



## **Adrift! Swordfish and driftnets in the Mediterranean Sea**



**OCEANA** Oceana-MarViva Mediterranean Sea Project 2008



# **Adrift! Swordfish and driftnets in the Mediterranean Sea**

**Oceana-MarViva Mediterranean Sea Project 2008**

<b>Executive Summary</b>	04
<b>Introduction</b>	07
<b>The use of driftnets and driftnet fisheries in the Mediterranean</b>	11
<b>Mediterranean swordfish</b>	12
<b>Driftnets</b>	17
• The fishery	
• Bycatch	
• The legal framework for the use of driftnets in the Mediterranean	
<b>The case of Italy</b>	25
<b>The case of France</b>	41
<b>The case of Morocco</b>	51
<b>The case of Turkey</b>	59

<b>Driftnets in other countries</b>	63
<b>Conclusions</b>	67
<b>Oceana and MarViva recommendations</b>	71
<b>For sustainable swordfish management in the Mediterranean</b>	72
<b>For the elimination of driftnets in the Mediterranean</b>	72
<b>Annex I.</b>	
<b>Italian vessels that use driftnets identified by Oceana in 2008</b>	76
<b>Annex II.</b>	
<b>Examples of Moroccan vessels observed carrying driftnets on board</b>	94
<b>References</b>	103



# Executive Summary

In 2008, Oceana and MarViva collaborated in a campaign to definitively eliminate the use of driftnets in the Mediterranean. Banned by the United Nations more than 15 years ago, this gear is still being used and constitutes a serious threat for cetaceans, turtles and sharks. This fishery mainly targets the already overexploited swordfish stock which is poorly regulated. Currently, more than 20% of the swordfish catch in the Mediterranean is taken using driftnets. These nets are also used illegally to catch bluefin tuna.



Swordfish captured in Porticello Porto Bagnera, Sicily, Italy. © OCEANA/ Juan Cuetos

As a result of the campaign, Oceana and MarViva identified 93 driftnetters in Italy and the main ports used for this fishing gear in Morocco. Furthermore, the organisations have confirmed the definitive elimination of the French *thonaille* in the Mediterranean. Other countries, such as Turkey and Algeria, continue to use this gear.

This document presents a general overview of the use of driftnets in the Mediterranean and the results of the Oceana and MarViva campaign in order to actively contribute to the definitive elimination of this unsustainable fishing gear.

Driftnets "spadara type" at the port of Ponza, Italy. © OCEANA/ Juan Cuetos





# Introduction

In 2008, Oceana and the MarViva Foundation collaborated in a project to eliminate driftnets from the Mediterranean. These nets constitute a serious threat for the conservation of marine species such as cetaceans, turtles and sharks.

It is estimated that gillnets kill 300,000 cetaceans each year around the world<sup>1</sup>, most of them caught by driftnets. Already weakened by various human factors, these populations are further debilitated by this gear, constituting a serious threat for their future.

As a result, the United Nations General Assembly issued a moratorium on this fishing gear that came into force in 1993<sup>2</sup> and was quickly adopted by the International Whaling Commission<sup>3</sup> and other international organisations. The adoption of the moratorium included the implementation of worldwide measures to effectively apply the ban, specifically in the Mediterranean, where the largest driftnet fishery was based.

8

Almost two decades later, however, 500 vessels continue using this illegal fishing gear in the Mediterranean, thereby contributing day after day to the loss of biodiversity and the overexploitation of fish stocks.

Oceana observers travelled to Italian, French and Moroccan ports to identify, document, evaluate and report the use of this illegal fishing gear in the Mediterranean. Additionally, observations were carried out on board the Marviva Med in different high seas areas of the Central Mediterranean.

This document includes the results of the work carried out by Oceana and MarViva as well as an overview of the situation of the fleet that uses driftnets in various Mediterranean countries.



The MarViva Med during the 2008 campaign in the Mediterranean. © OCEANA/ Carlos Minguell





Driftnet in Southwest Cetrano. © OCEANA/ Juan Cuetos

# The use of driftnets and driftnet fisheries in the Mediterranean



*Felucca or passerelle* used for harpoon fishing in the Strait of Messina.  
© OCEANA/ Keith Ellenbogen

## Mediterranean swordfish

Swordfish (*Xiphias gladius*) is considered a highly migratory species and is widely distributed throughout the Atlantic Ocean and Mediterranean Sea. The Mediterranean stock is considered isolated from the Atlantic stock, both in terms of reproduction and management,<sup>4</sup> and the two stocks are different in terms of growth rate and sexual maturity.<sup>5</sup>

Reaching up to 230 kgs in weight,<sup>6</sup> the swordfish is one of the largest predators in the Mediterranean and its fisheries date back to ancient times.

The information available about this species is scarce, although more and more documentation is becoming available about reproduction and distribution during its life cycle. Various areas are clearly identified as important for swordfish reproduction, and these largely coincide with areas that are important for other large pelagic species including bluefin tuna (*Thunnus thynnus*) and albacore (*Thunnus alalunga*). Furthermore, these areas are usually close to islands where there are gyres and current fronts that favour the reproduction of highly migratory species.<sup>7</sup>

While juvenile swordfish are distributed throughout coastal Mediterranean areas,<sup>8</sup> adults concentrate in certain areas to reproduce. Spawning takes place during the summer months in waters between 23 and 26°C,<sup>9</sup> with a spawning peak in July.<sup>10</sup> The areas identified include the Balearic Islands, the Central and South Tyrrhenian, the Strait of Messina, the Ionian Sea<sup>11</sup> and the Aegean Sea between Rhodes and Cyprus.<sup>12</sup> These are the areas where the fishery targeting swordfish carries out most of its activities, although it operates throughout the Mediterranean.

Productivity in the Mediterranean is very high, with an approximate annual catch of 14,000 tonnes. The declared catches in this area are comparable to the catches authorised for the entire North Atlantic. The main countries that target swordfish are Italy, Morocco, Spain and Greece (Figure 1). Most of the catch is distributed fresh to markets in the Mediterranean. Some countries must import swordfish to meet their markets, like Italy, one of the countries with the largest catch in the area.



Landing swordfish from a longliner.  
© OCEANA/ Keith Ellenbogen

This species is caught mainly with three types of gear:

- Harpoon: an ancient gear that dates back to 1000 BC<sup>13</sup> and still residually used in the Mediterranean, in the Strait of Messina and the Northern Aegean.<sup>14</sup> The catch taken with this gear is not significant with respect to the total catch.
- Longline: the most widely used gear in the Mediterranean, taking approximately 56% of the total catch in the basin,<sup>15</sup> including fisheries targeting swordfish and those targeting other species such as tunas or sharks, in which swordfish constitutes a bycatch.
- Driftnet: This gear is banned, although it is the second most important in the Mediterranean swordfish fishery. The exact volume of the driftnet catch is unknown, as is the number of vessels using this gear. Many longliners use driftnets in combination with their own gear.

As far as management is concerned, this species' case is representative of the situation of Mediterranean fisheries in general. Currently, the only regional measure adopted is a two-month closed season (October and November) focused on protecting juveniles.<sup>16</sup> The catch

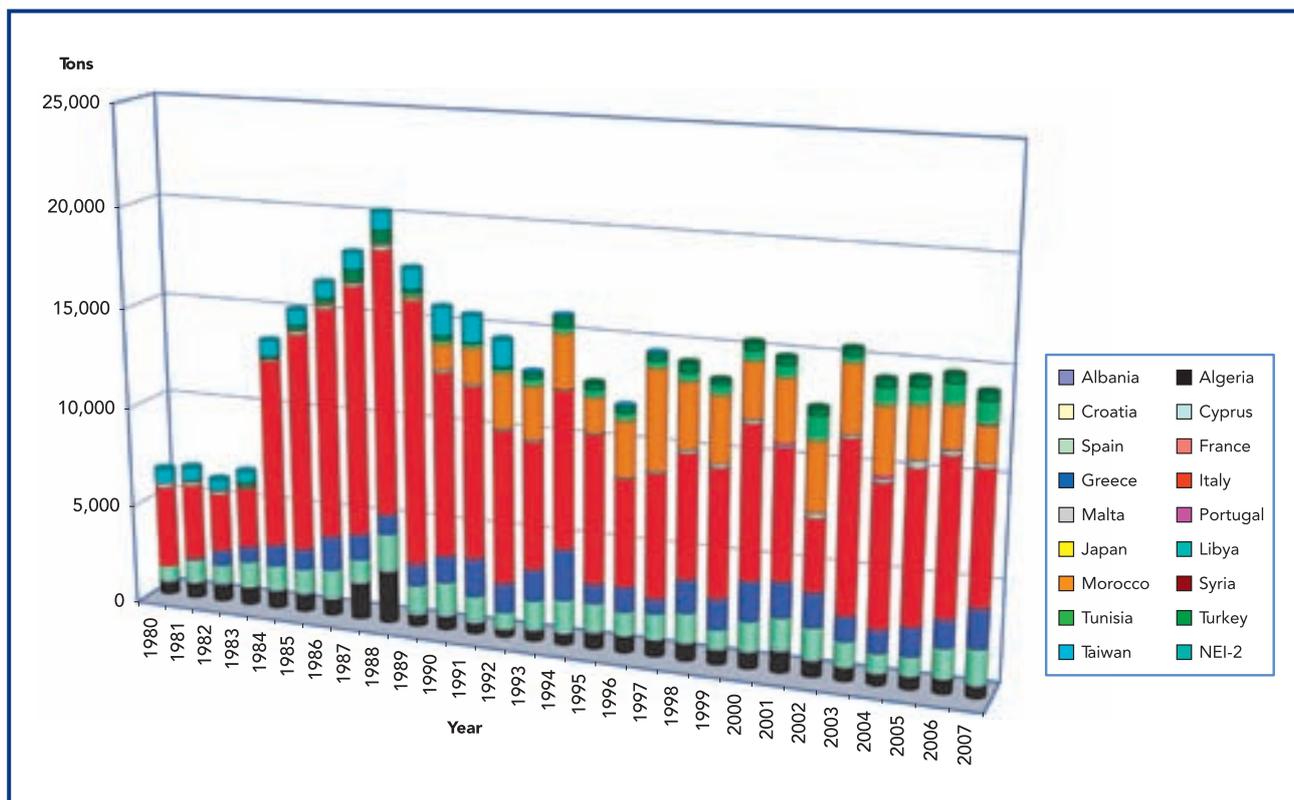
Swordfish juvenile in a fish market in Malta.  
© OCEANA/ Keith Ellenbogen



is not subjected to a limit or quota and the capacity of the fleet that targets this species is oversized. On a national level, some countries have adopted management measures that are often inconsistent with the reality of the species. A clear example is the minimum landing size, which differs from country to country. Since there is no minimum size established in the EU, Spain adopted a limit of 90 cm in 2006.<sup>17</sup> This size is significantly less than the size at which the species reproduces for the first time in the Mediterranean.

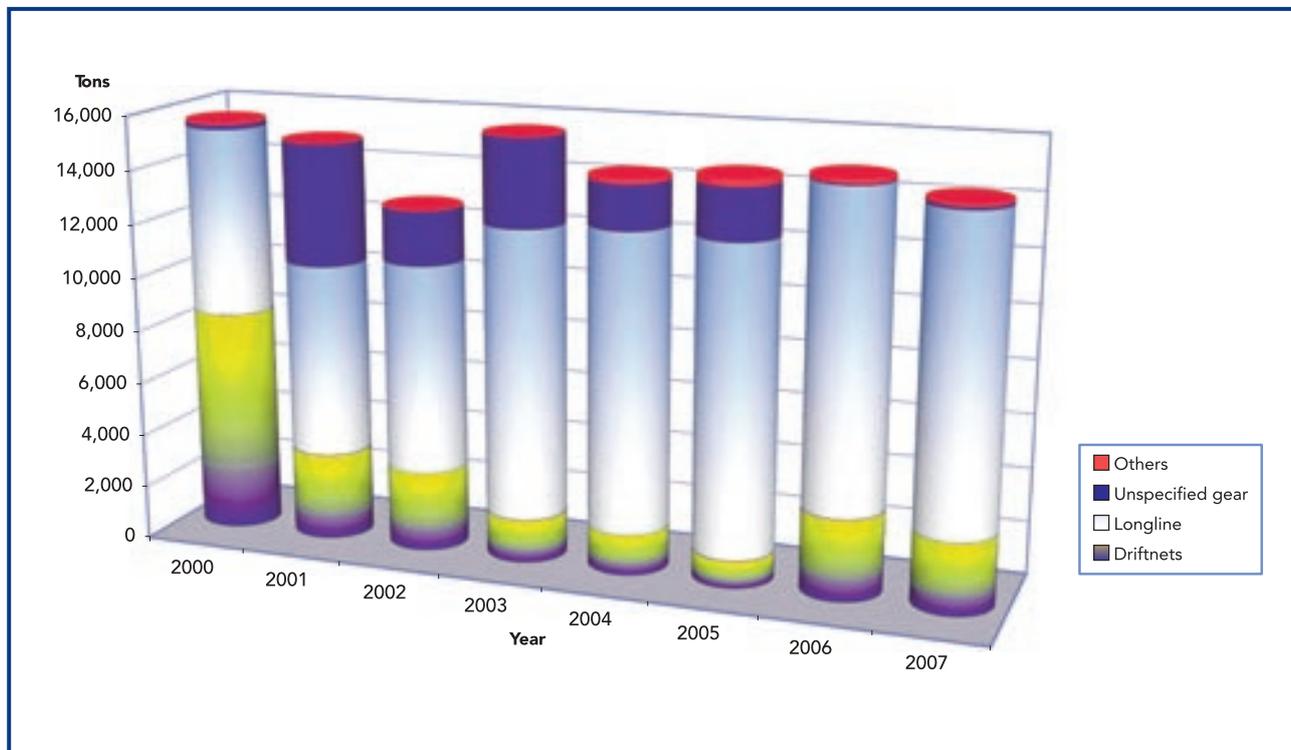
Swordfish stocks are overexploited due to uncontrolled fishing and a lack of management measures. Currently, it is estimated that between 50 and 70% of the swordfish catch in the Mediterranean is comprised of juveniles that have not yet reproduced for the first time and reproductive biomass has fallen between 24 and 38%.<sup>18</sup> Scientists from the International Commission for the Conservation of Atlantic Tunas (ICCAT) have warned that current catch levels may lead to a drastic reduction of stock in the short term.<sup>19</sup>

Figure 1. Evolution of swordfish catches by country.



Source: ICCAT and Oceana.

Figure 2. Swordfish catches in the Mediterranean by year and gear.



Source: ICCAT and Oceana.

Currently, the exact number of vessels that comprise these fisheries is not known and it has been proven that a large part of the catch remains undeclared, making it difficult to correctly evaluate the state of the stock. Furthermore, since the ban on driftnets in the EU came into force, many vessels have continued to use this illegal gear. As such, and as analysed in this document, most of the catch taken by these vessels remains undeclared or is declared as part of the longline catch.

This information is even more significant considering that, of the total swordfish catches declared by the States that participate in this fishery in the Mediterranean, between 53.5% (2000) and 18.64% (2007)<sup>20</sup> of the total swordfish catch in the Mediterranean is taken using driftnets (Figure 2).

## Driftnets

### • The fishery

Driftnets are a passive fishing gear used throughout the Mediterranean by countries like Italy, Morocco, Turkey, Algeria, Tunisia and probably Albania.<sup>21</sup> Until 2007, a fleet of approximately 100 French *thonaillers* also used driftnets. This fishing gear consists of panels of nets equipped with floating devices on the top edge and a leaded rope to maintain them in a vertical position without compromising their properties.<sup>22</sup> The characteristics of the nets, such as colour, mesh size, length or height, may vary depending on the target species or the home ports from which the vessels operate.

In the Mediterranean, driftnets target a variety of pelagic species including European anchovies (*Engraulis encrasicolus*), sardines (*Sardina pilchardus*), small tunas such as Atlantic bonitos (*Sarda sarda*), bullet tuna (*Auxis* spp) or specifically swordfish (*Xiphias gladius*) or albacore (*Thunnus alalunga*). Fisheries targeting medium and large-sized pelagic species operate from April to August, although this period may be extended, especially in autumn, for small tuna species.<sup>23</sup>

In swordfish and tuna fisheries, driftnets are deployed in a zigzag pattern at dusk and are hauled in with the help of a winch before daybreak. Usually, vessels do not go out to fish when the moon is full. The swordfish catch varies significantly with the phases of the lunar cycle,<sup>24</sup> with a prominent decline in driftnet catches during the full moon phase<sup>25</sup> when this species remains in deeper waters.

Generally, the fishing areas where swordfishes are taken coincide with the species spawning areas, especially in the Central and South Tyrrhenian, although artisanal fleets also catch this species in coastal waters.

### • Bycatch

Driftnets are a proven threat to the conservation of endangered species. Cetaceans, turtles and sharks are caught by this gear because it is often deployed on the surface and large mesh sizes are used.

Loggerhead turtle (*Caretta caretta*) in Sardinia.  
© OCEANA/ Juan Cuetos



18

Currently, and due to the ban on driftnets, there is a lack of information about this gear's impact has on protected species. Past studies, however, offer an idea about the magnitude of the damage being done to marine biodiversity.

