ILLEGAL DRIFTNETTING IN THE MEDITERRANEAN

A report by the

Environmental Justice Foundation

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PROTECTING PEOPLE AND PLANET

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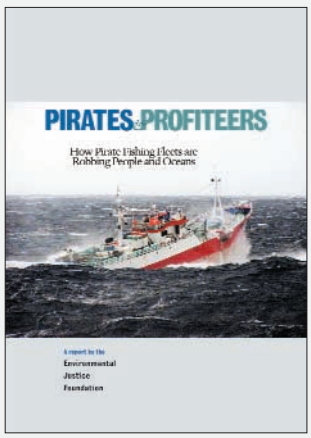
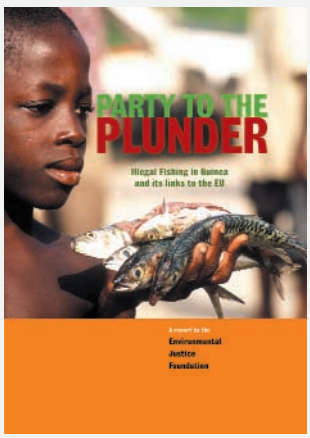
In addition to the illegal, unreported and unregulated (IUU) fishing that occurs in the EU's domestic waters, a significant amount of IUU fishing is carried out by EU vessels and/or companies on the high seas and in the territorial waters of developing States. The EU also serves as one of the major markets for IUU caught fish, which flows in through so-called 'Ports of Convenience', such as Las Palmas de Gran Canaria, with little or no scrutiny. These issues and the devastating impacts that IUU fishing has on marine ecosystems and the livelihoods of people in developing countries are explored in *Pirates and Profiteers* and *Party to the Plunder*, both available for download at **www.ejfoundation.org**





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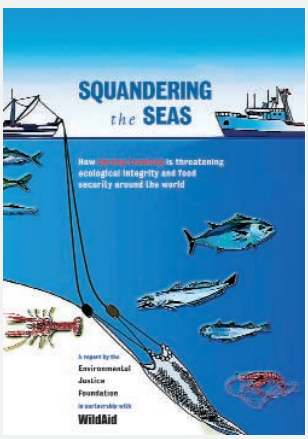

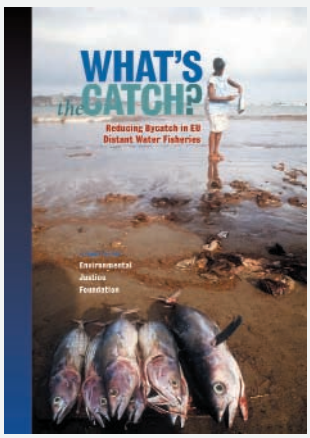

ILLEGAL DRIFTNETTING IN THE MEDITERRANEAN

CONTENTS

EXECUTIVE SUMMARY

- Driftnets, ostensibly banned from the Mediterranean by both the European Union and the International Commission for the Conservation of Atlantic Tuna (ICCAT) since 2002 and 2003, respectively, continue to be used illegally across the region to catch valuable large pelagic species, mainly swordfish and tuna.
- There are estimated to be up to 600 illegal driftnet vessels operating in the Mediterranean, including many from EU Member States, namely Italy (100+ vessels), and France (70-100 vessels). Major fleets are also based in Morocco (150-300 vessels), Turkey (up to 110 vessels) and Algeria.
- Although there is very little data available on either the catch rate or the associated bycatch of this illegal fishery, it is clear that driftnetting practices, whether legal or illegal, have had devastating environmental consequences globally, and for the biodiversity of the Mediterranean Sea in particular. Between 1986 and 1990, driftnets were responsible for 83% of all cetaceans (whales, dolphins and porpoises) stranded and, at the peak of driftnetting, an annual bycatch of over 8,000 cetaceans was estimated for Italian seas alone, with up to 10,000 dying annually across the whole Mediterranean.
- Vulnerable, slow reproducing species have suffered from high bycatch levels in driftnets, including sharks, rays, sea turtles and sea birds. According to figures supplied by the Italian Merchant Marine Ministry, in 1990-91 only 18% of the catch of the Italian driftnet fleet, which was the largest in the region at the time, was swordfish; the other 82% consisted of some 85 different species, almost all of which were discarded.
- Despite the evident destructive nature of driftnets, also called 'walls of death', due to their propensity for catching enormous numbers of non-target species, a combination of weak enforcement and loopholes in French and Italian fisheries law have enabled sizeable driftnet fleets to flout EU and international law for more than a decade. The European authorities have openly acknowledged the Italian and French governments' failure to enforce EU fisheries policy but have so far failed to punish these clear infractions of the Common Fisheries Policy.
- In France, effective action against driftnets has come not from the EU, but from three NGOs - France Nature Environnement, S.O.S Grand Bleu, and Groupe de Recherche sur les Cétacés (GREC) – who have successfully challenged the status of the "thonaille" fishery operating within the internationally protected Pelagos sanctuary for marine mammals. The thonaille is now officially recognised as a driftnet under French law and is therefore illegal. However, evidence from the 2006 season indicates that the ban is not being enforced and fishing continues with impunity.
- In Italy, driftnetting also continues, with 800km (500 miles) of nets confiscated by the Italian authorities in 2005 and 400km (250 miles) seized in the first half of 2006. The use of driftnets around the island of Ischia in the Tyrrhenian Sea has been monitored for a number of years by Delphis, a local cetacean research organisation. Illegally caught swordfish have been observed being landed and transferred onto vans bearing the EU logo, and numerous stranded striped dolphins and sperm whales have been found with scars indicative of being caught in driftnets.
- There is also compelling evidence from several sources that many vessel owners, having received up to €70,000 (£47,500) of EU taxpayers' money as compensation, continue to fish illegally. The Italian authorities have spent more than €200 million (£136 million) compensating driftnet fishermen, with 75% of this coming from the EU. Despite the generous funding that has been allocated to phasing-out this destructive fishery, driftnets are actually getting bigger: in 2004, the largest net observed in Italy was reportedly 84km (50 miles) in length.

- The EU's links to illegal driftnet fisheries extend beyond straightforward involvement by French and Italian vessels, however; the EU also serves as the major market, and therefore the major driver, for illegally caught swordfish from other Mediterranean countries. Over 1,200 tonnes of swordfish, worth in the region of €8 million (£5 million), were imported into the EU from Morocco in 2004, in addition to smaller imports of swordfish from Turkey and Algeria. Morocco represented the third most important exporter of swordfish into the EU in 2004, after Indonesia and Singapore.
- The Moroccan driftnet fleet is responsible for enormous bycatches. Estimates over a 12-month period produced figures of 3,000-4,000 dolphins and 20,000-25,000 pelagic sharks for the Alboran Sea alone, and a further 11,000-15,000 dolphins and 62,000-92,000 sharks around the Straits of Gibraltar. The government of Morocco has openly recognized the existence and problems posed by their illegal driftnet fleet and have announced the launch of a phase-out plan. Funding is due to be provided from the EU, under the framework of a new 2007 fisheries agreement with Morocco, worth €36 million (£24.5 million) per year.
- EJF is campaigning to end driftnetting in the Mediterranean once and for all. From a legal point of view, the entire Mediterranean should be driftnet free; it is inadequacy or reluctance on behalf of the national governments involved that is allowing driftnetting to continue. We are calling on the European Union, and all States involved, to meet their legal responsibilities with firm and decisive action.

BELOW: *Despite being banned for more than a decade, driftnets continue to kill thousands of whales, dolphins, sea turtles, sharks and rays in the Mediterranean every year.*

INTRODUCTION

Illegal, unreported and unregulated (IUU) or 'pirate' fishing is considered by leading experts as one of the most serious threats to sustaining fish stocks, with recent studies putting the worldwide value of these illicit catches at up to US$9 billion a year[1]. A range of fraudulent activities are covered by the term IUU, including fishing without a licence or out of season (poaching); harvesting prohibited species; using banned types of fishing gear; catching more fish than is allowed; and not reporting or misreporting catch weights.

In the Mediterranean, where commercial stocks have been in decline for the past 20 years, and formal and coordinated measures for effective fisheries management are largely absent in most countries[2], IUU fishing is exploiting and exacerbating this dire situation. Catches of hake (*Merluccius merluccius*), for example, halved between 1995 and 2002, in part due to illicit targeting of juveniles[3], and in 2006, WWF and Greenpeace reported that catches of bluefin tuna (*Thunnus thynnus*) – one of the most economically important species in the Mediterranean – have exceeded quotas by more than 40% in recent years, and the stock is now on the verge of collapse[4,5].

However, IUU fishing not only depletes the fish stocks targeted, it also has a detrimental impact on the wider marine ecosystem. The driftnet, a fishing gear infamous for its devastating effects on many vulnerable marine species and consequently banned from the entire Mediterranean, is still widely used in the region, killing untold numbers of sperm whales, dolphins, sharks, rays, turtles and other species every year. Up to 600 illegal driftnet vessels are thought to be operating[6], many from EU Member States, namely Italy (100+ vessels) and France (70-100 vessels), as well as Morocco (150-300 vessels), Turkey (up to 110 vessels) and an unknown number from Algeria.

Driftnets have been used to catch tuna and swordfish in the Mediterranean since classical times [7]. However, their use (and size) expanded rapidly during the 1980s, when pelagic (ocean going) driftnet fleets began operating from several Mediterranean countries, including Alge-

LEFT: *A puffin entangled in an illegal driftnet.*

© Greenpeace

Swordfish (BELOW) *are the main target species for driftnets in the Mediterranean, along with smaller quantities of bluefin tuna* (OPPOSITE BOTTOM).

ria, Morocco, Spain, France, Italy, Malta, Greece and Turkey[8]. By 1990, it is estimated that more than 1,000 driftnet vessels were fishing Mediterranean waters[9].

Evidence of the devastation caused by driftnets emerged during the 1980s and early 1990s, earning them the nickname 'walls of death', and in 1992 the United Nations banned their use (over 2.5km) on the high seas. Many nations responded by banning driftnets in their own territorial waters, and in 1992 the European Union introduced legislation that set a maximum length of 2.5km (1.55 miles) for driftnets used in EU waters and by EU vessels.

