Shark fins in Europe:

Implications for reforming the EU finning ban

November 2010

By Sarah Fowler and Bernard Séret

with contributions from Shelley Clarke, Sonja Fordham and Julia Santana Garçon

Citation: Fowler, S. and Séret, B. 2010. *Shark fins in Europe: Implications for reforming the EU finning ban.* European Elasmobranch Association and IUCN Shark Specialist Group.

Acknowledgements

The authors are most grateful to Sonja Fordham for extraordinary assistance in compiling and editing information in this report, particularly with respect to management, and Shelley Clarke who contributed much of section 3 and other valuable information. Julia Santana Garçon and Nils Roar Hareide also made very important contributions.

Tom Blasdale, Maurice Clarke, Guzman Diez, Nick Dulvy, Pedro Bordalo Machado, Mário Rui Pinho, Miguel Neves dos Santos, Fabrizio Serena, and Ross Shotton kindly reviewed and improved various drafts.

Gratitude is also extended to Merry Camhi, Steve Campana, John Carlson, Andrew Chin, Mika Diop, Jim Ellis, Farid Hemida, Aaron Henderson, Kim Holland, Jimmy Martinez, Hiroaki Matsunaga, Alec Moore, John Morrissey, Sandrine Polti, Caroline Raymakers, Ricardo Rosa, Colin Simpfendorfer, Craig Smith, Anne Schröer, Oscar Sosa-Nishizaki, and Ilena Zanella for sharing their knowledge of shark fisheries, management, and trade.

Finally, sincere thanks go to Uta Bellion, Martin Clark, Matt Fidler, Lucy Harrison, Sophie Hulme, Eleanor Partridge, and Hilary Tranter who were instrumental in facilitating the report's production.

Glossary of abbreviations and acronyms

CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CP	Contracting Party
CPC	Cooperating non-Contracting Party
DW	Dressed weight (usually the gutted and beheaded carcass)
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FW	Fin weight
GFCM	General Fisheries Commission of the Mediterranean
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IEO	Instituto Español de Oceanografía
INCOPESCA	Instituto Costarricense de Pesca y Acuicultura
IOTC	Indian Ocean Tuna Commission
MS	Member State (of the European Union)
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	Northeast Atlantic Fisheries Commission
NGO	Non-Governmental Organisation
RFB	Regional Fisheries Body
RFMO	Regional Fisheries Management Organisation
RW	Round weight (also whole or live weight)
SCRS	Standing Committee on Research and Statistics (of ICCAT)
SEAFO	Southeast Atlantic Fisheries Organization
TAC	Total allowable catch
UNGA	United Nations General Assembly
WCPFC	Western and Central Pacific Fisheries Commission
WPEB	Working Party on Ecosystems and Bycatch (IOTC)

Contents

FLIP NICKLIN/MINDEN PICTURES/FLPA

Foreword

by Ross Shotton

Ross Shotton has more than five decades of broad experience in fisheries research, management, and policy. He has worked for Canada's Department of Fisheries and Oceans and has advised on fisheries development projects for nearly 40 countries. Dr. Shotton spent more than a decade at the Fisheries Department of the Food and Agriculture Organization where he supervised the development and implementation of the International Plan of Action for Sharks. He currently serves as Executive Secretary of the Southern Indian Ocean Deepwater Fishers Association.

It is now a long-standing imperative that the catch from fishing is used efficiently with as little waste as possible. This does not happen when a shark's fins are kept but the rest of the shark is discarded. Of even greater importance, effective fisheries management depends on compliance with enforceable conservation regulations. It requires the collection of species-specific catch information: this is far more achievable when sharks are landed with fins still attached to their bodies.

It is nearly a decade since member governments of the FAO recognised the crises faced by elasmobranchs and responded with their *International Plan of Action–Sharks*, one directive of which is the banning of finning. It is pleasing that finally the European Union is examining the effectiveness of the regulations used to enforce its finning ban. Given the EU's considerable influence on related decisions of Regional Fishery Management Organisations, as well as of developing countries, these upcoming actions stand to significantly alter the global situation for conservation of sharks through their effects on finning, fisheries enforcement and data collection.

Fishery managers, as well as fishing industry groups, should welcome this timely report as valuable and an authoritative guide towards more responsible and sustainable fishing of shark resources.

1 Introduction

This study study on EU shark fin catching, processing and trade practices, and their global significance. was undertaken to contribute to the current debate on strengthening the EU Finning Regulation.

Sharks are captured worldwide in targeted fisheries for their meat, liver oil and fins, and are an important by-product of many 'mixed' fisheries. Pelagic fisheries for tuna and billfishes increasingly also target pelagic sharks. These fisheries often capture as many or more sharks than they do large bony fish; these sharks are not an accidental 'bycatch'; indeed fishing strategies are often adopted to maximise the shark catch (Gilman *et al.*, 2007). Some European Union (EU) Member States are among the world's 20 largest shark catching countries, and include two of the world's largest pelagic fishing fleets (Lack and Sant 2009, Hareide *et al.*, 2007, FAO FishStat). The EU is one of the world's largest suppliers of shark fins to East Asia (Clarke 2004a; Clarke 2004b; Hong Kong CSD, 2010).

Many populations of sharks, skates and rays (collectively known as 'elasmobranchs') have declined steeply in recent decades, as a result of mostly unregulated fisheries for their meat, livers and fins. More than 17% of all known elasmobranchs are now classified as threatened in the IUCN (International Union for Conservation of Nature) Red List of Threatened Species (www.iucnredlist.org). Pelagic, coastal and migratory species are at greatest threat, because of the intensity of fishing effort within their habitats (Fowler *et al.*, in prep. 2010). More than 25% of all species of pelagic sharks, 35% of epipelagic species (those that live in the surface waters) and over half of large, oceanic-pelagic sharks are threatened (Dulvy *et al.*, 2008, Fowler *et al.*, in prep 2010).

It is widely acknowledged that effective fisheries management is urgently needed if shark populations are to recover and sustainable levels of exploitation are to be achieved. However, implementation of the United Nations Food and Agriculture Organization (UN FAO) International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), adopted by FAO in 1999, has been disappointing. Relatively few fishing States and Regional Fisheries Management Organisations (RFMOs) have produced shark assessment reports or developed Shark Management Plans, and shark fisheries are continuing largely unchecked in most of the world's oceans. Due to lack of political will and/or technical capacity, few shark fishing States are collecting the data needed to inform and implement management measures for sharks. Because the life history characteristics of sharks make them particularly vulnerable to overfishing, failure to limit shark fishing promptly and at sustainable levels can result in depletion from which decades are needed for recovery.

A small number of fishing nations and RFMOs have introduced species-specific fisheries management measures to curb exploitation of sharks, but the most widely applied shark fisheries regulation is a generic prohibition on shark finning (Lack & Sant, 2006). This is a widely accepted measure that, if implemented effectively, has the potential to contribute towards the sustainability of shark populations by minimising waste and reducing shark mortality. In the absence of a finning ban, because shark fins take up little room on vessels and transhipment of fins between vessels is reportedly common in some regions (e.g. Indo-Pacific), fisheries that discard the carcasses can kill many more sharks before having to land their catch. Regulations that require fins to remain attached to carcasses also enhance species-specific data collection, thus providing the information needed for stock assessments and management. Other means for banning finning are less effective and hamper shark catch monitoring. For example, although fins landed separately could be sorted and counted to produce estimates of landings, there are no reports of this being done.

KLAUS JOST

Many populations of sharks, skates and rays (collectively known as 'elasmobranchs') have declined steeply in recent decades, as a result of mostly unregulated fisheries for their meat, livers and fins. More than 17% of all known elasmobranchs are now classified as threatened in the IUCN Red List of Threatened Species (www.iucnredlist.org).

European shark fisheries

2

This report briefly explains why the influence of EU shark fisheries, trade and management policies is of international significance for global shark conservation and management policies.

Although shark meat is consumed in large quantities in Europe, the most valuable shark product is shark fin, which is exported in large quantities from European fisheries for Asian markets. Unprocessed frozen shark fin is presently exported wholesale from the EU to Asia at 7 to 27 € per kg (see section 3), higher than the retail price for the most valuable shark steaks in European markets. Fong and Anderson (1998) quoted processed fin prices in Hong Kong ranging from 125 to 415 USD per kg, compared with shark meat retailed in European markets for 1 to 10 USD per kg, depending upon species (Vannuccini 1999). This report briefly describes these products and the different cuts used by fishermen and traders to remove fins from shark carcasses. These considerations are important for understanding what shark finning is, why it happens, and how various methods are applied in an attempt to prevent it.

National and regional finning bans are briefly reviewed and recent scientific advice and shark finning ban policy developments from a range of international bodies are summarised. The shortcomings of many methods for implementing shark finning bans are described. The 2003 EU Shark Finning Regulation, which aims to prevent finning in EU waters and by EU vessels, the problems associated with its implementation, and its effect on the finning policies of RFMOs are discussed in detail. The actions to confirm the ban on finning included in the Community Shark Plan and the options set out in the European Commission Roadmap regarding the proposal to amend the EU Shark Finning Regulation are evaluated and contrasted.

Finally, recommendations are made for adopting a practical, effective, and enforceable EU finning prohibition that will also comply with the latest recommendations from the 2010 Review Conference for the UN Fish Stocks Agreement. These are presented for consideration as a contribution to the current debate regarding a Proposal for a Council Regulation amending Council Regulation (EC) 1185/2003 on the removal of shark fins on board vessels..

Box 1 | Defining shark finning

Finning is defined as cutting off a shark's fins on board a vessel and then discarding the rest of the carcass into the sea. Removing shark fins on land during catch processing is not included in this definition.

There is an economic incentive to fin sharks arising from the marked discrepancy in value between shark fins (which are among the world's most valuable fisheries products) and shark meat. Fins are also easy to handle and store on board vessels, while meat is more difficult to store in good condition and occupies hold space that could otherwise be used for more valuable species.

The finning and discard of shark carcasses is also of considerable public concern because of the perceived cruelty to sharks if they are finned alive. It is also widely viewed as an undesirable fisheries practice for several reasons, all of which are incompatible with the FAO Code of Conduct for Sustainable Fisheries:

KLAUS JOST

- shark fin fisheries are associated with excessive mortality as fishing effort is not limited by hold space;
- finning wastes a substantial amount of protein and imperils food security;
- finning threatens the sustainability of commercial, subsistence and recreational fisheries;
- finning hinders the collection of species-specific catch data needed to monitor population trends and set sustainable catch levels;
- overfishing (which may be driven by finning) is widely recognised as the greatest single cause of extinction risk to sharks; and
- the removal of large numbers of top predators may destabilise marine ecosystems.

The problems caused by shark finning are therefore discussed regularly at regional and international fisheries and environment meetings. Finning is now prohibited by most RFMOs, more than 20 shark fishing States and the 27 Member States of the EU, but the majority of these finning bans have loopholes that hinder compliance monitoring and enforcement.

EU Member States are responsible for a large proportion of global shark landings (Table 1). FAO data show Spain, France, Portugal and the UK to be among the world's top 20 shark catching countries and a large proportion of these catches (particularly those of the large pelagic fleets) are taken outside EU waters. Overall, EU Member State global landings are comparable to those of Indonesia, the world's largest fishing State, in terms of volume of world shark catches (Figure 1). Spain is also one of the world's top 10 pelagic fishing nations (FAO Fishstat, 1997–2007).

French and UK landings are dominated by small demersal coastal species, targeted for meat and landed whole. EU catches of small sharks, skates and rays have declined over the past decade due to population depletion and increased regulation. Formerly valuable EU porbeagle (*Lamna nasus*) and spiny dogfish (*Squalus acanthias*) fisheries have been closed to enable stocks to recover from severe depletion. Deepwater shark fisheries were formerly important in the Northeast Atlantic, but the total allowable catch for most of these species is now set at zero. There is pelagic

CRAM WORLD

TABLE 1 | Average reported landings of top 20 shark fishing countries, 2000–2008 (updated from Lack & Sant, 2009)

Rank	Country/territory	Average catch 2000-08	Proportion of global catch
1.	Indonesia †	109,248	13.3%
2.	India	74,050	9.0%
3.	Spain * †	59,777	7.3%
4.	Taiwan †	47,636	5.8%
5.	Argentina †	35,089	4.3%
6.	Mexico * †	33,971	4.1%
7.	Pakistan	32,277	3.9%
8.	US * †	30,686	3.7%
9.	Japan †	24,961	3.0%
10.	Malaysia †	24,334	3.0%
11.	Thailand †	22,729	2.8%
12.	France * †	21,511	2.6%
13.	Brazil * †	20,014	2.4%
14.	Sri Lanka	19,989	2.4%
15.	New Zealand * †	18,005	2.2%
16.	Portugal * †	15,819	1.9%
17.	Nigeria	14,311	1.7%
18.	Iran	14,001	1.7%
19.	United Kingdom * †	13,356	1.6%
20.	Korea	11,887	1.4%
	World	824,364	100%

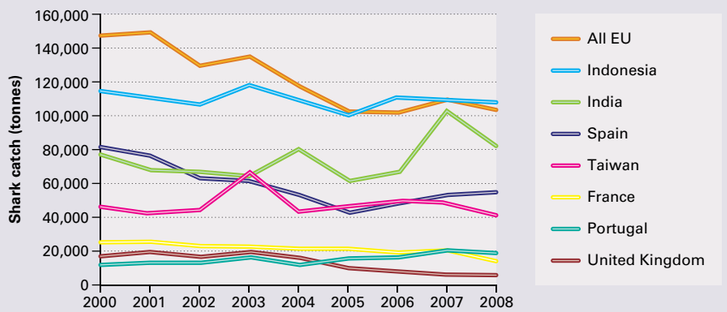
Those marked * have shark finning regulations; † have Shark Management Plans – some not implemented.