Driftnets are responsible for the largest proportion of cetacean bycatch<sup>26</sup> in the Mediterranean and it is estimated that these nets cause the deaths of 100,000 cetaceans annually.<sup>27</sup> Trapped in the nets, the cetaceans die because they cannot rise to the surface to breathe. The species caught include almost all of those found in the Mediterranean, including fin whales (*Balaenoptera physalus*), sperm whales (*Physeter macrocephalus*), long-finned pilot whales (*Globicephala melas*), Cuvier's beaked whales (*Ziphius cavirostris*), Risso's dolphins (*Grampus griseus*), bottlenose dolphins (*Tursiops truncatus*), striped dolphins (*Stenella coeruleoalba*)<sup>28</sup> and shortbeaked common dolphins (*Delphinus delphis*).<sup>29</sup>

For some of these species' populations the impact is unsustainable. This is the case of the shortbeaked common dolphin (*Delphinus delphis*), classified as "endangered" by the International Union for Conservation of Nature (IUCN),<sup>30</sup> as driftnets are one of the causes of this populations decline.<sup>31</sup>

The use of driftnets does not only affect cetaceans. Various species of elasmobranchs are also caught by this fishing gear. The bycatch of three species, the blue shark (*Prionace glauca*), the shortfin mako shark (*Isurus oxyrinchus*) and the thresher shark (*Alopias vulpinus*), is estimated at 100,000 individuals each year, with higher impact in the Straits of Gibraltar and the Alboran Sea.<sup>32</sup> Other species including hammerhead sharks (*Sphyrna zigaena*), whaler sharks (*Carcharhinus* spp.), basking sharks (*Cethorhinus maximus*), pelagic stingrays (*Pteroplatytrygon violacea*) and devil rays (*Mobula mobular*) have also been documented as bycatch.<sup>33</sup> These figures, which themselves represent a serious impact on these species, are even more alarming if we take into account that populations of elasmobranchs in the Mediterranean are in decline, both in terms of diversity and abundance.<sup>34</sup>

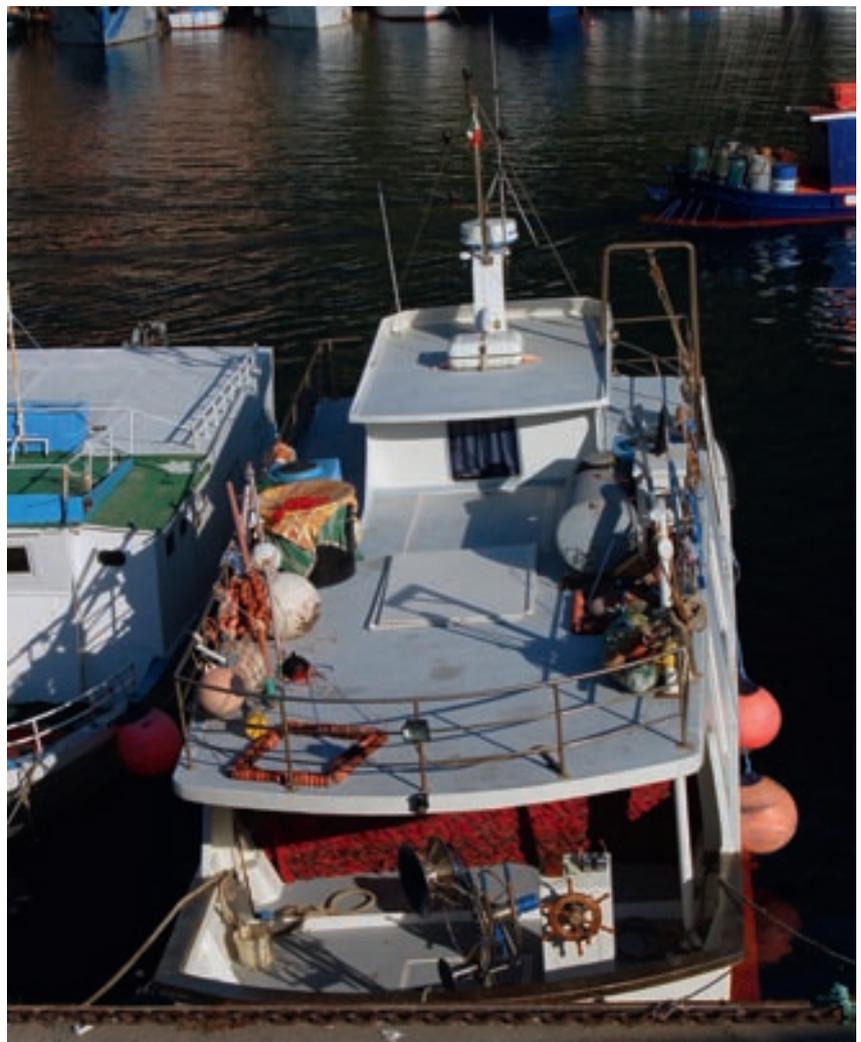
Driftnets also pose a serious threat to the survival of loggerhead turtles (*Caretta caretta*),<sup>35</sup> although less than that from surface longlines. This has generated growing concern about the transfer of fishing effort from one gear to another and the possible consequences on turtle populations in the Mediterranean.<sup>36</sup> Leatherback turtles (*Dermochelys coriacea*) have also been documented as bycatch.



- **The legal framework for the use of driftnets in the Mediterranean**

In 1993, when the United Nations ban on the use of large-scale driftnets on the high seas came into effect, more than 700 Italian vessels were using this fishing gear as part of what was considered the largest driftnet fishery in the world.<sup>37</sup> At that time, there was evidence that other countries were also using this fishing gear, including Turkey and Morocco.

In the 1980s, the Italian government subsidised the fishing effort reduction from the bottom trawling fisheries, fostering the development of driftnets. Furthermore, the high value of swordfish and tuna on the market and improvements in net materials and mechanical processes,<sup>38</sup> along with the activity's low operational costs compared to other techniques like longlines, contributed to the expansion of this fishing gear.



The *Acquila Reale* with illegal driftnets on board. Bagnara Calabra (Italy). May 2008.  
© OCEANA/ MJ. Cornax

By 1992, the EU had already adopted measures to regulate driftnets by limiting the net's length to 2.5 kilometers.<sup>39</sup> This measure had a significant economic impact on the sector. The driftnet swordfish fishery was no longer profitable as the costs were theoretically unacceptable. Moreover, since the modification was practically impossible to monitor, this fleet began to systematically infringe the laws.<sup>40</sup> Meanwhile, other vessel owners opted to establish joint ventures and transfer their ships to North African countries to avoid the limits imposed by the EU.<sup>41</sup>

As such, both European and regional measures had to be reinforced before a complete ban on the use of large-scale driftnets in the Mediterranean could be implemented. In 1997 and 1998, the EU adopted a regulation banning the use of driftnets longer than 2.5 kilometers and for a group of pelagic species, including swordfish and tuna, to come into force on 1 January 2002.<sup>42</sup>

The General Fisheries Commission of the Mediterranean (GFCM) adopted similar measures<sup>43</sup> because, up until 2003, when the International Commission for the Conservation of Atlantic Tunas (ICCAT) agreed to ban the use of all driftnet to catch large pelagic species,<sup>44</sup> there was a lack of regional recommendations that acted forcefully against this fishing gear. Shortly after, in 2005, the GFCM endorsed this recommendation,<sup>45</sup> rendering the total ban on driftnet fishing applicable to all Mediterranean States.

Other agreements, such as the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic Area (ACCOBAMS), have incorporated similar measures against driftnets and in favour of cetacean conservation.<sup>46</sup>

Several years after the establishment of the legal framework against the use of driftnets, however, it is estimated that 500 vessels continue using them in the Mediterranean basin.<sup>47</sup> These 500 vessels are carrying out activities considered Illegal, Undeclared, Unregulated Fishing (IUU Fishing) under the terms specified by the UN Food and Agriculture Organization (FAO).<sup>48</sup>

The implications of continued driftnet use in the Mediterranean are not limited on a regional scope as the UN moratorium continues to affect all fishing activities carried out with nets longer than 2.5 kilometers on the high seas. In the Mediterranean, territorial waters extend between 6 and 12 miles depending on the country, and in the west and central Mediterranean, no coastal State has designated its Exclusive Economic Zone. As such, most of the fishing activities are developed in international waters.

U.S. legislation obliges the U.S. government to take measures against any nation involved in illegal fishing with driftnets.<sup>49</sup> The legal instruments include applying of sanctions against nations engaged in illegal fishing activities, such as U.S. import sanctions on fish and fish products.<sup>50</sup> In 1999, the U.S. initiated negotiations with Mediterranean countries that were infringing on driftnet ban. These negotiations have been slow and are ongoing.<sup>51</sup> Ten years later, both France and Italy have been identified by the U.S. as countries engaged in IUU fishing.<sup>52</sup> Despite this fact, measures have not been implemented against these countries. Bilateral negotiations have also been initiated with Morocco for the same reason.

Currently, it can be affirmed that all the possibilities of appropriately applying the driftnet ban at the regulatory level have been exhausted, even going beyond the terms defined at this level. The two main reasons why this fishing gear is still being used in the Mediterranean are the same as those affecting other fisheries in the basin: lack of control and the absence of appropriate management measures.



The driftnetter *Federica II* in Porticello (Italy).  
May 2007. © OCEANA/ MJ. Cornax



The driftnetter *Federica II* fishing in waters  
between Pantelleria Island and Tunisia.  
June 2008. © OCEANA/ MJ. Cornax





A long-finned pilot whales (*Globicephala melas*) © OCEANA/ Carlos Suárez

# The case of Italy

In the beginning of the 1990's, the Italian swordfish fishery grew to become the largest driftnet fishery in the world.<sup>53</sup> The fleet was comprised of more than 700 vessels dedicated to catching swordfish with this gear and, even by then, the resource was considered overexploited. Bycatch of Italian nets known as *spadara* had, and still have, an unsustainable impact on Mediterranean populations of sperm whales (*Physeter macrocephalus*), causing alarming rates of mortality.

Today, more than 100 vessels continue to use *spadara* in the Tyrrhenian and Ionian Seas while hundreds of vessels use *ferrettara* along the Italian coasts. Both of these nets are different types of driftnets. For years, Oceana has investigated and reported vessels that continue using this illegal gear, as well as the fraud they have committed by using the into another, more sustainable, fishing gear.

ITALY



Swordfish caught by driftnets known as *spadara*. June 2006. © OCEANA/ Juan Cuetos

Number of vessels that use driftnets	>150		
Average characteristics of the vessels(*)	Length (m)	Gross Tonnage	Power (Kw)
	13	15.5	130.6
Mesh size	<i>Spadara</i>		<i>Ferrettara</i>
	33-40 cm		>18 cm
Length intervals observed	1.7-20 Km		
Target species	Swordfish ( <i>Xiphias gladius</i> )		
Main bycatch	Scombroids Sharks		
Main endangered species caught incidentally	Long-finned pilot whales ( <i>Globicephala melas</i> ) Striped dolphin ( <i>Stenella coeruleoalba</i> )		
Status	<i>Spadara</i> is illegal but <i>ferrettara</i> is authorised under Italian legislation		

(\*) Calculated based on 71 vessels identified in 2008 and the declarations included in the European Fishing Fleet Register.

Today, recently constructed vessels that have received subsidies are being incorporated into the illegal fleet, which continues operating while skirting all laws or political will. Consequently, Italy should be condemned by the European Court of Justice for not complying with the driftnet ban. However, sanctions do not seem to solve a problem that is rooted in the base of the conversion itself.

### • The fishery

The Italian swordfish driftnet fishery has become one of the most important in the Mediterranean both in terms of number of vessels and volume of catches.<sup>54</sup> Its rapid development is mainly due to the introduction of synthetic fibers in the manufacturing of the nets, hydraulic winches to help deploy and haul in the nets and the high commercial value of the target species.<sup>55</sup>

The southern area of the Tyrrhenian Sea is one of the most important swordfish fishing grounds in the Mediterranean basin, along with the Alboran Sea.<sup>56</sup> The Italian fleet that continues using driftnets carries out most of its activities in this area.

The characteristics of Italian driftnets vary considerably depending on the target species. In general, there are two main types of driftnets,<sup>57</sup> differentiated by current Italian legislation:

- *Spadara* and *alalungara*: used to catch large pelagic species, mainly swordfish (*Xiphias gladius*) and tunas (*Thunnus* spp.), with a mesh size larger than 18 cm.
- *Ferrettara*: with a mesh size smaller than 18 cm and used to catch a wide range of commercial species depending on the mesh size.<sup>58</sup>

*Ferrettara* is widely used along the Italian coasts, especially in the Tyrrhenian Sea and Sicily. This type of net is used to catch a wide range of species, from anchovy (*Engraulis encrasicolus*) with 20 to 40 mm mesh, to small tunas such as bullet tuna (*Auxis* spp.) or bonitos (*Sarda sarda*) with medium to large mesh (16-20 cm).<sup>59</sup>

Ferrettara in San Nicola, Sicily. May 2008.  
© OCEANA/ MJ. Cornax



Illegally long ferrettara used to catch prohibited species. Stazzo, Sicily.  
Mayo 2008. © OCEANA/ MJ. Cornax



Ferrettara in Cefalu, Sicily. May 2008.  
© OCEANA/ MJ. Cornax



The definition of *ferrettara* is a controversial issue because it includes types of nets whose target species are included in Annex VIII of Regulation 1239/98. In other words, these nets, no matter what their length is, are currently banned by EU legislation. However, allowing 18 cm mesh sizes means that prohibited species will be caught. Furthermore, this is used as a legal loophole by vessels to continue using illegal nets,<sup>60</sup> as will be explained further ahead.

A study carried out between 1990 and 1992 by observers on board driftnetters<sup>61</sup> estimated that the swordfish catches in the Tyrrhenian constituted 29.8% of the total catch by number, followed by bullet tuna (*Auxis rochei*) at 39.09%. Other commercial species caught frequently include bluefin tuna (*Thunnus thynnus*) and albacore (*Thunnus alalunga*).

It is worth mentioning that Italy has not declared any bluefin tuna catch (*T. thynnus*) with this gear to ICCAT since the driftnet ban came into effect. However, it has continued to declare its catch of yellowfin tuna (*T. albacares*). As far as swordfish (*Xiphias gladius*) is concerned, the ban has led to the suppression of catch declarations for this fishing gear, and thousands of tons of catch have been included in the category of undetermined fishing gear (UN). Since 2006, Italy has been declaring driftnet catches again, with 1,948 tons of swordfish (*Xiphias gladius*) from a total of 3,468 tons in 2007,<sup>62</sup> probably due to the introduction of the use of *ferrettara*.

The percentage of incidental catches of protected species included in the same study ranges between 9 and 10%, although only cetaceans and loggerhead turtles (*Caretta caretta*) were taken into account. Various species of elasmobranchs are also caught by these nets, including blue sharks (*Prionace glauca*), thresher sharks (*Alopias vulpinus*), shortfin mako sharks (*Isurus oxyrinchus*), basking sharks (*Cetorhinus maximus*), pelagic stingrays (*Pteroplatytrygon violacea*) and giant devilrays (*Mobula mobular*).

Among the cetaceans caught incidentally by these nets, the sperm whale (*Physeter macrocephalus*) population in the South Tyrrhenian is the most impacted.<sup>63</sup> In the 1990's, when the use of this fishing gear was at its high point, between 7,000<sup>64</sup> and 8,000<sup>65</sup> cetaceans died each year in these nets. The species captured specifically in Italian

waters also include Cuvier's beaked whales (*Ziphius cavirostris*), fin whales (*Balaenoptera physalus*), pilot whales (*Globicephala melas*), minke whales (*Balaenoptera acutorostrata*), striped dolphins (*Stenella coeruleoalba*), bottlenose dolphins (*Tursiops truncatus*) and common dolphins (*Delphinus delphis*).<sup>66</sup>

#### • The legal framework

In 1997, with the approval of the ban on driftnets that came into force on 1st January 2002,<sup>67</sup> the EU implemented a financial instrument using FIG (Financial Instrument for Fisheries Guidance) funds for the progressive dismantling or conversion of the fleet comprised of 700 vessels, allocating higher sums than usual to make the economic aid convincing enough for the fleet to accept the plan.<sup>68</sup>

The first voluntary plan to convert and/or dismantle the fleet, popularly known as *Piano Spadare*, was co-financed in equal parts by the EU and the Italian government,<sup>69</sup> allocating a total of 97 million euro for vessels that were voluntarily dismantled, converted or temporarily decommissioned.<sup>70</sup> In June 2000, it was estimated that 578 of the 668 vessels that comprised the fleet had adhered to the plan.<sup>71</sup>

However, the Italian government also offered these vessels an alternative. The *ferrettara* was redefined in 2002 with the authorisation of a 10 cm mesh size, a maximum length of 2 km and use within 3 miles of the coast.<sup>72</sup> These measures were theoretically focused on avoiding the capture of species prohibited by EU regulations.



Driftnets confiscated in Milazzo. May 2008.  
© OCEANA/ MJ. Cornax



Driftnets and winch in the port of Cefalù, Sicily. July 2008. © OCEANA/ Eduardo de Ana

In 2002, after the European ban on driftnets was already in force, the Italian Ministry of Agricultural Policy published a law announcing a second conversion plan that was to be obligatory, given the continued use of this fishing gear by almost 100 vessels, and 5 million Euros were allocated for this.<sup>73</sup> Through a decree published a few months later, 90 vessels adhered to the new plan,<sup>74</sup> and they were offered the possibility, once again, of converting to the *ferrettara*-type driftnets.<sup>75</sup> In 2003 and before the Commission, Italy declared that vessels using driftnets no longer existed in that country.<sup>76</sup>

However, *ferrettara* was continuing to develop at the same time. To compensate for the ban, the Italian Ministry of Fishing gave in to pressure from the sector and modified the conditions of the use of this fishing gear various times.<sup>77</sup> Finally in 2006, the Ministry issued a decree expanding the conditions allowing the use of *ferrettara*.<sup>78</sup> This driftnet was authorised with a maximum mesh size of 18 cm but in the 10 mile coastal zone and with a maximum length of 2.5 km. This measure is not only inconsistent with EU regulations because it allows the capture of prohibited species, but it also constitutes a legal loophole used by many vessels to continue catching swordfish with nets that are various kilometres in length.

