



General Fisheries Commission for the Mediterranean



Meetings of the GFCM Subsidiary Committees SCMEE

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Mitigation measures needed for reducing by-catch of seabirds in the Mediterranean region



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Need to take action to reduce the erosion of the biodiversity



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- Scientific evidence points to by-catch as the main cause for population decline in many seabird species around the world.
- Mediterranean fisheries, where they have been investigated, have been found to cause seabird by-catch in relevant numbers.
- Seabirds have become increasingly dependent on their association with fisheries for individual survival and breeding success. In so doing, they are augmenting their risk



Current Context



- A risk assessment of seabird-fishery interactions for the Mediterranean region was undertaken and shows that shearwaters (*Calonectris diomedea*, *Puffinus mauretanicus* and *P. yelkouan*) are the species most at risk, and that long-line fisheries represent the most immediate threat, although mortality probably occurs in trawling fisheries as well.



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Current Context



- Long-lining and trawling pose a threat for *Larus audouinii* and other Mediterranean endemics, as well as for species which occur as winter visitors
- Wintering species *Alca torda* is known to suffer mortality in gillnets (trammel)



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Current Context



➤ *Phalacrocorax aristotelis desmarestii*, Mediterranean Shag, suffers significant mortality in fisheries, including gillnets/trammel nets and recreational fisheries from the coast. Ringing recoveries reveal that >40 % of its recorded mortality is related to fishing activities.



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Table 1 –Risk assessment for seabird-fishery interactions in the Mediterranean. The table shows attractiveness and risk of capture of selected seabird species in different fisheries and types of gear commonly used in the Mediterranean region. Blue dots indicate attraction of seabirds to operating vessels or set gear. Known or predicted risk of capture has been evaluated into five categories from very high to unknown), according to the birds' feeding habits and the characteristics of the fishing method. Fishing methods from Coppola (2003).



Species	Longlining (demersal)	Longlining (pelagic)	Trawling	Gillnet/ trammel net	Purse-seining	FAD (fishing attractant device) dolphin fish	Driftnets	Trolling (line, lure)	Recreation at (boat)	Recreation at (shore)	Pot (artisanal)	Trap (artisanal)	Fish farms
<i>Calonectris diomedea</i>	●	●	●	○	○	○	●	○	○	○	○	○	○
	very high	very high	high	unknown	unknown	unknown	high	moderate					
<i>Puffinus mauretanicus</i>	●	●	●	●	○	○	○	○	○	○	○	○	○
	very high	high	high	high	unknown	unknown			moderate				
<i>Puffinus yelkouan</i>	●	●	●	●	○	○	●	○	○	○	○	○	○
	very high	high	high	high	unknown	unknown	high	moderate					
<i>Hydrobates pelagicus</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
					unknown	unknown	high						
<i>Phalacrocorax aristotelis</i>	○	○	○	●	○	○	○	○	○	○	○	○	○
	low		low	high					moderate	moderate	moderate	moderate	moderate
<i>Phalacrocorax carbo</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
	low		low							low		low	high
<i>Morus bassanus</i>	●	●	●	○	○	○	○	○	○	○	○	○	○
	moderate	moderate	high	unknown				moderate					
<i>Catharacta skua</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
	moderate	low	low										
<i>Larus audouinii</i>	●	●	●	○	○	○	○	○	○	○	○	○	○
	high	high	high	unknown	unknown	unknown	high	moderate		moderate			low
<i>Larus melanocephalus</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
	low	unknown	high		unknown								
<i>Larus ridibundus</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
	low		low										
<i>Larus fuscus</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
	low		moderate										
<i>Larus michahellis</i>	●	●	●	○	○	○	○	○	○	○	○	○	○
	moderate	moderate	moderate	unknown	unknown			moderate	moderate	moderate			moderate
<i>Alcatorda</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
	low		low	high	unknown				moderate				
<i>Fratercula arctica</i>	○	○	○	○	○	○	○	○	○	○	○	○	○
				unknown			unknown						



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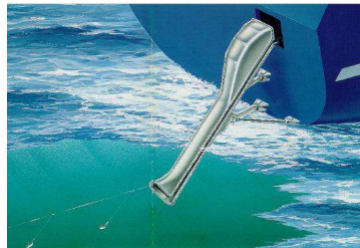




Mitigation measures to change the above trends are available



Several mitigation measures have been developed in various fisheries around the world and have proven to be effective in reducing by-catch to negligible levels. Best practice recommends a combination of measures, because considerable testing has shown that a suite of measures is the best way in most cases.



