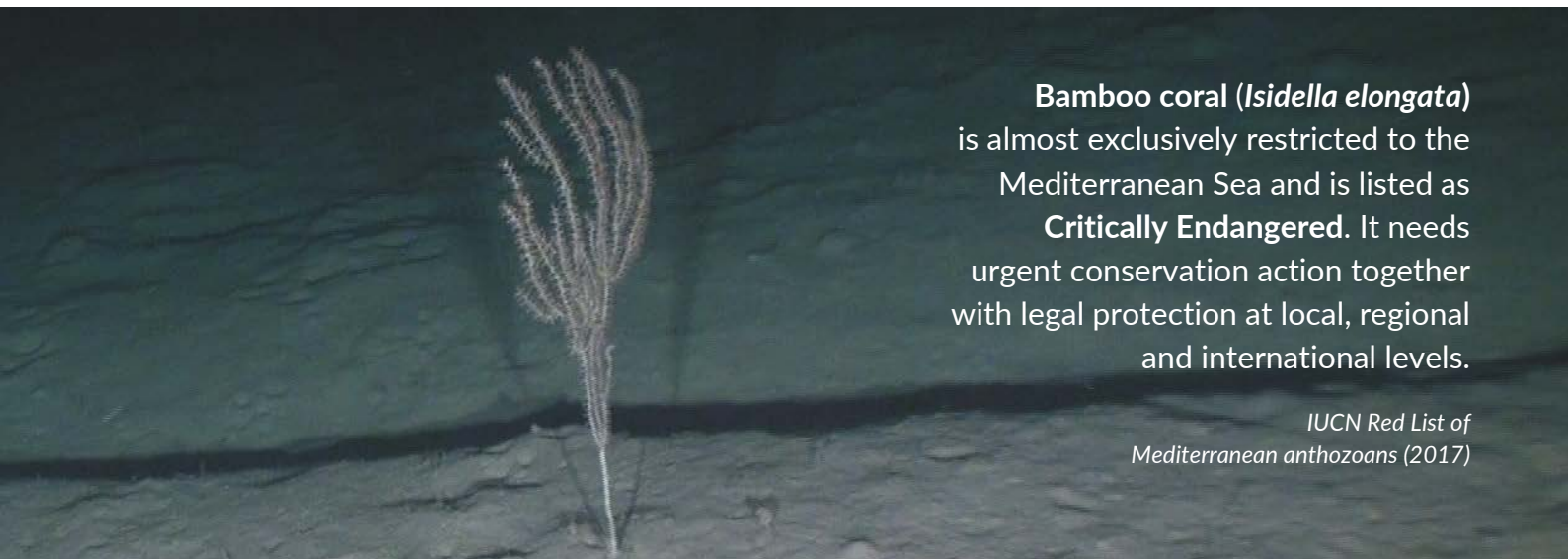

LLS. (Bottom) set longlines


GNS. Set gillnets

Table 1. Endangered or Threatened coral species, GFCM VME indicator taxa and interaction with fishing gear

CORAL SPECIES /GROUPS	GFCM VME INDICATOR TAXA*		Depth range (metres)	Likely interaction with fishing gear	IUCN Red List Category – Mediterranean corals (2017)
	BLACK CORALS Order Antipatharia	*Antipathella subpinnata*	55-500		Near Threatened
		Antipathes dichotoma	58-1410		Near Threatened
		Antipathes fragilis	70-100		Not assessed
		Leiopathes glaberrima	90-600		Endangered
		Parantipathes larix	70-200		Near Threatened
	GORGONIANS Order Alcyonacea	*Ellisella paraplexauroides*	20-690		Vulnerable
		Isidella elongata	115-4000		Critically Endangered
		Callogorgia verticillata	> 100		Near Threatened
	HEXACORALS Subclass Hexacorallia	*Desmophyllum dianthus*	200-1200		Endangered
		Savalia (Gerardia) savaglia		N/A	Near Threatened
	SCLERACTINIANS Order Scleractinia	*Dendrophyllia cornigera*	30-800		Endangered
		Dendrophyllia ramea	20-172		Vulnerable
		Lophelia pertusa	> 400		Endangered
		Madrepora oculata	> 150		Endangered
	HYDROCORALS Class Hydrozoa	*Errina aspera*	Unknown	N/A	Not assessed

(*) As in the "*Provisional list of Mediterranean habitat types and representative species that may contribute to form VMEs*". Report of the first meeting of the Working Group on VME (2017).



Bamboo coral (*Isidella elongata*) is almost exclusively restricted to the Mediterranean Sea and is listed as **Critically Endangered**. It needs urgent conservation action together with legal protection at local, regional and international levels.