In 1998, EU fisheries ministers passed further legislation that brought about a total ban on the use of driftnets by EU vessels in the Mediterranean (and northeast Atlantic Ocean). This ban covers fisheries targeting ten different species, including tuna, marlin, swordfish, sharks and cephalopods, and came fully into force on 1st January 2002 (EU Council Regulation 1239). It was reinforced by the International Commission for the Conservation of Atlantic Tuna's (ICCAT) Driftnet Resolution (2003) which, like the EU ban, makes no differentiation between driftnet fishing on the high seas or in territorial waters, and includes countries that are members of ICCAT but not the EU. In February 2005, the ICCAT decision was endorsed by the General Fisheries Commission for the Mediterranean, rendering the total ban on driftnet fishing – irrespective of net size – on large pelagic species (including tuna, sharks and swordfish) applicable to all Mediterranean States from the summer of 2005 onwards[10].

This report explores the grave environmental impacts caused by the continued use of driftnets to catch swordfish and tuna in the Mediterranean, detailing the steps that must be taken by national and EU authorities to rid these illegal 'walls of death' from the region, once and for all.

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DRIFTNETS' DEADLY TOLL

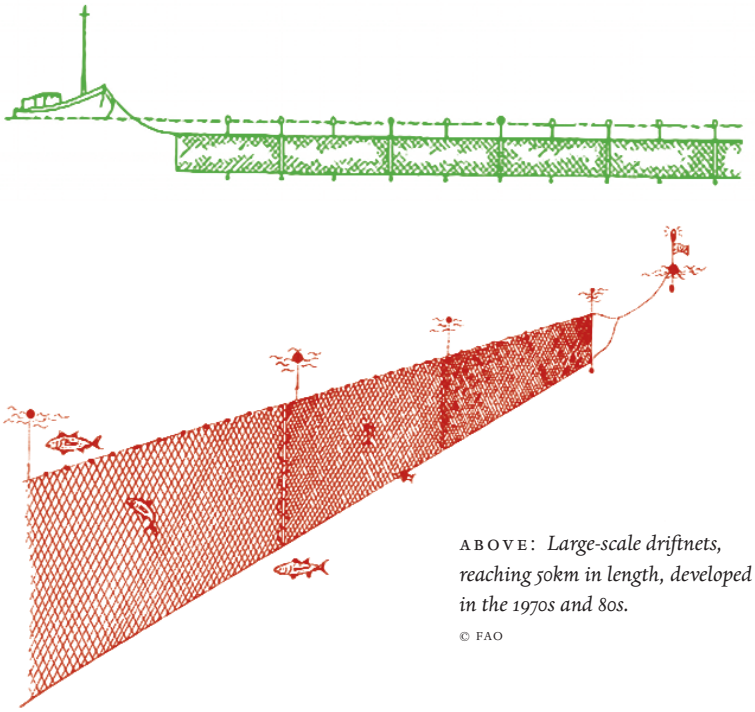
By 1989, Italy's driftnet fleet was the largest in the Mediterranean. Comprising over 700 vessels, the fleet caught 5,000 tonnes of swordfish (*Xiphias gladius*) and 1,000 tonnes of albacore (*Thunnus alalunga*) every year, using driftnets of up to 40km (25 miles) in length[14]. Accompanying these lucrative catches were, however, considerable discards. According to figures supplied by the Italian Merchant Marine Ministry, in 1990-91 only 18% of the Italian driftnet catch was actually swordfish: the other 82% consisted of some 85 species, almost all of which were discarded[15]. The discards included sea turtles, sharks, and small and large cetaceans, such as harbour porpoises (*Phocoena phocoena*), common (*Delphinus delphis*), striped (*Stenella coeruleoalba*) and bottlenose dolphins (*Tursiops truncates*), pilot whales (*Globicephala melas*) and sperm whales (*Physeter macrocephalus*). Atlantic bonito (*Sarda sarda*) and frigate mackerel (*Auxis thazard*), which are principal target species of other Mediterranean fisheries, were also discarded, along with juvenile bluefin tuna[16].

Today the squander continues, though there is a dearth of available data on either the catch rates or the associated bycatch of this illegal fishery. Countries will often not formally admit to driftnet use, or are unable to monitor the practice within their waters, making reliable estimates hard to come by. The number of animals killed by driftnets is therefore largely determined from records of those that wash up along coastlines; but as the corpses of few individuals actually make it ashore, these only represent a fraction of the true bycatch rate[17]. Moreover, the population sizes of many of the species impacted by driftnetting are unknown, making the significance of bycatches difficult to gauge[18].

Nevertheless, it is clear that driftnetting practices, whether legal or illegal, have had devastating consequences for the biodiversity of the Mediterranean Sea. Between 1986 and 1990, 83% of all cetacean strandings could be attributed to driftnets[19], and at the peak an annual bycatch of over 8,000 cetaceans was estimated for Italian seas alone, with perhaps up to 10,000 dying annually in the whole Mediterranean[20]. These catch rates were, without question, unsustainable for the species most affected, including striped and common dolphins, and sperm whales[21].

In addition to substantial cetacean bycatches, Mediterranean pelagic driftnet fisheries are also known to have caught considerable, but often indeterminable, numbers of pelagic sharks, rays, sea turtles, and sea birds. In Algeria, where driftnetting is carried out in spite of being banned under national legislation, catches of blue shark (*Prionace glauca*), and to a lesser extent thresher sharks (*Alopias vulpinus*) are known to occur[22]. Similarly, in Morocco a recent study revealed that tens of thousands of pelagic sharks are caught by the large-scale driftnet fleet targeting swordfish in the Alboran Sea and Straits of Gibraltar[23]. In the Ligurian Sea, Italian driftnet vessels have been shown in the past to take bycatches of thresher shark and blue shark, as well as minor discards of pelagic stingray (*Pteroplatytrygon violacea*), giant devil ray (*Mobula mobular*) and even basking sharks (*Cetorhinus maximus*)[24]. The bycatch of the Turkish driftnet fleet operating in the Aegean Sea regularly includes the giant devil ray[25]; this huge plankton feeding ray, endemic to the Mediterranean, is a slow-reproducing species classed as *Endangered* by the World Conservation Union (IUCN). Bycatch, especially in pelagic driftnets, is a major threat to its survival[26].

Driftnet fleets, together with surface longliners, are also the major threat to the survival of endangered loggerhead turtles (*Caretta caretta*) in the Mediterranean[27]. During the 1980s about 16,000 turtles were estimated to be caught annually by a small Italian driftnet fleet of 29 vessels operating in the Ionian Sea[28]. In the Ligurian and Tyrrhenian Seas the Italian driftnet fishery was found to catch 0.057 and 0.046 loggerheads per day per vessel, respectively, in 1995[29]. Although there has been no recent assessment of the level or significance of sea turtle bycatch associated with illegal driftnetting in the Mediterranean, it is highly likely that incidental catches do still occur.



ABOVE: *Large-scale driftnets, reaching 50km in length, developed in the 1970s and 80s.*

© FAO

"Driftnet fisheries … account for the highest impact and are also responsible for the highest rates of direct human-induced mortality."[30]

'ECOSYSTEM EFFECTS OF FISHING IN THE MEDITERRANEAN', GENERAL FISHERIES COMMISSION OF THE MEDITERRANEAN (2004)

Walls of death

Driftnets are among the simplest and oldest methods of fishing. A vertical sheet of netting, held in place by floats and a weight-line attached to the bottom of the net, is hung from the water's surface. Tethered to a buoy or the side of a fishing vessel, the net is left to drift passively for many hours (often over night), entangling or gilling any fish that swims into it[11].

Traditionally, small driftnets were made of cotton and used by coastal communities to catch dense schools of fish, such as mackerel, herring and sprat. However, the development of nylon netting in the 1970s resulted in a dramatic change in the scale of driftnet fisheries. The new synthetic netting was barely visible once in the water, but strong enough to endure the rigours of the open seas. Consequently, large-scale driftnet fisheries developed for large ocean-going (pelagic) species such as tuna, squid and swordfish.

These new pelagic driftnets reached monstrous proportions – extending up to 50km (more than 30 miles) in length, and hanging vertically 20-30m from the water's surface[12]. During the 1980s – at the peak of the high seas driftnet fishery – approximately 50,000km (30,000 miles) of these nets were cast into the world's oceans every night. However, they proved to be inherently unselective, catching enormous numbers of non-target species such as sharks, rays, dolphins, whales, turtles and sea birds. The United Nations Food and Agriculture Organisation (FAO) estimates that, during the 1988-89 fishing season, up to 1 million dolphins, whales and porpoises (collectively known as cetaceans) were killed by pelagic driftnets worldwide[13].

RIGHT: *The majority of swordfish caught in the Mediterranean are smaller than the minimum legal length of 125cm, and have not reached sexual maturity.*

© Greenpeace

RIGHT: *Most dolphins caught by the French driftnet fleet are babies of less than 110cm.*

© Nathalie Di Meglio / GECEM

CETACEANS AND DRIFTNETS

Bycatch is one of the greatest threats to cetaceans (whales, dolphins and porpoises) worldwide, with an estimated 300,000 accidentally killed by fisheries every year[31]. Cetaceans are caught in a wide variety of fishing gears including trawls, purse seines, and longlines, but on a global scale the vast majority are thought to be caught and drowned in passive gillnet and driftnet fisheries, which they are unable to spot visually or detect with their sonar[32].

The Mediterranean is no exception to this global trend, with fisheries bycatch – largely due to driftnetting – representing a major threat to cetacean populations. Eight different cetacean species regularly occur in the Mediterranean – fin whales, sperm whales, Cuvier's beaked whale (*Ziphius cavirostris*), pilot whales, Risso's dolphin (*Grampus griseus*), bottlenose dolphins, striped dolphins and common dolphins[33] – and all of these are caught in driftnets[34]. Even some occasional visitors to the Mediterranean, such as minke whales (*Balaenoptera acutorostrata*), have been reported as bycatch of the driftnet fishery[35].

Striped dolphins, common dolphins and sperm whales suffer from particularly high levels of mortality in Mediterranean driftnet fisheries.

Striped dolphin (*Stenella coeruleoalba*)

Stenella coeruleoalba is by far the most abundant dolphin in the Mediterranean, and is found in offshore waters from Gibraltar to the Aegean Sea and Levant Basin. There is no overall population estimate for the Mediterranean, although surveys have yielded population sizes of around 120,000 individuals over a large portion of the western Mediterranean, and around 25,000 individuals for the Ligurian Sea[36]. Striped dolphins also frequent the Ionian Sea and open waters of the southern Adriatic, although their abundance decreases towards the eastern portion of the Mediterranean basin[37].