Despite this, the European Commission declared that *ferrettara* use only implies the bycatch of prohibited species and no other measures have been adopted at the EU level concerning this.<sup>79</sup>

Today, at least 150 Italian vessels continue fishing with driftnets to catch swordfish. Many of these vessels adapted according to the conversion plan. The newer vessels were paid for with European funds allocated for the scrapping of older driftnet vessels, as part of the phase-out plans.

The persistence of driftnets within the Italian fleet has had various consequences for the Italian government on an international level. The European Commission initiated proceedings against Italy for not complying with their obligations concerning fishery control and driftnets<sup>80</sup> and the country will subsequently be sanctioned for this. The U.S. warned Italy that it would not accept its imports of fish products for the same reason.<sup>81</sup>

The lack of control and political will to eliminate this fishing gear has even been made patent in legislation. Until 2007, Italian law did not prohibit vessels from having driftnets on board,<sup>82</sup> although EU regulations specified the contrary. As such, the authorities could only act when the vessels were operating on the high seas.

32

The *San Antonio* with driftnets on board.  
Porticello-Porto Bagnera. May 2008.  
© OCEANA/ MJ. Cornax



However, control measures have recently been applied more forcefully and effectively, probably due to the pressure exerted by other countries and the media, thanks to information provided by Oceana. In 2008, various vessels described in this report were apprehended by the Italian coast guard and their nets were confiscated.



Ferrettara in Lipari, Italy. August 2008.  
© OCEANA/ Ana de la Torre

In November 2008, the Italian television channel RAI 3 aired a report denouncing the use of *spadara*-type driftnets on a national level,<sup>83</sup> the illegality of landings and the laxness of authorities to apply the law in the ports of Cetraro and Bagnara Calabria. The report led to a series of legal and political actions<sup>84</sup> that culminated when three shipowners of vessels based in Bagnara Calabria were processed and placed under house arrest after being charged by the Procura de Reggio de Calabria.<sup>85</sup>

Finally, in January 2009, the EU called on Italy to return the 7.7 million euro of Community funds used fraudulently for the first *Piano Spadare* plan. This case has taken nearly 10 years to close and the funds used fraudulently by various vessels identified by Oceana during the second *Piano Spadare* plan have still not been returned.

The latest changes in Italian policy concerning the use of illegal drift-nets point to the possibility that this gear will be eliminated in the near future. This would take place, at best, 8 years after the ban entered into force.

- **Results of the 2008 Oceana MarViva campaign**

Oceana observers travelled to Italian ports in May and July identifying vessels that use driftnets. This information was complemented by supervision on the high seas on board the *Marviva Med* research vessel in the south and central Tyrrhenian, the Strait of Sicily and the Ionian Sea.

As a result of these observations, 92 vessels were identified and their information is included in Annex 1 of this report. The list includes all vessels with any type of driftnet on board, including *spadara* and *ferrettara*. This is because, in the case of medium-sized nets that may be considered *ferrettara* according to the license held by the vessel, it is impossible to visually determine if the mesh exceeds 18 cms., although in certain ports, like Bagnara Calabria or Cetraro, it is 100% certain that the nets used have large-sized mesh and fall under the category of *spadara*.

34



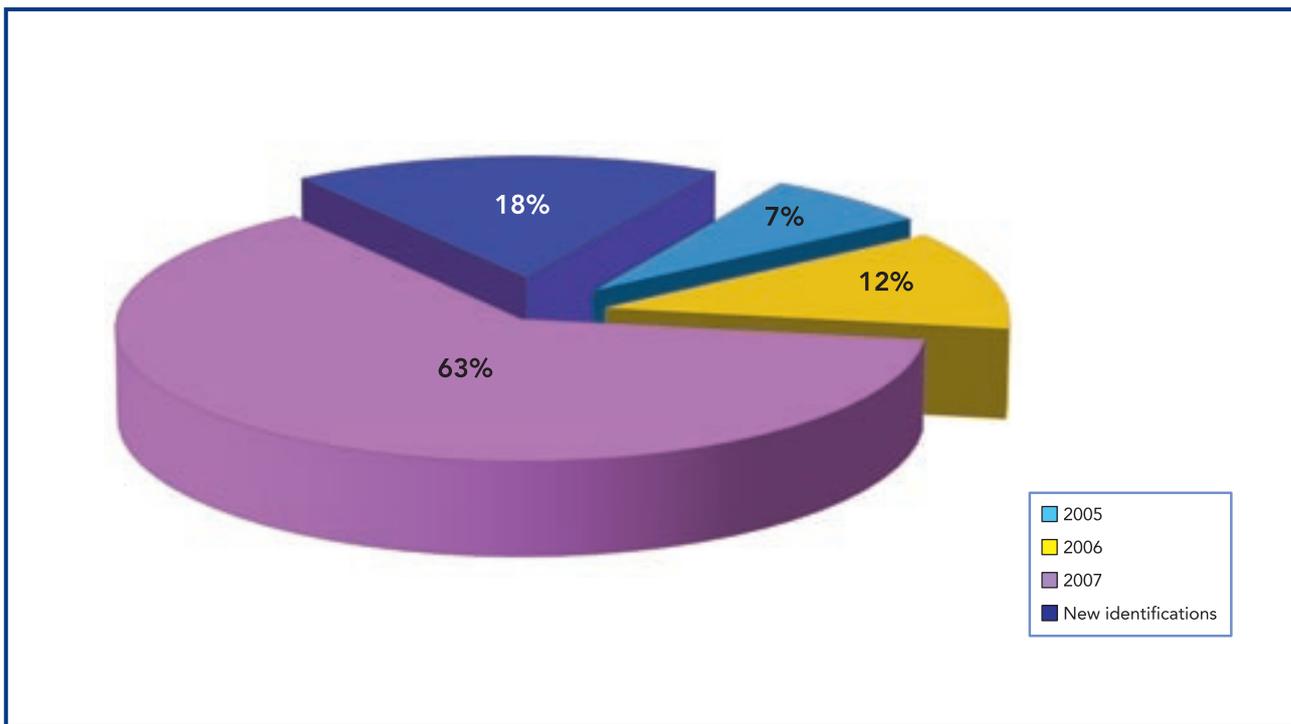
The *Mistral* and *Antonella* loaded with spadare-type driftnets. Bagnara Calabria, Italy, May 2008. © OCEANA/ MJ. Cornax

Nevertheless most of the time when *ferrettara* was observed, they exceeded the established length and the mesh size allowed for the catch of medium-large pelagic species that are prohibited by EU regulations.

Eighty percent of the vessels documented were previously identified by Oceana during the 2005, 2006 and 2007 campaigns (Figure 3). This indicates that there is still a certain degree of laxness when it comes to

making these vessels comply with the law, although authorities have increased their efforts to identify and confiscate this fishing gear. It must also be mentioned that various vessels identified in May 2008 have been apprehended and sanctioned, and their nets have been confiscated by the Italian Coast Guard.

**Figure 3. Percentage of vessels observed by Oceana in Italy in 2008 identified in previous years.**



35

Some of the vessels identified by Oceana since 2005 received subsidies during the second conversion plan, for a total of approximately 900,000 euro. Twenty-two of the vessels observed were constructed before 2001 and, in many cases, also received subsidies. Furthermore, as mentioned previously, the licenses used by these vessels often do not coincide with the vessel's structure. This is the case of some vessels licensed for purse seining (PS).<sup>86</sup>

Driftnets are more widely used in Calabria and Sicily, specifically in Palermo, Reggio Calabria and Catania, the same areas where 70% of the driftnetting fleet's capacity was concentrated before the ban.<sup>87</sup> According to observations, *ferrettara* is more widely used in the Aeolian Islands and the Island of Ponza. Due to the coasts' characteristics and the mesh sizes used, although authorised, these nets are used to catch highly migratory species, and this is clearly illegal.

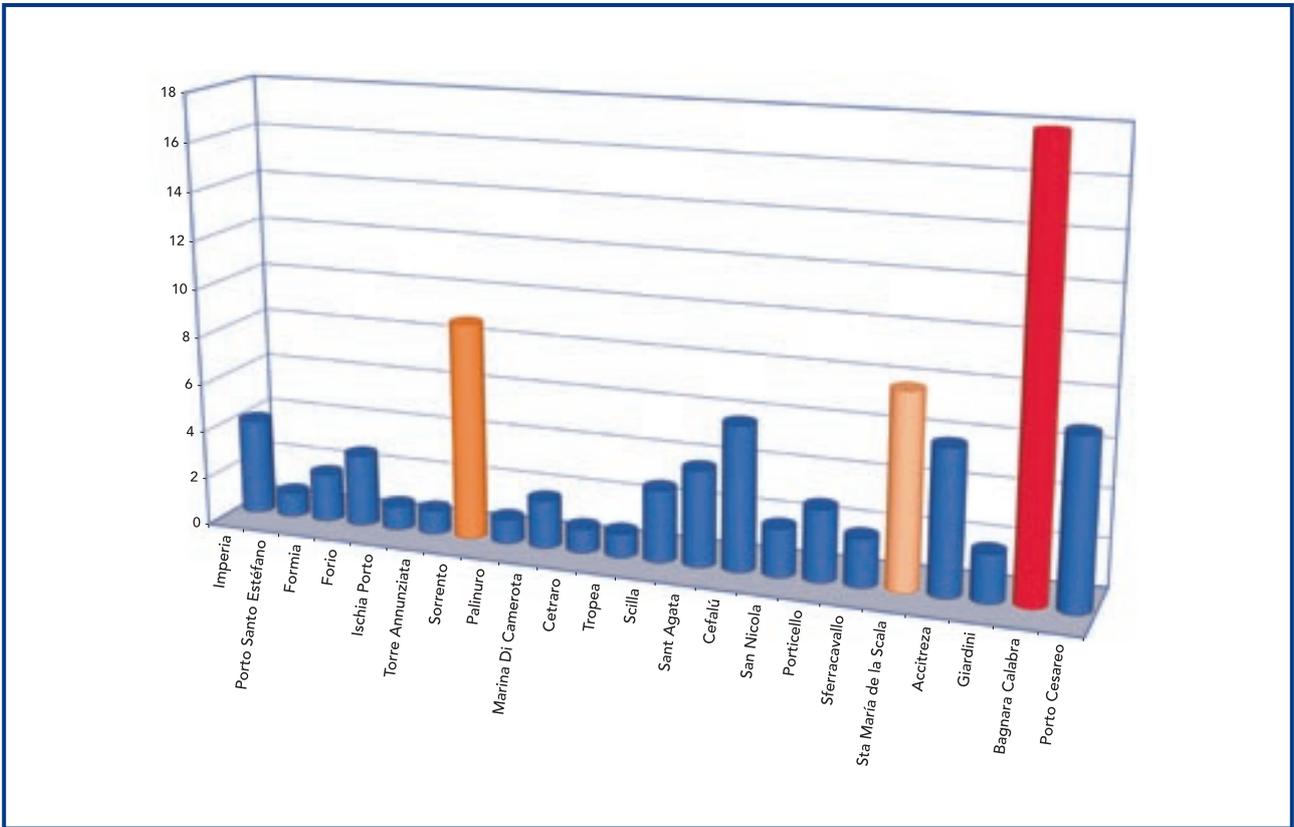
Catching tuna species with *ferrettara* in the Aeolian Islands. © OCEANA/ Jesús Renedo



The ports identified as having the highest concentration of driftnets are Bagnara Calabria, Sorrento and Santa Maria della Scala. These three ports have a series of characteristics that make them representative of the entire fleet (Figure 4).

- Bagnara Calabria (Calabria): predominant use of nets known as *spadare*. Vessels over 15 m long expressly adapted to use this fishing gear but holding various licenses, including seining and bottom trawling licenses, even if the vessel's structure does not permit these activities.
- Sorrento (Campania): predominance of small vessels that use *ferrettara*.
- Santa María della Scala (Sicily): predominance of surface longlining vessels. Use of driftnets with medium-sized mesh and lengths over 2.5 kms to capture swordfish, usually under the auspices of *ferrettara* and surface longlining licenses.

Figure 4. Number of vessels found in port with nets.

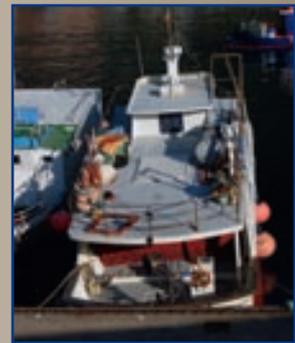


## THE CONTINUED USE OF DRIFTNETS

2007

2008

*Aquila Reale*  
5RC1107



*Don Rocco*  
5RC1051



Concerning the fishing grounds, Oceana and MarViva identified vessels with driftnets on board in various areas (Table 2). Apart from the specified areas, recent sources also point to the Island of Ustica as an important swordfish fishing ground.<sup>88</sup>

**Table 2. Fishing areas identified by Oceana and MarViva in 2008**

Area	Vessels registered in
South Sardinia	Catania
Sicilian and Calabrian Ionian	Catania, Messina, Regio de Calabria
Sicilian Channel	Palermo, Regio de Calabria and Catania
Gulf of Taranto	Gallipoli
Tyrrhenian islands	Gaeta, Milazzo, Naples
South Tyrrhenian	Palermo, Milazzo, Reggio de Calabria, Cesenatico, Salerno
Ligurian Sea	Imperia

The *Marviva Med* identified various vessels in June 2008. The Porticello-based vessel, *Federica II*, was among the vessels identified fishing in international waters between the Island of Pantelleria and the coasts of Tunisia. As soon as they realised they had been detected and were being documented by Oceana, the *Federica II*, and other vessels that could not be identified, entered Tunisian territorial waters. According to various interviews with fishermen, this is common practice in the area, and catches are even sometimes landed in Tunisian ports.

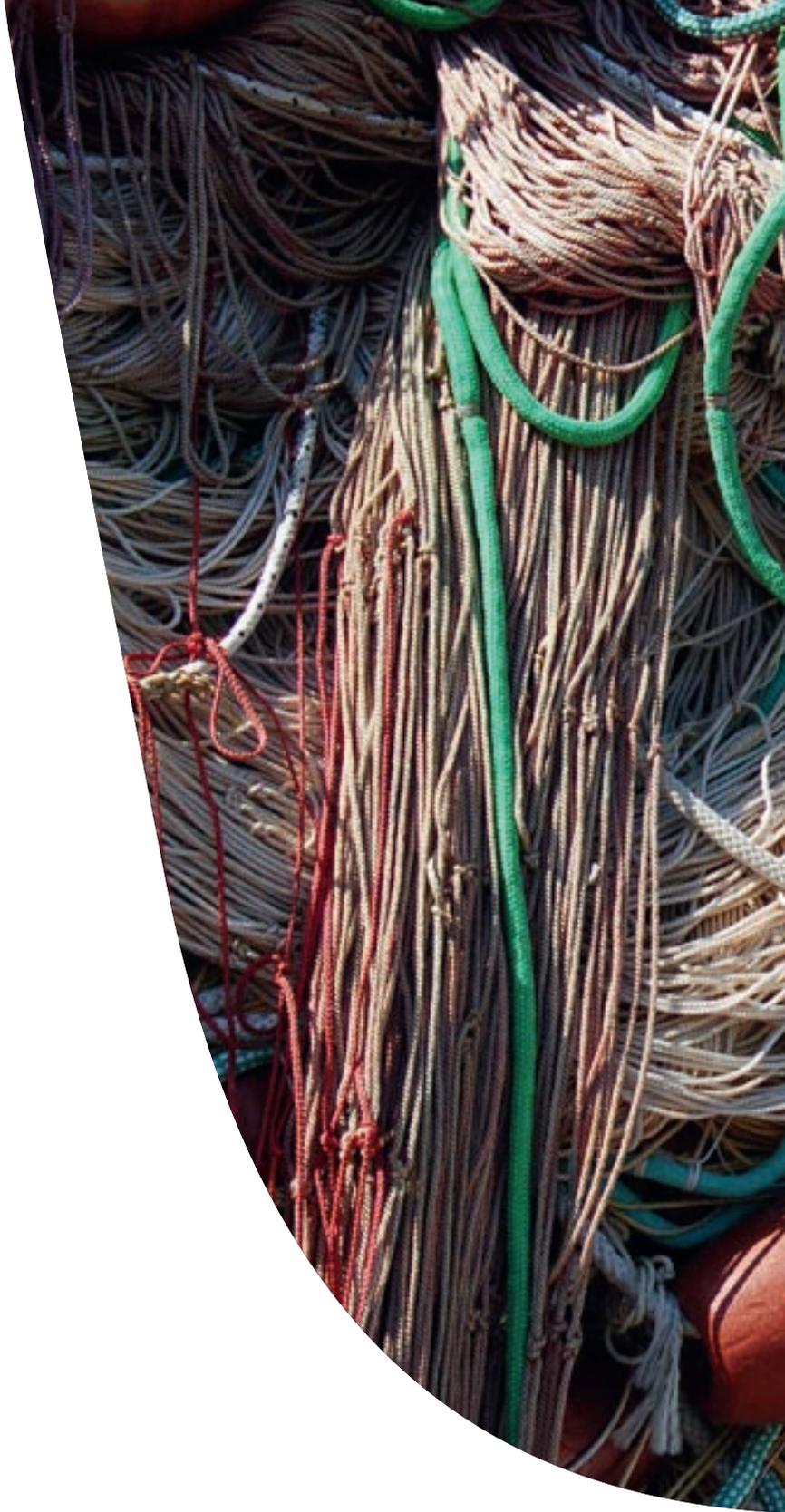
Although driftnetters based in southern Italy have apparently disappeared from the area of the Pelagos Sanctuary for Mediterranean Marine Mammals, various vessels were identified by Oceana and MarViva in ports in the Ligurian Sea with driftnets on board, possibly *fetterrara*, to capture swordfish.

