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General Fisheries
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the Mediterranean



BRIEF

Depredation by marine mammals

in the Mediterranean, Black Sea and contiguous Atlantic area



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In several areas across the Mediterranean and Black Sea region, there are reports of marine mammals (mainly dolphins) either removing catches from fishing nets or damaging fishing gear, a phenomenon known as depredation. Interactions between marine mammals and commercial fisheries in the region mainly involve coastal fisheries and different species of dolphin. These interactions are a growing concern worldwide because they can result in injury or incidental catch of vulnerable populations but also cause damage to fishing gear, loss of captures and reduction in the value of the catch. This can create conflicts between fishers and dolphins, undermining efforts to improve the conservation of those marine mammals and the sustainability of fisheries in different areas of the region.

ESTABLISHING A REGIONAL BASELINE ON MARINE MAMMAL DEPREDATION

To better understand the level and nature of marine mammal depredation in the Mediterranean and the Black Sea, information from past research and pilot studies carried out within the MAVA Foundation-funded project “Mitigating dolphin depredation in Mediterranean fisheries – Joining efforts for strengthening cetacean conservation and sustainable fisheries” were collected by ACCOBAMS and the GFCM in a review (Gonzalvo and Carpentieri, 2023) that allows for the comparison of marine mammal depredation – mainly caused by bottlenose dolphins (*Tursiops truncatus*), common dolphins (*Delphinus delphis*) and harbour porpoises (*Phocoena phocoena*) – across the region. This review helps to locate depredation hot spots, better understand the nature of the conflicts, which frequently occur on a seasonal

basis, highlight gaps in knowledge for the focus of further studies and identify possible management solutions.

BLACK SEA

In the Black Sea region (including the Azov Sea and the Marmara Sea), fishers generally believe bottlenose (*T. truncatus*) and common dolphins (*D. delphis*) to be more attracted to fishing activities than harbour porpoises (the second most abundant marine mammal species inhabiting the Black Sea and adjacent waters). Common dolphins are reported to interact mainly with pelagic trawling, whereas bottlenose dolphins are interested in both active (i.e. bottom trawls) and passive (i.e. gillnets and trammel nets) fishing types operating in coastal waters. Bottlenose dolphins are often the main species linked with depredation and damage to nets or catch. Fishers report depredation events throughout the season where red mullet (*Mullus barbatus*) fishing activities take place using commercial bottom gillnets. While no serious rivalry has been documented so far, most fishers express strong concerns for their livelihoods because they are not being compensated for damages caused by dolphins.

EASTERN MEDITERRANEAN

Bottlenose dolphins, followed by common dolphins, are most often associated with depredation

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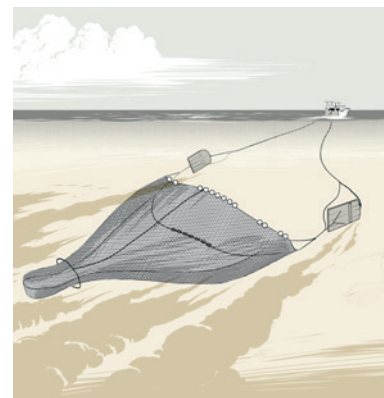
in the eastern Mediterranean area (i.e. Aegean Sea, Crete, northern and eastern Levant Sea, southern Levant, Cyprus), particularly where fishing activities targeting red mullet and dolphin populations overlap. Generally, fishers operating bottom trawls and set nets (i.e. gillnets and trammel nets) claim that depredation causes severe damage to fishing gear. Common dolphins are also regularly seen to forage close to bottom trawlers and purse seiners. Onboard observers studying albacore tuna (*Thunnus alalunga*) pelagic longline fisheries found that more than half of fishing trips were targeted by bottlenose and striped dolphins (*Stenella coeruleoalba*) during the survey. Interestingly, while many fisheries said the damage caused by depredation was very costly, some also felt their catch may have increased on occasion when dolphins herded fish into the nets. In some regions, fishers have started to report and protest against depredation in fishing gear by dolphins.