The IUCN categorize striped dolphins as 'Lower Risk, conservation dependent', as the species is globally distributed and generally abundant, but several subpopulations, including that of the Mediterranean, are under threat. *Stenella coeruleoalba* faces an array of threats in Mediterranean waters: between 1991 and 1992 a viral disease, exacerbated by pollution and reduced prey availability, killed more than a thousand animals. Large-scale mortality in pelagic driftnets also continues to be a major threat[38].

Striped dolphins constituted the vast majority of the estimated 8,000 cetaceans killed every year by the Italian driftnet fishery during the late 1980s and early 90s. More than 80% of an estimated 1,682 cetaceans taken by this fishery in 1991 were striped dolphins, with other bycatch species including pilot whales, Risso's dolphins, bottlenose dolphins, sperm whales, Cuvier's beaked whales and fin whales[39].

Today, striped dolphins continue to be found stranded in and around Italian waters bearing striations indicative of being caught in driftnets, and many thousands are caught by the Moroccan fleet operating in the Western Mediterranean[40]. Striped dolphins are also the most common bycatch species for the Turkish driftnet fleet[41]. In France, between 80 and 250 striped dolphins were caught by the Mediterranean driftnet fishery each year between 2000-2005[42]. These catches continue, but their scale and significance are unknown.


© Cybele-la

Common dolphin (*Delphinus delphis*)

Once one of the most prevalent cetacean species in the Mediterranean Sea, the common dolphin has experienced a major widespread decrease in the region during the last 30–40 years[43]. Today, common dolphins remain relatively abundant only in the westernmost portion of the basin – the Alboran Sea – where a survey in 1991-2 produced an estimate of just under 15,000 individuals. Common dolphins have totally vanished from several Mediterranean regions, including the Provençal basin, Adriatic, Balearic, and Ligurian Seas. There is no basin-wide estimate of their abundance[44].

A number of factors, working individually or collectively, have been suggested to explain the decline of *Delphinus delphis* in the Mediterranean[45]. Human induced threats that have been implicated include prey depletion (due to overfishing and habitat degradation), toxic poisoning, direct killing, fishery bycatch and global climate change. Although it is unlikely that bycatch alone is responsible for the decline of common dolphins in the Mediterranean, it has almost certainly played a significant role at certain times and in certain areas[46].

For example, in the Alboran Sea a fleet of 27 Spanish driftnet vessels are known to have caught several hundred common and striped dolphins – mostly young calves and juveniles – each year before the fishery stopped in 1994[47]. A Moroccan fleet expanded to fill the resulting vacuum, however, and today between 1500-2000 common dolphins, representing around 12% of the population in the area, are killed by this fishery every year[48]. This level of mortality is undoubtedly a major threat to the future of the population, considering that take rates above 1-2% are considered unsustainable for small cetacean species[49]. Alarmingly, the Alboran Sea population is one of the last remaining strongholds of common dolphins in the Mediterranean, and such high levels of mortality must therefore present a serious concern for the long-term survival of the species in the region[50].

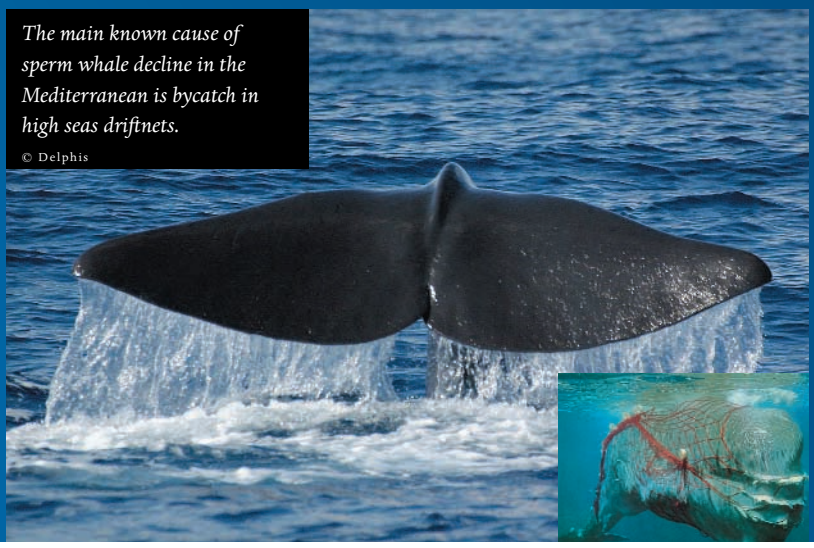
Sperm whale (*Physeter macrocephalus*)

Of large cetaceans, sperm whales are most affected by driftnetting[51,52]. Their susceptibility to entanglement in this type of fishing gear is in part due to their peculiar head shape, which causes them to become trapped almost instantly on collision with a driftnet[53].

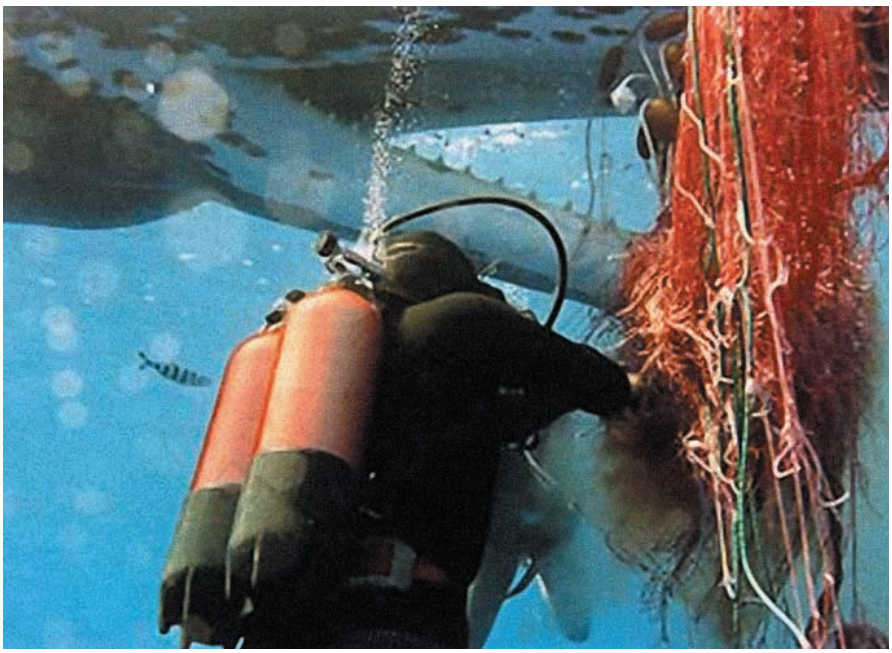
Before pelagic driftnets greatly expanded in the Mediterranean in the mid-1980s, sperm whale stranding rates in the region were low. However, over the past three decades the numbers of recorded sperm whale strandings along the Mediterranean coasts of Spain, France and Italy have risen dramatically, to possibly among the highest regional stranding rates in the world[54]. According to a summary of records from the waters of Spain, France and Italy between 1971-2003, 229 sperm whales were reported as entangled in fishing gear, carrying entanglement scars, or were found stranded as a result of being entangled[55]. In 2006 a total of six whales were stranded in the Balearic Islands alone, the deaths of three of which could be attributed directly to driftnets[56]. It is also likely that some whales killed by driftnets never wash ashore at all, sinking to the bottom before their deaths can be recorded.

The Mediterranean sperm whale population is unknown. Current research into total numbers is ongoing; however it is suspected that the population is numbered at the very most in the low hundreds[57]. Statistics agreed by the International Whaling Commission suggest that the maximum growth rate for sperm whale populations is 0.86%[58]. Even if the total annual deaths attributable to drifnets are three to six individuals, this necessitates a total sperm whale population of approximately 300-600 individuals to simply maintain the population. Clearly the continued incidental capture of sperm whales by illegal driftnets is a serious concern. In 2004 a report submitted to the IUCN stated that – "the main known cause of sperm whale decline in the Mediterranean is bycatch in high seas swordfish driftnets"[59]. The report goes on to say – "The virtual disappearance of sperm whales in the stranding record of France and their sharp decline in the records from Spain and Italy, despite a clear improvement in stranding reportage and investigation in all three countries, is seen as indicative of the species decline in these waters, particularly in view of the fact that driftnet fishing continues." The Mediterranean subpopulation of sperm whales is categorized as Endangered by the IUCN[60].

The main known cause of sperm whale decline in the Mediterranean is bycatch in high seas driftnets.


© Delphis

CULPRIT COUNTRIES



RIGHT: *A diver attempts to free a sperm whale entangled in a driftnet.*

Italy

In Italy, the driftnet fleet grew to be the largest in the region, totalling more than 700 vessels by 1989[61]. The government encouraged this expansion as, ironically, it considered driftnets to be more environmentally sustainable than other methods of fishing[62]. The increase in the size of the fleet was mirrored by an expansion of its range, with vessels pursuing swordfish and albacore tuna from Sicilian and Calabrian waters in the south, to the Ligurian Sea in the north[63].

Following the EU ban on large-scale driftnets (over 2.5km in length) in 1992, an Italian fleet of at least 650 vessels continued to use nets measuring on average 10-12 km in length[64]. Concern at the scale of this illegal fishery, and corresponding threats of a US trade embargo of Italian fish products, led to an agreement in 1997 that decommissioning would occur between 1997 and 1999[65]. Despite this and the EU's introduction of an outright ban on all driftnet fishing in 2002, illegal driftnetting continues in some Italian waters, with up to 100 vessels estimated to be operating in the southern Tyrrhenian and Ligurian Seas[66,67].

In 2002, the Italian government finally initiated a national conversion plan for vessels to shift from driftnet fishing to other gear types (trawl, purse seine, etc), providing fishermen with financial compensation for so doing[68,69]. However, as there was never a record of the number and length of driftnets owned by Italian fishermen before the EU ban, it is impossible to be sure that all of the driftnets that were decommissioned have actually been handed in to the authorities. As a result, even those fishermen who officially accepted and complied with the ban may well have retained part of the gear to continue fishing illegally, or sold it on to fishermen in non-EU countries[70]. In fact, it is known that Italian and Greek fishermen have profited from selling their equipment to Turkish fishermen[71] where, despite national and international legislation banning large-scale swordfish driftnetting, the fleet has expanded in recent years[72].