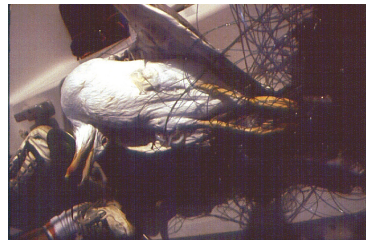
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Mitigation measures



For long-line fisheries, bird-scaring lines, night-setting and line-weighting have shown the best results, often in combination between them or with other measures such as area/seasonal closures, management of discards and underwater-setting devices. Some such measures are species or fishery-specific, and a combination of measures would be proposed for the Mediterranean region.



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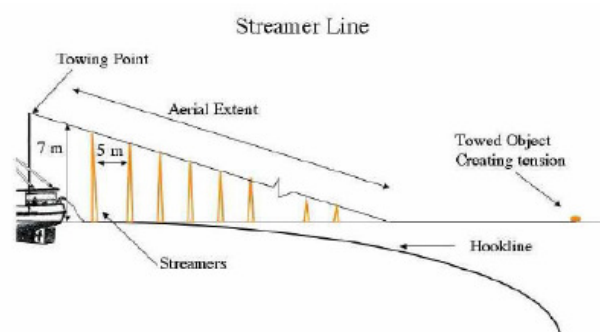




Combination of mitigating measures to increase their efficiency in long-lining



Long-lining measure A	Long-lining measure B
<ul style="list-style-type: none"> ▪ night setting ▪ bird-scaring lines ▪ line weighting ▪ under-water setting 	<ul style="list-style-type: none"> ▪ offal and discard management ▪ area/seasonal closures ▪ bait condition (incl. blue-dyed) ▪ line shooter

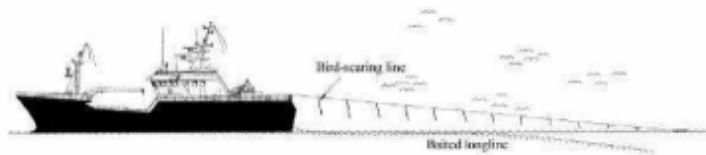


Mitigation measures



Regarding trawl fisheries, management of offal/discards and bird-scaring lines are widely recognized as effective means of reducing bird strikes on trawl warp cables. Other mitigation measures, such as net-binding and net-weighting have been also analysed and proposed in certain areas.

Bird-scaring lines (column A)



The bird-scaring line (from Løkkeborg 1998 and 2008)



Mitigation measures



There are currently no best practice measures for reducing by-catch of seabirds in gillnet/trammel net fisheries, but visual and acoustic signals have been proposed in other seas. They, or other measures, should be essayed in the Mediterranean, where interactions with gillnet fisheries account for significant mortality of some species.



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Reccomendations



Night-setting

Operate long line night-setting at least in commercial fisheries that operate more than 3 days from their port of reference

Ensure that decklights are turned off and that illumination (especially, on deck) is limited to those lights necessary for navigation and for health & safety standards



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Reccomendations



Bird-scaring lines and warp scarers

Carry at least one (preferably, two) bird-scaring line(s) on board long-lining and trawler vessels, ready for operation and inspection

Train crews to use them properly and without risks, in different fishing circumstances and sea states.

Install warp scarers on trawl gears, ready for operation and inspection



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Reccomendations



Integrated and external line weights

Operate long-line fishing with fast sinking gear by adding extra weight to the main line

Weighted lines alone may not be so effective in some circumstances and should not be promoted as a stand-alone mitigation measure



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Reccomendations



Underwater setting chute

Pursue research into trying to overcome the design problems identified before these devices are considered suitable for widespread application

Undertake some testing of these devices, under the scrutiny of scientific observers, in the Mediterranean. Initial tests should be carried out in areas where only the more aerial species occur. Waters that abound with diving species should be left for a second phase only for the case that the initial trials are successful



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Reccomendations



Offal/discard management

Decrease offal/discard availability to birds by:

- Throwing no offal/discards overboard while at sea when seabirds are present
- Freezing offal into blocks which can be kept for later disposal or dumped overboard
- Blending offal to form a homogenised fluid mass which can be kept or returned to sea, preferably through a pipe or mixed with water



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Reccomendations



Area/seasonal closures

Delineate appropriate fishing restricted areas around seabird nesting colonies following BirdLife International and others' guidelines, where fishing is not allowed either:

in specific seasons of the year

in specific times of day

using specific methods



Reccomendations



Bait condition: thawed, blue-dyed & other

Use thawed and blue-dyed bait, combined with some additional (primary) mitigation measures, such as night-setting and bird-scaring lines

Line shooters

Install and use line shooters, combined with other additional (primary) mitigation measures





Thanks for your attention