ADRIATIC SEA

The northern Adriatic Sea has been identified as an important marine mammal area because of the regular occurrence of bottlenose dolphins. There appears to be two social groups of bottlenose dolphins in the Gulf of Trieste and adjacent waters of the northern Adriatic Sea. While one group was regularly interacting with trawlers, the other was not, thus demonstrating how animal populations can interact differently with human activities (e.g. fisheries). Nevertheless, depredation seems to represent a major problem in both the northern and southern parts of the Adriatic Sea on a seasonal basis where the set bottom trammel net is the most used fishing gear to catch common cuttlefish (*Sepia officinalis*), sand steenbras (*Lithognathus mormyrus*), bogue (*Boops boops*), red mullet (*Mullus* sp.), scorpionfish (*Scorpaena* spp.) and octopus (*Octopus* spp.). A recent pilot study has also confirmed that depredation by bottlenose dolphins in trammel nets causes significant losses to local fishers in the region. Additionally, the ingestion of parts of the net and larynx strangulation of dolphins has been found to occur in gillnet fisheries in this area. A follow-up study is being launched to estimate the impact of depredation on local small-scale fisheries and provide training to marine protected area staff on sea surveys and dolphin photo-identification.

CENTRAL MEDITERRANEAN

The high levels of marine mammal depredation reported in the central Mediterranean (i.e. northern Tunisia, Gulf of Hammamet, Gulf of Gabès, Malta, south of Sicily) are mostly associated with bottlenose dolphins interacting with small-scale fisheries (i.e. longlines, trammel nets, gillnets) and purse seines. Human–dolphin interactions in this region regularly result in considerable economic loss for the fishers, often causing hostility towards dolphins. Likewise, dolphins have also been subject to injury or death as a result of incidental catch. A pilot study using pingers in small-scale fisheries to deter dolphins found an increase in net interactions, possibly due to a “dinner-bell” effect. Interestingly, although depredation was reported by almost all fishers operating in or near a marine protected area in the west of Sicily, onboard observers recorded no sightings in more than 1000 km of visual surveys. Nevertheless, damage due to depredation was widely reported and many fishers expressed an interest in collaborating in future research initiatives to evaluate the damage caused by dolphins and explore potential mitigation strategies.



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CONTIGUOUS ATLANTIC WATERS

The coastal waters off the western Iberian Peninsula are an important fishing ground and a marine megafauna foraging area. The overlap between fisheries' target species and the diet of several marine mammal species can lead to negative interactions and, consequently, conservation and economic issues. Depredation was highly associated with bottlenose dolphins. Common dolphins were also observed during many fishing trips and were the only species with observed mortality. Research has suggested that throughout Portugal's coastal waters, the probability and number of common dolphins interacting with purse seine fisheries were affected by the local abundance of sardine and Atlantic chub mackerel (*Scomber colias*). Bottom set net fishers report the economic losses from catch and gear damage caused by marine mammal depredation.

Reference:

Gonzalvo, J. & Carpentieri, P. 2023. *Depredation by marine mammals in fishing gear – A review of the Mediterranean Sea, Black Sea and contiguous Atlantic area*. Studies and Reviews No. 102 (General Fisheries Commission for the Mediterranean). Rome, FAO. <https://doi.org/10.4060/cc6210en>

Marine mammal depredation, whereby marine mammals remove catches from nets and damage fishing gear, has become an issue worldwide, affecting both the survival of wild marine mammals populations and fishers' livelihoods. However, the lack of data regarding the scope of these interactions in the Mediterranean and the Black Sea hinders the ability to protect both parties. As interactions between fishers and marine mammals in the region become more frequent, loss of income can create conflicts, undermining efforts to improve both marine mammal conservation and fishery sustainability in the region.

This brief summarizes the review produced jointly by the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area and the General Fisheries Commission for the Mediterranean and aims at providing policy makers and other interested parties with relevant baseline data and information on marine mammal depredation, mainly involving dolphins, in the Mediterranean and the Black Sea.

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