The nets and the vessels used in the Italian driftnet fishery are both known as "spadare". Swordfish and albacore are the target species, but numerous other animals are also caught incidentally in the 15km nets, which are set in an 'S' or zigzag pattern, and hang 15-30m from the water's surface[73]. This unusual arrangement is perilous to all kinds of pelagic fauna, and bycatch of this fishery is known to include striped dolphins, common dolphins, bottlenose dolphins, sperm whales, sharks, rays, sunfish, sea turtles and several species of seabird[74].

When is a driftnet not a driftnet?

Spadare are illegal under both EU and Italian law. However, under legislation passed by the Italian government in 1998 (following the announcement of the EU driftnet ban), fishermen were allowed to convert their outlawed gear into small pelagic driftnets called "ferrettara". This new type of driftnet, with a length of 2km (1.25 miles) and mesh of 10cm, was purportedly used for the capture of small pelagic species not included in the EU ban (e.g. mullet, sardines, anchovies etc) within 5km (3 miles) of the coast[75].

In 2003, the ferrettara fishery was reviewed by the Italian authorities and received an ambiguous decree, allowing fishermen registered as driftnet users before the 2002 EU ban, and who had received compensation, to use ferrettara and an anchored gillnet (essentially the same as a driftnet but anchored to the seabed) with a maximum length of 5km (3 miles)[76]. The issuing of new licences under this scheme resulted in unrestrained fishing with ferrettara and anchored gillnets[77].

A ruling was passed in April 2005 amending the law concerning ferrettara, allowing fishermen to use an anchored net of up to 5km and height of 20m, up to 19km (12 miles) from the shore of minor Italian islands[78,79,80]. In May 2006 the law was again amended by the Minister of Agriculture, Fisheries and Food. Ferraterra are now permitted to be set up to 10 nautical miles from shore with a maximum length of 2.5 kilometres, and a minimum allowable mesh size of 180mm[81].

The control of vessels operating under these licences is virtually impossible, as authorities have to verify the type of net onboard, its length, the way it is used at sea, and the species landed[82]. Consequently, the level of enforcement is poor and, worryingly, the impact on bycatch species is unknown. There is also widespread concern among conservationists that the ambiguous status of driftnets under Italian law has created a loophole by which fishermen can elude EU regulations[83]. Despite the confusion and uncertainty created by the use of different terms in Italian law for driftnets, however, it is clear from monitoring and enforcement activities that the use of large-scale pelagic driftnets to target swordfish and tuna continues.

Since 1995, Delphis, a cetacean research and conservation organization, has monitored the use of driftnets around the island of Ischia (located off the coast of Naples). The waters off Ischia are an important feeding and breeding ground for several cetacean species and have been listed in the IUCN Cetacean Action Plan as critical habitat for common dolphins. The area has been described as a feeding site for fin whales, feeding and breeding ground for striped and Risso's dolphins and transient zone for nursery groups of sperm whales.

During the May-August fishing season of 2000 and 2001, 40 different boats carrying driftnets were monitored around Ischia. These boats, targeting swordfish, were all found to be carrying driftnets that far exceeded the EU limit at the time of 2.5km per boat. Dead cetaceans were also found during this period. Over 2 days in July 2001 three striped dolphins were found stranded or adrift around Ischia with body mutilations and lesions indicative of capture in driftnets. The flukes and dorsal fin had been cut off one animal which had a rope tied around its pectoral fins and head[84].

In the 2004 season, monitoring on Ischia by the RSPCA and the Humane Society International, together with Delphis, identified 15 vessels in one harbour using driftnets to land swordfish and tuna. A total of 237 swordfish and 73 tuna were landed illegally and transferred onto three trucks, two of which displayed the EU logo[85].

Nine driftnetting boats were also observed fishing illegally in the waters around the island, and monitoring revealed driftnetting activities to be overlapping with cetacean habitat, and therefore posing a serious bycatch risk. Two bycatch incidents involving sperm whales occurred during the study period: one animal was found floating and partly decomposed five miles south of Ischia, and had clearly been entangled in a driftnet as indicated by the diamond shapes of the driftnet mesh cut into its flesh[86]. In the other incident a pod of five sperm whales – two adults and three calves – were found entrapped in a driftnet about 110 km (70 miles) south of Ischia. Their tails were tied together by the net and one animal was completely entangled. The group was freed by Italian coastguard divers, but were found to have a large number of lesions on their body, and were clearly stressed. It appeared that the older whales became caught up in the net whilst attempting to save the calves[87].

Arrests and confiscations

Enforcement by the Italian authorities during 2003 resulted in the confiscation of various driftnet vessels. Six boats, with about 20km (12 miles) of driftnets on board, were confiscated in the South Tyrrhenian Sea in May, and then in July, 146 driftnets, with a total length of 80km (50 miles), were seized in Sicily. The following month, 12 vessels from Calabria and Sicily were caught in a port on the east Sardinian coast with 60km (37 miles) of nets. They were confiscated but the captains of these vessels were fined a total of just €12,000 (£8,000)[88]. Between July 2004 and May 2005, 267.7km (166 miles) of driftnets were confiscated during a total of 190 inspections carried out by the General Authority of Harbour Offices[89]. In 2005, the Guardia Costiera confiscated 800km of nets in total[90]. Unfortunately, seized nets are often delivered back to the owner, without any guarantee that they will not be used again [91].

Driftnets today

The Italian Government's official line to both the EU and the UN is that, since 2002, there have been no driftnet vessels in Italian waters. Nevertheless, the Italian government has continued to ask for financial aid for the conversion of the spadare fleet, amounting to €5 million (£3.4 million) in 2003[92].

In total, more than €200 million (£136 million) has been spent compensating Italian driftnet fishermen, with 75% of this coming from the EU taxpayer[93]. Despite the generous funding that has been allocated to phasing-out this destructive fishery, little appears to have changed.

The current trend of driftnet use observed around Ischia is ominous. Over the years that Delphis has been monitoring the situation the number of driftnet boats has remained relatively stable, but the length of nets in use has greatly increased since 2001 to an average length of 36km (22 miles) in 2004. The largest net observed in 2004 (probably made up of several nets strung together) stretched a staggering 84km, or around 50 miles, which surpasses even the colossal proportions that driftnets attained in the late 1980s[94]. Furthermore, fishermen using other types of gear are now starting to equip their boats with driftnet gear, causing "an alarming escalation of driftnet usage in the area", according to Delphis[95].

Some of the driftnet vessels operating around Ischia have been observed to use false panels constructed along the sides of boats, in order to hide the true length of driftnets until the vessel is out at sea. Observers have also noted that the fishermen strategically place buoys along the vessel sides to obscure their identification numbers, whilst some other boats exhibit no registration code at all[96]. Nevertheless, boats have been identified from Calabria, Sicily and Ischia, and at least seven vessels – representing 16% of the boats monitored after January 2002 – had received government compensation of between €25,000 – €70,000 (£17,000 – £47,000) in order to change their fishing gears[97].

In addition to the long-term detailed monitoring around Ischia, other sightings of illegal driftnetting in Italian waters have been noted by environmental groups. For instance, in 2002 Greenpeace Italy identified eight driftnet vessels in the Sardinian ports of Arbatax, Torregrande, Carloforte and Calasetta[98], and in early July 2003, Goletta Verde, the boat of the Italian organisation Legambiente, spotted driftnets set in the middle of the international Cetacean Sanctuary of the Ligurian Sea[99].

During 2005, Ranger – the research vessel of the conservation group Oceana – encountered 37 Italian driftnet vessels operating in the Southern Tyrrhenian Sea. Subsequent investigations revealed that 18 of these vessels had received a total of €640,000 (£430,000) in subsidies from the Italian government, averaging €35,000 (£24,000) per vessel, to convert to other fishing methods[100]. Italian driftnet vessels are also operating well beyond Italian waters. In July 2005, a Spanish patrol vessel detained an Italian driftnetter southeast of the Balearic island of Minorca, more than 500 miles from its home port of Aci Castello in Catania. The vessel was listed on the Italian register as a surface longline boat[101].

BELOW & OPPOSITE: *Up to 100 driftnet vessels are estimated to be currently operating in the waters around southern Italy.*

In the summer 2006 fishing season, monitoring by both the government authorities and the NGO community revealed continuing violations. In June 2006, the Italian Ministry of Environment revealed that 400 km (250 miles) of driftnets had been seized in the first half of the year and inspections carried out in just 3 ports – Naples, Palermo and Reggio Calabria – on one night alone led to the confiscation of more than 50 km (31 miles) of driftnets. Italy's new Environment Minister and Green Party leader, Alfonso Pecoraro Scanio, subsequently said the government would clamp down with more controls and sanctions[102].

The Italian Coast Guard and Port Authorities have been hampered in their attempts to control fishermen using spadare in part because they have had no authority to confiscate nets and arrest offenders simply for having illegal fishing gear on board. Instead they have to witness illegal fishing activities occurring in order to make arrests. This situation has existed due to political argument over whether the Royal Decree 1155 of 1940, which states: *"It is illegal to carry on board fishing vessels nets or tools whose use is forbidden for fishing activities"*[103] was actually still applicable, or whether it had been superseded by Bill 963 from 1965, which allowed vessels to carry illegal gear on board, as long as it wasn't used.

This issue was highlighted by the Italian Coast Guard and Port Captain Corp to the Minister of Agriculture Fisheries and Food in 2006. At his request in January 2007 the Advocacy of the State confirmed that fishing vessels carrying spadare violate not only the 1940 law, but also EC Regulation 894/97, and urged that a new form of sanction in accord with the EC rules should be introduced[104]. Announced as a 'zero-tolerance vision' of the Italian Government, the Direzione Generale della Pesca has promoted a first draft of *Decree of the President of Republic (*DPR) with the new sanctions. In theory this should give the Coast Guard and Port Captains the authority to make arrests and confiscate spadare at any time, simply for possession of the illegal gear. However, when contacted, regional coast guard authorities had not yet heard of these changes, and no operations or arrests were planned[105]

The European authorities are well aware of successive Italian governments' failures to enforce EU fisheries policy: inspectors have been monitoring the situation for a number of years to assess whether the Italian authorities have taken all the necessary steps to ensure compliance with driftnet legislation. Based on the inspectors' reports, the Commission has come to the conclusion "that Italy is not controlling and inspecting satisfactorily the Community legislation as regards driftnets"[106]. It remains to be seen, however, exactly what action the EU will take to punish these clear infractions of the Common Fisheries Policy.