These figures exclude discarded and unreported catches, which combined likely exceed reported catches.

European Union shark trade

3

Figure 1 | Shark catches (tonnes/year) by major fishing nations, 2000-2008 (FAO Fishstat)



shark bycatch in French purse seine tuna fisheries. The largest EU shark fisheries are undertaken by Spanish and Portuguese pelagic freezer longline fleets, targeting swordfish and sharks (for meat and fins). Portugal's elasmobranch landings have risen and Spanish pelagic freezer longline fleets have expanded out of the Atlantic into Pacific and Indian Ocean fishing grounds. In recent years, sharks have made up 50% of EU pelagic catches in the Pacific and over 70% in the Atlantic. Of these, 80% are blue shark (*Prionace glauca*) and 10% shortfin mako (*Isurus oxyrinchus*). Threshers (*Alopias spp.*) and porbeagles are also taken (but increasingly regulated), along with silky (*Carcharhinus falciformis*), hammerhead (*Sphyrna spp.*), and oceanic whitetip (*Carcharhinus longimanus*) sharks.

Under the provisions of the EU Shark Finning Regulation, which is described in section 7, Special Fishing Permits (SFPs) may be issued by Member States to authorise their flag vessels to remove fins from sharks at sea. Vessels without such permits are required to land sharks with fins still attached. Some UK and German vessels targeting sharks in the Northeast Atlantic were issued SFPs to remove these species' small, low-value fins under permit, for landing with processed carcasses in Spain. The largest numbers of SFPs, however, are issued to Spanish and Portuguese pelagic longline vessels. In contrast, the French industry requested that no SFPs should be offered to any French vessels, including the purse seine fleet that lands some frozen shark bycatch with fins still attached. SFP are no longer being issued by the UK or Germany.

Through its fisheries partnership agreements and other means of global influence, the EU and some of its Member States have a significant role in the development of international fisheries policies (including finning prohibitions) and exercise considerable influence in RFMOs, the United Nations General Assembly, and in many developing countries.

Through its fisheries partnership agreements and other means of global influence, the EU and some of its Member States have a significant role in the development of international fisheries policies (including finning prohibitions) and exercise considerable influence in RFMOs, the United Nations General Assembly, and in many developing countries.

The EU is a major player in global shark product markets, particularly for meat and fins. Its combined Member State vessels comprise a wide-ranging shark fishing fleet that ranks a close second in global shark catches (Figure 1), landing over 13% of shark meat worldwide in recent years (Table 1). The EU is also, according to FAO data, the world's largest trading partner for shark products and is responsible for 56% of total global shark imports from other States and for over 30% of worldwide exports (FAO Fishstat). This relatively high proportion may, to some extent, be inflated by the more accurate reporting of shark meat imports by EU Member States than in other fishing and trading States, but the EU is the world's largest exporter of shark fins to the Hong Kong Special Autonomous Region and to mainland China, the biggest consumer market. (Clarke and Mosqueira (2002) reported that, as of 1999, Hong Kong recorded imports of shark fin from at least 85 countries.)

Almost half of all EU shark exports come from Spain, which led world exports of frozen shark until exceeded by Taiwan in 2003 (Table 2). The EU exports shark products primarily to Japan and to China via Hong Kong (the latter is primarily shark fin), with Russia (primarily shark meat) becoming a more important trading partner in recent years (Oceanic Développement and MegaPesca, 2007). Trade records do not indicate whether EU exports are of products caught by EU Member State vessels, or re-exported products originating from other countries.

Spain has also been the biggest single importer of shark meat within the EU since 2000, responsible for 43% of total EU imports. Eurostat also records a large amount of trade in shark products between EU Member States. Strong European demand for shark meat may reduce the economic incentive for EU Member State vessels to fin sharks, particularly if fishermen can land directly into European ports.

Most of the EU's contribution to Hong Kong's imports of both dried and frozen shark fin derives from Spanish exports (see Figure 2). In the case of dried fins, however, the overall EU contribution is very small, ranging from 8% in 1998 to 3% in 2009 of Hong Kong's total imports (Hong Kong CSD, 2010). In contrast, China's imports of frozen shark fins from the EU ranged from 86% in 1998 to approximately 50% in 2009 (95–100% of this is exported from Spain) (Hong Kong CSD, 2010). These fins originate from sharks caught by EU Member State vessels all over the world, which are shipped to Europe (in the case of Spanish vessels, usually to the ports of Las Palmas in the Canary Islands, where Japanese longliners fishing in the Atlantic also land fins, and Vigo in Galicia), before being exported.

China's commodity import codes changed in 2000 to combine all fresh, chilled or frozen shark meat and fins under the same codes. Reported imports of frozen shark meat to mainland China have expanded four-fold since this change, reflecting either an increasing trend of declaring shark fins as shark meat and/or an expanding market for frozen shark meat. Although these changes mean that it is more difficult to assess Spain's current role as a contributor to the mainland China market for shark products, its share of all frozen shark meat imported to Hong Kong has grown in the past few years and is now more than 40% of the total. Given the dominant share of Spain in the Hong Kong frozen-fin market and the mainland China regulation in 2000 classifying frozen shark fins as frozen shark meat, it is deduced that a sizeable portion of the Spanish frozen shark exports to mainland China consist of fins.

Unknown quantities of unprocessed, frozen shark fins are also exported from the EU to other countries, including Singapore (*en route* to processing factories in Malaysia and Indonesia), and perhaps other Asian countries (e.g. Philippines) for primary processing and drying prior to re-export for secondary processing

TABLE 2 | Top 10 shark product* exporters during 1997-2006 (Source: FAO Fishstat)

Country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Average
Spain	12,383	17,462	17,963	16,539	12,377	11,555	11,555	11,552	13,737	14,742	13,987
Taiwan	2,705	2,198	3,105	4,403	9,716	10,630	17,161	15,095	19,109	23,764	10,789
US	9,241	6,854	6,636	6,319	3,669	4,068	3,011	2,339	2,491	3,059	4,769
Japan	3,228	3,792	3,921	3,576	3,258	3,716	4,087	4,841	5,339	4,143	3,990
Panama	-	70	215	4,450	7,462	5,859	3,714	4,899	5,353	3,433	3,939
Costa Rica	616	532	886	3,858	7,658	6,593	5,757	4,132	5,104	3,595	3,873
Canada	2,844	3,107	1,895	3,123	4,446	4,594	4,197	4,142	3,197	3,716	3,526
New Zealand	2,569	2,337	4,289	3,926	3,203	3,928	3,492	2,823	3,835	3,941	3,434
UK	1,997	3,314	3,142	3,447	5,306	4,489	3,947	3,654	3,195	1,307	3,380
China	2,433	2,047	2,134	2,237	1,845	2,282	2,450	2,587	1,548	1,106	2,067

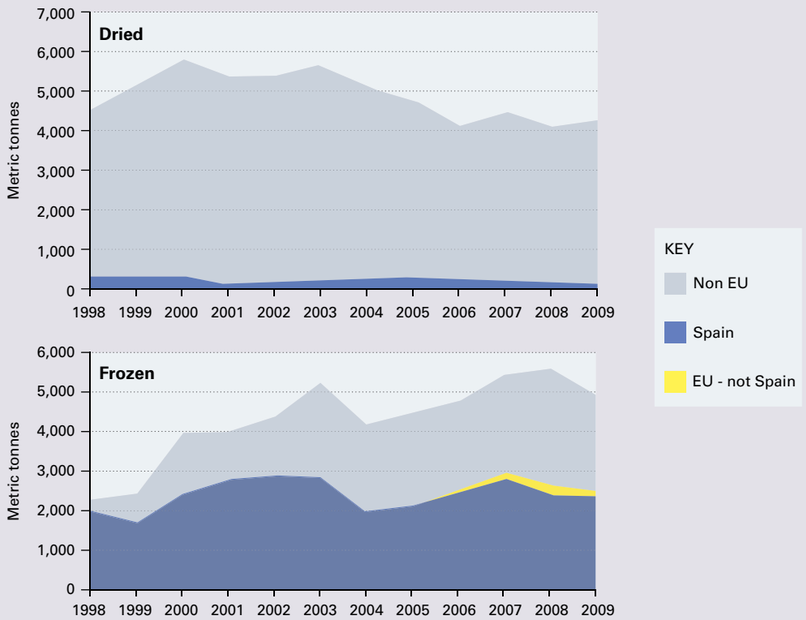
*primarily meat and fin

elsewhere (Clarke 2003). Recorded shark product exports to Hong Kong and China therefore very likely under-represent total exports from the EU. Considerable quantities of fins also transit through the EU (e.g. dried fins from West Africa pass through France en route to Asia).

Although the trade is global, with fin-buyers in every major port, there are key points of trade and export. For example, Spanish and Portuguese longline freezer fleets prefer to export most shark fins through Las Palmas or Vigo. Fins landed from Spanish and Portuguese vessels outside Europe (e.g. in Montevideo, Uruguay) are therefore initially shipped back to Las Palmas or Vigo before being exported from Spain to China or Japan, rather than being sold directly to any of the fin traders operating in Montevideo for export directly from Uruguay (Andrés Domingo, DINARA, Uruguay, pers. comm.).

The complex system of fin imports, exports and re-exports, the tendency for detached fins not to be landed and marketed in the same way as carcasses, and incomplete recording through customs codes for shark fin, make it difficult to track and quantify this trade.

Figure 2 | Shark fin imports to Hong Kong 1998-2009 showing the proportions derived from non-EU countries, EU countries other than Spain, and Spain (Hong Kong CDS, 2010)



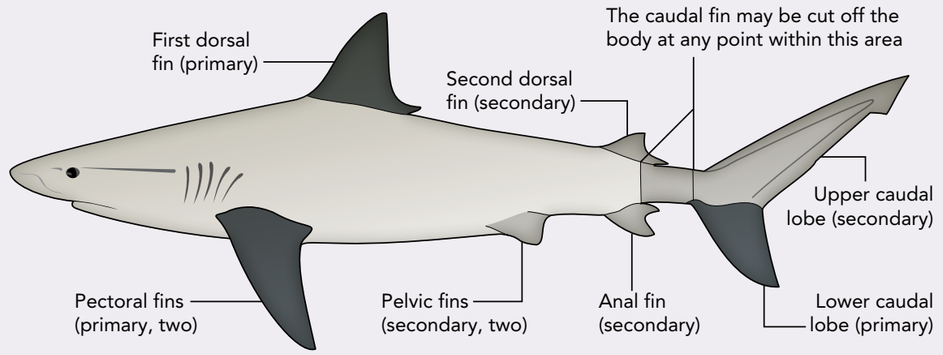
3.1 Shark fin products and processing

Shark fin products

Shark fins are the critical ingredient for shark fin soup, a very important and highly priced traditional, celebratory, Chinese dish. The parts used in this dish are the fine, noodle-like fin rays or 'needles'. Processors must remove all meat, skin and cartilage from the fins to extract these valuable products. The translucent fin needles are then dried before sale, sometimes in the form of fin nets. This is a specialised, labour-intensive process that is not undertaken anywhere in Europe. Shark fins landed in Europe are therefore shipped to Hong Kong *en route* to China (the main location for processing), or sometimes to Singapore or other East Asian States.

Fin value varies according to species of shark (hence the quality and abundance of fin needles), the fin position (the lower caudal lobe of the tail has very dense fin needles and is particularly valuable), and the size of fins (larger fins contain longer fin rays and are more valuable).

Figure 3 | Primary (dark grey) and secondary (light grey) shark fin sets



S FOWLER

The most valuable fins are auctioned in 'fin sets' (usually the four largest primary fins: two pectorals, first dorsal and the lower caudal from the same shark) to processors in Hong Kong. Other fins, the smaller anal, pelvic, second dorsal or upper caudal (Figure 3) are also traded, but are less valuable and are never auctioned in sets. Even the largest fins traded through Spain from European fleets, however, are not exported in fin sets, but in bags sorted by size (the largest are most valuable), species (hammerheads are more valuable than makos, followed by large blues), and by fin position (pectoral, dorsal and caudal fins are sold separately from bags of small secondary fins), as shown in Table 3.

Most European fisheries export the entire caudal fin (tail) of landed sharks, while many fisheries in other parts of the world discard the low value upper lobe, which is not an important source of fin rays for shark fin soup because it contains primarily the cartilaginous vertebral column, small quantities of meat and only a few short fin rays. It can be used, but only for lower value products. The lower lobe represents about 18–20% of the wet weight of the whole tail, but comprises 70–75% of its total value (in litt., Mr C. Lim, Sharkfin and Marine Products Association, Hong Kong, 9 April 2010).