It is also necessary to highlight the fact that a high number of vessels operate in the Sicilian Ionian Sea with both driftnets and longlines. The presence of vessels from Bagnara Calabria in the area south of Cape Spartivento, an area where loggerhead turtles (*Caretta caretta*) concentrate, is especially important. An idea of the impact this may have can be given based on studies from the 1980's, which estimated that only 30 driftnetters operating in the area captured 16,000 loggerhead turtles each year.<sup>89</sup>

The impact of *ferretarra* used in this area has also been evaluated, proving this gear is unsustainable: 96% of the catch is comprised of species prohibited by the EU, 3% of the catch is comprised of bycatch and discards and only 1% is legal.<sup>90</sup>

Some areas where the Italian fleet operate.







Driftnets in the port of Menton. © OCEANA/ M.J. Cornax

# The case of France

The French fleet began using driftnets in the Mediterranean at the end of the 1990's. Some of the vessels that used gillnets began to use driftnets to catch bluefin tuna sporadically and opportunistically. This number probably increased because of the high commercial value of bluefin tuna, reaching 90 vessels in 2007 participating in this fishery at different levels.

Oceana has been reporting these vessels and the evolution of this fishery's legal framework since 2006.

The use of *thonaille* follows the same patterns as other swordfish fisheries in the Mediterranean and there are only a few specific characteristics, including beacons on the gear, mesh size or manoeuvres to deploy and haul in the gear, which are different from the rest and have been analysed in previous Oceana reports.

As described below, the impacts caused by the continued use of driftnets are not limited exclusively to the incidental bycatch of striped dolphins (*Stenella coeruleoalba*), but also to the illegal fishing of bluefin tuna and swordfish.

FRANCE				
	Number of vessels that use driftnets	92 <sup>91</sup> (variable number)		
	Average characteristics of the vessels(*)	Length (m)	Gross Tonnage	Power (Kw)
		11.61	10.05	171.03
	Mesh size	18-24 cm		
	Length intervals observed	2.5-10 Km		
	Target species	Bluefin tuna ( <i>Thunnus thynnus</i> )		
	Main bycatch	Swordfish ( <i>Xiphias gladius</i> ) Atlantic pomfret ( <i>Brama brama</i> ) Blue shark ( <i>Prionace glauca</i> )		
	Main endangered species caught incidentally	Striped dolphin ( <i>Stenella coeruleoalba</i> )		
	Status	Eliminated since 2007. Infractions prosecuted.		

The *Charly Christ* hauling in nets. May 2007.  
© OCEANA/ Carlos Suárez

Furthermore, and no less important, this case sheds light on an aspect that is different from the Italian case and concerns the mechanisms used to skirt the Community ban on driftnets.

#### • The fishery

In France, driftnets are known as *thonaille*, from the French word “thon”, or tuna in English. These nets have a mesh size between 18 and 24 cms and net, lengths between 2.5 and 10 kms<sup>92</sup> and are used to target tuna, as indicated by their name. The fishery operates practically all year round and is limited only by climate conditions and, to a lesser degree, by the lunar cycle. It has been estimated that each vessel fishes between 4 and 24 days during an 8-month season, with an annual average of 53 days.<sup>93</sup> However, Oceana estimates that both the fishing effort and the volume of the catch is much higher.<sup>94</sup>



Bluefin tuna caught with a *thonaille*. May 2007.  
© OCEANA/ Carlos Suárez

A study carried out by a team from the University of Marseille determined that 95.6% of the total catch in weight is comprised of commercial species, with 79.4% bluefin tuna, 20.1% swordfish (*Xiphias gladius*) and 0.4% albacore (*Thunnus alalunga*). Incidental bycatch makes up 4.4% of the total weight, and the captured species are primarily blue sharks (*Prionace glauca*), Atlantic pomfrets (*Brama brama*) and Mediterranean spearfish (*Tetrapturus belone*). Furthermore, 0.65% of the catch is discarded. Species including the striped dolphin (*Stenella coeruleoalba*), ocean sunfish (*Mola mola*), loggerhead turtle (*Caretta caretta*) or the pelagic stingray (*Pteroplatytrygon violacea*) are among the discards.<sup>95</sup>

The fishing areas include the Gulfs of Leon and Genoa, between 15 and 30 nautical miles from the coast. Traditionally, bluefin tuna catches in the area were comprised mainly of juvenile specimens between 18 and 30 kgs, present practically all year round.<sup>96</sup> These fish come from the spawning grounds of the Balearic Islands and South Tyrrhenian Sea and migrate to the Gulfs of Lyon and Genoa.<sup>97</sup>

The largest size ranges of bluefin tuna caught by the *thonaillies* are between 10-12 kgs and 18-20 kgs.<sup>98</sup> This data implies that the bluefin tuna captured in the Gulfs of Lyon and Genoa are between 1 and 3 years old and have not reached the size necessary to reproduce. As such, they are an average of 10 kgs under the minimum size established by the EU recovery plans for this species.<sup>99</sup>

In 2007, Oceana documented part of this fleet operating in the Pelagos International Sanctuary for the protection of marine mammals. The *thonaillers* from the French maritime departments of Martigues, Marseille and Nice travel to this marine protected area that includes waters of the Gulf of Genoa. The schools of bluefin tuna move during the fishing season because the presence of thermohaline fronts in the Ligurian Sea<sup>100</sup> favours the biological productivity of those waters, attracting not only tuna but also striped dolphins that go to feed there and are captured accidentally by the *thonaillies*.<sup>101</sup> The *thonaillie* fleet began fishing in waters of the Pelagos Sanctuary at the end of the 1990's and gradually increased its presence. Estimates in 2006 point to approximately 100 French vessels taking bluefin tuna and swordfish in the Ligurian.<sup>102</sup>

#### • Legal framework

On 1 January 2002, when the ban on driftnets entered into force in the EU,<sup>103</sup> French driftnets were also banned on two grounds:

- The use of gillnets to catch large pelagic species included in Annex VIII of the ban (bluefin tuna, swordfish and Atlantic pomfret, among other pelagic species).
- The use of driftnets longer than 2.5 kms.

The violation of any of these two conditions necessarily implied an infraction of Community regulations. However, the French government supported this flotilla by creating Special Fishing Permits (PPS)

in 2003<sup>104</sup> that, through various modifications in 2004<sup>105</sup> and 2005,<sup>106</sup> introduced a series of technical and management measures focused on skirting the Community ban. The most important modification was the incorporation of a floating anchor on one side of the net to avoid being qualified as “driftnet”.

As mentioned earlier, since the beginning of the 1990’s, a variable number of gillnet vessels operating in the French Mediterranean had sporadically used *thonaille*. However, during the period between 2000 and 2005, the fleet’s capacity increased by 55%, despite the fact that the ban had entered into force. In 2005, of the 118 vessels that comprised the gillnet fleet, an estimated 66 vessels used *thonaille*.<sup>107</sup> In fact, 23% of the vessels identified by Oceana in 2007 had been incorporated into the fleet after the ban entered into force and, in some cases, had been built with support from subsidies provided by the EU.

In August 2005 and after various non-governmental organisations denounced these facts, the French State Council repealed the three decrees that granted the *thonaille* a special fishing permit.<sup>108</sup> Thanks

45

The illegal driftnetter *Corail* setting the nets.  
Near Toulon, France. © OCEANA/ Carlos Suárez



to this decision, the *thonaille* was outlawed on a national level. Once again, however, the French Ministry authorised 47 vessels to use these nets during the 2006 fishing campaign, under the creation of a new Special Fishing Permit for bluefin tuna, granting them a 300-ton quota.<sup>109</sup>

In 2006, Oceana repeatedly denounced the absence of a definition of “drift gillnet” in French regulations,<sup>110</sup> allowing the fleet to continue to use the illegal gear.

In 2007, the bluefin tuna driftnet fishery began again under conditions similar to those of 2006, although two changes were introduced during the season that would prove decisive for this gear’s future:

- The EU Council of Ministers approved a complete definition of driftnets that included *thonaille* within the ban,<sup>111</sup> and which entered into force in July.
- Minimum size specifications of 30 kgs or 115 cms became effective for bluefin tuna as part of a package of measures included within the Bluefin Tuna Recovery Plan adopted by the International Commission for the Conservation of Atlantic Tuna (ICCAT).<sup>112</sup>

However, the Ministry for Agriculture and Fisheries took action before the definition became effective on June 28 and granted a 267-ton bluefin tuna quota to a fleet of 83 *thonaillers* on the same day.<sup>113</sup> The fleet had already begun operating months before during one of its most successful campaigns,<sup>114</sup> completely ignoring the new minimum size regulations for bluefin tuna.



*Thonaille* at the docks of Menton. May 2008.  
© OCEANA/ MJ. Cornax

In 2007, France declared a 614-ton catch with unspecified gear (usually associated to the *thonaille* catch) to ICCAT,<sup>115</sup> double the quota authorized for that year and taking into account that this fishery was declared officially illegal in July of that same year.

Finally, the French Ministry for Fisheries made an amendment in 2008. That year, 91 vessels opted for a Special Fishing Permit to catch bluefin tuna with lines, longlines or rods.<sup>116</sup> However, they were not permitted to use *thonaille* or land catches in marinas, and were not granted exemptions for bluefin tuna minimum size specifications.<sup>117</sup> Also, their quota was reduced to 241 t.<sup>118</sup>

In 2007, subsidy packages were implemented in compensation for the losses incurred by the vessels that abandoned the use of *thonaille*, for a total of 2.5 million euro.<sup>119</sup> In order to receive the aid, vessels had to provide proof of their activities in 2006 and 2007 by simply presenting sales records or onboard diaries. This may be the reason why vessels that only occasionally used this gear were registered as affected by the ban. A total of 92 vessels proved prior use of *thonaille* and received aid.<sup>120</sup>

Since the driftnet ban entered into force, the French Government has not complied with its obligations to apply and supervise the ban because it did not consider the *thonaille* a driftnet. This fact led the European Commission to denounce France before the European Court of Justice.<sup>121</sup> As a result, France made an appeal against the Council for the derogation of the definition of a driftnet.<sup>122</sup>

Finally, in March 2009, the European Court of Justice resolved the case in favour of the Commission and condemned France for the lack of control over the use of driftnets in that country,<sup>123</sup> rejecting France's appeal.<sup>124</sup>

At the same time, the French Research Institution for the Exploitation of the Sea (IFREMER) carried out research with some of the affected vessels concerning the fishing gear used to catch bluefin tuna in order to develop alternative gear and hooks to catch this species.

The use of driftnets known as *thonaille* can be considered illegal from March 2009, at least from a legal perspective. Currently, controlling this fleet to avoid a repetition of the Italian case constitutes the only pending action that will lead to the elimination of driftnets in Europe.

#### • Results of the 2008 Oceana Campaign

Oceana observers travelled along the French Mediterranean coast during the 2008 fishing campaign to determine if *thonaille* was still being used and, if not, to identify the gear that had substituted the illegal nets. Observations were carried out port to port in May and were repeated in July.



(left)  
The *Dragon II* with driftnets on board.  
May 2007. © OCEANA/ MJ. Cornax

(right)  
The *Dragon II* with gillnets on board.  
July 2008. © OCEANA/ LX

As a result of these observations, no vessels with *thonaille* on board or with bluefin tuna catches taken with this gear were identified in 2008. Instead, piles of driftnets on the docks of many ports were observed, including Saint Cyprien, Grau d'Agde or Saint Raphaël.

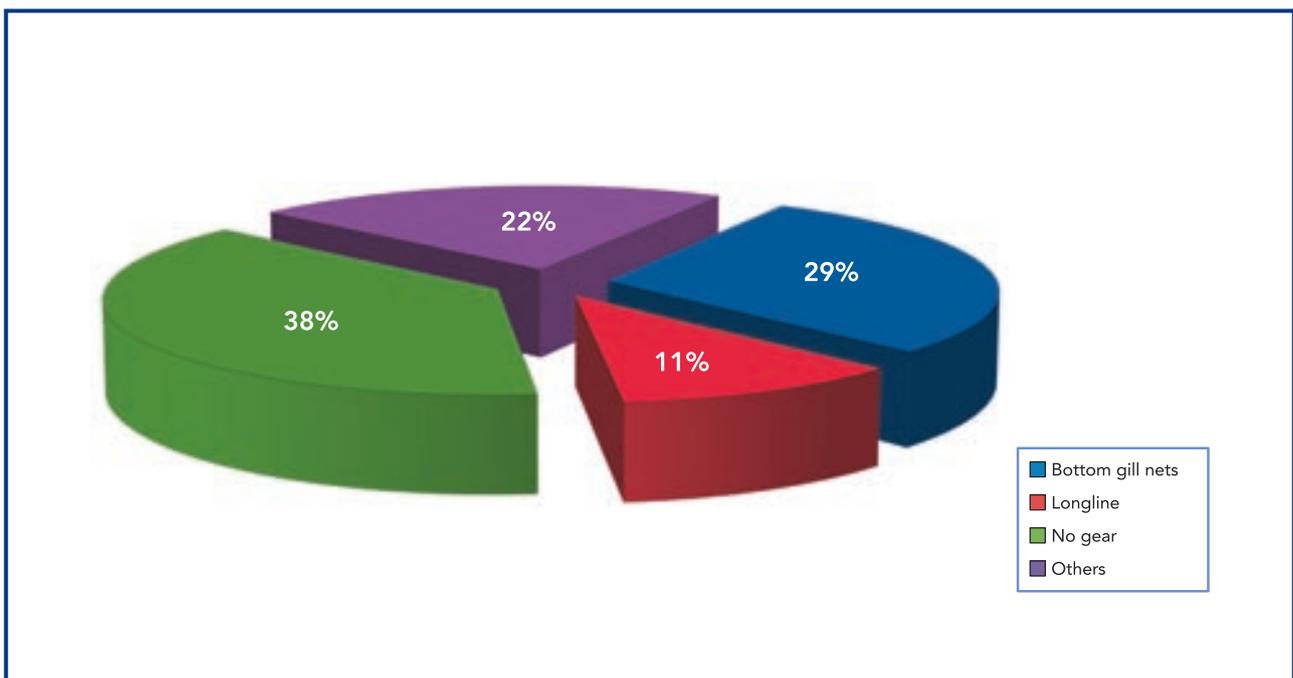
A large percentage of the vessels observed used bottom gillnets to catch demersal species (Figure 5). This fact was confirmed by the observation of the catches landed by vessels identified as *thonaillers* by Oceana in the past, comprised mainly of mullets (*Mullus* spp.) or monkfish (*Lophius* spp.).

Despite the fact that more than 50 vessels were granted Special Fishing Permits in 2008 to catch bluefin tuna with rods, lines or longlines,<sup>125</sup> a relatively low percentage of vessels (11% of those observed) used any of these hook type during the 2008 campaign. As such, the bluefin tuna catch declared by this flotilla will probably be less than the total assigned quota for that year.

Furthermore, as previously mentioned, it is possible that the most significant impact on this illegal fishery was caused by the adoption of minimum size specifications for bluefin tuna and increased control measures at ports resulting from the implementation of the Bluefin Tuna Recovery Plan.<sup>126</sup>

Although the nets can still be observed at port, it can be affirmed that the use of *thonaille* in the Mediterranean has disappeared, at least officially.

Gráfico 5. Fishing gear observed on board thonailleurs in French ports in 2008.







The illegal Moroccan driftnetter Kalach 3 hauling the nets. Southeast of Alborán island. © OCEANA/ Juan Carlos Calvin

# The case of Morocco

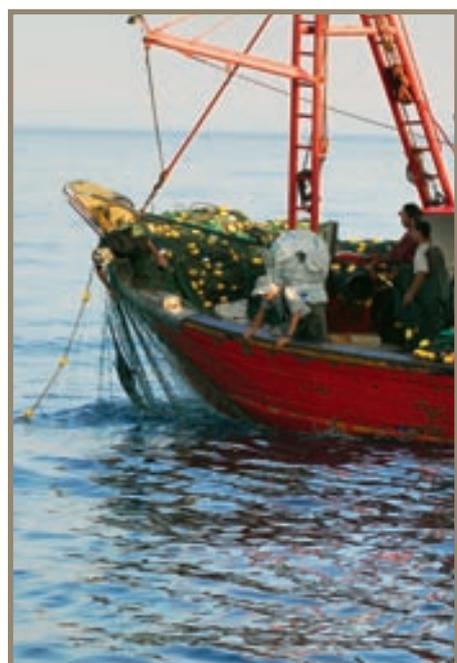
The swordfish driftnet fishery in Morocco was recently introduced, although today, this country has the highest volume of catches after only Italy. At the beginning of the 50s, this species was only caught with tuna traps and in 1987 there were just 80 longliners registered in the port of Tangiers. These vessels would alternate using longlines and driftnets in spring. Back then, already 60% of the production was exported to countries like Spain or Italy through the port of Tangiers.<sup>127</sup>

The driftnet fleet quickly grew to 370 vessels in 2003, mainly in the Mediterranean and the Strait of Gibraltar.<sup>128</sup> In 2007, around 80% of the delared catch was exported to the EU alone.<sup>129</sup>

This fleet has a serious impact on marine biodiversity. One of the main fishing grounds is located in the Alboran Sea, an area that is very important for cetacean and sea turtle conservation.

Currently, the Moroccan fleet is undergoing a phase-out plan to eliminate this illegal fishing gear, similar to the one implemented in Italy ten years ago.

## MOROCCO



The Moroccan vessel *Agdal* catches a swordfish with driftnets. Alboran Sea, August 2007.  
© OCEANA/ Juan Carlos Calvin

Number of vessels that use driftnets	Undetermined		
Average characteristics of the vessels	Length (m)	Gross Tonnage	Power (Kw)
	13	13	81
Mesh size <sup>130</sup>	400 mm		
Length intervals observed	4-8 Km		
Target species	Swordfish ( <i>Xiphias gladius</i> )		
Main bycatch	Blue marlin ( <i>Makaira nigricans</i> ) Scombroids Sharks		
Main endangered species caught incidentally	Striped dolphin ( <i>Stenella coeruleoalba</i> ) Common dolphin ( <i>Delphinus delphis</i> )		
Status	Undergoing conversion		

### • The fishery

The driftnet fishery in Morocco is carried out as swordfish migrate through the Strait of Gibraltar. It begins at the end of March and continues on through October, moving to certain areas according to resource availability (COPEMED 1998).