France

Thonaille vessels continue to operate illegally with support from local government.

As in Italy, the French driftnet fleet, known as the 'thonaille', continues to operate in direct contravention of EU and international law. In 2005, between 75 and 100 vessels were estimated to be fishing for bluefin tuna and swordfish on the Mediterranean high seas between 20-100 km (12-62 miles) from the coast, including within the internationally protected Pelagos Sanctuary for marine mammals, a vast marine protected area that extends across the north-western Mediterranean[107].

The French authorities have openly challenged EU and international legislation by actively supporting the illegal activities of its thonaille fleet, also known as 'courantille volante'. A government decree issued on the 1st August 2003 authorised a maximum of 100 vessels to use driftnets up to 9.26km (5.7 miles) in length to fish Mediterranean waters, including within the Pelagos Sanctuary[108] (although an amendment in July 2004 forbade fishing in the sanctuary between 15 August and 15 September[109]). To qualify for such a fishing licence vessels had to be less than 18m in length, with nets equipped with 'floating anchors' (which prevent the net from drifting and therefore overcome the driftnet ban, according to the French authorities) and pingers[110] – battery-powered acoustic devices that deter small cetaceans.

However, in 2005 the status of the thonaille fishery under French law was successfully challenged by two NGOs working on behalf of France Nature Environnement – S.O.S Grand Bleu and Groupe de Recherche sur les Cétacés (GREC) – leading to a ruling by the French Council of State (the highest level of justice in the country) that the thonaille are indeed driftnets, and therefore illegal under French law. Nevertheless, a survey by the conservation group Oceana in July 2006 identified 37 thonaille vessels in 16 ports, some with nets on board measuring up to 10km (6 miles), indicating that the new ruling is not being successfully enforced[111]. According to GECEM, a local cetacean organisation, "there is a complete lack of policing and political will to enforce the ban and widespread local support for the thonaille fishermen…fishing persists within the marine sanctuary and dead cetaceans caught in driftnets are still being washed up on French beaches"[112]. GREC estimates that 70 driftnet vessels are operating illegally[113].

Furthermore, it appears that France's illegal drifnet fleet is actively receiving support from local government: for the 2006 fishing season a brand was created called "Thonailleurs of the Mediterranean" with sponsorship from the Regional Council for the PACA region (Provence-Alps-Cote d'Azur). The brand allows the consumer to "distinguish the fish that comes from our traditional fishery, on sale less than 24 hours after being caught"[114].

Fishing using the thonaille takes place on moonless nights between April and October, overlapping with the period during which striped dolphins gather in the region to give birth and nurse their young. A scientific study in 2005 found that the fleet was responsible for catching between 31 and 142 striped dol-

phins – predominantly babies of less than 110cm – over the summer months, particularly during August[115]. Reports from observers show that adult dolphins commonly become entrapped in the nets whilst trying to save their offspring[116]. However, the bycatch figure resulting from this study is likely to be an underestimate as September – the month shown by previous studies to have the highest bycatch rate – was virtually undocumented due to bad weather.

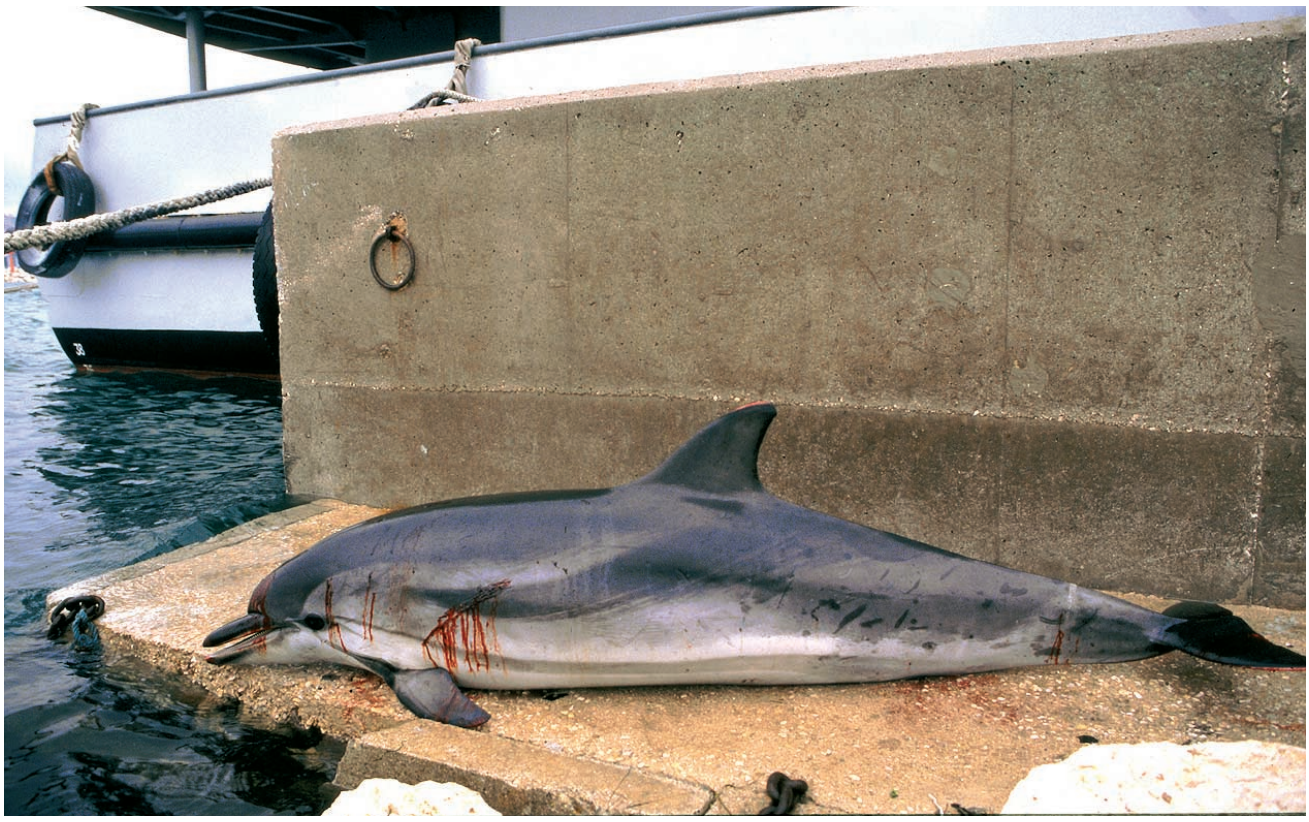
The study also found that the use of pingers – first introduced in 2001 – can, if used correctly, reduce the number of dolphins caught by 64%[117]. The implications of this level of mortality for the striped dolphin population is unknown, however. The IUCN consider Mediterranean striped dolphins to be facing difficulties due to an of array threats, including driftnets[118]. The Mediterranean population is also listed on Appendix II of the Convention on Migratory Species and the species has been protected in France since 1970.

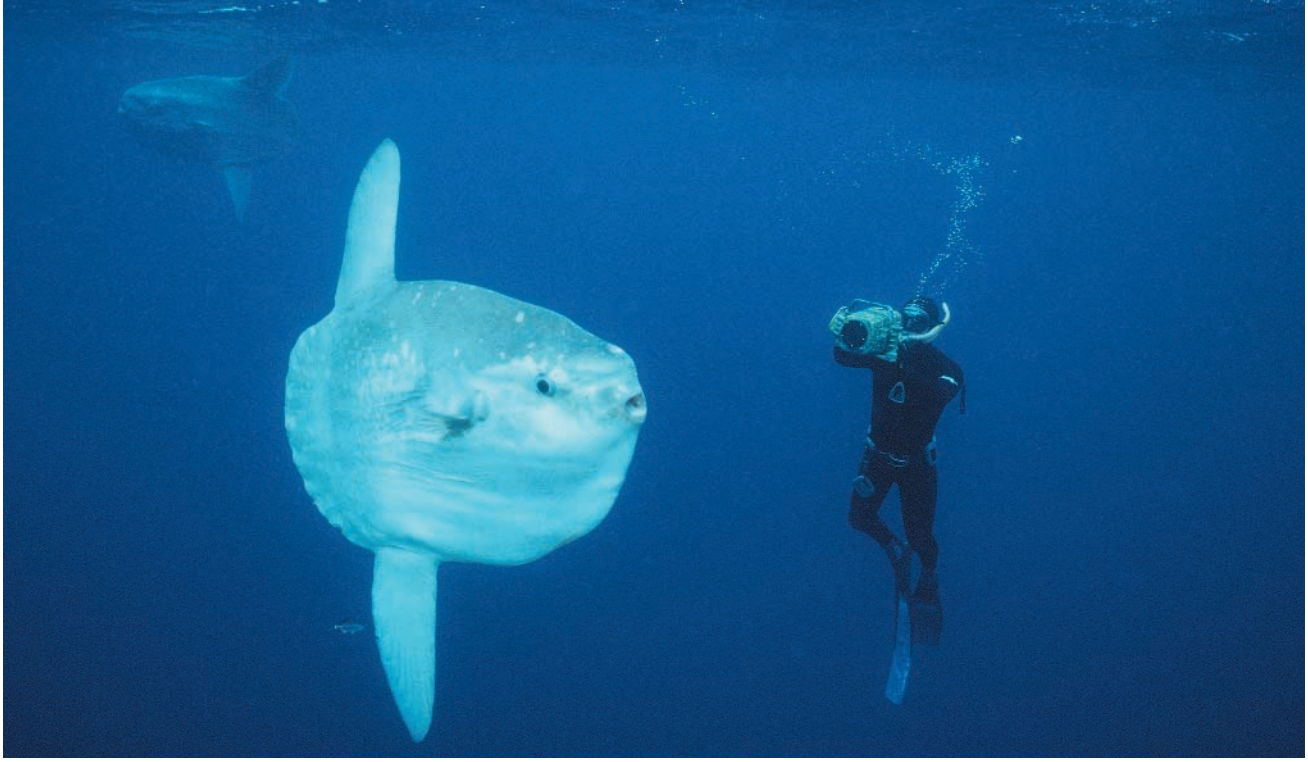
Now that the thonaille is illegal under French law (and therefore totally unregulated) bycatch monitoring has ceased and it is unclear whether fishermen are still using pingers, or indeed have increased the size of their nets – both factors which could increase bycatches to dangerously high levels. Research in the summer of 2000, before the introduction of pingers, found that up to 400 striped dolphins were captured annually[119].