Fin cuts

Different fin cuts are used to prepare air-dried and frozen shark fins for export. Removing meat is particularly important to avoid spoilage of fins that will be air-dried, and buyers prefer fins that are removed using a 'half moon' cut to minimise quantities of flesh and basal cartilage at the base of each fin (Figure 4). In contrast, large quantities of meat can be left on frozen fins without risk of tainting, and crude cutting is common in frozen

TABLE 3 | Mean price (€kg) during January – March 2010 for straight-cut frozen shark fin delivered wholesale from the EU to main Asian ports (Source: Spanish processing company price lists, 2010)

Fin classification	Fin size (pectoral, dorsal, caudal)	Price €/kg
Hammerhead	–	27.50
Mako shark 1	P(>30cm) D(>20cm) C lobe (>30cm)	24.50
Mako shark 2	P(20-30cm) D (10-20cm) C lobe (20-30cm)	15.50
Blue shark 1	P(>50cm) D(>25cm) C(>60cm)	12.30
Blue shark 2	P(40-50cm) D(20-25cm) C(50-60cm)	10.58
Blue shark 3	P(25-40cm) D(15-20cm) C(35-50cm)	8.45
Blue shark 4	P(<25cm) D(<15cm) C(<35cm)	7.17
Thresher shark	–	8.13
Anal fins	–	7.65

fins exported from Spain and Portugal. Because it is the fine fin rays from inside these fins that are the most valuable part, however, many experienced shark fishermen will always use a half moon cut to remove fins, and will also avoid including the caudal peduncle at the base of the tail, which only contains vertebrae and meat.

Fishermen who are not familiar with processing methods or the end product that processors are seeking do not bother to minimise the quantities of meat and cartilage that they leave attached to each fin. Indeed, many maximise these volumes through intentional crude cutting in order to increase the weight of the fin products that they land, on the assumption that this will increase their profits (e.g. McCoy and Ishihara 1999). This appears to be fairly common practice on the European vessels that hold SFPs to remove fins on board. Although this might also be the result of rapid cutting on deck because time is short while the catch is being brought on board, similar crude cuts are seen onshore when sharks are landed with fins still attached (Santana Garcon *et al.*, in preparation), also possibly due to a lack of understanding of fin processing and end products. These cuts do not cause the fins to spoil if they are kept on ice or frozen, but prices paid for badly trimmed fins will likely be reduced to take account of the excess weight of waste material that has been included and perhaps also the subsequent cost of removing this.

McCoy and Ishihara (1999) describe the cutting of shark fins in Pacific shark fisheries: *"Most crew have either been instructed by buyers on the proper cutting of fins and handling to minimise spoilage or know such techniques and methods from fishing in the US east or Gulf coast fisheries. They know, for example, that the usual practice is to retain for sale the dorsal, two pectorals, and lower caudal fins, strung together as a set. While some newer crew might think that they will get paid more by weight if they leave some meat on the fin, they quickly learn that discriminating buyers deduct for such practices."*

Most finning bans rely upon a fin:carcass weight ratio in an attempt to ensure that fins and bodies are landed in appropriate proportions that, in theory, should prevent finning. The ratio obtained, however, depends upon the cutting technique used, with 'crude cutting' significantly increasing the fin:carcass weight ratio. Blue shark fin weights observed on European vessels range from 3% to 12% of whole weight, depending on the cutting practices on board (Mejuto *et al.*, 2009). Some excess meat is trimmed and discarded onshore before export to Asia; the rest is removed in Asia before the auctions at which fin processors purchase these raw materials.

The US Atlantic Shark fishery was one of many fisheries that usually only retained the lower lobe of the caudal fin and discarded the upper part, which is four times as heavy as the lower lobe. Some shark fisheries retain both lobes of the caudal fin, because it is difficult to remove the lower caudal fin without damaging it, but they trim away as much of the low value caudal peduncle as possible in order to minimise its weight. In contrast,

Figure 4 | Different methods of cutting fins

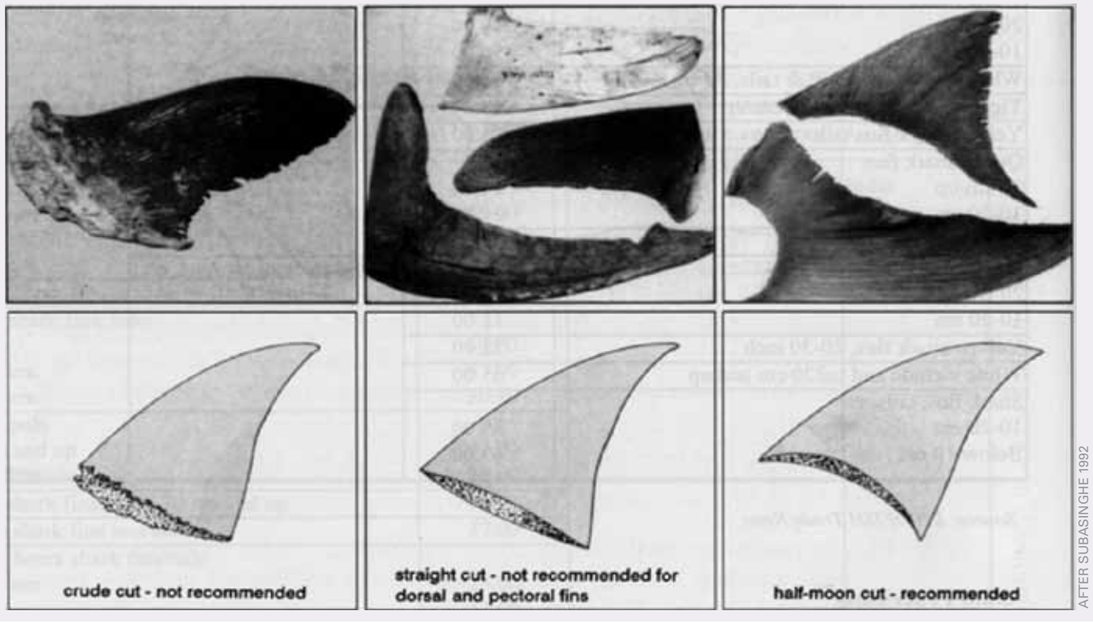


Figure 5 | Examples of caudal fin cuts in different fisheries

5a. Lower caudal fin lobes are removed from these sharks landed in South America (J Martinez).

5b. Caudal fins retained on a Korean vessel in the Pacific Ocean (Soon-Song et al. 2007). Much of the caudal peduncle has been removed.

5c. Entire caudal fin and caudal peduncle retained in a Spanish fishery (J Santana-Garcon).

Spanish and Portuguese fishermen not only retain the whole caudal fin but also include a significant amount of the caudal peduncle, increasing its weight still further. Figure 5 illustrates these three cutting techniques.

Santana Garcon *et al.*, (in preparation 2010) determined that caudal fins landed in Vigo comprised almost 44% of the total weight of fins from each blue shark. Most of this (~35% of total fin weight) is made up from the caudal peduncle and upper caudal lobe that may not be landed by other fisheries.

Furthermore, the small secondary fins that may be discarded from some fisheries (because they are not included in the valuable fin sets) contribute an additional 11% of the total weight of blue shark fins landed. Finally, the majority of the fins landed in Spain are crude cut (Figures 4 and 5) and have a significant amount of meat attached at the base. This is waste that does not contain any fin needles. In some cases this can make up a large proportion of the fin weight (40% or more of the weight of packages of small secondary fins may be lost when the excess flesh attached to the fins is removed prior to export from Spain).

Cost-benefit of crude fin cuts

The financial cost to fishermen of using crude fin cuts is not only that fin quality and price is reduced, but also the quality and the value of the flesh of the shark carcass from which the fins have been removed (Rose, 1996, Rose and McLoughlin, 2001). These considerations led to the promotion of a whole-shark landing policy by buyers and fishermen in some Australian fisheries that was subsequently translated into legislation mandating whole landings of shark catches. Crude cutting of fins also increases the cost of processing, whether the fins are trimmed in the EU before being exported, or a heavier, bulkier untrimmed product is shipped to Asia where the cost of labour for trimming is lower. Regardless, the extra cost of processing and/or transport is presumably reflected in lower prices paid to fishermen. Fishermen's perceptions of the financial benefit gained by producing a greater weight of fins through the use of crude cuts may be illusory.

There is considerable potential for improving fin cutting practices in European fleets, whether under the existing derogation that permits fins to be removed on board, or onshore if carcasses are landed with fins still attached. The advantages for fishermen of improved cutting practices should include receiving higher prices for better quality fin sets and carcasses, while the costs to processors of trimming fins prior to export and/or exporting heavier lower-value products would be reduced. Despite this, however, it is likely to be difficult to persuade all fishermen to change their long-established fin cutting practices in order to conform with the specified fin:carcass ratio regulation for any given fishery.

Fin:carcass ratios

Hareide *et al.*, 2007 reviewed the size and range of all published fin:carcass weight ratios and other conversion factors for shark products by species, fisheries and processing techniques. A more recent survey of fin preparation prior to export from Spain by Santana-Garcon *et al.*, (in preparation 2010), presented in a separate report, provides some new data that complement the earlier study.

Because blue shark is predominant in EU landings and is the subject of the largest data sets, both of the above studies focused primarily on this species. When data on fin:carcass ratios for other species were lacking from EU fisheries, information

from other fisheries was used. Average fin:carcass weight ratios reported for most species occurring in EU fisheries were lower than the 5% whole weight allowed by the EU Finning Regulation (see section 7). The blue shark, however, has the highest mean fin to whole weight ratio identified in EU MS shark landings, with an average ratio of 6.4% of whole weight. Fin to dressed weight ratios for blue shark were also high, average 14%. These ratios were only reported from Spanish and Portuguese fleets, which appear to have similar processing techniques, and are about three times higher than the ratios obtained for blue sharks by other pelagic fleets operating in the Atlantic and Indo-Pacific (Hareide *et al.*, 2007, Santana-Garcon *et al.*, in preparation 2010).

In addition to cutting techniques and numbers of fins removed, variations in fin:carcass weight ratios arise from differences in morphology between species. For example, the fin to whole weight ratio among the four large coastal and pelagic sharks landed by the US Atlantic Shark Fishery ranged from 2.55% for dusky shark (*Carcharhinus plumbeus*), to 2.16% for blue shark, 1.77% for shortfin mako, and 1.45% for silky sharks (Baremore *et al.*, (unpublished), cited by Cortés and Neer (2006)). There are even very small differences in ratios between age classes of the same species of shark. The lowest EU fin ratio identified was 1.6% fin:whole weight, for deep-water shark fisheries that only retain the caudal fins with carcasses, or 3.6% when all fins are retained. In contrast, as noted above, the fin:whole weight ratio for blue sharks observed in the Spanish and Portuguese fleets averages over 6% (e.g. Mejuto *et al.*, 2009). Some EU fishermen have therefore argued that the 5% whole weight ratio set by the EU Regulation (see section 7), despite being significantly larger than the ratio observed for blue sharks in the US Atlantic fishery, forces fishermen to discard excess fins at sea. This large discrepancy arises because of the significantly different processing practices in these two fleets, particularly the retention of the upper caudal lobe by Iberian vessels. In fact, the greatest variation occurs between different vessels in the latter fleet. Mejuto *et al.*, 2009 report that the fin:carcass weight ratio for individual blue sharks obtained by 45 vessels studied in the Spanish fleet ranged from 3% to 12%, with vessel means ranging from 5% to 8%, highlighting the importance of the different cutting techniques used by individual fishermen in producing this variation.

Whatever the reason for using the crude cuts described above, the results are heavier fins, a lighter carcass and a higher fin:whole carcass ratio.

In addition to these minor variations, which arise from the removal of different types of fins with different cuts, there is even greater variation in the fin:dressed carcass weights that are obtained in different fleets and between different vessels. These arise because 'dressed' carcasses may be landed in many different forms. The carcass may simply be eviscerated (removing about 25% of the whole weight), or also beheaded. Additionally, the belly flaps and part of the trunk anterior to the gills may also be removed. Finally, the carcass may be skinned and/or filleted. These treatments remove much more of the carcass weight, until possibly only 40% of the original whole shark weight is retained. Such intensive processing significantly increases the fin:dressed carcass weight ratio of the final products landed.

Variations in processing practices result not only in different conversion factors in different fisheries, but also between vessels in the same fleet. These issues illustrate the difficulties associated with using any form of fin:carcass weight ratio to implement and monitor compliance with a shark finning prohibition.

There is considerable potential for improving fin cutting practices in European fleets, whether under the existing derogation that permits fins to be removed on board, or onshore if carcasses are landed with fins still attached. The advantages for fishermen of improved cutting practices should include receiving higher prices for better quality fin sets and carcasses, while the costs to processors of trimming fins prior to export and/or exporting heavier lower-value products would be reduced.

Implementing finning bans

The world's first shark finning ban was adopted in 1993 in the Shark Fishery Management Plan (FMP) for US Atlantic waters, following consultation with industry and other stakeholders (NMFS 1993). As part of the development of this measure, scientists measured the fin:carcass dressed weight ratios for a variety of shark species on board vessels in the Atlantic commercial shark fishery. The FMP adopted a maximum fin to dressed carcass weight ratio that was very near the upper limit of the range of values collected in this mixed fishery. Fishermen were also required to offload and weigh fins and carcasses together.

A small number of other shark-fishing States had adopted finning bans, mostly modelled on the US Atlantic example, by the time the UN FAO International Plan of Action for the Conservation and Management of Sharks was adopted in 1998. This non-binding, voluntary initiative called on States to ensure conservation and management of sharks, including *inter alia "minimising waste and discards from shark catches... for example, requiring the retention of sharks from which fins are removed"*. In addition to preventing unacceptable levels of waste, this measure aimed at reducing levels of shark mortality and preventing unsustainable exploitation.

By end of 2009, more than 20 countries, the EU (27 Member States) and eight RFMOs had approved shark finning bans, described in the following pages. These prohibitions mostly employ a maximum fin:carcass weight ratio (the majority based on the original US or the EU ratio) but may not specify whether the ratio pertains to whole or dressed weight. During the past decade, problems with implementation have resulted in changes to the methods used to implement finning bans, with a growing number moving towards requiring that sharks be landed with their fins still attached. Similar implementation issues are currently being discussed within the EU.