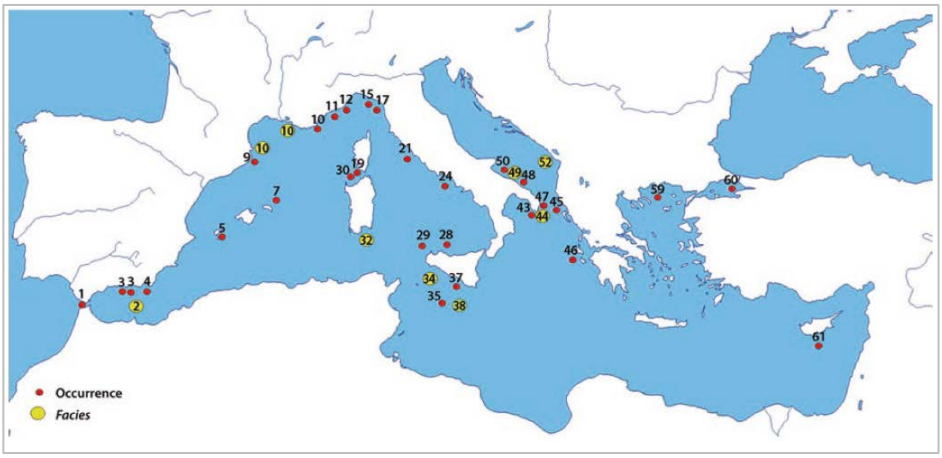
IUCN Red List of Mediterranean anthozoans (2017)

KNOWN OCCURRENCE OF THE MAIN VME CORAL SPECIES

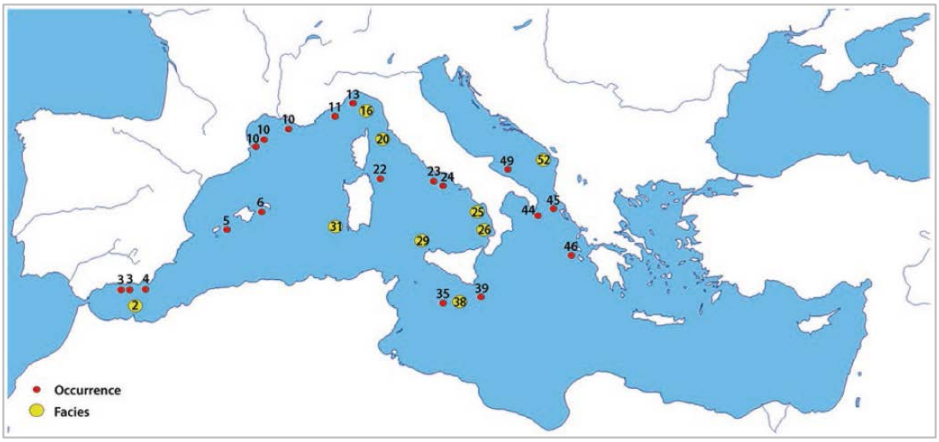
Below are illustrated the known occurrences of VME coral species in the Mediterranean Sea (Figure 1, from Chimienti *et al.* 2019). For some species covered by GFCM Resolution 43/2019/6 – such as Critically Endangered bamboo coral (*I. elongata*), black corals and white corals (*M. oculata* and *L. pertusa*) – good knowledge exists to implement the provisions to protect VMEs.

Figure 1. Known distribution of: (1) **white corals** (*Desmophyllum dianthus*, *Lophelia pertusa* and *Madrepora oculata*); (2) **black corals** (*Antipathes dichotoma*, *Leiopathes glaberrima* and *Parantipathes larix*); and (3) **bamboo coral** (*Isidella elongata*) in the Mediterranean Sea.

(1)



(2)



(3)