Striped dolphins constitute the vast majority of the thonaille's bycatch, but unknown numbers of other cetaceans are also accidentally caught, including sperm whales, pilot whales and Risso's dolphins. All of these species are much less abundant than striped dolphins and their capture is considered to be highly alarming by scientists[120]. Loggerhead turtles are the second most common bycatch species after striped dolphins, but unlike *Stenella*, entangled loggerheads are almost always released alive[121]. The long-term health impacts of their capture are unknown, however.

France has a dismal record when it comes to fisheries control, reflected in 2005 when the French Government was fined €20 million (£13.5 million) for persistently failing to enforce fisheries rules over the previous 14 years[122]. Punitive measures were lifted by the EU Commission in November 2006 despite the continued activity of France's thonaille fleet[123].

BELOW: *A striped dolphin killed by a driftnet stranded in Port-Saint-Louis, France.*





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Morocco

ABOVE: *The sunfish, Mola mola, is caught accidentally by driftnets in the Straits of Gibraltar*

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The Italian and French driftnet fleets, although important, are not the only ones operating in the Mediterranean. Morocco harbours the bulk of the Mediterranean driftnet fleet, with a conservative estimate of 177 vessels targeting swordfish in the Alboran Sea (the westernmost portion of the Mediterranean between Spain and Morocco) and the nearby Straits of Gibraltar[124]. However, Moroccan Government estimates put the total number of vessels at closer to 300[125].

A scientific study carried out by WWF in 2005 found that over an eight-month monitoring period, four boats caught a total of 237 dolphins (both common and striped), 498 blue sharks, 542 shortfin makos (*Isurus oxyrinchus*), 464 thresher sharks and 46 loggerhead turtles, along with 2,990 swordfish (the target catch)[126]. Oceana, who surveyed the Moroccan fleet in 2006, report that the majority of swordfish captured are much smaller than the minimum length of 125cm – legally established by the International Commission for the Conservation of Atlantic Tuna (ICCAT) – and have not reached sexual maturity[127]. A Moroccan Government report to ICCAT in 2006 confirms this: 90% of the swordfish catch in the Alboran Sea and 35% in the Straits of Gibraltar is made up of juveniles[128].

Estimates for the bycatch of the whole Moroccan fleet over a 12-month period produced figures of 3,000-4,000 dolphins and 20,000-25,000 pelagic sharks for the Alboran Sea alone, and a further 11,000-15,000 dolphins and 62,000-92,000 sharks around the Straits of Gibraltar. Although unrecorded in the 2005 study, the Moroccan driftnet fleet is also known to catch a variety of other cetacean species including minke whales, sperm whales, pilot whales and bottlenose dolphins[129].

The use of driftnets in the Alboran Sea began in the 1980s with the targeting of swordfish by about 100 Spanish vessels. After the UN moratorium was implemented in 1992, 27 boats illegally continued to deploy nets 3–5 km (2-3 miles) long on the Mediterranean side of the Straits of Gibraltar[130]. This fishery was particularly unselective, with swordfish catches accounting for only 5–7% of total catch in numbers, which was mostly sunfish (*Mola mola*) (71–93%) and other species such as striped and common dolphins and loggerhead turtles. After 1994, however, these boats stopped using large-scale driftnets and changed target species[131], selling their driftnet gear on to Moroccan fishermen[132].

In 2004, the Government of Morocco officially recognized the problems posed by the country's illegal driftnet fleet and announced the launch of a 5-year phase-out plan, due to be completed by the end of 2008[133]. The EU, which is the principal market for swordfish caught by the Moroccan fleet, and therefore the major driver of the fishery, agreed to help Morocco implement this plan. Under a new fisheries partnership agreement, worth €36 million (£24 million) per year, 119 EU vessels will gain access to fish Moroccan waters and, controversially, also the waters of Western Sahara – a country which

has been occupied by Morocco for 30 years. A portion of this payment – €1.25 million (£850,000) per annum – has been allocated specifically to funding the conversion of the illegal driftnet fleet[134]. The United States has also pledged financial support to the plan[135].

Meanwhile, Moroccan driftnet boats continue to operate in the Alboran Sea and Straits of Gibraltar, and have even been detected straying into Spanish (EU) waters. As a result, nine ships faced a total of €540,000 in import sanctions in 2005, and continuing incursions in 2006 have led to the Spanish authorities warning Morocco to control their fleet or face further punitive measures[136].

Moroccan Plan of Action[137]

In theory, Morocco should be driftnet free from 1 January 2009:

2004 The ministry will carry out an awareness-raising campaign so that fishermen understand the legal situation and impacts of driftnet use.

2005 Initiate training courses in alternative fishing techniques. The import of driftnets will be prohibited.

2006 The ministry will develop a legal text -"Abandon" – aimed at motivating fishermen to stop driftnet fishing. Training courses will continue.

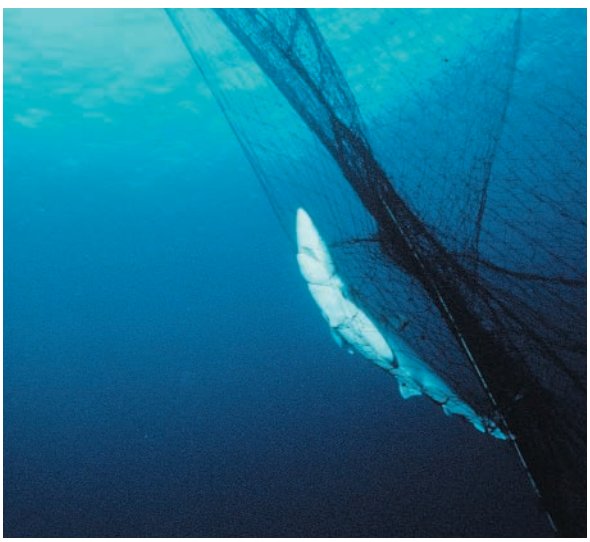
2007 Non-severe controls will be put in place by the ministry to ensure, by degrees, that fishermen reject driftnets. Training courses will continue.

2008 The government will prepare for the implementation of laws forbidding the use of driftnets in Morocco.

Morocco is the second largest producer of swordfish in the Mediterranean (after Italy), accounting for 23% of total catches in the region – 3,253 tonnes in 2004[138]. These catches are split between longline (61%) and driftnet (38%) vessels, although prior to 2000 driftnets accounted for 90% of Moroccan swordfish catches (a clear distinction is, however, difficult to draw as all driftnet vessels are also longliners – hence the wildly different estimates of the size of the fleet). The bulk of the driftnet fleet is based in the port of Tangiers (~75%), and consists mostly of small-sized vessels (14-16m) using nets of up to 14 km (9 miles)[139] [140].

Only 2% of the Moroccan swordfish catch remains on the domestic market: 98% is exported to the EU – 75% to the Italian market, 20% to Spain, with most of the remaining 5% going to Portugal. Moroccan swordfish enters the EU through the Spanish port of Algeciras[141] and travels to the Italian market via Spanish export companies, based mainly in Vigo[142]. Based on these figures, the EU imported more than 1,200 tonnes of swordfish in 2004, worth in the region of €8 million (£5 million). Morocco represents the third most important exporter of swordfish into the EU after Indonesia and Singapore[143]. Various unpublished accounts also suggest that there is a very significant driftnet fleet in Algeria supplying the EU market with swordfish, very much like the Moroccan case[144].

BELOW: *The Moroccan driftnet fleet is estimated to catch almost 20,000 dolphins (left) and over 100,000 sharks (right) every year.*



Turkey

In addition to the Moroccan fleet, up to 110 driftnet vessels operate along Turkey's Aegean Sea coast from the two main swordfish fishing ports of Sivrice and Fethiye[145]. A study of this fishery in 1999-2000 found that striped dolphins, Risso's dolphins and bottlenose dolphins were all incidentally caught, with striped dolphins the most affected species[146]. Further investigations in 2000-2001 found non-target catches to include bluefin tuna, little tunnies (*Euthynnus alletteratus*), Mediterranean spearfish (*Tetrapturus belone*), bullet tuna (*Auxis rochei*), dolphinfish (*Coryphaena hippurus*), manta rays, sharks and dolphins[147].

Although there appear to have been no recent detailed assessments of the scale or impacts of the illegal Turkish fleet, gruesome indicators of its activities continue to surface; in late May 2005 a large piece of driftnet was found floating in the waters of the northern Aegean Greek island of Samothrace containing the bodies of 12 striped dolphins, one Risso's dolphin, and several tuna and sharks. Markings indicated that the net was of Turkish origin[148].

BELOW: *Striped dolphins & tuna found entangled in a large piece of driftnet floating off the Aegean Island of Samothrace, Greece, May 2005.*

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CONCLUSIONS

There is a wealth of legislation in existence to tackle the issue of driftnet fishing in the Mediterranean. In addition to the UN moratorium of 1992 and the EU ban of 2002, ICCAT followed suit in 2003 by means of a binding recommendation, specifying a total ban on driftnet fishing – irrespective of net size – for large pelagic species. Finally, in February 2005 the General Fisheries Commission for the Mediterranean (GFCM) endorsed the decision made by ICCAT, meaning that the Mediterranean, at least from a legal point of view, is now driftnet free.

The enforcement of this ban represents a serious challenge for all countries around the Mediterranean and will require determined collaborative action if it is to be successful. However, as things stand today, there is sufficient evidence to conclude that various States, including several members of the EU, are failing to act. Considering the appalling environmental record associated with this fishery, the continued existence of a sizeable driftnet fleet is of grave concern for Mediterranean marine life.

Further exacerbating the situation are laws passed by certain States, namely Italy and France, which seem to be deliberate attempts at circumventing EU and international driftnet bans. The ambiguous status that driftnets occupy under national law in these countries must be clarified, and the EU must take strong action where there is good evidence that Member States are failing in their duty to enforce the Common Fisheries Policy.

Finally, irrespective of whether EU vessels are involved in driftnetting, there can be no excuses for accepting imports of swordfish and tuna onto the EU market from countries such as Morocco, Turkey and Algeria, that are known to have sizeable illegal fleets, without adequate safeguards in place. As the major consumer, and therefore driver, for these fisheries it is surely the responsibility of the EU – including consumers, traders and retailers – to assist these countries in eliminating their illegal fisheries.