This section describes the main methods that are currently being applied to enforce shark finning bans and lists the various shark fishing entities and RFMOs that are known to have adopted each of these options. More information on these regulations, where available, is summarised in Annex I.

4.1 Keeping fins attached

Sharks are commonly landed with fins intact for processing onshore all over the world, both in countries with finning regulations and in those without such rules. Requiring that fins be landed still naturally attached to each carcass is the basis for the finning prohibitions in Australian federal longline tuna and billfish fisheries and shark fisheries and in some Australian state waters, in Columbia, Costa Rica, Ecuador, El Salvador, Oman, Panama (other than for small artisanal vessels, who must land fins and carcasses to a maximum 5% ratio), and the Atlantic and Gulf of Mexico waters of the US (a Bill to extend this measure to all US waters is awaiting a Senate vote). This is also the basic premise underlying the EU Finning Regulation, although derogation is allowed through SFPs that allow fins to be removed on board.

Figure 6 | Partially cut fins

WWW.PRETOMA.ORG

Unloading of frozen sharks from a Costa Rican freezer longliner. The fins are partially cut but still attached and tied on the body. (April 25, 2007, Dock Coopeimpesa, Puntarenas, Costa Rica.)

The advantages of keeping shark fins attached include:

- Enforcement burden is reduced because fins and carcasses do not need to be weighed separately (any detached fin found on board a fishing vessel is illegal).
- Calculation, decisions and alterations regarding ratios for different species, fisheries or onboard processing techniques are unnecessary.
- 'High-grading' (mixing carcasses and fins from different animals) is impossible.
- Species-specific monitoring of landings is much easier (finned carcasses can be hard to identify, particularly if beheaded), and information on species and quantities of sharks landed is vastly improved (these data are important for stock assessments and science-based fisheries management).
- Land-based processing of carcasses can include careful and precise fin cutting, increasing the value of the finished product; whole shark landings to maximise value are required by some shark processors, including EU porbeagle shark buyers, and buyers of other high value shark species in Kesennuma (Japan), Su'Ao (Taiwan) and some Australian states.

Some fishermen argue that sharks frozen with their fins still intact would take up too much hold space and would be difficult, even dangerous, to handle and offload because of the sharp, protruding fins. Lack and Sant (2006) report *"there is a strong perception that requiring fins to remain attached to the trunk is not a feasible option for most high seas fishing operations where the trunk needs to be frozen."* Techniques to address these problems have, however, been developed in fisheries in Central America, where shark fins are partially severed and folded flush along the carcass, thereby enabling safe and efficient freezing and storage (see Box 2 and Figure 6). El Salvador's finning prohibition drew upon practical experience in Costa Rica and specifies that at least ¼ of the fin base must remain attached.

In the case of Costa Rican and US Atlantic shark fisheries, rules to keep fins naturally attached to all shark carcasses landed replaced other, less effective methods used initially to implement finning

prohibitions. The new US Atlantic policy, adopted in 2008, followed 15 years of experience with a 5% fin:dressed carcass weight ratio. Costa Rica had tested a range of fin:dressed carcass weight ratios and the reattachment of fins onto carcasses following the adoption of its finning ban in 2001, identifying serious shortcomings with both of these options before confirming a 'fins naturally attached' regulation in 2006 (see Box 2).

Some EU fishing industry representatives have voiced concern that shark fins must be removed before carcasses are frozen on board, claiming it would not be possible to remove them at landing sites without defrosting the carcasses and that options for the onward shipment of either product in a frozen condition would be reduced. Further, EU fishing interests have suggested that the quality and value of fins that are removed from frozen carcasses is reduced. Several countries, however, now require fins to remain attached until after landing, including Costa Rica (Box 2), and the experience of their fishing industries demonstrates that this method is feasible. In addition, one of Hong Kong's largest fin processors has stated that removing fins from shark carcasses is best done when the carcass is frozen hard, because it is much easier to control the cut (in litt., Mr C. Lim, The Sharkfin and Marine Products Association, Hong Kong, 9 April 2010).

Box 2 | Costa Rica case study

In February 2001, under pressure from fishermen and conservationists, the Costa Rican government adopted a finning ban regulation requiring that all sharks must be landed with fins attached (AJDIP/47-2001). However, evidence of continued uncontrolled landings of shark fins by foreign vessels in the Pacific port of Puntarenas led to several non-governmental organisations calling on the government to declare a moratorium on the landing of shark fins by foreign vessels until mechanisms had been adopted to enforce the regulation.

The government acknowledged that shark fin trade was uncontrolled, despite the finning ban, and that an improved regulation was needed. This new regulation (AJDIP/415-2003) entered into force in November 2003. It allowed shark fins to be landed separately from the carcass, provided that their weight corresponded to a specified fin-to-body-weight ratio. These fin:carcass weight ratios differed according to the fin cutting methods used, ranging from 7.7% to 12.7% depending upon the quantities of meat left attached to the fins. These were higher than those recommended by the majority of international experts and the IUCN SSC (Species Survival Commission) Shark Specialist Group (ratios of 2% fin:whole (whole body) weight or 5% fin:dressed carcass weight had been found to be appropriate in other commercial fisheries for most large shark species).

In May 2005, Costa Rica's new Fisheries Law (Law No. 8436) was passed. Article 40 mandates that all sharks be landed with their respective fins attached, thus eliminating the fin-to-body-weight ratio system. Article 139 imposes a sentence of two years in prison, to whomever allows, orders or authorises the landing of shark fins without the respective body. Fisheries officers of the Instituto Costarricense de Pesca y Acuicultura (INCOPESCA), however, interpreted "attached" as meaning that the fins could be separated from the body, provided that they were tied back upon landing.

In July 2005, Costa Rica's Attorney General ruled that INCOPECSA's policy of allowing fins to be landed tied onto shark bodies violated Article 40 of the Fishery Law and that INCOPESCA must require that fins are landed attached in "natural" form. In this binding ruling, the Attorney General clarified that allowing fins to be tied back onto carcasses opens numerous loopholes that facilitate shark finning (e.g. tying extra fins to each body or tying large fins to small bodies), makes at-sea controls against shark finning impossible, and severely complicates controls at dockside.

In September 2005, INCOPESCA appealed against the July ruling, requesting that it be reconsidered. In January 2006, the Attorney General rejected INCOPESCA's request and reconfirmed that in order to apply the Fishery Law, INCOPESCA must require shark fins to be landed attached in natural form. INCOPESCA filed yet another appeal, which was again rejected in June 2006. In August 2006, the Costa Rican fins-attached system, which requires fins to be landed naturally attached to shark carcasses, became fully implemented. This ruling applies equally to fresh and to frozen sharks landed in Costa Rica.

To comply with this regulation when landing frozen carcasses, Costa Rican fishermen have developed a partial cut that allows fins to be folded and laid flat against the body to ease handling and maximise storage space on board (see Figure 6).

4.2 Limiting the numbers of fins landed per carcass

The option of specifying a maximum number of fins per carcass landed was discussed during the consultation prior to the introduction of a finning ban under the US Atlantic Shark Plan (NMFS, 1993). A proposed limit of five detached fins per carcass was rejected for several reasons. Potential problems identified included retention of large fins from large sharks alongside small shark carcasses (high grading), prevention of fishermen landing small secondary fins (as undertaken in some EU MS fisheries) in addition to the largest primary fin set, and time-consuming enforcement at landing sites (it would be necessary to match and/or count every fin set and every carcass in order to monitor compliance).

This method is applied in the Western Australian shark fishery, which is exploited by relatively few licensed vessels landing in a small number of well-monitored locations. For example, all parts of a shark except for the head, tail or viscera (which can be discarded at sea) must be landed together in the Western Australian Joint Authority Northern Shark Fishery, which involves six vessels. Compliance is monitored by counting the number of pectoral and/or dorsal fins and comparing these with the number (and size) of carcasses landed. This example suggests that limiting the number of shark fins landed per carcass can be a feasible method of enforcing a finning ban if shark landings are small (if, for example, there is a bag limit of only five or 10 animals per boat trip), or applied to a small number of vessels in a strictly regulated and closely monitored fishery.

Namibia's Shark Management Plan also requires that all shark fins landed must have the corresponding number of trunks onboard; this is to be checked by the Inspectorate when boats offload. However, details of the number of fins required per carcass or other information on the implementation of this measure are unknown.

4.3 Limiting fin:body weight ratio

Despite a trend toward keeping fins attached, limiting the fin:carcass weight to a specified ratio is still the most widely used means of enforcing finning prohibitions today. This method has been adopted by the EU, by the majority of States and by all RFMOs that prohibit finning.

The ratio most widely applied is 5% of wet fin weight to 'dressed' (gutted and beheaded) carcass weight, which is roughly equivalent to 2% of wet fin weight to whole shark ('round' or 'live') weight. This ratio was based on commercial shark practices in the US Atlantic (NMFS, 1993) when sandbar sharks (*Carcharhinus obscurus*), a species with large fins, dominated the shark landings. As noted above, NMFS scientists sampled sharks dressed at sea under commercial fishing conditions in the Northwest Atlantic and calculated a range of fin:dressed carcass weight ratios for different species, from 2.53% for silky sharks to 5.33% for sandbar sharks, with the latter significantly higher than most other species. The average fin:whole weight ratio produced by this study was 1.69%. The fin:carcass weight ratio adopted in the Atlantic Shark Fisheries Management Plan, and later in the US Shark Finning Prohibition Act, was set at 5%, near the upper limit recorded for sharks taken in a mixed fishery that was dominated by the species with the largest fins. Although this fishery has now adopted a fins-attached policy for all landings, the 5% ratio is retained for monitoring compliance after processing at landings sites.

Confirmation that this is an appropriate ratio for this fishery comes from the University of Florida Commercial Shark Fishery Observer Program (CSFOP). CSFOP collected data on fin and carcass weights from more than 27,000 sharks of 28 species taken in the US Atlantic coastal fishery during 1994-2002 (Cortes and Neer 2006). The overall fin:carcass ratio was 4.90% for 'dressed' sharks – with head, entrails and fins removed. This indicates that the use of 5% in the US Atlantic allows considerable flexibility for species-specific variation in fin:carcass weights, enabling a high proportion of sandbar sharks (a species whose fins comprise over 5% of the dressed weight) to be landed alongside other species.

This ratio has also been found to be adequate to allow all desired fins to be landed from shark fisheries in New Zealand (ICCAT, 2004), Australia (Rose and McLoughlin, 2001), Canada (DFO, 2001), and from deepwater shark fisheries in the Northeast Atlantic (Hareide *et al.*, 2007).

It is not always clear whether the percentage ratio mandated in a national finning regulation refers to dressed carcasses or whole bodies, when these terms are not precisely defined. For example, Brazil's finning regulation (Portaria 121 1998) refers to "*peso das carcaças desembarcadas*" (weight of unloaded carcasses) – without specifying whether this should be the whole or dressed weight. Nicaragua's regulation (Decreto 9-2005) refers to "*peso total de los cuerpos de los tiburones capturados y encontrados a bordo*" (total weight of shark bodies captured and retained on board).

South Africa has adopted two different ratios for fins:dressed carcass weight: 5% for foreign vessels and 8% for its domestic fleet, since the latter dresses sharks at sea into 'fillets', discarding more material than vessels that land dressed carcasses in the form of 'trunks'. Spain's national finning prohibition (now superseded by the EU Regulation) did not specify a precise weight ratio, but required documentation when fins and carcasses were separated.

The EU Finning Regulation uses a 5% fin to whole weight ratio, the highest weight ratio in existence. Member States are expected to *"establish the theoretical correspondence between weights of fins and bodies… taking into account the type of fishery, the species composition and the type of processing and storage."*

The main problem with a theoretical ratio is that this can never be measured by comparing the weights of the fins and carcasses that are landed; logbooks provide the only record of whole weights retained and these can never be verified in port.

In most cases around the world, there is a requirement for detached fins and carcasses to be landed together so that implementation of the regulation can be properly monitored and enforced. In these cases, compliance checks are moderately time-consuming because ratio determination requires all shark products on board to be weighed. Compliance checks are not

possible if fins and carcasses are landed in different ports, which is permitted only by the EU Finning Regulation for vessels with SFPs.

4.4 Reattaching fins

Permitting fins to be tied back onto carcasses after removal on board was briefly applied in Costa Rica as an alternative interpretation of this State's 'fins attached' regulation (Box 2). This measure resulted in considerable concern that high grading of fins was taking place and hindering compliance monitoring. The intent of the Costa Rican regulation was subsequently clarified as fins being naturally attached in order to close this loophole.

Variations of this strategy were proposed unsuccessfully by the European Community and Australia at the 2009 annual meeting of the Indian Ocean Tuna Commission (IOTC), as an alternative to the weight ratio currently being applied. The proposals were opposed by conservation and animal welfare groups, as well as by scientists and recreational fishermen. This option had also been offered by the IOTC Scientific Committee in 2008, as an alternative to the advice of the 2008 IOTC Working Party on Ecosystems and Bycatch (WPEB) for fins attached. While this approach might be workable for well-managed and intensively monitored fisheries in which only small numbers (e.g. 5 to10 per trip) of sharks are landed and monitoring compliance is therefore easy (as in some Australian fisheries), it would be very much harder to implement when large numbers of sharks are being landed and compliance monitoring is poor. The WPEB reiterated their advice again in 2009, clearly recommending *"fins naturally attached"*. Following this, the Scientific Committee suggested in 2009 that the Compliance Committee should consider the mechanism for solving the shark finning problem.