53

An ocean sunfish (*Mola mola*) caught with driftnets in the Alboran Sea.  
© OCEANA/ Jesús Renedo

The vessels are longliners between 14 and 16 meters in length,<sup>131</sup> with 10 crew members on board. The nets, similar to the ones used in the rest of the Mediterranean, are deployed at dusk from the port side and hauled in at dawn with the help of a winch. The operation lasts approximately 12 hours. The fishing activities take place from March to November in the areas of the Strait of Gibraltar and the Alboran Sea.<sup>132</sup>

Ninety-four percent (94%) of the catch landed by the driftnetters is comprised mainly of the target species, swordfish (*Xiphias gladius*). The bycatch is mainly comprised of Atlantic blue marlin (*Makaira nigricans*), thresher shark (*Alopias vulpinus*), mako shark (*Isurus oxyrinchus*), blue shark (*Prionace glauca*), and tuna species including bluefin tuna (*Thunnus thynnus*), skipjack (*Katsuwonus pelamis*), frigate (*Auxis thazard*) and bonito (*Sarda sarda*).<sup>133</sup> As elsewhere in the Mediterranean basin, no bluefin tuna catch has been declared to ICCAT since the ban on this gear entered into force.

This data does not take into account discards on the high seas. During Oceana's observations in 2006, the highest percentage of catch in numbers corresponded to ocean sunfish (*Mola mola*), which were subsequently discarded at sea. Of a smaller but significant proportion, there was also bycatch of pelagic stingrays (*Pteroplatytrygon violacea*).<sup>134</sup> Studies carried out with the Spanish driftnet fleet that operated in the 1990's in the same areas obtained similar results, with 7% of the catch comprised of swordfish, 71% ocean sunfish and 0.3% sea turtles.<sup>135</sup>

Fishing grounds where the Moroccan driftnet fleet operates.  
Source: FAO/COPEMED and Oceana.



The biodiversity impacts caused by the Moroccan fleet's increased driftnet use has been estimated at 3,647 striped dolphins (*Stenella coeruleoalba*) and common dolphins (*Delphinus delphis*) caught in the Alboran Sea and 13,358 in the Strait of Gibraltar annually. Sharks are also part of this fleet's bycatch with an estimated number has been estimated to be between 7,000 to 8,000 thresher sharks (*Alopias vulpinus*), mako sharks (*Isurus oxyrinchus*) and blue sharks (*Prionace glauca*) caught in the Alboran Sea, and between 24,000 and 27,000 in the Strait of Gibraltar.<sup>136</sup>

Most of the catch comes from the Mediterranean, although some fish are caught off the Atlantic coast, mainly swordfish (615 t in 2007), bonito (*Sarda sarda*), skipjack tuna (*Katsuwonus pelamis*) and plain bonito (*Orcynopsis unicolor*).<sup>137</sup> Furthermore, there are other references that point to the development of driftnet fisheries in Atlantic ports including Agadir, Casablanca, Larache or Safi.<sup>138</sup>

- **Legal framework**

The use of driftnets in Morocco was temporarily regulated at the beginning of the 1990's through various ministerial decrees that limited net length to 2.5 kms and established a minimum mesh size of 400 mm.<sup>139</sup>

When ICCAT adopted the recommendation banning the use of driftnets to catch large pelagic species in the Mediterranean, Morocco considered the application of the ban and presented a phase-out plan in 2004 to convert the fleet.<sup>140</sup> According to this plan, Morocco should be driftnet-free starting 1 January 2009. However, the date has already been postponed for two more years because Morocco cannot comply with the deadlines.<sup>141</sup>

On an international level, both the U.S. and the EU have provided Morocco with technical support to carry out this conversion plan successfully. The U.S. has been negotiating with Morocco since 2004 to eliminate this gear<sup>142</sup> and, within this context, has pledged financial support for the plan.<sup>143</sup> The fishing agreement signed between the EU and Morocco in 2006 included an allocation of 1.25 million euro annually for this plan, as well.<sup>144</sup>



Spain plays an important role in this process because it is the main European importer of Moroccan swordfish<sup>145</sup> and the main beneficiary of the fishing agreement entered into with this country. For this reason, Spain has provided additional funds and technical support for the conversion to other fishing gear.

Driftnets in the port of M'Diq. © OCEANA/ LX



Currently, various vessels have already been converted. However, it is particularly complicated to verify if the plan is being carried out successfully. Furthermore, attention should be called to the fact that ICCAT does not prohibit driftnet use in the Atlantic Ocean, although if the activity was developed outside Morocco's Exclusive Economic Zone, it would conflict with the United Nations' international moratorium. As such, it is possible that part of the fleet is entering Atlantic waters after having received aid, in order to continue fishing.

Also, the impact on sea turtle populations could increase with an increase in longlining activities, so it is necessary to implement mitigation measures to avoid bycatch of these species.

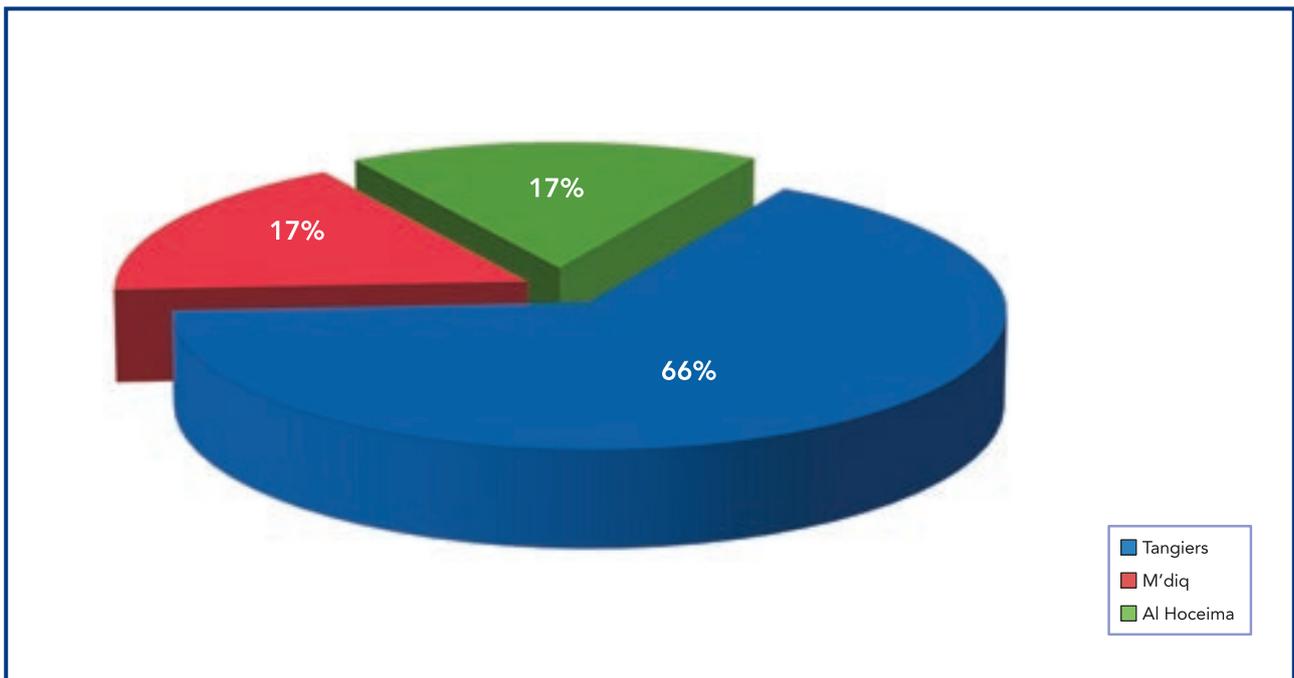
- **Results of the Oceana Marviva 2008 campaign**

In August 2008, Oceana observers travelled to ports on Morocco's Mediterranean coasts to determine the driftnet fleet's home ports and their importance.

Vessels with driftnets on board were found in the ports of Tangiers, M'diq and Al Hoceima (Figure 6), some of which are included in the Annex 2 of this report.

It was not possible to carry out observations in the port of Nador, although evidence points to this port as being one of the major home ports for this gear. Nador and Tangiers are home to more than 85% of Morocco's national catch.<sup>146</sup>

**Figure 6. Vessels with driftnets identified by port.**







Albacore (*Thunnus alalunga*) caught by driftnets and landed in the port of Alanya, Turkey. © OCEANA/ M.J. Cornax

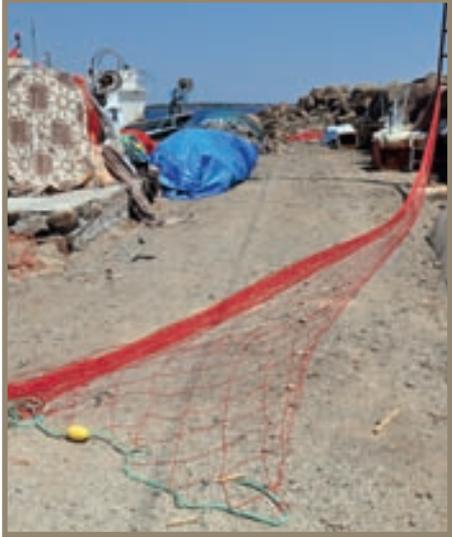
# The case of Turkey

Swordfish is one of the most important commercial species in Turkey, along with bluefin tuna. Surface longlines are mainly used to catch this species, although driftnets are also used, as well as harpoons, although residually.<sup>148</sup>

There is currently little information available about the exact number of Turkish vessels using driftnets. The information about mesh sizes used is contradictory. Recent studies point to mesh sizes between 340 and 500 mm and net lengths between 3 and 14 kms, depending on the area.<sup>149</sup>

The catch is comprised of tunas, sharks and marlins (Table 5). However, the only driftnet catch declared by Turkey to ICCAT refers to swordfish (*Xiphias gladius*) in the range of 300-400 t annually in 2003. After that, Turkey did not provide any more information concerning its driftnet catch.

Like in other areas of the Mediterranean, Turkish driftnets incidentally catch various species of cetaceans. A study carried out in 2001

TURKEY <sup>147</sup>			
 <p>Driftnet in Babbakale, Turkey. © OCEANA/ MJ. Cornax</p>	Number of vessels that use driftnets	>45	
	Average characteristics of the vessels(*)	Length (m)	10-14
		Power (Kw)	63-101
	Mesh size	340-500 mm	
	Length intervals observed	3-14 Km	
	Target species	Swordfish ( <i>Xiphias gladius</i> )	
	Main bycatch	Bluefin tuna ( <i>Thunnus thynnus</i> ) Little tunny ( <i>Euthynnus alletteratus</i> ) Blue marlin ( <i>Makaira nigricans</i> ) Bullet tuna ( <i>Auxis rochei</i> )	
	Main endangered species caught incidentally	Striped dolphin ( <i>Stenella coeruleoalba</i> )	
	Status	Banned since 2006	

found that the species affected include striped dolphins (*Stenella coeruleoalba*), bottlenose dolphins (*Tursiops truncatus*) and Risso's dolphins (*Grampus griseus*). The most seriously affected is the population of striped dolphins (*Stenella coeruleoalba*).<sup>150</sup>

Despite the fact that driftnet fishing was prohibited in Turkey<sup>151</sup> 3 years before the ICCAT Recommendation was adopted,<sup>152</sup> at least 45 vessels continue fishing with this gear, based mainly in the ports of Sivrice and Fethiye.<sup>153</sup>

In 2006, 18 vessels began a new fishery targeting albacore (*Thunnus alalunga*) in the Gulf of Antalya. Both bluefin tuna (*Thunnus thynnus*) and swordfish (*Xiphias gladius*) were among the bycatch. Nets measuring 2 kilometers in length were used with mesh sizes between 15-17 cms.<sup>154</sup> These nets are very similar to the ones used by Italy to legalise the use of *ferrettara*.

It is necessary to determine the exact number of vessels in the Turkish driftnet fleet and to prevent impacts on the species that constitute this fishery's bycatch.

Furthermore, the Turkish government must act according to international laws and begin a conversion plan while also avoiding the expansion of this gear to other areas of the country. The advantages of using driftnets instead of longlines to catch species of high commercial value may promote the use of this illegal gear.

Common dolphin (*Delphinus delphis*).  
© OCEANA/ Alberto Iglesias







Big amount of driftnets on the dock in the port of Tangiers, Morocco. © OCEANA/ Enrique Pardo

# Driftnets in other countries

This report includes information about driftnet use in countries where their existence has been proven. There is little information available about driftnets use and the swordfish fishery in the rest of the Mediterranean.

Given the distribution of this species, is it likely that other fisheries exist in coastal countries for which no information exists.

Generally, all countries with swordfish fisheries tend to introduce driftnets because they are less expansive than longlines and require less physical manpower.

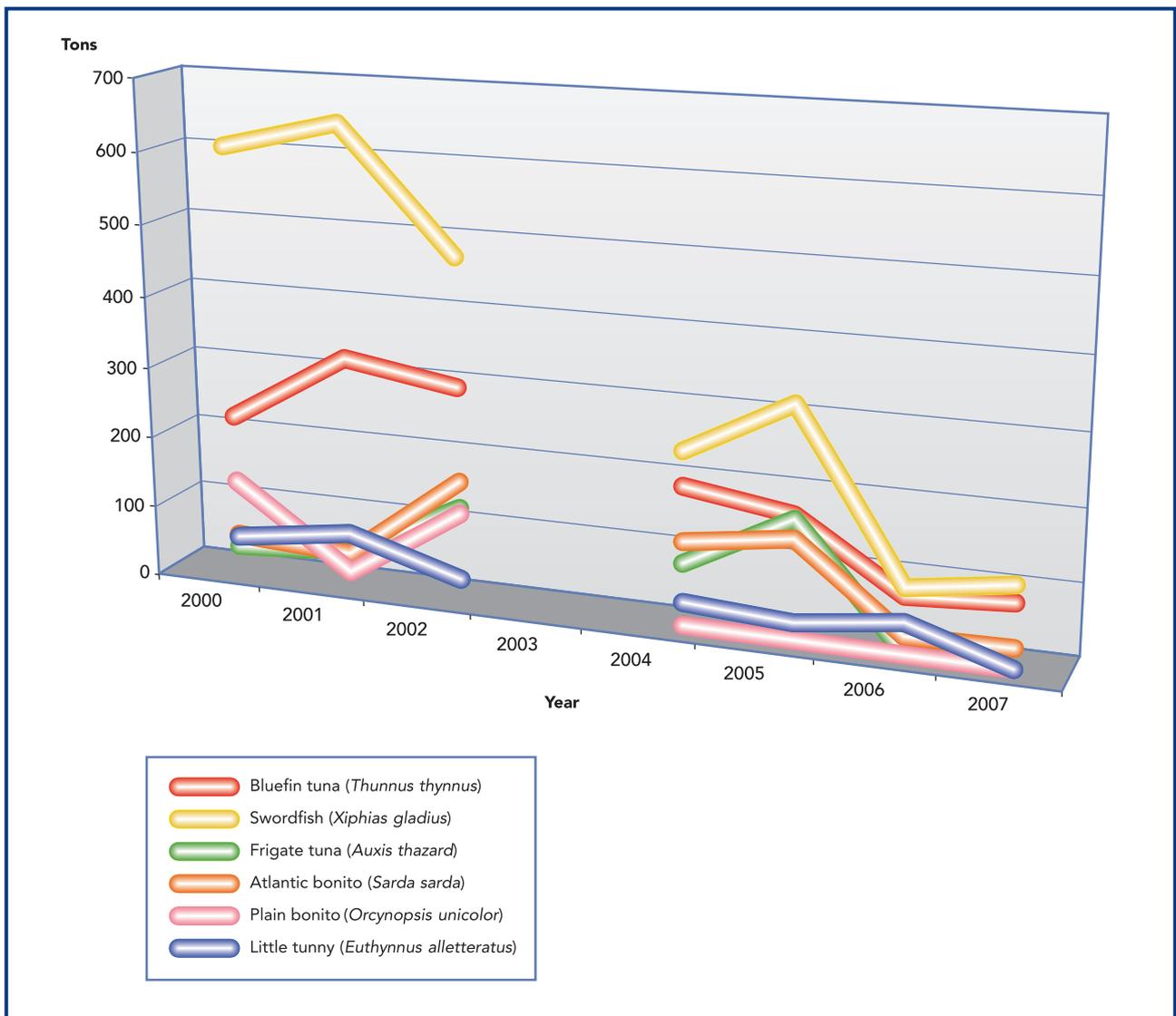
Both Tunisia and Algeria<sup>155</sup> have included a driftnet ban in their legislation. However, Tunisia has a past record of using driftnets to catch small tunas,<sup>156</sup> and there is proof that this fishery is operating in the north of the country.



Algeria does declare its driftnet catch, with a total 1,220 t of swordfish and various tuna species in 2007 (Figure 7).

Other countries that target swordfish and have driftnet fleets to catch this species include Albania<sup>157</sup> and Greece.<sup>158</sup>

Figure 7. Catches declared by Algeria to ICCAT in the driftnet category (GND).







Loggerhead turtle (*Caretta caretta*) in Sardinia. © OCEANA/ Juan Cuetos

# Conclusions

Today, almost two decades after the United Nations ban on driftnets came into force, more than fifty vessels operate illegally in the Mediterranean, seriously affecting cetacean, shark and sea turtle populations.

This situation does not only pose a conservation problem. The fact that these vessels continue fishing and that, most of the time, their declared catch, if declared at all, is much less than their real catch, constitutes a representative example of the uncontrolled development of fishing activities in the Mediterranean.