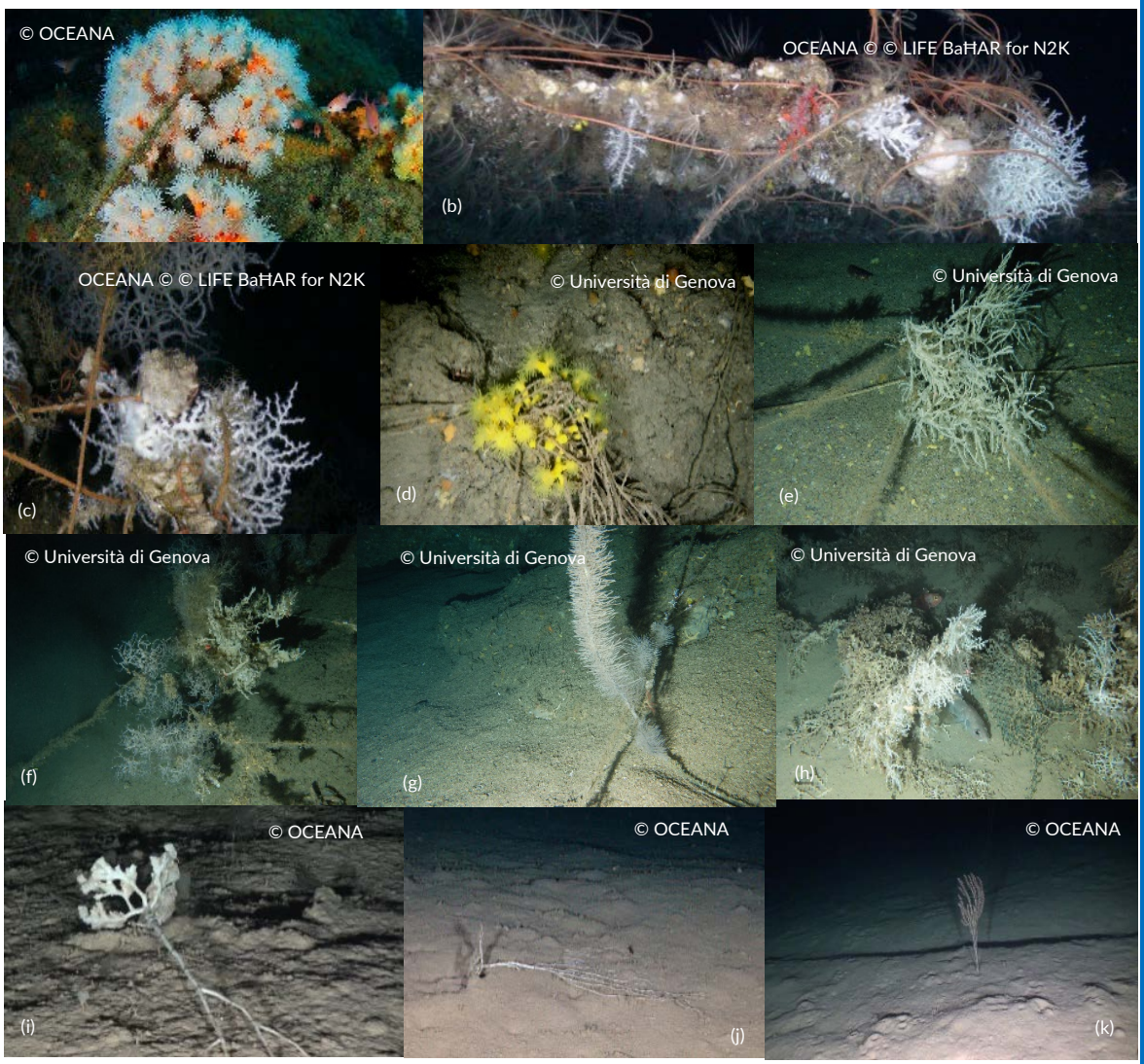
Source: Chimienti et al. 2019. Occurrence and Biogeography of Mediterranean Cold-Water Corals. In: Mediterranean Cold-Water Corals: Past, Present and Future

At the 2018 GFCM Working Group on VMEs, experts identified priority sites for the critically endangered bamboo coral (*Isidella elongata)*: (1) **South Balearic seamounts** (Ses Olives-Ausias March seamounts); (2) **Canyons in the Gulf of Lion**; (3) **Carloforte shoal**; (4) **Sicilian channel**; (5) **Otranto strait**; (6) **Cephalonia Island**; (7) **Toroneos Gulf - North Aegean Sea**.

Considering the sensitivity of VMEs to fishing gear (Table 1), their known occurrence (Figure 1) and the documented impact of fishing gear on VME coral species (Figure 2), several additional areas in the Mediterranean can be identified and should be added to the priority areas for VME protection by the GFCM:

WESTERN MED	(1) in the Alboran Sea, where the only known coral mound province in the Mediterranean Sea with growing reefs has been identified (**Cabliers coral mound**). These reefs are used as nursery grounds by some commercial fish species (Corbera et al. 2019);
CENTRAL MED	(2) in the **Aeolian Islands** where Oceana discovered one of two most important and best-preserved bamboo coral gardens of the region (presented at the WGMPA during its 2019 session);
ADRIATIC	(3) where the deepest area is already protected (Pomo Pit) but other areas where VMEs are known to occur remain unprotected (**Bari Canyon**) (D'Onghia et al. 2015);
EASTERN MED	(4) where *I. elongata* colonies are known to occur in the Aegean (mostly **around Crete island**) but are likely impacted by demersal fisheries (Gerovasileiou et al. 2019).

Figure 2. Evidence of fishing impact on coral communities in various Mediterranean locations



Entanglement of fishing lines on corals: (a) *Dendrophyllia ramea*; (b) *Madrepora oculata*, *Lophelia pertusa* and *Corallium rubrum* (c) *Madrepora oculata* and *Leiopathes glaberrima* (d) *Dendrophyllia cornigera* (e) *Callogorgia verticillata*; (f) *Leiopathes glaberrima*; (g) *Parantipathes larix*; Abandoned gears (h) on cold-water coral community of *Madrepora oculata*; Breakage (i) and burial (j) in soft muddy bottoms of bamboo coral (*Isidella elongata*) gardens; *I. elongata* colony and trawling scar (k).

Corals are slow-growing and long-lived species, with limited capacity to recover from physical impacts. Sustained pressure from fishing is even more damaging in deep-sea ecosystems, given their low productivity and higher sensitivity to fishing. Furthermore, as coral species are often associated with essential fish habitats, impacts on them may also negatively affect commercial species' productivity that rely on them for spawning or breeding.

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