4.5 Other methods

Information was not available on the precise methods currently being used to implement and monitor compliance with shark finning prohibitions in a few States, including Cap Verde or Congo-Brazzaville.

Other States or other entities have simply prohibited all shark fishing or targeted shark fishing in their exclusive economic zones. These include Egypt (within the Egyptian waters of the Red Sea), French Polynesia (except for shortfin makos), Honduras (where a moratorium on shark fishing is in place *"until research has been completed that will allow a responsible management plan"* and a ban on finning coastal species is being developed), Israel, the Federated States of Micronesia, Maldives and Palau. Norway has banned discards completely; regulations require that all sharks be landed. These measures are not finning prohibitions *per se* and are not considered further in this report.

Box 3 | Development of the EU Shark Finning Regulation

The European Commission conducted a thorough consultation on the EU Shark Finning Regulation prior to its adoption in 2003. During this process, the measure changed from a simple ban on the removal of shark fins on board vessels (which is the measure now increasingly being recommended and adopted under new and revised finning bans) to the current regulation that includes a derogation that allows for on-board fin removal under Special Fishing Permits (SFP). In the time since adoption, the SFP exception has become the rule for the fleets of the two major EU shark fishing countries (Spain and Portugal).

The maximum fin ratio was, in early drafts, *"not to exceed 5% of the total weight of the remaining parts of shark after evisceration and beheading"*, and required all fins and other parts to be landed or transhipped together. This is the same as the majority of other finning bans that apply a weight ratio. However, it was subsequently amended to the current mandatory upper ratio of 5% of live (or whole) weight, in order to accommodate the higher ratios obtained when the entire caudal fin is retained and significant amounts of flesh from the carcass are left attached to the fins. Furthermore, separate landings of fins and carcasses in different ports were also allowed for vessels with SFPs.

The derogation available under the EU Finning Regulation, (European Commission, 2003) differs from other regulations based on weight ratios in three respects:

- It specifies a maximum landing size of 5% of whole weight, which is equivalent to some 11–15% of dressed weight (depending upon dressing techniques). This is significantly higher than similar regulations adopted by other States.
- It does not mandate a fin:dressed carcass weight ratio for post-processing enforcement.
- It is the only Regulation identified that allows separate landings or transhipments of carcasses and fins.

The differences between the fin:carcass ratios mandated under EU and other State regulations has weakened the common finning bans for shared and high seas fisheries under the jurisdiction of RFMOs, as discussed elsewhere (for more information, see section 5).

RFMO finning regulations

The Regional Fisheries Management Organisations (RFMOs) that have adopted legally binding measures (termed Recommendations or Resolutions depending on the RFMO) to prohibit shark finning are: the International Commission for the Conservation of Atlantic Tunas (ICCAT (the first in 2004), the General Fisheries Commission of the Mediterranean (GFCM), Indian Ocean Tuna Commission (IOTC), Inter-American Tropical Tuna Commission (IATTC), North Atlantic Fisheries Organization (NAFO), Southeast Atlantic Fisheries Organization (SEAFO), Western Central Pacific Fisheries Commission (WCPFC) and the Northeast Atlantic Fisheries Commission (NEAFC). The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) has prohibited targeted shark fishing, but does not prohibit the finning of bycatch.

All of the finning regulations adopted by RFMOs, which largely mirror the text adopted by ICCAT (see Annex II), are enforced through a maximum fin:carcass weight ratio. These ratios (all of which are currently identical) have, however, needed to accommodate the different standards adopted by their Contracting Parties. The common wording of RFMO finning bans states that Contracting Parties, Cooperating non-Contracting Parties and other bodies (CPCs): *"Shall require their vessels to have on board fins that total no more than 5% of the weight of sharks on board, up to the first point of landing".*

Using the terminology *"sharks retained on board",* without specifying whether this applies to whole weight or processed carcasses, was adopted by ICCAT in order to account for the discrepancies between finning regulations in the EU and the US. This compromise was reached following the EU's successful efforts to amend the original ICCAT shark finning proposal presented by the US, which sought to set a 5% fin:dressed carcass weight ratio, to accommodate the EU's 5% fin:whole weight ratio. The result is, for example, that US vessels may retain fins to a maximum whole weight ratio of some 2% (a 5% ratio of fins to dressed carcasses on board, after viscera and heads have been discarded). EU Member State vessels may retain more than twice that (vessels in the Portuguese fleet retain a weight ratio of 12% of fins to dressed blue shark carcasses under the generous provisions of the EU Regulation (COM(2005)700)).

Each vessel is required to conform to the national regulation of its flag State, even when on the high seas. The imprecise RFMO finning ban texts present a loophole for finning if CPCs without a domestic finning regulation apply and/or seek to adopt the more generous EU interpretation of the RFMO fin ratio allowance, while actually retaining fin products processed according to the practices that are used by most other fleets. Any vessels that only retain the most valuable primary fins sets, cut to remove all flesh, could potentially keep the wet fins sets from two or three sharks but only one carcass, and still theoretically comply with the RFMO 5% ratio (if interpreted as 12% of dressed carcass weight based on EU ratios), while illegally finning more than half of all the sharks that they catch.

Furthermore, the above calculations refer to wet fins. If shark fins are detached and dried on board ship, which is common in the Asian distant water fleets, the conversion factor changes significantly. For example, NMFS/NEFSC (1992) reports that the ratio for blue shark fin weight to whole carcass weight is 2% for wet fins but only 0.6% for dried fins. None of the RFMO finning regulations specify whether they apply to wet or dried fins. This is a significant omission given that eight dried fin sets weigh less than 5% of the weight of a single whole shark carcass. The RFMO ratio could therefore be complied with by vessels that are finning and discarding seven out of eight sharks, if the fins that have been removed are then dried on board.

In reality, however, compliance monitoring and enforcement of RFMO finning bans is extremely limited in most areas. Although there are occasional high seas boarding and inspection procedures, these are rare. Most vessels do not have observers on board, port state inspections are uncommon in Asia and the Pacific Islands, and most CPCs have not yet reported on their compliance with these measures. It is therefore unknown whether or to what extent the loopholes described above are being used to enable a certain amount of shark finning to continue while vessels might, if inspected, appear to comply with the bans.

It follows from the above that the fin to body weight ratio adopted is *"a key determinant of the effectiveness of the shark finning bans currently in place"* (Lack & Sant, 2006). As such, fin:carcass ratios have regularly been discussed by ICCAT's Standing Committee on Research and Statistics (SCRS), IATTC's Working Group on Stock Assessment, and IOTC's Scientific Committee and Working Party on Bycatch. All have expressed serious reservations about the formulation of the finning prohibition and the general application of a 5% ratio, as described in the examples below.

For example, ICCAT Standing Committee on Research and Statistics (2006) noted that:
"…owing to the different species of sharks that may be caught or targeted by the different fisheries of the world, which are likely to have different fin-to-body weight ratios, and the varying fish preparation and utilization criteria on board the different fleets, it would not appear to be advisable to establish universal fin-to-body weight ratios. Consequently to be effective, these regulations must take into account the species of sharks and the fleet behavior…

"the accuracy of conversion factors is vital for estimating catches...

"Fin-to-body-weight ratios can significantly affect the catch estimation and ultimately influence assessment results…

"The SCRS thus recommends that conversion factors between the fins and body weights be developed and implemented on a species- and/or fleet specific basis."

IATTC's Working Group on Stock Assessment (IATTC, 2006) also identified several problems with the use of a 5% ratio of fins to body weight, including those already addressed in this report: *"It is not specified if the standard applies to the wet or dry weight of the fins or to the whole fin or just what is sold on the market"*; and *"it is not specified if the standard applies to the dressed weight or to whole weight of the shark"*.

The IATTC Working Group also noted significant differences between studies on ratios of fin-to-body weight and identified the following explanations for these:

- the number of fins included in the analyses;
- how fins were cut ('L' or straight cut);
- the state of the shark carcasses (dressed or round);
- the length of the trip (which determines how dry the fins are); and
- the sizes of the sharks.

The IATTC Working Group suggested in this early report that it would be better and easier to match the number of fins to the number of carcasses rather than comparing weights. As mentioned, this method is workable when only small numbers of sharks (5-20 per trip) are being retained. The practical constraints associated with counting all of the fins and carcasses contained in a large fishing vessel are much more challenging than those associated with comparing the weights of large boxes or bundles of shark products. The IATTC Permanent Working Group on Compliance regularly notes that compliance with the IATTC finning resolution requires attention by the Commission.

IOTC's Working Party on Ecosystems and Bycatch (WPEB 2006) also noted that *"the fin-to-body weight ratio for sharks varied widely depending on species, fin-set and finning techniques, and generally agreed that using ratios for particular species and/or fleets might be needed, although difficult to implement."* The implementation difficulties would be huge, in view of the potential combinations of species, fleets, fisheries, fin sets, finning techniques, Port States, Fishing States and landing sites within the IOTC area.

The task of developing different ratios for different species and/or fleets would require a great deal of research. Such a detailed study would increase knowledge of shark fisheries and inform options for shark fisheries management. Such research will, however, be costly and time consuming and take a long time to implement and apply.

In addition, it is difficult and costly to monitor compliance even with a single fin:carcass weight ratio, particularly in the absence of at-sea observers and generally poor levels of compliance monitoring and enforcement, let alone with several different ratios.

More recent meetings of many RFMO advisory bodies have been moving away from recommending counting or matching fins with carcasses towards promoting a *"fins-naturally-attached"* approach for implementing finning bans. For example, the IOTC WPEB (2008, 2009) has recommended that the 5% fin to body weight ratio measure be replaced with a resolution requiring sharks to be landed with fins naturally attached to the body. These recommendations have been discussed by the IOTC Scientific Committee; in 2009 most Contracting Parties (CPs) supported this recommendation of the WPEB, while others (the Asian distant water fishing nations) wished to see further investigation of this issue. Reports of the recent discussions within the IOTC provide a good illustration of the development of the debate on shark finning regulations within an RFMO; extracts are therefore presented in Annex III.

The International Council for Exploration of the Sea (ICES), the regional fisheries advisory body for the Northeast Atlantic, has not formally considered the issue of shark finning. Many members of the ICES Working Group on Elasmobranch Fishes, however, attended a European Elasmobranch Association workshop that undertook a detailed review of the range of conversion factors published for various shark fisheries. This workshop concluded that a fin:carcass ratio is a complicated and usually inadequate tool for preventing finning because of differences in fin cutting techniques and variability among shark species' fin sizes and values (as described in section 3), which potentially create loopholes that enable finning to continue. When ratios are set at the upper end of those observed in a range of fisheries, this problem is exacerbated, leaving species with small fins and/or low value meat at particular risk of finning. However, the huge variations in fin removal practices mean that it is impossible to develop a single optimal fin-to-carcass ratio for all fisheries. Furthermore, implementation of the EU Shark Finning Regulation is seriously hampered by the derogation that allows the transhipment and separate landings of fins and carcasses. The workshop concluded that the only practical means of ensuring that finning cannot take place is to land sharks with their fins attached. Additional benefits of a 'fins attached' policy include reduced enforcement burden and vastly improved quality of information on species and quantities of sharks landed, for stock assessments and the provision of scientific advice to fisheries managers (Hareide *et al.*, 2007).

Proposals to amend RFMO finning resolutions to require fins to be landed naturally attached (e.g. by Costa Rica at the 2008 annual IATTC meeting and Belize, Brazil and the US at the 2009 annual ICCAT meeting) have not yet been adopted, but are likely to continue to be proposed in these and other RFMOs.

In those cases where States fish sharks and aim to collaborate in the management of shared and straddling or high seas shark stocks, it would be far preferable to harmonise their shark finning regulations and adopt a single, common and effective regulation, than to have more than one form of regulation in place for different fleets that are fishing a single stock and operating under the same management regime.

International advice

A series of Resolutions adopted annually by the United Nations General Assembly (UNGA), 2003–2009, and by recent meetings of the IUCN World Conservation Congress have urged States and RFMOs to extend finning bans more widely and move towards a 'fins naturally attached' landings policy to close existing loopholes. Most recently, the May 2010 meeting of the Review Conference on the Fish Stocks Agreement made important recommendations regarding strengthening shark finning prohibitions. These are reviewed below.

6.1 United Nations General Assembly

Since 2003, UNGA Resolutions (Annex IV) have supported the implementation of the FAO's IPOA–Sharks and called upon States to improve the implementation of and compliance with existing RFMO arrangements and national measures to regulate shark fisheries, including minimising waste and discards from shark catches. Since 2007, these Resolutions have also supported requiring fins to be landed attached to carcasses: *"...in particular those measures which prohibit or restrict fisheries conducted solely for the purpose of harvesting shark fins, and, where necessary, to consider taking other measures, as appropriate, such as requiring that all sharks be landed with each fin naturally attached"*.

6.2 IUCN World Conservation Congress

The two most recent IUCN World Conservation Congresses (2004 and 2008) both adopted Recommendations on sharks and shark finning. IUCN Recommendation 3.116 (2004) on Shark Finning urged States to implement the FAO IPOA–Sharks by developing national and regional action plans that, *inter alia*, implement bans on shark finning. Requiring sharks to be landed with their fins attached was identified as the favoured option for implementing these bans, while a 5% fin:dressed carcass ratio was promoted for fisheries using weight ratios. Further, States were urged to support the development and adoption of a new UNGA resolution to ban all shark finning in international waters. This was replaced in 2008 by IUCN Recommendation 4.114 regarding a Global policy against shark finning. This referred to Rec 3.116 and the debate regarding the correct fin:carcass ratio needed in order effectively to prevent finning, particularly when limited resources are available for monitoring compliance. The Congress called upon States to land sharks only if their fins are naturally attached to their bodies, to improve implementation of finning bans and aid species identification.