RECOMMENDATIONS

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EJF call upon the EU to:

1. Launch an investigation into the driftnet decommissioning programme that provided owners of driftnet vessels with indemnity funds to aid their conversion to other fishing methods.

   The EU should identify:

- The total amount of money that has been spent by the EU and Member State governments in attempts to phase out driftnets.
- What has happened to the miles of confiscated nets purportedly abolished under the phase-out plan.
- The amount of financial aid that has been provided to vessels operating under "ferrettara" licences.
- The number of vessels that have received compensation, yet continue to operate illegally.

   Vessels that are found to have received financial compensation and yet continue to use driftnets must be forced to repay in full the compensation they have received, and to pay an additional penalty for defrauding the EU taxpayer and for illegal fishing.

2. Carry out a full and thorough investigation on the extent of illegal driftnetting in EU waters and the impact of this fishery on vulnerable bycatch species (e.g. striped and common dolphins, sperm whales). This should focus on areas where the problem has been well documented, namely: the Southern Tyrrhenian Sea around the coast of Sicily, Calabria, Sardinia, and Campania (in particular the Island of Ischia); and also, the Ligurian Sea and coastline of Tuscany and Provence (to ensure compliance of the thonaille fleet with recent French law).

   Furthermore, the EU should examine the supporting structures that enable driftnet fishing at sea to occur, including: the manufacturers of the nets used, the ports harbouring such vessels and permitting them to land their catches, the processors purchasing the illegal catches, and the retailers/markets on which illegally caught tuna and swordfish are being ultimately sold to the consumer.

3. Drastically increase and harmonize penalties among Member States for IUU fishing offences – such as the use of driftnets and other illegal gears – to bring them into line with the FAO International Plan of Action to Eliminate IUU fishing, which specifies that:

   States should ensure that sanctions for IUU fishing by vessels and, to the greatest extent possible, nationals under its jurisdiction are of sufficient severity to effectively prevent, deter and eliminate IUU fishing and to deprive offenders of the benefits accruing from such fishing.

4. Introduce common standards regarding port inspection procedures in all EU ports, using the FAO IPOA-IUU fishing as a model.

5. Penalise the Italian and French governments for failing to enforce the EU ban on driftnetting. Furthermore, the EU should demand that governments of Member States that have not complied effectively with EU efforts to eliminate driftnetting return financial aid received from the EU for this purpose.

6. Provide financial, technical and administrative assistance to non-EU States with driftnet fleets, in order to phase out driftnets and convert to legal and sustainable fishing methods. Decommissioning programmes must include the confiscation of driftnets to avoid the situation, documented in the past, where fishermen sell on their gear to neighbouring countries, thereby merely displacing the problem elsewhere. In addition, foreign imports of swordfish captured by driftnet into the EU must be halted.

In addition, the Italian and French authorities must:

1. Ensure Italian and French legislation conforms accurately with EU law, prohibiting the use of driftnets and the possession of these nets onboard vessels at sea and in port.

2. Improve inspection procedures in ports to ensure that swordfish and tuna are not landed illegally by driftnet vessels.

3. Introduce effective penalties for those involved in driftnet fishing at all levels: vessel owners, captains, processors, etc. Moreover, under no circumstance must confiscated driftnets be returned to their owners.

REFERENCES

1 Marine Resources Assessment Group (MRAG) (2005) *Review of Impacts of Illegal, Unreported and Unregulated Fishing on Developing Countries*

2 FAO (2005) *Mediterranean fisheries: as stocks decline, management improves* http://www.fao.org/newsroom/en/news/2005/105722/index.html

3 FAO (2005) *Review of the state of world marine fishery resources* Food and Agriculture Organisation of the United Nations, Rome.

4 Greenpeace (2006) *Where have all the tuna gone? How tuna ranching and pirate fishing are wiping out bluefin tuna in the Mediterranean Sea*.

5 WWF (2006) *The plunder of bluefin tuna in the Mediterranean and East Atlantic in 2004 and 2005: Uncovering the real story.*

6 Public Broadcasting Service. October 18, 2004. Walls of Death – Driftnetting in the Mediterranean. The Voyage of the Odyssey. http://www.pbs.org/odyssey/odyssey/20041018_log_transcript.html

7 Northridge, S.P. (1991) *Driftnet fisheries and their impacts on non-target species: a worldwide review*. FAO Fisheries Technical Paper 320.

8 Bearzi, G. (2002) *Interactions between cetaceans and fisheries: Mediterranean Sea*. Pp. 78-97 in G. Notarbartolo di Sciara, ed. Cetaceans in the Mediterranean and Black Seas: State of Knowledge and conservation strategies. ACCOBASMS, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area.

9 Paul, L. (1994) *High Seas Driftnetting: The Plunder of the Global Commons*. www.earthtrust.org/dnw.html

10 WWF (2006) Technical Briefing: Illegal driftnets and the Proposal for a Council Regulation concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean and amending Regulations (EC) No 284/93 and (EC) No 973/2001 (January 2006)

11 Northridge, S.P. (1991) *Driftnet fisheries and their impacts on non-target species: a worldwide review*. FAO Fisheries Technical Paper 320.

12 Public Broadcasting Service. October 18, 2004. Walls of Death – Driftnetting in the Mediterranean. The Voyage of the Odyssey. http://www.pbs.org/odyssey/odyssey/20041018_log_transcript.html

13 Paul, L. (1994) High Seas Driftnetting: The Plunder of the Global Commons. www.earthtrust.org/dnw.html

14 *ibid.*

15 *ibid.*

16 *ibid.*

17 Public Broadcasting Service (2004) *Walls of Death – Driftnetting in the Mediterranean*. The Voyage of the Odyssey, October 18, 2004. http://www.pbs.org/odyssey/odyssey/20041018_log_transcript.html

18 Notarbartolo di Sciara, G. (2005) Personal Communication.

19 Public Broadcasting Service (2004) *Walls of Death – Driftnetting in the Mediterranean*. The Voyage of the Odyssey, October 18, 2004. http://www.pbs.org/odyssey/odyssey/20041018_log_transcript.html

20 Bearzi, G. (2002) Interactions between cetaceans and fisheries: Mediterranean Sea. Pp. 78-97 in G. Notarbartolo di Sciara, ed. Cetaceans in the Mediterranean and Black Seas: State of Knowledge and conservation strategies. ACCOBAMS, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area.

21 *ibid.*

22 Tudela, S. (2004) *Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats.* Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

23 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

24 Tudela, S. (2004) *Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats.* Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

25 Akyol, O., Erdem, M., Unal, V & Ceyhan, T. (2005) Investigations on drift-net fishery for swordfish (Xiphias gladius) in the Aegean Sea. *Turkish Journal of Veterinary Animal Science* 29, 1225-1231

26 IUCN (2006) The IUCN Red List of Threatened Species www.redlist.org

27 Tudela, S. (2004) Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats. Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

28 Caminas, J.A. (2004) *Sea turtles of the Mediterranean Sea: population dynamics, sources of mortality and relative importance of fisheries impacts*. Presented at the expert consultation on interactions between sea turtles and fisheries within an ecosystem context. FAO, Rome, 9–12 March 2004

29 *ibid.*

30 Tudela, S. (2004) Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats. Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

31 Read, A., Drinker, P. & Northridge, S. (2003) *By-Catches Of Marine Mammals In U.S. Fisheries and a First Attempt to Estimate the Magnitude of Global Marine Mammal By-Catch*. http://assets.panda.org/downloads/iwc55bycatchpaper.doc

32 *ibid.*

33 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (viewed 2005) *Cetacean species* www.accobams.org

34 Bearzi, G. (2002) Interactions between cetaceans and fisheries: Mediterranean Sea. Pp. 78-97 in G. Notarbartolo di Sciara, ed. Cetaceans in the Mediterranean and Black Seas: State of Knowledge and conservation strategies. ACCOBAMS, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area.

35 Tudela, S. (2004) Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats. Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

36 Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area (viewed 2005) *Stenella coeruleoalba* www.accobams.org

37 *ibid.*

38 IUCN (2006) The IUCN Red List of Threatened Species www.redlist.org

39 Tudela, S. (2004) Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats. Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

40 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

41 Ozturk, B., Ozturk, A.A. & Dede, A. (2001) Dolphin Bycatch in the Swordfish Driftnet Fishery in the Aegean Sea. *Rapp. Comm. Int. Mer. Medit* 36.

42 David, L. (2005) *Suivi de la pêche à la thonaille: Quel impact sur les Dauphins bleu-et-blanc?* Rapport final 2005. Le Group d'Etude des Cétacés En Méditerranée (GECEM)

43 Bearzi, G. *et al.* (2003) Ecology, status and conservation of short-beaked common dolphins *Delphinus delphis* in the Mediterranean Sea. *Mammal Review*, Volume 33, No. 3, 224-252

44 *ibid.*

45 *ibid.*

46 *ibid.*

47 Silvani, L., Gazo, M., Aguilar, A. (1999) Spanish driftnet fishing and incidental catches in the western Mediterranean. *Biological Conservation* 90 (1):79-85.

48 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

49 *ibid.*

50 *ibid.*

51 *ibid.*

52 Pace, D.S., Miragliuolo, A., Mussi, B. (in press) Behaviour of a nursey group of entangled sperm whale (Capo Palinuro, Southern Tyrrenian Sea, Italy) www.delphismdc.org

53 Public Broadcasting Service (2004) Disentangling Sperm Whales from Driftnets. The Voyage of the Odyssey, October 22, 2004. http://www.pbs.org/odyssey/odyssey/20041022_log_transcript.html

54 Notarbartolo di Sciara, G., Bearzi, G. Canadas, A. & Frantzis, A. (2004) *High Mortality of sperm whales in the north-western Mediterranean, 1971-2003* Paper submitted to the Scientific Committee of the International Whaling Commission, Sorrento, 29 June – 10 July 2004

55 *ibid.*

56 Cañadas, A. (2007) Proyecto Alnitak / Universidad Autonomia de Madrid, Spain. Personal Communication

57 Rendell, L. (2007) Sea Mammal Research Unit, School of Biology, St. Andrews University UK. Personal Communication.

58 International Whaling Commission (1982) *Report of the sub-committee on sperm whales, Report of the International Whaling Commission* 32: 68-86

59 Public Broadcasting Service (2004) Disentangling Sperm Whales from Driftnets. The Voyage of the Odyssey, October 22, 2004. http://www.pbs.org/odyssey/odyssey/20041022_log_transcript.html

60 Reeves R., Notarbartolo di Sciara G. (compilers and editors) (2006) *The status and distribution of cetaceans in the Black Sea and Mediterranean Sea*. IUCN Centre for Mediterranean Cooperation, Malaga, Spain. 137 pp.