Furthermore, this fishing gear puts additional pressure on already overexploited Mediterranean swordfish stocks. Currently, there are no fishing management measures in place that respond to the situation faced by this species' stocks. Fishing is concentrated on juveniles, quotas are non-existent and the fleet targeting this species is oversized. Despite the fact that stocks do not seem to be in grave danger of depletion, the short-term future will be dismal if measures are not adopted immediately.



Regarding bluefin tuna, driftnets led to substantial catches of this species, mainly juvenile specimens. However, there is no control over these catches despite the strict measures implemented by ICCAT to control a fishery that is on the verge of collapse. Although the impact is not comparable to that of the large industrial purse seining fleet, this fleet has a potential catch of more than 500 tons annually. At the very least, it is interesting that only one country declared bluefin tuna catches to ICCAT.

The Mediterranean sea is not inexhaustible. Resources are being depleted and marine biodiversity is suffering from a lack of appropriate management measures and control. The existence of more than 500 vessels that continue using driftnets to catch large pelagic species is proof that the practically non-existent management measures have clearly failed.



A fin whale in Balearic islands.  
© OCEANA/ Jesús Renedo





The stern of the driftnetter Alba Chiara. Italy. July 2005. © OCEANA/ Ángel Serrano

# Oceana and MarViva recommendations

Oceana and Marviva propose the following recommendations for sustainable swordfish management in the Mediterranean and the definitive elimination of driftnets:

### For sustainable swordfish management in the Mediterranean

Swordfish exploitation in the Mediterranean should be regulated by a Mediterranean swordfish management plan that includes, but is not limited to, the following measures:

- Adoption of a unified minimum size limit and closures for Mediterranean swordfish according to scientific recommendations to protect juveniles and increase the spawning stock
- Establishment of a quota that freezes catch volume from the last ten years to prevent an increase in the fishing effort
- Establishment of a census of fishing vessels dedicated to catching swordfish

### For the elimination of driftnets in the Mediterranean

#### • Italy

- Modification of the current decree that regulates the use *offerrettara* so the mesh size is consistent with the one authorised for the target species and establishment of a maximum vessel length for the vessels using this gear
- Funds used during the second conversion plan should be returned if the fishing vessels continue using this gear
- Control and inspection at ports and the use of VMS systems

#### • France

- Reinforce control and inspection at ports to guarantee that the *thonailler* fleet in the Mediterranean is complying with the ban

- **Morocco**

- Guarantee the effective conversion of driftnets with destruction of the nets once the vessel has adhered to the phase-out plans, to prevent them from being sold to third countries
- Implement a real conversion of vessels while avoiding fishing effort being transferred to the Atlantic coast, where the use of driftnets is not prohibited.
- Implementation of technical mitigation measures for bycatch of sea turtles for all vessels that convert to longlines

- **Other countries**

- Reinforce regional cooperation to determine the gear being used, the number or vessels in the fleet and the impact on biodiversity in order to implement effective measures to definitively eliminate driftnets.



Fishermen in the illegal driftnetter *Charly Christ* hauling the nets with a tuna like. Cavalaire-sur-Mer, France.  
© OCEANA/ Carlos Suárez



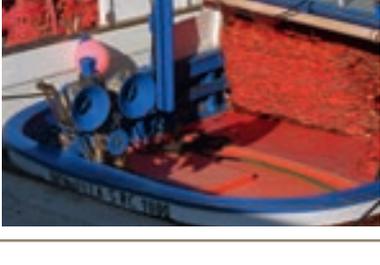


Bottlenose dolphin (*Tursiops truncatus*). © OCEANA/ Soledad Esnaola

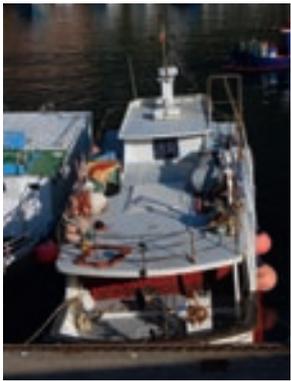
# Annexes

## Annex I.

### Italian vessels that use driftnets identified by Oceana in 2008

Driftnetters Identified in Italy in 2008				
Photograph	License	Name	Port	Date
	3GL093	Albatros	Porto Cesareo	22/07/08
	3CT468	Alessio	Santa María della Scala	23/05/08
	9PA303	Angela	Cefalù	20/05/08
	2GA940	Angelina	Ponza	07/07/08
	GL091	Anna Maria	Porto Cesareo	22/07/08
	5RC1000	Antonella	Bagnara Calabria	23/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	1PA603	Antonella	San Nicola	20/05/08
	6RC320	Antonio I	Scilla	19/05/08
	5RC1107	Aquila Reale	Bagnara Calabra	23/05/08
	6VM242	Arturo Padre	Cetraro	18/05/08
	2GA1060	Azzurra	Ponza	07/07/08

**Driftnetters Identified in Italy in 2008**

Photograph	License	Name	Port	Date
	3CS822	Biagio Anna	Sorrento	17/05/08
	2GA1040	Burrasca	Ponza	07/07/08
	3CS841	Carlo Conny	Sorrento	17/05/08
	3CS799	Carlo Luigi	Sorrento	17/05/08
	1MZ1191	Daniela	Lipari	17/07/08
	6MZ517	Dio Grande	Sant'Agata di Militello	20/05/08

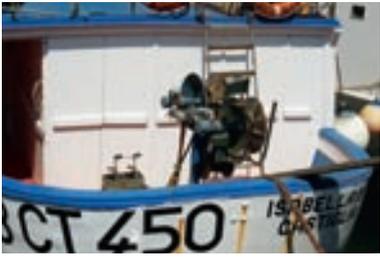
## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	6MZ517	Dio grande	Sant'Agata di Militello	21/07/08
	14ME621	Diomede II	Giardini-Naxos	23/05/08
	5RC1051	Don Rocco	Bagnara Calabria	23/05/08
	3CT492	Dorotea	Santa Maria la Scala	23/05/08
	3CS826	Elisabetta	Sorrento	17/05/08

**Driftnetters Identified in Italy in 2008**

Photograph	License	Name	Port	Date
	7PA1860	Federica II	Al Oeste de la Isla de Pantelería	29/06/08
	6MZ296	Francesco	Sant'Agata de Militello	20/05/08
	2GA984	Francesco	Ponza	07/07/08
	CT2853	Francesco Padre (Antares)	Stazzo	23/05/08
	2GA930	Franchina	Ponza	07/07/08
	3CS806	Gabriele Bruno	Sorrento	17/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	GL3931	Gelosia	Porto Cesareo	22/07/08
	3CS834	Gian Luigi	Sorrento	17/05/08
	3CT506	Giorgia	Santa María la Scala	23/05/08
	IM 1130	Giove	Imperia	09/05/08
	2GA747	Grande Elisa	Ponza Island	07/07/08
	3CT450	Isabella di Castiglia	Santa María la Scala	23/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	—	Leonardo	Bagnara Calabria	23/05/08
	5RC1067	Leone di Mare	Bagnara Calabria	23/05/08
	2GA938	Lo Sparviero	Ponza	07/07/08
	1GA1313	Lola II	Formia	15/05/08
	12SA275	Lorena Paola	Marina Di Camerota	17/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	3CS836	Luigi Padre	Sorrento	17/05/08
	3GL083	Maestrale	Porto Cesareo	22/07/08
	4PA1153	Marco I	Sferracavallo	20/05/08
	UNK	Maria A II	Ponza	07/07/08
	ME2885	Maria de la Montagna II	Giardini-Naxos	23/05/08
	3CS808	Marianna Madre	Sorrento	17/05/08

Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	1MZ1203	Marino	Lipari	17/07/08
	13SA0035	Marisa	Marina di Camerota	17/05/08
	12ME326	Mary	Santa Teresa a Riva	23/05/08
	5RC1079	Mistral	Bagnara Calabra	23/05/08
	2CT418	Monella	Stazzo	23/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	2GA984	Nettuno	Ponza	07/07/08
	2GA1017	Noé	Ponza	07/07/08
	1NA2155	Nuovo S. Vito	Forio (Ischia)	16/05/08
	6RD307	Orazio II	Scilla	19/05/08
	14ME619	Orsa Maggiore	Santa María la Scala	23/05/08
	9PA352	S. Padre Pio	Cefalú	20/05/08

**Driftnetters Identified in Italy in 2008**

Photograph	License	Name	Port	Date
	—	Padre Pio	Ponza	07/07/08
	1NA2136	Papa Antonio	Forio (Ischia)	16/05/08
	5RC1073	Peppe Labrazzi	Bagnara Calabra	23/05/08
	MZ1215	Peppuccio	Lipari	21/07/08
	6MZ457	Perla del Tirreno	Santa Agata de Militello	21/07/08

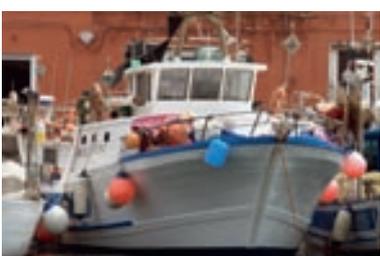
## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	2GA1037	Remi	Ponza	07/07/08
	7PA1824	Ricciolina	Porticello	20/05/08
	1CT729	Romina	Stazzo	23/05/08
	3CS828	Rosa Dei Venti	Sorrento	17/05/08
	4PA1124	Rosalia	Sferracavallo	20/05/08
	1MZ1196	S. Angelo	Lipari	17/07/08

**Driftnetters Identified in Italy in 2008**

Photograph	License	Name	Port	Date
	9PA327	S Giuseppe	Cefalú	21/07/08
	1MZ1144	S. Giuseppe	Lipari	17/07/08
	2GA1012	S. Vincenzo	Ponza	07/07/08
	IM 1196	S. Gennaro	Imperia	09/05/08
	7MZ542	S. Giacomo	Sant'Agata de Militello	20/05/08
	UNK	Sacro Cuore di Gesu	Stazzo	23/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	IM1185	Salvatore I	Imperia	09/05/08
	9PA350	Salvatrice	Cefalù	20/05/08
	7PA2018	San Antonio	Porticello	20/05/08
	MZ1708	San Gaetano	Lipari	21/07/08
	2CT338	San Giovanni	Stazzo	23/05/08
	2GA1047	San Michele	Ponza	07/07/08

**Driftnetters Identified in Italy in 2008**

Photograph	License	Name	Port	Date
	1MZ1190	Santa Barbara	Lipari	17/07/08
	9SA334	Santa Bárbara	Palinuro	17/05/08
	GL3969	Santa Cesarea	Porto Cesareo	22/07/08
	3GL009	Santa Maria	Porto Cesareo	22/07/08
	TA4622	Santa Maria del Alto Mare	Taranto	22/07/08
	7PA1837	Silvestre	Porticello	20/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	2CT347	Sirena del Mare	Stazzo	23/05/08
	1NA2151	T. e M. Padre	Forio (Ischia)	16/05/08
	2GA967	Tania	Ponza	07/07/08
	3CT514	Ulisse	Santa María la Scala	23/05/08
	2GA1045	Uragano	Ponza	07/07/08
	6RC318	Venere	Scilla	19/05/08

## Driftnetters Identified in Italy in 2008

Photograph	License	Name	Port	Date
	2LI2890	Verena	Porto Santo Estéfano	11/05/08
	2CT374	Vittorio Venetto II	Stazzo	21/07/08
	UNK	—	Imperia	09/05/08
	1GA1255	—	Formia	15/05/08
	2GA972	—	Ponza	07/07/08
	2GA981	—	Ponza	07/07/08

Driftnetters Identified in Italy in 2008				
Photograph	License	Name	Port	Date
	1MZ1180	—	Lipari	21/07/08
	UNK	—	Porto Cesareo	22/07/08
	—	—	Bagnara Calabria	23/05/08
	—	—	Bagnara Calabria	23/05/08

## Annex II.

### Examples of Moroccan vessels observed carrying driftnets on board

Driftnetters Identified in Morocco in 2008				
Photograph	License	Name	Port	Date
	2-114	El Bahr	Al Hoceima	27/08/08
	3-3-112	Alamana	Al Hoceima	27/08/08
	3-208	Saif Al Islam	Al Hoceima	27/08/08
	2-19	UNK	Al Hoceima	27/08/08
	6-900	El Hibia	Al Hoceima	27/08/08

## Driftnetters Identified in Morocco in 2008

Photograph	License	Name	Port	Date
	7-131	Ennounge	Al Hoceima	27/08/08
	3-433	El Maimmouni 2	M'diq	28/08/08
	3-3-1470	Maria Luisa	M'diq	28/08/08
	7-604	Ghazraou	M'diq	28/08/08
	UNK 1	UNK	M'diq	28/08/08

**Driftnetters Identified in Morocco in 2008**

Photograph	License	Name	Port	Date
	33_119	UNK	M'diq	28/08/08
	3/3-20	Jamil	M'diq	28/08/08
	3/3-168	El Hachad	M'diq	28/08/08
	3-413	UNK	Tangiers	28/08/08
	3-316	UNK	Tangiers	28/08/08

## Driftnetters Identified in Morocco in 2008

Photograph	License	Name	Port	Date
	3-570	Beyrou II	Tangiers	28/08/08
	3-575	Ibnou Majid III	Tangiers	28/08/08
	3-488	Oualid	Tangiers	28/08/08
	UNK 3	UNK	Tangiers	28/08/08
	UNK 5	UNK 5	Tangiers	28/08/08
	UNK 6	UNK 6	Tangiers	28/08/08

**Driftnetters Identified in Morocco in 2008**

Photograph	License	Name	Port	Date
	3-472	Aassal	Tangiers	28/08/08
	3-623	UNK	Tangiers	28/08/08
	3-616	Tahiti II	Tangiers	28/08/08
	7-76	Bouchkane	Tangiers	28/08/08
	7-526	Boujdour	Tangiers	28/08/08

### Driftnetters Identified in Morocco in 2008

Photograph	License	Name	Port	Date
	7-557	Mona	Tangiers	28/08/08
	6/1-140	Mustapha	Tangiers	28/08/08
	7-109	Nachab	Tangiers	28/08/08
	3-148	Naji	Tangiers	28/08/08

**Driftnetters Identified in Morocco in 2008**

Photograph	License	Name	Port	Date
	3-409	Jnan Lakhdar	Tangiers	28/08/08
	6-967	Permaine	Tangiers	28/08/08
	3-140	UNK	Tangiers	28/08/08
	3-359	Zam	Tangiers	28/08/08

### Driftnetters Identified in Morocco in 2008

Photograph	License	Name	Port	Date
	7-85	UNK	Tangiers	28/08/08
	UNK 4	UNK	Tangiers	28/08/08
	3-154	Batei	Tangiers	28/08/08





The illegal Moroccan driftnetter Baghdad II hauling the nets, Southeast of Alborán island. August 2007. © OCEANA/ Jesús Renedo

# References

**001.** Read, A.J., Drinker, P. & S. Northridge (2003). By-catches of marine mammals in U.S. fisheries and a first attempt to estimate the magnitude of global marine mammal by-catch. IWC paper number SC/55/BC. 12pp. International Whaling Commission.

**002.** UNGA (1989). Large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas. United Nations General Assembly Resolution 44/225.A/RES/44/225. 85th plenary meeting. 22 december 1989; UNGA (1990). Large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas. United Nations General Assembly Resolution 45/197. A/RES/45/197. 71st plenary meeting. 21 December 1990.; UNGA (1991). Large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas. United Nations General Assembly Resolution 46/215.A/RES/215. 79<sup>th</sup> plenary meeting. 20 December 1991.

**003.** IWC (1990). Resolution in support of the United Nations General Assembly initiative regarding large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas. 42th annual Meeting of the International Whaling Commission. Noordwijk, the Netherlands. 2-6 July 1990.

**004.** Anon (2004). 2003 ICCAT Mediterranean swordfish stock assesment session. Madrid 26-29 May 2003. International commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 56 (3):789-837.

**005.** Cavallaro G., Potoschi A. & A. Cefali (1991). Fertility gonad-somatic index and catches of eggs and larvae of (*Xiphias gladius* L.1758) in the Southern Tyrrhenian Sea. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 35:502-507.

**006.** Nakamura I. (1985). Billfishes of the World. An annotated and illustrated catalogue of marlins, sailfishes, spearfishes and swordfishes known to date. FAO species catalogue. Vol. 5. FAO Fish. Synop. (125) Vol 5:65 pp.

**007.** A. Bakun. (2006). Fronts and eddies as key structures in the habitat of marine fish larvae: opportunity, adaptative response and competitive advantage. Sci. Mar. 70:105-122.

**008.** Dinatale A. (2006). EFH for large pelagic species in the Mediterranean Sea. In: Anon (2006). Sensitive and Essential Fish Habitats in the Mediterranean Sea. Report of the Mediterranean Subgroup (SGMED 06-01) of the Scientific, technical and economic Comité for fisheries (STECF). Commission of the European Communities. Rome, 6-10 March 2006.

**009.** Rey J.C. (1988). Comentarios sobre las áreas de reproducción del pez espada (*Xiphias gladius*) en el Atlántico y Mediterráneo. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 27:180-193.

**010.** Macias D., Hattour A., De la Serna J.M., Gómez-Vives M.J. & D. Godoy (2005). Reproductive characteristics of swordfish (*Xiphias gladius*) caught in the Southwestern Mediterranean during 2003. International Commission for the Conservation of Atlantic tunas. Col. Vol. Sci. Pap. 58(2):454-469.

**011.** Anon (2004). 2003 ICCAT Mediterranean swordfish stock assesment session. Madrid 26-29 May 2003. International commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 56 (3):789-837.

**012.** Tserpes G., Peristeraki P., Valvanis D.(2008) Distribution of swordfish in the eastern Mediterranean in relation to environmental factors and the species biology. Hydrobiologia, 612:241-250.