6.3 Fish Stocks Agreement Review Conference

The May 2010 meeting of the Review Conference on the Agreement for the Implementation of the Provisions of the UN Convention on the Law of the Sea relating to the Conservation and Management of Straddling and Highly Migratory Fish Stocks discussed actions to improve the status of shark stocks. Proposals included requiring sharks to be landed with their fins attached as a tool to strengthen enforcement and monitoring of existing shark measures that prohibit finning, as well as additional international bans on shark finning. Not all delegates agreed that sharks should be landed with fins attached, but agreed that measures needed to be adopted to ensure that the number of sharks caught corresponded to the number of fins landed. Some participants also stressed that port and market measures were effective ways to control the practice of shark finning. FAO was requested to convene a workshop to consider technical matters relating to a shark-fin rule, as recommended by the FAO Committee on Fisheries (COFI) in 2009.

The outcome of the Review Conference included the following recommendations to strengthen the conservation and management of sharks by:

i. *establishing and implementing species-specific data collection requirements for shark species caught in directed shark fisheries or as by-catch in other fisheries;*

ii. *conducting biological assessments and develop associated conservation and management measures for such sharks; and*

iii. *strengthening, on the basis of the best scientific information available, enforcement of existing prohibitions on shark finning, including through, inter alia, requiring that sharks be landed with their fins naturally attached or through different means that are equally effective and enforceable.*

As discussed in the previous sections, limiting fins by weight ratio or number, or reattaching fins might be a reasonably effective and enforceable means of implementing shark finning bans in very small, localised and well-monitored fisheries that land only small numbers of sharks (5-20 per trip); however, these methods cannot be considered 'equal' in terms of effectiveness and enforceability to requiring that fins remain naturally attached, even under these circumstances. Keeping the fins attached is the only fool-proof method of ensuring finning does not occur and carries with it a minor enforcement burden, especially when compared to methods involving accounting for severed fins.

The EU Finning Regulation

7

Council Regulation (EC) No. 1185/2003 on the removal of fins of sharks on board vessels (the EU Finning Regulation) was adopted in 2003 to reduce shark mortality. The regulation prohibits the removal of fins from sharks on board vessels, but includes a derogation under which Member States can issue Special Fishing Permits (SFP) for the removal of fins on board *"where the need for the separate processing on board of shark fins and the remaining parts of the sharks has been justified"* and to enable *"a more efficient use of all shark parts"*.

Under this derogation, shark fins removed on board may be landed or transhipped separately from carcasses. *"Masters of vessels which hold a valid special fishing permit should keep records of the amounts of shark fins and of the remaining parts of sharks after evisceration and beheading."* Waste (heads, viscera, skin) derived from processing on board can be discarded at sea. For the purpose of monitoring/enforcing the Regulation and to promote full utilization, *"the theoretical correspondence between weights of fins and bodies shall be established by Member States, taking into account the type of fishery, the species composition and the type of processing and storage. In no case shall the theoretical weight of the fins exceed 5% of the live weight of the shark catch."*

Under Article 6 of Council Regulation (EC) No. 1185/2003, all Member States that issue SFPs are required to provide the Commission no later than 1st May each year with a *"comprehensive annual report on the implementation of this Regulation during the previous year". "The report shall describe the monitoring of compliance of vessels with the requirements of Articles 3, 4 and 5 and shall detail in particular the number of special permits issued, the technical basis for setting the theoretical correspondence between weights of fins and bodies and the documentation considered valid for the purposes of monitoring separate landings of fins and bodies."*

Further, the Commission was required, following the submission by Member States of their second annual report and no later than January 2006, to *"report to the European Parliament and the Council on the operation of this Regulation and the international developments in this field, and submit, if appropriate, any amendment to this Regulation. Where the proposed amendments would affect the theoretical correspondence between weights of fins and bodies, these amendments shall be made in the light of the advice of the Scientific, Technical and Economic Committee for Fisheries."* This report, COM(2005)700, noted that compliance with the deadlines and the very specific guidance on the content of the annual reports from Member States had been poor, with reports for the year 2004 missing from five Member States and additional information requested from seven other Member States still not provided.

Although two Member States considered that the present maximum 5% ratio between the weight of fins and the total whole weight of the shark catch does not reflect the reality in specific cases for which scientific data are available, they did not provide information to suggest that the sector was having significant difficulties in coping with the legislation (which might be related to the lack of enforcement, compliance monitoring and reporting). Neither did the Commission feel that the Regulation –when properly implemented and enforced– presented loopholes allowing for significant finning to take place undetected within this 5% limit. Although improved implementation by Member States was desirable, particularly regarding criteria for allocation of SPFs and compliance with reporting requirements, the Commission concluded that the Regulation did not *'at this stage'* (2005) appear to need amendment.

The Commission's report also noted the European Community's lead role in the adoption of finning bans by several RFMOs during the two years since the enactment of the EU Finning Regulation. These were the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Inter-American Tropical Tuna Commission (IATTC), the Indian Ocean Tuna Commission (IOTC), and the Northwest Atlantic Fisheries Organisation (NAFO).

The Regulation posed no further obligation upon the Commission to produce subsequent reports on the operation of the Regulation and international developments in that field.

7.1 Member State actions

In 2003, only the UK and Germany provided reports on their allocation of SFPs (to three German-flagged vessels only), although Spain and Portugal reported that they had informed fisheries representatives of the requirements of the Regulation. The other Member States that responded reported that they had not and would not be issuing such permits because they did not land sharks, or landed them whole.

France, which is one of the top 20 shark catching countries in the world, has never issued any SFPs. Indeed, although the Fisheries Ministry prepared a French SFP, the industry's Comité National des Pêches Maritimes asked for a strict ban on finning to be enforced for French vessels and French waters. Infractions are to result in fines on vessel captains. Sharks retained are therefore landed whole, even when frozen.

In 2004, UK (20 vessels) and Germany (five vessels) again reported on their SFPs, but the UK did not describe the justification for the need to process sharks on board. Lithuania noted that it had issued one SFP for 2005 to a vessel targeting sharks and usually landing in Vigo (COM(2005)700). Spain reported that it had issued 182 SFPs to surface longliners in 2003. Of these, 90 were allocated for fisheries in Spanish waters, 86 for fisheries in international waters, and six to vessels engaged in experimental fisheries. In 2004, 198 Spanish SFPs were issued, 190 to surface longliners in Spanish (99) and international (91) waters, one to a deep-sea longliner in Spanish waters, and seven for experimental fisheries. Justification for these permits was not provided. In 2003, 2004 and 2005, Spanish vessels with SFPs caught an average of 87% of the total shark catch of the Spanish fleet. *"The weight of sharks landed annually by Spanish vessels holding permits is significantly smaller than the weight of sharks caught by these vessels"* (2010/MARE/005), indicating that processing and discard of waste products was being undertaken on board, and/or that unwanted sharks are being discarded at sea.

Portugal allocated 11 SFPs in 2004 to longline vessels catching swordfish and pelagic sharks, requiring vessels to declare their capacity to use all parts of sharks, justify the need for on-board processing (i.e. for trading or storage reasons) and to confirm sanitary authorisation for on-board processing.

There are no reports of Member State vessels with SFPs exceeding the theoretical, 5% maximum fin:whole weight ratio. Spain and Portugal, however, consider that this ratio is not consistent with their fisheries. Spain referred to a Spanish study and suggested setting different ratios for different fisheries. This position has been included by Spain in each annual report from 2004 to 2008.

In their 2004 annual report, Portuguese authorities referred to a study on sharks caught in Azores waters that indicated a 6.6% ratio was appropriate for the Portuguese case. Subsequent reports (ending 2006) have detailed that the traditional fin-cutting methods used by the Portuguese fleet produce a fin:carcass ratio of some 5 to 6% of whole weight. These and similar studies have been presented to ICES and ICCAT. Portugal indicated in 2004 that it used a ratio of 12% of fins to dressed carcass weight to ensure compliance with the 5% fin:whole weight ratio; this was the only conversion factor presented in the early Member State reports to the Commission. However, the EU has recently requested that port inspectors undertaking compliance monitoring of EU landings in foreign ports apply a fin:dressed weight ratio of 11.7% (Craig Smith, Pelagics and High Seas Fisheries Management, Department of Agriculture, Forestry and Fisheries, South Africa, pers. comm.).

Separate landings of fins and carcasses were not permitted under the UK's SFPs, which allowed fins to be removed when carcasses were skinned on board but required fins and bodies to be landed at the same time. Spanish annual reports did not provide information on the extent to which fins and carcasses were being landed separately, and Portugal indicated that no separate landings or transhipments were made. No landings were reported in Germany by German flag vessels with SFPs, which fished in Irish waters and landed in Spain; Germany therefore relied upon other EU Port States to monitor compliance.

In 2004, only Portugal reported landing sharks (a small proportion of the catch) outside the Community (in Cape Town); Spain did not provide information on the proportion of their shark landings made elsewhere in its first report. The European Commission (in its Roadmap for the proposal to amend the Finning Regulation, 2010/MARE/005) notes that subsequent Spanish reports between 2004 and 2008 confirmed that Spanish vessels holding SFPs *"have landed fins and carcasses (processed in various ways) in non-EU ports in Australia, Brazil, Cape Verde, Chile, Ecuador, Fiji, French Polynesia, Indonesia, Kenya, Mauritius, Namibia, New Caledonia, Panama, Peru, Senegal, South Africa, Trinidad and Tobago, and Uruguay. The annual shark landings, in non-EU ports, by Spanish vessels holding on-board processing permits were 8,077 tons in 2005, 9,003 tons in 2006, 8,295 tons in 2007 and 9,119 tons in 2008. The annual shark landings (EU ports + non-EU ports) by Spanish vessels holding on-board processing permits were 20,447 tons in 2003, 21,417 tons in 2004, and 18,936 tons in 2005. Of the 18,936 tons landed in 2005, 10,859 tons were landed in EU ports (i.e. 57%) and 8,077 tons were landed in non-EU ports (i.e. 43%)."* No information is provided on whether these landings were of fins and carcasses together, or of only one product or the other.

There were a few reports of infringements in 2004 regarding compliance with recording requirements for shark fin weights (Germany, Portugal) and the maximum weight ratio (Spain) by vessels with SFPs, although this was not considered to be evidence of failure to comply with the fin:whole weight ratio. Spain noted that in cases where the whole weight had not been provided in logbooks, inspectors applied the 20% tolerance permitted under Regulation 2807/1993 between amounts in whole weight recorded in logbooks and the unloaded amounts in processed weight landed (Ministerio de Agricultura, Pesca y Alimentacion, 2006).

Information on Member State implementation of the Finning Regulation is generally hard to come by. Access to Member State reports requires a formal request to the Commission, which usually takes many months to be answered. Most Member States regularly submit their reports late, if at all, and can simply block public access to them. For example, Portugal's 2007 and

Council Regulation (EC) No. 1185/2003 on the removal of fins of sharks on board vessels (the EU Finning Regulation) was adopted in 2003 to reduce shark mortality. The regulation prohibits the removal of fins from sharks on board vessels...

2008 reports (due before 1st May in 2008 and 2009, respectively) had not been submitted to the Commission by the release of the Commission's Roadmap (2010/MARE/005). The Commission has fulfilled NGO requests for filed reports, but incompletely because one or more Member States had prevented the sharing of such information (S. Polti pers. comm. 20 August 2010). Spain, in particular, has refused to release related information to NGOs (Oceana 2010). In mid-2009, Finland was the only Member State to have submitted its 2008 report (S. Polti pers. comm. 20 August 2010).

In 2009, the governments of the UK and Germany, which between them issued SFPs to 25 vessels in 2004 and 21 in 2005, announced that they would no longer be issuing SFPs allowing shark fins to be removed on board. From 2010 onwards, all sharks retained by German and British flagged vessels must be landed with their fins still naturally attached. In 2010, Spain and Portugal are the only Member States that are definitely still issuing SFPs, and do so for most of their shark fishing vessels. It is possible that Lithuania, as flag state, is still issuing one SFP to a Spanish-owned vessel that lands in Spain, but no information has been available since 2005. In February 2010, Cyprus (which has reported an average catch of 20t/year of sharks, skates and rays during the past decade), informed the Commission that it intends to start issuing SFPs.

7.2 European Parliament action

Issues of concern raised in the European Parliament regarding the EU Finning Regulation have included:

- the ratio is too high – higher than that adopted by other shark fishing nations. When applied by RFMOs (and thereby other RFMO Contracting Parties), it sets a low bar and enables vessels that do not use the 'Spanish cut' to undertake a certain amount of finning;
- the ratio is too low – lower than observed fin cutting practice in many Spanish and Portuguese vessels, making it necessary for fins to be discarded;
- the Regulation is unnecessarily hard, if not impossible to monitor and enforce because it sets a theoretical rather than an observed weight ratio and allows fins and carcasses to be landed in different ports;
- a single ratio for all fisheries is inappropriate and should be replaced by a range of ratios in order to account for variations obtained from different shark species and different fishing fleets; and
- the derogation should be removed completely (thus requiring fins to be landed still naturally attached to the carcass).