61 Bearzi, G. (2002) Interactions between cetaceans and fisheries: Mediterranean Sea. Pp. 78-97 in G. Notarbartolo di Sciara, ed. Cetaceans in the Mediterranean and Black Seas: State of Knowledge and conservation strategies. ACCOBASMS, Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area.

62 Northridge, S.P. (1991) *Driftnet fisheries and their impacts on non-target species: a worldwide review*. FAO Fisheries Technical Paper 320.

63 *ibid.*

64 Tudela, S. (2004) *Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats.* Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

65 RSPCA & Humane Society International (2005) *Driftnets and loopholes: the continued use of driftnets by the Italian fleet.*

66 Tudela, S. (2004) *Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats.* Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

67 Lauriano, G. (2005) Personal Communication

68 Mussi, B., Miragliuolo, A. & Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

69 RSPCA & Humane Society International (2005) *Driftnets and loopholes: the continued use of driftnets by the Italian fleet.*

70 *ibid.*

71 Tudela, S. (2004) *Ecosystem effects of fishing in the Mediterranean: an analysis of the major threats of fishing gear and practises to biodiversity and marine habitats.* Report by the General Fisheries Commission for the Mediterranean. Studies and Reviews No. 74

72 *ibid.*

73 Mussi, B., Miragliuolo, A. & Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

74 *ibid.*

75 Lauriano, G. (2005) Updating on the use of driftnets in Italy. ACCOBAMS. Third Meeting of the Scientific Committee. Cairo 14/17 May 2005.

76 Mussi, B., Miragliuolo, A. & Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

77 *ibid.*

78 Lauriano, G. (2005) Updating on the use of driftnets in Italy. ACCOBAMS. Third Meeting of the Scientific Committee. Cairo 14/17 May 2005.

79 Scovazzi, T. (2005) A doubtful Italian decree. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

80 Mussi, B., Miragliuolo, A., Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

81 Italian Ministry of Agriculture, Fisheries and Food (2006) *Minister of Agriculture, Fisheries and Food's decree might favor illegal fishing through the use of driftnets (spadare)*. Press release 31st May 2006. www.agricolturaitaliaonline.gov.it

82 Mussi, B., Miragliuolo, A. & Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

83 *ibid.*

84 *ibid.*

85 RSPCA & Humane Society International (2005) *Driftnets and loopholes: the continued use of driftnets by the Italian fleet.*

86 *ibid.*

87 Mussi, B., Miragliuolo, A., Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

88 RSPCA & Humane Society International (2005) *Driftnets and loopholes: the continued use of driftnets by the Italian fleet.*

89 Lauriano, G. (2005) Updating on the use of driftnets in Italy. ACCOBAMS. Third Meeting of the Scientific Committee. Cairo 14/17 May 2005.

90 Associazione Ambientalista Marevivo (2006) Marevivo, Oceana e Guardia Costiera insieme per combattere le spadare. www.marevivo.it

91 RSPCA & Humane Society International (2005) *Driftnets and loopholes: the continued use of driftnets by the Italian fleet.*

92 Oceana (2005) *The Use of Driftnets: A Scandal for Europe, a Mockery of the United Nations.* Results of Oceana's expedition in its ship, Ranger, to the south of the Tyrrhenian Sea and Sardinia (July-August 2005).

93 *ibid.*

94 RSPCA & Humane Society International (2005) Driftnets and loopholes: the continued use of driftnets by the Italian fleet.

95 Mussi, B., Miragliuolo, A., Pace, D.S. (2005) Nets and loopholes: the continued use of driftnets by the Italian Fleet. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

96 *ibid.*

97 *ibid.*

98 *ibid.*

99 *ibid.*

100 Oceana (2005) *The Use of Driftnets: A Scandal for Europe, a Mockery of the United Nations.* Results of Oceana's expedition in its ship, Ranger, to the south of the Tyrrhenian Sea and Sardinia (July-August 2005).

101 *ibid.*

102 ANSA (2006) *Greenpeace activists stage crowd-stopping fishing protest*, July 13 2006

103 Italian Ministry of Agriculture, Fisheries and Food (2007) *The General State Law confirmed that carrying spadare)on board is illegal.* Press release 11th January 2007. www.agricolturaitaliaonline.gov.it

104 *ibid.*

105 Italian Coast Guard Offices, *Personal Communication*

106 European Commission (2005). Answer given by Mr Borg on behalf of the Commission (13.6.2005). Written answers to EP questions E-1730/05 EN. Monica Frassoni. Driftnets in the Mediterranean.

107 Tudela, S. & Guglielmi, P. (2005) A challenge to regional fisheries governance and a major threat to marine ecosystems and vulnerable species. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

108 Le Group d'Etude des Cétacés En Méditerranée (GECEM) (viewed 2005) www.gecem.org

109 *ibid.*

110 *ibid.*

111 Oceana (2006) *"Thonaille": the use of driftnets by the French fleet in the Mediterranean* www.oceana.org

112 Dhermain, F. (2006) President, GECEM. Personal Communication.

113 Gannier, A. (2006) President, Groupe de Recherche sur les Cétacés (GREC). Personal Communication.

114 Oceana (2006) *"Thonaille": the use of driftnets by the French fleet in the Mediterranean* www.oceana.org

115 David, L. (2005) *Suivi de la pêche à la thonaille: Quel impact sur les Dauphins bleu-et-blanc?* Rapport final 2005. Le Group d'Etude des Cétacés En Méditerranée (GECEM)

116 *ibid.*

117 *ibid.*

118 IUCN (2006) The IUCN Red List of Threatened Species www.redlist.org

119 Imbert, G., Gaertner, J-C & Laubier, L. (2001) *Thonaille mediterranéenne*. Suivi en mer de la campagne 2000. University Aix Marseille II. CNRS Centre d'océanologie de Marseille Rep PACA No 3340.

120 David, L. (2005) *Suivi de la pêche à la thonaille: Quel impact sur les Dauphins bleu-et-blanc?* Rapport final 2005. Le Group d'Etude des Cétacés En Méditerranée (GECEM)

121 Le Group d'Etude des Cétacés En Méditerranée (GECEM) (viewed 2005) **David, L.** (2005) *Suivi de la pêche à la thonaille: Quel impact sur les Dauphins bleu-et-blanc?* Rapport final 2005. Le Group d'Etude des Cétacés En Méditerranée (GECEM)

122 BBC (2005) *France gets record fine over fish.* http://news.bbc.co.uk/1/hi/world/europe/4674885.stm

123 European Commission (2006) *Commission: France has fully met Court fisheries obligations - no further financial penalty.* Press release, 23 November 2006. www.ec.europa.eu/fisheries

124 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

125 Fahfouhi, A., El Ktiri, T. & Srour, A. (2005) Annual Report of Morocco. ICCAT Report 2004-2005. www.iccat.es

126 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

127 Oceana (2006) *The use of driftnets by the Moroccan fleet* www.oceana.org

128 Idrissi, M & Abid, N. (2006) Situation de la pêcherie de l'espadon des côtes Marocaines (*Xiphias gladius*). Col. Vol. Sci. Pap. ICCAT, 59(3): 973-978 (2006)

129 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

130 Silvani, L., Gazo, M., Aguilar, A. (1999) Spanish driftnet fishing and incidental catches in the western Mediterranean. *Biological Conservation* 90 (1):79-85.

131 *ibid.*

132 Oceana (2006) *Oceana investigates French ports in the Mediterranean to uncover an illegal fleet of driftnetters.* Madrid, August 04, 2006

133 El Andalossi, M. (2006) Association AZIR, Morocco. Personal communication.

134 Fish Information & Services. August 10, 2005. EU to aid Moroccan driftnet conversion under new agreement. www.fis.com

135 Oceana (2006) *The use of driftnets by the Moroccan fleet* www.oceana.org

136 Europa Press (2006) *El Gobierno advierte a Marruecos de sanciones por la pesca ilegal.* 17 August 2006.

137 El Andalossi, M. (2006) Association AZIR, Morocco. Personal communication.

138 FAO (2006) *Capture production 1950-2004*

139 Fahfouhi, A., El Ktiri, T. & Srour, A. (2005) Annual Report of Morocco. ICCAT Report 2004-2005. www.iccat.es

140 Malouli, M. (2006) *Pêcherie de l'Espadon en Mediterannee Marocaine: Exploitation, Analyse Socio-Economique et Commercialisation*. www.gemub.com/pdf/malouli.pdf

141 Tudela, S., Abdelouahed, K.K. Maynou, F., El Andalossi, M. & Guglielmi, P. (2005) Driftnet fishing and biodiversity conservation: the case study of the large-scale Moroccan driftnet fleet operating in the Alboran Sea. *Biological Conservation* 121: 65-78.

142 Malouli, M. (2006) Pecherie de l'espadon en Mediterannee Marocaine: exploitation, analyse socio-economique et commercialisation www.gemub.com/pdf/malouli.pdf

143 Eurostat (viewed 2005) External Trade http://epp.eurostat.ec.europa.eu

144 Tudela, S., Guglielmi, P. (2005) A challenge to regional fisheries governance and a major threat to marine ecosystems and vulnerable species. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

145 Tudela, S., Guglielmi, P. (2005) A challenge to regional fisheries governance and a major threat to marine ecosystems and vulnerable species. In FINS, Newsletter of ACCOBAMS. Vol. 2, No. 1, June 2005.

146 Ozturk, B., Ozturk, A.A. & Dede, A. (2001) Dolphin Bycatch in the Swordfish Driftnet Fishery in the Aegean Sea. *Rapp. Comm. Int. Mer. Medit* 36.

147 Akyol, O., Erdem, M., Unal, V & Ceyhan, T. (2005) Investigations on drift-net fishery for swordfish (Xiphias gladius) in the Aegean Sea. *Turkish Journal of Veterinary Animal Science* 29, 1225-1231

148 Reuters (2005) *13 dolphins killed by driftnet*, May 20, 2005

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