**013.** Romeo T., Consoli P., Greco S., Canese S. & F. Andaloro (2008). Swordfish (*Xiphias gladius* Teleostea: Xiphiidae) surface behaviour during reproductive period in the central Mediterranean Sea (Southern Tyrrhenian Sea). JMBA2- Biodiversity Records. In press.

**014.** Aliçli, T.Z. & I.K. Oray (1995). A preliminary report on the investigation of swordfish (*Xiphias gladius* L. 1758) caught in Turkish waters. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 44 (1):148-150.

**015.** Anon (2008). ICCAT 2007 Mediterranean swordfish stock assessment session. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 62(4): 951-1038.

- 016.** Anon (2008). Recommendation 08-03 by ICCAT on the Mediterranean Swordfish. International Commission for the Conservation of Atlantic Tunas.
- 017.** BOE (2006). Orden APA/2521/2006 del 27 de julio por la que se regula la pesca con artes de palangre de superficie para la captura de especies altamente migratorias y por la que se establece un censo unificado de palangre de superficie. Boletín Oficial del Estado. 2 de agosto 2006. N. 83:28896-28901.
- 018.** Tserpes G., Tzanatos E, Peristeraki P. Placenti V. & L. Kell (2008). A bioeconomic evaluation of different management measures for the Mediterranean swordfish. SCRS/2008/026. International Commission for the Conservation of Atlantic Tunas.
- 019.** Anon (2008). ICCAT 2007 Mediterranean swordfish stock assessment session. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 62(4): 951-1038.
- 020.** ICCAT. Task 1, May 2009.
- 021.** ACCOBAMS (2007). Synthèse des rapports nationaux. Troisième réunion des parties contractantes. MOP3/2007/Doc13. Accord sur la Conservation de Cétacés de la Mer Noire, de la Méditerranée et de la zone Atlantique adjacente. Dubrovnik, 22-25 octobre 2007.
- 022.** Ferreti M. (1990). Les filets maillants dérivants : caractéristiques et développement. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 33:143-151.
- 023.** Di Natale, A.; Srouf, A.; Hattour, A.; Keskin, Ç; Idrissi, M.; Orsi Relini, L. Regional study on small tunas in the Mediterranean including the Black Sea. Studies and Reviews. General Fisheries Commission for the Mediterranean. No. 85. Rome, FAO. 2009. 132 p.
- 024.** De la Serna, J.M., Alot, E. & E. Rivera (1991). Análisis de las CPUES por grupos de tallas del pez espada (*Xiphias gladius*) capturado con artes de superficie en el área del Estrecho de Gibraltar durante los años 1989 y 1990. Relación con la fase lunar y otros factores ambientales. ICCAT. Col. Vol. Sci. Pap. XXXIX (2): 626-634. International Commission for the Conservation of Atlantic Tunas.
- 025.** Di Natale A. & A. Mangano (1995). Moon phases influences on CPUE: a first analysis of swordfish driftnet catch data from the Italian fleet between 1990 and 1991. SCRS/1994/086. Col. Vol. Sci. Pap. ICCAT, 44(1):264-267. International Commission for the Conservation of Atlantic Tunas.
- 026.** Dinatale, A. & Notarbartolo di Sciarra (1994). A review of passive fishing nets and trap fisheries in the Mediterranean and of cetaceans by-catch. Rap. Int. Whal. Comm. Special issue1 5:189-202.
- 027.** Bearzi G (2002). Interactions between cetacean and dolphin in the Mediterranean Sea. In: G. Notarbartolo di Sciarra (Ed), Cetaceans of the Mediterranean and Black Seas: state of knowledge and conservation strategies. A report to the ACCOBAMS Secretariat, Monaco, February 2002. Section 9, 20p; Birkun, A (2002). Interactions between cetaceans and fisheries in the Black Sea. In: G. Notarbartolo di Sciarra (ed.) Cetaceans of the Mediterranean and Black Seas: State of knowledge and conservation strategies. A report to the ACCOBAMS Secretariat. Monaco, February 2002. Section 10, 11 pp.
- 028.** Dinatale, A. (1990). Marine mammals interactions in *Scombridae* fishery activities: the Mediterranean case. ICCAT. Col. Vol. Sci. Pap. 33:140-142.
- 029.** Tudela S., Kai Kai, A., Maynou, F., El Andalossi, M. & P. Giuglielmi (2005). Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea (SW Mediterranean). Biological Conservation. 121:65-78.
- 030.** Bearzi, G. (2003). *Delphinus delphis* (Mediterranean subpopulation). In: IUCN 2008. 2008 IUCN Red List of Threatened Species. <[www.iucnredlist.org](http://www.iucnredlist.org)>. Downloaded on 04 May 2009.
- 031.** Bearzi G., Notarbartolo di Sciarra G., Reeves R.R., Cañadas A., Frantzis A. (2004). Conservation Plan for shortbeaked common dolphins in the Mediterranean Sea. ACCOBAMS, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area. 90 pp.

- 032.** Anon (2008). Report of the transversal working group on by-catch/incidental catches. General Fisheries commission for the Mediterranean. Rome, Italy 15-16 September 2008.
- 033.** G. Nortarbartolo di Sciara (1997). Problema di conservazione degli elasmobranchi in Italia. *Quad. Civ. Saz. Idrobiol.* N. 22: 11-15.
- 034.** Cavanagh R.D. & C. Gibson (2007). Overview of conservation status of cartilaginous fishes (Chondrichthyans) in the Mediterranean Sea. IUCN, Gland, Switzerland, and Malaga, Spain. 42 pp.
- 035.** Tudela S. (2005). Ecosystem effects of fishing in the Mediterranean Sea: an analysis of the major threats of fishing gear and practices to biodiversity and marine habitats. *GFCM Studies and reviews n.74.* Food and Agriculture Organisation of the United Nations. Rome, 2005.
- 036.** Gerosa G & P.Casale (1999). Interaction of marine turtles with fisheries in the Mediterranean. *Mediterranea Action Plan, Tunis:UNEP, RAC/SPA.* 59 pp.
- 037.** S. Northridge (1991). Driftnet fisheries and their impact on non target species: a worldwide review. *FAO fisheries technical paper N.320.* Food and Agriculture Organisation of the United Nations.
- 038.** Ferreti M. (1990). *Op. Cit.* 22.
- 039.** ECC (1992). Council Regulation (ECC) N.345/92 of 27 January amending for the eleventh time Regulation (ECC) N.3094/86 laying down certain technical measures for the conservation of fishery resources. *Official Journal. L 42.18.02.1992.*
- 040.** Placenti V. & L. Malvarosa (2000). The driftnet italian program, ban rationalisation and re-conversion: The Sicilian case. *IREPA, September 2000.*
- 041.** L. Paul (1994). High Seas driftnetting: The plunder of commons. *Earthtrust.*
- 042.** OJEU (1997-1998). Council Regulation (EC) N.894/97 of 29 April 1997 laying down certain technical measures for the conservation of fishery resources (O J L 132, 23.5.1997) as amended by Council Regulation (EC) N.1239/98 of 8 June 1998 (O J L 171, 17.6.1998) until 31 December 2001.
- 043.** GFCM (1997). Resolution 97/1. Resolution on driftnet fishing. General Fisheries Commission for the Mediterranean. Report of the Twenty-Scnd Session of the General Fisheries Commission for the Mediterranean. Food and Agriculture Organisation of the United Nations.
- 044.** Anon (2003). Recommendation relating to the Mediterranean swordfish (03-04). Report of the biennial period, 2002-03. PART II (2003)-Vol.1. International Commission for the Conservation of Atlantic Tunas.
- 045.** Anon (2005). Recommendation [03-04] by ICCAT relating the Mediterranean swordfish. *GFCM /2005/3 (A).* Report of the twenty-ninth session. Food and Agriculture Organisation of the United Nations. Rome, 21-25 February 2005.
- 046.** Anon (2007). Amendment on the Annex 2 to the Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area related to the use of driftnets. Report of the third meeting of the Contracting Parties to ACCOBAMS. Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and contiguous Atlantic area. Dubrovnik, (Croatia). 22-25 October 2007. Ver también en el mismo documento: Recommendation SC4.2 of the ACCOBAMS Scientific Committee regarding the use of driftnets in the Mediterranean.
- 047.** Cornax M. J. (2007). Italian driftnets: illegal fishing continues. *Oceana.*
- 048.** FAO (2001). International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing. Food and Agriculture Organisation of the United Nations. Rome, 2001. 27 pp.
- 049.** Anon (1992). High Seas driftnet enforcement Act. 16 U.S.C. 1826a-1826c, November 2, 1992.

- 050.** NOAA (2007). Magnuson-Stevens Fisheries Conservation Act. Public Law 94-265. As amended by the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (P.L. 109-479). U.S. Department of commerce. National Oceanic and Atmospheric Administration.
- 051.** Young N.M. & S. Iudicello (2007). Worldwide Bycatch of Cetaceans. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-OPR-36. 276 pp.
- 052.** Anon (2009). Implementation of title IV of the Magnuson-Stevens Fishery Conservation and Management reauthorization Act of 2006. Report to the Congress. U.S. Department of Commerce. January 2009.
- 053.** S. Northridge (1991). Driftnet fisheries and their impact on non target species: a worldwide review. FAO fisheries technical paper N.320. Food and Agriculture Organisation of the United Nations.
- 054.** Dinatale, A., Mangano, A., Navarra, E., Schimmenti, G. & M. Valastro (1995). Swordfish (*Xiphias gladius* L.) driftnet fishery in the Tyrrhenian Sea: 1992 Report. Col. Vol. Sci. Pap. ICCAT, 44 (1):236-241. International Commission for the Conservation of Atlantic Tunas.
- 055.** Ferreti M. (1990). Op. Cit. 22.
- 056.** Anon (2004). 2003 ICCAT Mediterranean Swordfish stock assessment session. SCRS/2003/015. Col. Vol. Sci. Pap. ICCAT, 56(3):789-837.
- 057.** Ferreti M., Tarulli E. & S. Palladino. (2002). Classificazione e descrizione degli attrezzi da pesca in uso nelle marinerie italiane con particolare riferimento al loro impatto ambientale. Quaderno ICRAM No.3. 126 pp.
- 058.** DGU (2006). Decreto Ministeriale 24 Maggio recante modalità di impiego delle ferretara (piccola rete derivante). Gazzetta Ufficiale n.129. 6 giugno 2006.
- 059.** Ferreti M., Mangano A., Palladino, S. & E. Tarulli (1994). Le reti derivanti. Quaderno ICRAM No.13. Istituto Centrale per la Ricerca Applicata al Mare.
- 060.** Cornax M. J. (2007). Italian driftnets: illegal fishing continues. Oceana.
- 061.** Di Natale, A., Mangano, A., Murizi, A., Montaldo, L. Navarra, E., Pinca, S., Schimmenti, G., Torchia, G. & M. Valastro (1995). A review of driftnet catches by the Italian fleet: species composition, observers data and distribution along the net. Col. Vol. Sci. Pap. ICCAT, 44 (1): 226-235. International Commission for the Conservation of Atlantic Tunas.
- 062.** ICCAT. Task 1. May 2009.
- 063.** Lauriano G., Fortuna, C.M., Romeo, T., Canese, S. & S. Greco. An update on sperm whale status in the Southern Tyrrhenian Sea: overview from stranding report. Central Institute for Applied Marine Research ICRAM: SC/56/IA7. J. Cetacean. Res. Manage.
- 064.** G. Nortarbartolo di Sciarra (1990). A note on the cetacean incidental catch in the Italian driftnet swordfish fishery, 1986-1988. Rep. Int. Whal. Comm. 40: 459-460.
- 065.** Dinatale A. & G. Nortarbartolo di Sciarra (1994) A review of passive fishing nets and traps in the Mediterranean Sea and of cetaceans by-catch. Rap. Int. Whal. Comm. Special issue 1, 5:189-202.
- 066.** Di Natale, A., Mangano, A., Murizi, A., Montaldo, L. Navarra, E., Pinca, S., Schimmenti, G., Torchia, G. & M. Valastro (1995). A review of driftnet catches by the Italian fleet: species composition, observers data and distribution along the net. Col. Vol. Sci. Pap. ICCAT, 44 (1):226-235.
- 067.** OJEU (1998). Council Regulation (EC) N.1239/98 amending Regulation (EC) N.894/97 laying down certain measures for the Conservation of fisheries resources. Official Journal of the European Union. L171. 17 June 1998.
- 068.** OJEU (1997). 97/292 Council Decision of 28 April 1997 on a specific measure to encourage Italian fishermen to diversify out certain fishing activities. Official Journal of the European Union. L121:20-22. 13 May 1997.

**069.** GU (1997). Decreto Ministeriale 23 Maggio 1997. (con modifiche in neretto del D.16.6.97). Modalità tecniche di attuazione di fermo di razionalizzazione e riconversione delle unità abilitate alla pesca con reti da posta derivante. Gazzetta Ufficiale n.134. 11 de giugno de 1997.

**070.** EU (2004). Evaluation ex post des programmes de l'IFOP pour la période 1994-1999. Rapport National Italie. Direction Generale Pêche. Comisión Europeene. Avril 2004.

**071.** CD (2004). Interrogazione (4-09808). Seduta del 17 de giugno 2004 XIV legislatura. Allegato B ai resoconti. Camera dei deputati.

**072.** GU (1998). Decreto Ministeriale 14 ottobre 1998. Modalità tecniche dell'atrezzo denominato *ferrettara*. Gazzetta Ufficiale n. 281. 1 dicembre 2001.

**073.** GU (2002). Legge 6 luglio 2002, n. 134. Conversione in legge, con modificazioni, del decreto-legge 7 maggio 2002, n. 85, recante disposizioni urgenti per il settore della pesca. Gazzetta Ufficiale n.157 del 6 luglio 2002.

**074.** GU (2002). Decreto 25 luglio 2002. Piano obbligatorio di dismissione e riconversione delle unità autorizzate alla pesca con reti da posta derivante. Ministero delle Politiche Agricole e Forestali. Gazzetta Ufficiale n. 288 del 9 dicembre 2002.

**075.** GU (2003). Decreto 4 aprile 2003. Integrazioni del sistema di pesca alle imbarcazioni, di cui al decreto 25 luglio 2002. Ministero delle Politiche Agricole e Forestali. Gazzetta Ufficiale n. 139 del 18 giugno 2003.

**076.** EC (2004). Commission Staff Working document. Annex to the Annual Report from the Commission to the Council and the European Parliament on Member State's efforts during 2003 to achieve a sustainable balance between fishing capacity and fishing opportunities. [COM(2004) 799 final]. Commission of the European Communities. Brussels, 14 December 2004.

**077.** GU (2005). Decreto 19 aprile 2005. Uso delle reti da posta nelle isole minori. Ministero delle Politiche Agricole e Forestali. Gazzetta Ufficiale n.109 del 12 maggio 2005.; CD (2005). Interrogazione a risposta in Commissione 5-04490 presentata da Francesco Onnis il mercoledì 22 giugno 2005 nella seduta n.643. Legislatura XIV. Camera dei Deputati. 22 giugno 2005.

**078.** GU (2006). Op. Cit. 32.

**079.** DOUE (2002). Pregunta parlamentaria E-2797/2001. Respuesta del Sr. Fischler en nombre de la Comisión. Diario oficial de la Unión Europea. C 93 E. 18 de enero de 2002.

**080.** GUUE (2008). Ricorso presentato il 10 de giugno 2008- Commissione delle Comunità europee/Repubblica italiana. Causa C-249/08. Gazzetta Ufficiale dell'Unione europea. C209:30-31. 15 agosto 2008.

**081.** 2006 report of the Secretary of commerce to the Congress of the United States concerning U.S. actions taken on foreign large-scale high seas driftnet fishing pursuant to section 206 of the Magnuson-Stevens fishery conservation and management act, as amended by public law 104-297, the sustainable fisheries act of 1996.

**082.** MIPAAF (2007). Detenzione a bordo del natante armato per la pesca di reti o attrezzi di cui sia, in modo assoluto, proibito l'uso con l'impiego del natante stesso. Circolare n.004/2007. Ministero delle Politiche Agricole, Alimentari e Forestali. 10 gennaio 2007.

**083.** Rai3 "Mare Nostrum: sfruttamento marino" [http://www.report.rai.it/R2\\_popup\\_articolofoglia/0,7246,243%255E1080948,00.html](http://www.report.rai.it/R2_popup_articolofoglia/0,7246,243%255E1080948,00.html)

**084.** CD (2008). Interrogazione a risposta scritta. 4-01663. Camera dei Deputati. Seduta N. 89 del 19/11/2008.

**085.** Oceana (2009). Press Release [http://oceana.org/europe/media/press-releases/press\\_release/0/982](http://oceana.org/europe/media/press-releases/press_release/0/982)

**086.** Cornax M. J. (2008). Redes de deriva italianas: la pesca ilegal continua. Oceana.

**087.** Spagnolo, M. & R. Sabatella (2004). Driftnets buy back program: a case of institutional failure. Preliminary draft. International workshop on fishing vessel and license buy-back program. University of California. March 22-24, 2004.