In 2006, the European Parliament debated a proposal to increase the fin to live (whole) weight ratio to 6%. The outcome was a Resolution calling on the Commission to *"put before the Parliament and the Council a proposal for amending Regulation (EC) No 1185/2003, following a comprehensive review by the Commission of scientific studies on shark fin to carcass ratios covering the wide range of European shark species and fishing fleets taking sharks"* and to *"put before the European Parliament and the Council within the next six months a proposal for amending (it) in line with the majority of scientific analyses of shark fin to carcass ratios for Atlantic sharks, including the blue shark (Prionace glauca), which conclude that a 5% fin to dressed weight (approximately 2.0% of live weight) ratio is an appropriate upper limit for mixed shark fisheries."*

7.3 EU finning ban problems and loopholes

As discussed above, there has been considerable debate in the European Commission and Parliament, and among EU Member States, regarding the enforcement of the EU Finning Regulation. This debate has arisen at least in part because the EU Regulation differs in several respects from other finning prohibitions adopted elsewhere, as noted in previous sections.

Separate landings of fins and carcasses

The EU Finning Regulation set a precedent when it allowed shark fins and carcasses to be landed at different ports, rather than mandating simultaneous landings. No other finning prohibition in existence allows this to take place. Separate landings prevent compliance monitoring (direct measurement and confirmation of the appropriate ratio through comparison of fin and carcass weights) when catches are offloaded. This loophole was based on fishing industry arguments that it is not always possible or as profitable for shark fins to be marketed in the ports where the corresponding shark carcasses are landed. In reality, at every port where shark carcasses are landed, fins are also routinely purchased for export to Asian markets. It appears from the Commission's report (COM(2005)700) that Spain has been the only Member State to make use of this aspect of the derogation. Shark fins and carcasses, however, are also commonly landed together by Spanish and other EU vessels, in both fresh and frozen form, before being sold on to different markets. The European Commission, in its review of the Finning Regulation (above) and its CPOA proposals (COM(2009) 40, below), has noted concern regarding this loophole in the implementation of the Regulation, particularly that the justification for allowing the practice is weak.

High fin:carcass ratio

The maximum permitted fin to whole weight ratio of 5% specified in the EU Finning Regulation is significantly higher and therefore more lenient than the ratios adopted by other shark fishing entities, most of which use a ratio of 5% of the dressed weight, roughly equivalent to 2% of whole weight. The EU adopted a higher value presumably to take into account the opinions and cutting techniques of the Spanish and Portuguese pelagic longline fleet (see section 3). Indeed, Portugal has reported to the Commission that the conversion factor used from whole weight to dressed weight allows Portuguese vessels

DOUG PERRINE/SEAPICS

to retain a weight of fins that is 12% of the dressed carcasses on board (COM(2005)700). This is more than twice the 5% of dressed weight ratio most commonly used outside the EU. Setting such a high ratio could, in theory, allow vessels that dry fins on board or do not use a 'Spanish cut' to fin more than two shark carcasses for each one retained, while still remaining within the EU's permitted fin:carcass ratio.

Theoretical ratio

As noted above, the EU Finning Regulation is unnecessarily difficult to implement because it sets a theoretical weight ratio for fins:whole carcasses, but the carcasses landed have been partly processed ('dressed') and are no longer whole. A theoretical ratio cannot, therefore, be measured by fisheries inspectors charged with monitoring compliance at landing sites by comparing the weights of fins and carcasses landed together; logbooks provide the only record of whole weights retained and these can never be verified in port. Instead, Member States must develop their own conversion factor for a fin:dressed weight ratio, but the Regulation provides no guidance for this nor does it set any upper limit. Portugal is the only Member State that appears to have provided this information to the Commission, and uses 12% (see above). It was impossible for fisheries inspectors outside the EU, or inspectors in other EU countries, to evaluate compliance with the EU Regulation when no upper fin:dressed weight ratio had been published for vessels offloading catches in their ports. In contrast, the majority of other finning prohibitions around the world mandate a maximum ratio of 5% for the weight of fins to the weight of dressed (beheaded and gutted carcasses) that are actually offloaded, or some other ratio that reflects the form in which carcasses are landed (the ratio is higher if carcasses are filleted on board). This provides authorities with an upper limit that can be measured at landing sites to assess compliance.

The European Commission addressed this problem in April 2010, when it circulated through the ICCAT Secretariat a request for non-EU Port States to use an interim fin:dressed carcass weight control ratio of 11.7% for monitoring compliance by EU Member State vessels with the EU 5% whole weight ratio. This figure was derived from the average fin:dressed carcass weight ratios obtained by the Spanish fleet for blue sharks (which generally comprise 87% of the shark catch) and for mako sharks (~10% of the shark catch) and the average conversion between whole weight and dressed weight for a typical catch in these proportions.

Implications for finning rules adopted in RFMOs

As discussed in the RFMO section (see section 5), the need to accommodate the different weight ratios mandated by different Contracting Parties (CPs) within a single common norm has resulted in lenient finning bans being adopted by RFMOs. In making or negotiating proposals for finning bans within RFMOs, the Commission naturally proposed using its maximum ratio of 5% of fin weight to whole weight, which is much higher than the maximum ratio of 5% of fin weight to dressed weight (equivalent to about 2% of whole weight) used by most other States. By way of compromise, all RFMOs with finning prohibitions therefore adopted a ratio that accommodates both options through the use of the following phrase: *"Vessels may not have onboard fins that total more than 5% of the weight of the sharks onboard at the first point of landing."*

As noted, this deliberately vague wording allows CPs with finning bans to interpret the regulation in accordance with their own domestic regulations (for example, as described above, 12% of dressed weight in the case of Portugal). CPs that have not yet developed national finning bans are free to use whichever definition they prefer and may choose to establish their own finning regulation in line with the bad example set by the EU (high theoretical ratios and separate landings that prevent compliance monitoring). Those CPs whose vessels do not use the Spanish cut, but routinely retain shark fins in a ratio of 2% of whole weight, or 5% of dressed weight, could therefore continue to fin a significant proportion of the sharks that they catch, while remaining within the weight ratio specified by RFMOs. Fleets that commonly dry shark fins on board, thus reducing fin weight still further, may fin an even larger number of sharks (see section 5).

In these ways, the unusually lenient weight ratio adopted within the EU, to accommodate cutting practices in some Member State vessels, has served as a "lowest common denominator" and has created loopholes for finning on a global scale.

Amending the EU Finning Regulation

8

8.1 Community Plan of Action (CPOA) for Sharks

Proposed CPOA Actions
In February 2009, following a consultation period, the European Commission released a Community Plan of Action (CPOA – COM(2009) 40) for improving EU shark policies, including the finning ban. At the time, the EU Fisheries Commissioner pledged that the Plan would result in *"stronger control measures to ensure that the strict terms of the finning ban are properly respected."* Among the issues raised in this document was concern that: *"an important possible loophole in the implementation of the 'finning' regulation by EC Member States is the risk that they accept too general justifications for the need to separate processing on board of shark fins and the remaining parts of sharks."* The Commission also recognised that international experts had recommended that: "*an effective and practical 'finning' Regulation should make it compulsory to land sharks with fins attached"*. Box 4 contains the proposed Action to confirm the EU finning ban that is presented in the Community Shark Plan.

In April 2009, the EU Council of Fisheries Ministers officially endorsed the European Commission's Shark Plan and encouraged the Commission to *"pay special attention to the issues of finning"* and *"give priority to proposing as quickly as possible"* amendments to the EU Finning Regulation.

BOX 4 | Proposed CPOA Action to confirm the ban of finning practices (source COM(2009) 40)

As a general rule, it will be prohibited to remove shark fins on board and to tranship or land shark fins. Any exception to this rule will have to be fully justified on solid and objective grounds and documented prior to the issuing by the Member State of the special permit. Member States should not issue special permits to vessels that do not meet this condition.

Consider a possible review of the 5% rule by requiring that in no case shall the weight of the fins exceed 5% of the dressed (gutted and beheaded) carcass weight of the shark catch. However, Member States that have set up and implemented data collection programmes that show that this percentage could be increased in certain cases, could do so up to a percentage corresponding to 5% of the live weight of the shark catch.

For vessels of Member States that have been exempt from the obligation of landing sharks with fins attached, to introduce the requirement to land shark fins and carcasses at the same time in the same port.

Contradictory proposals
Less than one month after the Council of Ministers' endorsement of the CPOA, at the April/May 2009 annual meeting of the Indian Ocean Tuna Commission (IOTC), the European Commission, representing the European Community, presented a proposal for replacing the fin:carcass ratio with new alternatives for storing severed fins in plastic bags which would be attached to carcasses, or marking fins and carcasses stored separately with matching serial numbers.

These options ran counter to the Action proposed in the CPOA and endorsed by EU Ministers, and were heavily criticised by conservation, animal welfare, scientific and recreational fishing organisations, who were not consulted prior to the meeting, as flawed, impractical and difficult to implement. In particular, the bag method has been rejected by the IOTC Working Party on Ecosystems and Bycatch (2009) and condemned by NGOs (partly because of the choking and entanglement risk to wildlife). The EU proposal and a similar one from Australia were opposed by Japan and Korea and were ultimately rejected by the IOTC as a whole.

8.2 Commission Roadmap

In March 2010, more than a year after its commitment to revise the Finning Regulation, the European Commission issued a Roadmap (2010/MARE/005) regarding a Proposal for a Council Regulation amending Council Regulation (EC) 1185/2003 on the removal of shark fins on board vessels. This noted the commitment in the CPOA to confirm the EU finning ban and highlighted the main problems associated with the current Regulation identified by the fishing industry, NGOs and RFMOs (the 'problems and loopholes' summarised in Section 7.3). The Commission has stated its recognition of flaws in the current EU Finning Regulation, most notably the provisions that allow fins and carcasses to be landed in different ports, and fins to be removed on board without adequate justification. The Commission also recognises the possibility that, under the current weight ratio, finning and high-grading may be taking place. The major underlying causes of the problem are that *"allowing separate landings of fins and carcasses makes it impossible to ensure that the finning ban is respected,"* and *"once fins have been severed from the body it becomes impossible to ensure beyond doubt that the finning ban is respected."*

Further, the processing of sharks on board *"precludes the collection and or verification, by inspectors, of data such as species identification, catch composition, age/size population structure etc., which are vital to the development of effective management and conservation measures."* On the other hand, the Commission in its Roadmap acknowledges that scientific literature from Spain and Portugal identifies fin-to-whole-weight ratios for the blue shark that are higher than the 5% mandated in the Regulation, and that variations in the weight ratio can result from the different fin cutting techniques and retention of different fins in various fleets. As noted above, alternative proposals from the EU to the IOTC in 2009, to place fins in plastic bags, or to use serial numbers to match severed fin sets with the corresponding carcass, were heavily criticised as impractical and difficult to implement. The Roadmap concludes, therefore: *"If fins were to remain attached to the body, and therefore landed simultaneously in the same port, finning would become impossible and data collection would be greatly enhanced."*

The Roadmap set out three of the potential policy options for making changes to (EC) 1185/2003 (Box 4). It did not include the main action set out in the CPOA , which is essentially to reduce the EU fin:carcass ratio to 5% of dressed weight, with exceptions for up to 5% of whole weight for Member States demonstrating higher ratios.

The debate is scheduled to reopen in earnest in late 2010, when the Commission will issue a public consultation document that will present various options for amending the Finning Regulation. This will include direct consultation with the Regional Advisory Councils (RACs) and the Advisory Committee on Fisheries and Aquaculture (ACFA), while wider input from scientists, NGOs, industry, and other stakeholders will also be considered.

Following a public consultation period of at least two months, the Commission is planning to finalise and deliver its proposal for an amended Finning Regulation to the European Council of Fisheries Ministers and the European Parliament. Final changes are therefore not likely to take effect until 2012.

8.3 Review of possible Commission options

This section includes evaluation and conclusions on options that have so far been explored in the debate on strengthening the EU finning regulation. Whereas some options are mutually exclusive (i.e. should a ratio be retained or not), others can and should be used in conjunction with each other.

OPTION 1

No policy change
The European Commission, the Council of Ministers, and the European Parliament have all made strong statements about the need to strengthen the EU Finning Regulation, one of the weakest such bans in the world.

FINDING: The status quo situation will not fulfil commitments to strengthen the EU Finning Regulation, or comply with the recent recommendation[1] from the Fish Stocks Agreement Review Conference.

([1] *"requiring that sharks be landed with their fins naturally attached or through different means that are equally effective and enforceable."*)

OPTION 2:

Require that shark fins and bodies are landed simultaneously
The justification for permitting fins and carcasses to be landed at different ports (namely that it is not possible to market fins at some ports where the carcasses are landed) is weak, if not completely untenable. It is well known that fin merchants and/or fin processors are present or represented in every fishing port used by shark fishing fleets, and that shark fins are routinely shipped by container from landing sites worldwide, either back to the EU fin trade centres of Las Palmas or Vigo, or directly to East Asian processing centres.

Moreover, requiring boats to land shark fins and carcasses together in the same port at the same time would improve monitoring compliance and enforcement of the Finning Regulation.

FINDING: To enable enforcement of the finning ban, shark fins and carcasses should be landed at the same time, in the same port.

OPTION 3

Apply fin:carcass ratio to dressed rather than whole (theoretical) weight
There are major drawbacks associated with enforcing a fin:carcass ratio through a theoretical, whole weight ratio, as this ratio cannot possibly be measured using dressed carcasses at landing sites. Compliance monitoring, in this case, requires a published weight ratio between fins and dressed carcasses landed to exist, but such conversion factors are not specified in the EU Finning Regulation, are apparently not readily available from Member States and, if available, vary considerably between Member States due to variations in species landed, processing practices (head on or off, round carcass, or skinned and/or filleted carcass). These problems are exacerbated by the fact that large quantities of shark carcasses and fins are offloaded at ports outside the EU, where it is even more difficult to ensure that EU regulations are being enforced. The European Commission has recently released through ICCAT a new temporary rule for a fin:carcass dressed weight ratio to be applied to EU Member States vessels, pending resolution of the ratio problem.