- 088.** Dinatale A. & M. Mangano (2008). CPUE series (1985-2006) by gear type in the Tyrrhenian Sea and the Strait of Sicily. International Commission for the Conservation of Atlantic Tunas. Coll. Vol. Sci. Pap. 62(4):1128-1141.
- 089.** Demetrio G. & P. Megalofonou (1988). Mortality of marine turtles (*Caretta caretta* L.) and (*Dermodochelys coriacea* L.) consequent to accidental capture in the Gulf of Taranto. Rapp. Comm. Mer. Medit. 31,2.
- 090.** Cambie G. (2008). "Pesca en la costa Jónica meridional de Calabria: Economía local e impacto sobre los recursos marinos en una zona crítica de nidificación de Tortuga Boba". Tesis de Master of Science en economía y gestión de la actividad pesquera. Universidad de Barcelona.
- 091.** Oceana (2008). Thonaille: the use of driftnets by the French fleet in the Mediterranean. 2007 campaign results.
- 092.** EC (2002). Commission staff working paper. Subgroup on Fishery and Environment (SGFEN). Scientific, Technical and Economic Committee for Fisheries (STECF). Brussels 10-14 December 2001. SEC (2002)376. Commission of European Communities. Brussels, 3 April 2002.
- 093.** David L. (2006). Suivi de la pêche a la thonaille. Quel impact sur les dauphins bleuet-blanc ?. Rapport final 2005. Groupe Étude des Cétacés en Méditerranée.
- 094.** Oceana (2007). Thonaille: the use of driftnets by the French fleet in the Mediterranean.
- 095.** EC (2002). Op. Cit. 19.
- 096.** Farrugio H. (1980). Op. Cit. 20.
- 097.** Cort J. L (2007). El enigma del atún rojo reproductor del Atlántico Nororiental. Centro Oceanográfico de Santander. Instituto Español de Oceanografía. 61 pp.
- 098.** Imbert G., Gaertner J\_C. et Laubier L., 2000. Expertise scientifique de la pêche à la thonaille méditerranéenne : suivi en mer de la campagne 2000. Centre D'Océanologie de Marseille. Région PACA, commande n°3340, 90 pp.
- 099.** ICCAT (2006). Recommendation [06-05] by ICCAT to establish a multiannual recovery plan for bluefin tuna in the Eastern Atlantic and Mediterranean. Report for the biennial period 2006-2007. Part 1(2006)-Vol.1. International Commission for the Conservation of Atlantic Tunas. Madrid, Spain; OJEU (2007). Council Regulation (EC) N.643/2007 of 11 June 2007 amending Regulation (EC) N.41/2007 as concerns the recovery plan for bluefin tuna recommended by the International Commission for the Conservation of Atlantic Tunas. Official Journal of the European Union. L 151; 13.6.07.
- 100.** David L. (2007). Synthèse des études scientifiques menées sur la thonaille Méditerranéenne. Typologie et Captures (21000-2005). ÉcoOcéan Institut.
- 101.** David L. (2006). Op. Cit. 93.
- 102.** Orsi Relini L., Palandri G., Garibaldi F., Cima C. Lanteri L., & M. Relini (2008). A time series of swordfish longline CPUE in the Northwestern Mediterranean: search for explanation and for climatic factors influencing fish abundance. International Commission for the Conservation of Atlantic Tunas. Coll. Vol. Sci. Pap. 62 (4):1097-1106.
- 103.** OJEU (1997-1998). Council Regulation (EC) N.894/97 of 29 April 1997 laying down certain technical measures for the conservation of fishery resources (O J L 132, 23.5.1997) as amended by Council Regulation (EC) N.1239/98 of 8 June 1998 (O J L 171, 17.6.1998) until 31 December 2001.
- 104.** JORF (2003). Arrête du 1er août portant la création d'un permis de pêche spécial pour la pêche à l'aide de l'engin appelé thonaille ou courantille volante. NOR : AGRM0301751A. Journal Officiel de la République Française. P.4829. 30 Août 2003.
- 105.** JORF (2004). Arrête du 8 Juillet 2004 modifiant l'arrête du 1er août 2003 portant la création d'un permis de pêche spécial pour la pêche à l'aide de l'engin appelé «thonaille» ou « courantille volante ». NOR: AGRM0401593A. Journal Officiel de la République Française. 15 Août 2004.

**106.** JORF (2005). Arrêté du 28 juillet 2005 modifiant l'Arrêté du 1<sup>er</sup> août 2003 portant la création d'un permis de pêche spécial pour la pêche à l'aide de l'engin appelé «thonaille» ou «courantille volante». NOR: AGRM0501945A. Journal Officiel de la République Française. 15 août 2005.

**107.** David L. (2007). Op. Cit. 100.

**108.** CE (2005). Association France Nature Environnement, Groupe de Recherche sur les cétacés (GREC), req. N°265034, 265035, à mentionner aux tables du recueil Lebon. Conseil d'État, 10 Août 2005.

**109.** JORF (2006). Arrêté du 11 juillet 2006 portant répartition du quota de thon rouge (*Thunnus thynnus*) de l'océan Atlantique à l'est de la longitude 45° O et la Méditerranée accordé à la France pour l'année 2006 pour les navires immatriculés dans un port de la Méditerranée au 1<sup>er</sup> janvier 2006. NOR :AGRM0601362A. Journal Officiel de la République française. 21 juillet 2006.

**110.** Oceana (2006). Thonaille: el uso de redes de deriva por la flota francesa del Mediterráneo.

**111.** OJEU (2007). Council Regulation (EC) N.809/2007 of 28 June 2007 amending Regulations (EC) N.894/97 (EC), N.812/2004 and (EC) N.2187/2005 as concerns driftnets. Official Journal of the European Union. L 182; 12.7.2007.

**112.** ICCAT (2006). Recommendation [06-05] by ICCAT to establish a multiannual recovery plan for bluefin tuna in the Eastern Atlantic and Mediterranean. Report for the biennial period 2006-2007. Part 1(2006)-Vol.1. International Commission for the Conservation of Atlantic Tunas. Madrid, Spain; OJEU (2007). Council Regulation (EC) N.643/2007 of 11 June 2007 amending Regulation (EC) N.41/2007 as concerns the recovery plan for bluefin tuna recommended by the International Commission for the Conservation of Atlantic Tunas. Official Journal of the European Union. L 151; 13.6.07.

**113.** JORF (2007). Arrêté du 28 Juin 2007 portant la répartition du quota du thon rouge (*Thunnus thynnus*) de l'océan Atlantique à l'Est de la longitude 45°O et la Méditerranée accordé à la France pour l'année 2007, pour les navires immatriculés dans un port de la Méditerranée au 1<sup>er</sup> Janvier 2007. NOR :AGRM0753742A. Journal Officiel de la République Française. 30 Juin 2007.

**114.** Declaraciones de Mourad Kahoul, presidente de Medisamark. "L'appel à la révolte du président des thoniers. Midi Libre. 13/06/07.

**115.** ICCAT. <http://www.iccat.int/en/t1.asp>

**116.** JORF (2008). Arrête 28 mars 2008 portant la création d'un permis de pêche spécial pour la pêche professionnelle du thon rouge (*Thunnus thynnus*) dans l'océan Atlantique à l'est de la longitude 45°O et en mer Méditerranée. NOR : AGRM0802569A. Journal Officiel de la République Française n.83. 8 avril 2008.

**117.** BO (2008). Mise en œuvre et contrôle des dispositions communautaires relatives à la pêche au thon rouge en Atlantique et Méditerranée. Circulaire DPMA/SDPM/C2008-9611 du 28 avril 2008. Bulletin Officiel n.18 du 2 Mai 2008. Ministère de l'Agriculture et la Pêche.

**118.** JORF (2008). Arrête 9 avril 2008 établissant les modalités et répartition du quota de thon rouge (*Thunnus thynnus*) de l'océan Atlantique à l'est de la longitude 45° O et de la Méditerranée accordé à la France pour l'année 2008. NOR :AGRM0801994A. Journal Officiel de la République Française. 16 avril 2008.

**119.** Ministère de l'Agriculture et de la pêche (2007). Indemnisation dans le cadre «de minimis» des pêcheurs à la thonaille». Direction des pêches maritimes et de l'aquaculture. Circulaire DPMA/SDPM/L2007-9619. 11 septembre 2007.

**120.** Ministère de l'Agriculture et de la Pêche (2007). Liste de navires ayant des antécédents de pêche à la thonaille leur permettant de bénéficier d'un permis de pêche spécial pour le thon rouge en Méditerranée. Direction des pêches maritimes et de l'aquaculture. Note de Service DPMA/SDPM/N2007-9636. 16 octobre 2007.

**121.** CJEC (2007). Action brought on 13 December 2007.-Commission of European Communities vs. French Republic. Case C-556/07. The Court of Justice of the European Communities.

- 122.** ECJ (2007). Recours introduit le 5 octobre 2007. République Française / Conseil de l'Union Européenne. Affaire T-382/07. Cour de Justice des Communautés Européennes.
- 123.** CJEC (2009). Arrêt de la Cour (Troisième Chambre) 5 Mars 2009. Commission de la Communauté Européenne vs. La République Française. Affaire C-556/07. The Court of Justice of the European Communities.
- 124.** CJEC (2009). Arrêt de la Cour (Troisième Chambre). 5 Mars 2009. La République Française v. Conseil de l'Union Européenne. Affaire C-479/07. The Court of Justice of the European Communities.
- 125.** BU (2008). Avenant à la circulaire DPMA/SDPM/C2008-9612 du 26 de mai 2008. Mise en œuvre du plan pluriannuel de reconstitution du thon rouge pour l'année 2008: régime de permis de pêche spéciaux, quotas de capture, et effort de pêche. Bulletin Officiel. Ministère de l'Agriculture et de la Pêche. 9 Septembre 2008.
- 126.** Anon (2006). Recommendation 06-05 by ICCAT to establish a multi-annual recovery plan for bluefin tuna in the Eastern Atlantic and Mediterranean. International Commission for the Conservation of Atlantic Tunas.
- 127.** El Hannach A. (1987). Pêcherie de l'espadon au Maroc. International Commission for the Conservation of the Atlantic Tunas. Col. Vol. Sci. Pap. 27:147-154.
- 128.** Anon (2004). 2003 ICCAT Mediterranean swordfish stock assesment session. Madrid 26-29 May 2003. International commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 56 (3):789-837.
- 129.** EUROSTAT and ICCAT (Task 1) data.
- 130.** Idrissi M. (2004). Project Regional pour le développement d'aires protégées marines et côtières dans la région méditerranéenne (Projet MedMPA). Étude de l'environnement socio-économique de la zone côtière du Parc National d'Alhoceima. CAR/ASP. Plan des Nations Unies pour l'Environnement.
- 131.** Anon (2008). Report of the biennial period 2006-2007. Part II (2007). Vol. 3. International Commission for the Conservation of Atlantic Tunas.
- 132.** Sour A. & N. Abid (2002), L'exploitation et la biologie de l'espadon (*Xiphias gladius*) et du thon rouge (*Thunnus thynnus*) des côtes marocaines. International Commission for the Conservation of Atlantic Tunas. SCRS/2002/48.
- 133.** Srour A. & Abid N.(2004). Prises accessoires dans la pêcherie d'espadon au fmd dans la côte Méditerranéenne marocaine. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 56(3) :978-820.
- 134.** Cornax M. J., Pastor X. & R. Aguilar (2006). The use of driftnets by the Moroccan fleet. Oceana.
- 135.** Silvani L., Gazo M. & A. Aguilar (1999). Spanish driftnet fishery and incidental catches in the western Mediterranean.. Biol. Cons. 90: 79-85.
- 136.** Tudela S., Kai Kai, A., Maynou, F., El Andalossi, M. & P. Giuglielmi (2005). Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea (SW Mediterranean). Biol. Cons. 121:65-78.
- 137.** ICCAT. Task 1, May 2009.
- 138.** El Hannach A. (1987). Pêcherie de l'espadon au Maroc. International Commission for the Conservation of the Atlantic Tunas. Col. Vol. Sci. Pap. 27:147-154.
- 139.** MPMM(1991). Circulaire n°1232 du 11 Mars 1991; MPMM (1992). Circulaire n°5458 du 20 novembre de 1992.
- 140.** Anon (2005). Informe del periodo bienal 2004-2005. 1ª Parte (2004). Vol.1. Comision Internacional para la Conservación del Atún Atlántico.
- 141.** Anon (2008). Report for the biennial period, 2006-2007. Part II (2007). Vol 1. International Commission for the Conservation of Atlantic Tunas.

**142.** NOAA (2004). 2004 Report of the Secretary of Commerce to the Congress of the United States concerning U.S. actions taken on foreign large scale high seas driftnet fishing pursuant to section 206 (e) of the Magnuson-Stevens fishery conservation and management Act. National Oceanic and Atmospheric Administration.

**143.** Young N.M. & S. Iudicello (2007). Worldwide Bycatch of Cetaceans. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-OPR-36. 276 pp.

**144.** DOUE (2006). Fisheries partnership agreement between the European Communities and the Kingdom of Morocco. Official Journal of the European Union. L4/144. 29 May 2006.

**145.** Idrissi M. M. (2006). Pêcherie de l'espadon en Méditerranée marocaine: exploitation, analyse socio-économique et commercialisation. Tesis de Master of Science en economía y gestión de la actividad pesquera. Universidad de Barcelona.

**146.** Abid N. & Idrissi M. (2008). Analysis of the size data of swordfish (*Xiphias gladius*) caught by the Moroccan driftnet fishery operating in the Mediterranean Sea. Period 1999-2006. International Commission for the Conservation of Atlantic Tunas. SCRS/2008/33.

**147.** Akyol O., Erdem. M, Ünal V & T.Cehyan (2005). Investigations on driftnet fishery for swordfish (*Xiphias gladius* L.) in the Aegean Sea. Turk. J. Vet. Sci. 29: 1225-1231.

**148.** Aliçli, T.Z. & I.K. Oray (1995). A preliminary report on the investigation of swordfish (*Xiphias gladius* L. 1758) caught in Turkish waters. International Commission for the Conservation of Atlantic Tunas. Col. Vol. Sci. Pap. 44 (1):148-150.

**149.** Akyol O., Erdem. M, Ünal V & T.Cehyan (2005). Investigations on driftnet fishery for swordfish (*Xiphias gladius* L.) in the Aegean Sea. Turk. J. Vet. Sci. 29: 1225-1231.

**150.** Özturk B., Özturk A.A. & A. Dede (2001). Dolphin bycatch in the swordfish driftnet fishery in the Aegean Sea. Rapp. Comm.. Int. Mer. Medit. 36: 308.

**151.** Anon. (2006). Turkish Fishery Regulation Circular (37/1) for Marine and Inland Commercial Fisheries in Fishing Season 2006 -2008, (in Turkish). T.C. TKB-KKGM, R.G. Sayı. 26269 Ankara, 108 p.

**152.** Anon. (2006). Turkish Fishery Regulation Circular (37/1) for Marine and Inland Commercial Fisheries in Fishing Season 2006 -2008, (in Turkish). T.C. TKB-KKGM, R.G. Sayı. 26269 Ankara, 108 p.

**153.** Ceyhan, T. & O. Akyol (2008). Swordfish Fishery in Turkish Aegean Sea. Swordfish (*Xiphias gladius* L.) fishery in Turkish Aegean Sea. SCRS/2008/025. International Commission for the Conservation of Atlantic Tunas.

**154.** Karakulak F.S., Bilgi B. & M Gökoglu (2007). Albacore (*Thunnus alalunga* Bonaterre 1788) fishery in Antalya bay (Levantine Basin). Rapp. Comm. Int. Mer. Medit. 38:512.

**155.** Lack M. & Sant G. (2008). Illegal, unreported and unregulated shark catch: A review of current knowledge and action. Department of the Environment, Water, Heritage and the Arts and TRAFFIC, Canberra.

**156.** Hattour A. (2000). Rapport des activités de recherche sus les grands pelagiques des eaux tunisiennes. Année 2000. FAO/COPEMED/THONIDES.

**157.** ACCOBAMS (2007). Synthèse des rapports nationaux. Troisième réunion des parties contractantes. MOP3/2007/Doc13. Accord sur la Conservation de Cétacés de la Mer Noire, de la Méditerranée et de la zone Atlantique adjacente. Dubrovnik, 22-25 octobre 2007.

**158.** Tudela S. (2005). Ecosystem effects of fishing in the Mediterranean Sea: an analysis of the major threats of fishing gear and practices to biodiversity and marine habitats. GFCM Studies and reviews n. 74. Food and Agriculture Organisation of the United Nations. Rome, 2005.

The research included in this report and its publication were carried out by **Oceana** with the support of **Fundación MarViva**.

**Project Director** • Xavier Pastor

**Authors** • Maria José Cornax, Enrique Pardo

**Editor** • Marta Madina

**Editorial Assistants** • Rebecca Greenberg, Aitor Lascurain, Ángeles Sáez, Natividad Sánchez

**Cover** • © OCEANA/ MJ. Cornax, Juan Cuetos

**Design and Layout** • NEO Estudio Gráfico, S.L.

**Printer** • Imprenta Roal, S.L.

**Photo Montage** • Pentados, S.A.

**Acknowledgements** • Alex Vandemeeberg, Marviva Med crewmembers, Sabrina Giannini and Thethys Research Institute. And all others who, thanks to their work, achieved the prohibition of this destructive fishing gear and who continue working on different fronts to make this prohibition a reality.

Reproduction of the information gathered in this report is permitted as long as © OCEANA is cited as the source.

August, 2009



Plaza de España - Leganitos, 47  
28013 Madrid (Spain)  
Tel.: + 34 911 440 880  
Fax: + 34 911 440 890  
europe@oceana.org  
www.oceana.org

Rue Montoyer, 39  
1000 Brussels (Belgium)  
Tel.: + 32 (0) 2 513 22 42  
Fax: + 32 (0) 2 513 22 46  
europe@oceana.org

1350 Connecticut Ave., NW, 5th Floor  
Washington D.C., 20036 USA  
Tel.: + 1 (202) 833 3900  
Fax: + 1 (202) 833 2070  
info@oceana.org

175 South Franklin Street - Suite 418  
Juneau, Alaska 99801 (USA)  
Tel.: + 1 (907) 586 40 50  
Fax: + 1(907) 586 49 44  
northpacific@oceana.org

Avenida General Bustamante, 24, Departamento 2C  
750-0776 Providencia, Santiago (Chile)  
Tel.: + 56 2 795 7140  
Fax: + 56 2 795 7146  
americadelsur@oceana.org