FINDING: If a fin:carcass ratio is used, it should be based on a defined dressed weight, not whole, theoretical weight.

OPTION 4

Changing the fin:carcass ratio
There is widespread concern regarding the discrepancy between the 5% dressed carcass weight that is used by most other shark fishing States and the 5% of whole weight used in the EU. Several expert reviewers (e.g. IOTC WPEB 2008, 2009) have highlighted the lack of clear, scientific basis for fin:carcass ratios.

A wide range of conversion factors have been published in the literature, arising from differences in fin sizes between species, age classes within a species and processing differences between vessels and fleets (cutting practices, numbers of fins retained, whether whole or dressed carcass weight is used and, if the latter, how the carcass is processed).

The first fin:carcarcass ratio (5% of dressed weight) was established in the early 1990s in the US where it was calculated as an upper limit for mixed shark fisheries based on the practices of US fishermen (who were removing only the lower lobe of the tail fin and minimising the amount of meat left attached to fins). This ratio has become the standard of several countries fishing the same shark populations fished by EU vessels, notably the US and Canada. The EU's 5% fin:whole weight ratio, based on Spanish cutting techniques, is roughly twice as lenient and can therefore lead to undetected finning if alternative cutting practices are employed. As explained above, all of the RFMOs with finning bans limit the fin:carcass ratio at 5% without specifying whole or dressed weight.

A lower EU ratio would be of very limited benefit if, as indicated in the CPOA (see Box 4), the most important shark fishing fleets, and indeed the only MS removing shark fins on board, are allowed to continue to use the 5% theoretical whole weight ratio and to set their own ratios for fin:dressed carcass weights. The drawbacks of this approach have been summarised above. Such continued loopholes would hamper, if not prevent, the strengthening of RFMO finning bans (by specifying that the 5% weight ratio applies to dressed, not whole, carcasses). Applying a uniform, lower ratio to all EU fleets would require that Spanish fishermen, in particular, would need to alter their fin cutting practices, but such adjustments would be in line with market demands and so could well increase their profits.

- Raising the ratio would widen current loopholes and increase the opportunities for undetected finning.
- Setting different ratios for different species and/or fleets, in addition to requiring a great deal of research, would be costly, time consuming and particularly difficult to implement.
- Shared shark populations should be managed consistently throughout their ranges, making harmonised regulations preferable.

FINDING: A reduced fin:carcass ratio set at 5% of dressed weight (with the term 'dressed' clearly defined) would significantly reduce the opportunity for undetected finning, make the EU Finning Regulation more precautionary and consistent with other countries, and, given the existing RFMO agreements, could represent the fastest route to tighter finning bans on a global scale. To have effect, the new ratio should apply to all EU Member State vessels.

OPTION 5

Match severed fins to carcasses using bags or tags

As reported in section 4.4 this strategy was proposed to the IOTC by the EU without prior public consultation. It is in use in some small and strictly regulated Australian fisheries.

Box 2 (Section 4) reviews the experience of Costa Rica, which briefly adopted a similar approach to implementing its shark finning ban. This case history should be sufficient to support the rejection of this option on practical grounds. Beyond that, managers should consider the sheer scale of the task that has been suggested when applied to large-scale shark fisheries. Under such an amendment, fishermen would need to bag and/or label every set of shark fins detached from a carcass and retained on board. Fisheries inspectors will subsequently be expected to match up a proportion of numbered carcasses and fin sets in order to monitor compliance.

As already noted, in recent years the Spanish vessels that hold SFPs have landed some 8,000 to 9,000 tonnes of shark products at ports in 18 non-EU countries, and 10,000 to 12,000 tonnes in EU ports. At an average weight of 30kg/shark before processing on board (Clarke *et al.*, 2006), or 10-20kg after processing, this equates to more than a million shark carcasses and fin sets that would require labelling, bagging, sorting and attaching by the Spanish sector alone, each year. Extending this requirement to all fleets operating within the remit of the RFMOs with finning prohibitions that might subsequently be encouraged to adopt a comparable regulation, would require in the order of 10 million shark fin sets to be bagged or otherwise marked in order that they could subsequently be matched with the corresponding carcass.

Taking these factors into consideration, it is no surprise that the IOTC WPEB, conservation NGOs, and many in the fishing industry (according to 2010/MARE/005) are united in their opposition to this complicated method.

FINDING: A system of placing severed fins in bags that are then attached to carcasses has only been tested in a few, small-scale shark fisheries. The tag method appears to be completely untested. Implementation and enforcement of these methods would be impracticable and unacceptably labour-intensive for fisheries taking more than a few (5–20) sharks. The bag method also presents a variety of concerns with respect to ingestion/entanglement by wildlife, even if bags used eventually biodegrade.

OPTION 6

Prohibit the removal of shark fins on board vessels (remove Article 4 of the Finning Regulation that allows for derogation)

The numerous practical advantages of a fins-naturally-attached strategy (which is equivalent to the EU Regulation without any derogation) have led to an increasing number of shark fishing countries adopting this option instead of other means of implementing finning prohibitions. It is also recommended by the 2010 Fish Stocks Agreement Review Conference and the IUCN World Conservation Congress. When fins remain attached to the carcasses until after they have been landed (as commonly seen for sharks landed fresh in Vigo market), finning and high-grading (mixing bodies and fins from different sizes or species of shark) are impossible. The enforcement burden is therefore significantly reduced compared with the other options described above; compliance monitoring is restricted to ensuring that no detached fins are present until onshore processing has commenced. There is no need for different rules, ratios or conversion factors to be debated and applied in different fisheries or for different species, because no weight measurements or matching of fins with carcasses are necessary. Because sharks are more readily identifiable when their fins are still attached, the opportunity to collect data on species, size distribution and numbers of sharks landed is vastly improved, providing valuable data for stock assessments and management advice. Although fishermen are unable to skin or fillet carcasses on board, fin cutting and other processing onshore can be undertaken precisely as requested by buyers (locally and in East Asia), thus maximising the value of the final products. Concerns about the practicalities of freezing carcasses on board with fins still attached have been resolved by fisheries operating in the States that have adopted this measure (see Section 4.1).

FINDING: Prohibiting the removal of shark fins on board vessels is the only fail-safe, most reliable, least expensive means to prevent finning and measure compliance; this method is viable for freezer vessels and can facilitate the collection of much-needed, species-specific catch data.

As a general rule, it will be prohibited to remove shark fins on board and to tranship or land shark fins. Any exception to this rule will have to be fully justified on solid and objective grounds and documented prior to the issuing by the Member State of the special permit. (COM(2009) 40)

9 Conclusions

Since the world's first shark finning prohibition was introduced in 1993, various methods for enforcing such bans have been tested. Over the past five years, due largely to leadership from Costa Rica, a trend has developed away from the use of the standard fin:carcass fin ratios to requirements that shark carcasses be landed with the fins still *naturally* attached. Attempts to introduce alternative implementation methods, such as reattaching fins to carcasses, counting fins and carcasses at landing sites, or labelling fins and carcasses so that they can later be matched up, have for the most part been rejected before adoption or, if adopted, found to be unsuitable and rapidly rescinded.

A major concern with all fin:carcass weight ratios is that they provide too many loopholes that can enable fishermen to fin sharks. This is particularly the case for the EU derogation, which:

- sets a theoretical rather than a measurable fin: carcass weight ratio;
- sets an exceedingly high fin:carcass weight ratio limit;
- permits separate landings of fins and carcasses;
- is driven by the desire of two EU Member States to account for 'traditional' fin cuts and pursuit of different markets, even though options exist for maintaining trade flow while improving enforcement and increasing product value;
- presents considerable monitoring and enforcement problems, not just within the EU but internationally.

In addition, the EU's high fin:carcass ratio has been translated into RFMO regulations, thus weakening them and exporting a bad example to other countries.

To complicate matters further, Member State reporting on the implementation of the EU Finning Regulation has been seriously lacking. Many reports are incomplete; most are submitted late, if at all, and are not readily accessible to the public.

In many cases, alternative recommendations to current ratios for the implementation of finning prohibitions have failed to take into account all of the important factors that must be considered if such bans are to be effective, particularly considerations regarding practicalities of compliance monitoring and enforcement.

The majority of scientific solutions have focused on the need for improved data on catches, landings, and shark biology – all of which are essential for stock assessments and the provision of management advice – and ways in which finning prohibitions can support the delivery of this information. Some have recognised that small differences in weight ratios do occur between different species and age classes of shark, as well as in numbers of fins retained and fin cuts used. These scientists have therefore recommended different ratios for different cases, with little consideration of how these could be applied and monitored in large fisheries.

Some policy-makers' recommendations have failed to take into account the practical implications for the fishing industry, fisheries inspectors, or marine environment – particularly those that involve tagging millions of shark carcasses and fin sets so that they can later be matched up, or counting fins and carcasses at landing sites, or using plastic bags at sea to contain individual fin sets.

Prohibiting the removal of all shark fins on board vessels is the single most reliable and least expensive way to prevent finning; this method is viable for freezer vessels and can facilitate the collection of much-needed, species-specific catch data.

As detailed in previous sections, requiring that fins stay naturally attached until after landing yields many important benefits:

- Enforcement burden is eased as compliance monitoring is restricted to ensuring no detached fins are on board.
- Finning and high-grading of fins are impossible.
- Identification to the species level is much easier than when the fins have been removed, thereby improving the catch data needed for population assessments and management advice.
- For both fresh and frozen shark landings, onshore fin cutting can be done more carefully and thereby result in reduced waste of meat, improved fin quality, and greater economic benefits to fishermen as products are more closely matched with processors' requirements.

10 Recommendations

The following recommendations are based on the thorough analyses provided in this report. They are intended to inform the development of the final proposal for revising the EU Shark Finning Regulation by the European Commission as well as the response from the European Council of Ministers and the European Parliament.

Primary recommendation

Remove the Articles (4 & 5) that allow for derogation from the EU Finning Regulation, thus prohibiting *without exception* the removal of shark fins on board vessels. This will minimise incidents of shark finning and enforcement burden, while maximizing the ability to collect valuable, species-specific data.

Secondary recommendations

Given the overwhelming benefits of this *"fins naturally attached"* method (detailed in previous sections), this advice addresses the remaining, substantially less reliable options that have been discussed in the recent past:

- Reject the *status quo* as improvements to the exceptionally weak EU Finning Regulation are urgently warranted and have been repeatedly promised.
- Reject all options involving bagging or marking severed shark fins as unreliable, virtually unenforceable, labour-intensive, and potentially harmful to marine wildlife.
- Retain a maximum fin to carcass weight ratio only as an interim measure on the path to ending at-sea shark fin removal and as a back-up means for onshore post-processing enforcement;
- Until a ban on at-sea fin removal ban is in place:
  - Mandate the simultaneous landing of shark fins and carcasses;
  - Base the ratio on a defined dressed weight (rather than a theoretical whole weight);
  - Reduce, without exception, the existing fin to carcass ratio to one, uniformly applied, more precautionary, clearly defined standard of 5% of dressed weight.
- Regardless of the option(s) chosen, encourage greater investment in programs for observer coverage and enforcement of this and other important regulations.

Fishery managers, as well as fishing industry groups, should welcome this timely report as valuable and an authoritative guide towards more responsible and sustainable fishing of shark resources. (Ross Shotton)

Bibliography

Baremore I.E. *et al.* (unpublished). *Relationships between length and fin weights and carcass weights for eighteen species of sharks in the western North Atlantic and Gulf of Mexico.*

Camhi, M.D., Fordham, S.V., and Fowler, S.L. (2008). *Domestic and international management for pelagic sharks.* In: Camhi, M. D., Pikitch, E. K., and Babcock, E. A. (eds). (2008). *Sharks of the Open Ocean: Biology, Fisheries and Conservation.* Blackwell Publishing, Oxford, U.K.

China Customs. (2005). *China Customs Statistics Yearbook* (annually from 1998–2004). Goodwill China Business Information Limited, Hong Kong.

Clarke S. (2004a). *Understanding pressures on fishery resources through trade statistics: a pilot study of four products in the Chinese dried seafood market.* Fish and Fisheries 5: 53–74.

Clarke S. (2004b). *Shark Product Trade in Hong Kong and Mainland China and Implementation of the Shark CITES Listings.* TRAFFIC East Asia Hong Kong.

Clarke, S. (2003). *Appendix 2. Trade in Shark Products in Malaysia, Singapore and Thailand.* In: SEAFDEC. (2006). *Report on the Study on Shark Production, Utilization and Management in the ASEAN Region 2003-2004*, Southeast Asian Fisheries Development Center, Bangkok, Thailand. 229 pp.

Clarke S. and Mosqueira I. (2002). *A preliminary assessment of European participation in the shark fin trade.* Proceedings of the 4th European Elasmobranch Association Meeting Livorno (Italy) 2000. ICRAM ARPAT-GEA & Soc. Fr. Ichthyol 2002: 65–72.

Clarke S.C., McAllister M.K., Milner-Gulland E.J., Kirkwood G.P., Michielsens C.G.J., Agnew D.J., Pikitch E.K., Nakano H. and Shivji M.S., (2006). *Global estimates of shark catches using trade records from commercial markets.* Ecology Letters, (2006) 9: 1115–1126.

Cortes E. and Neer J. A., (2006). *Preliminary Reassessment of the Validity of the 5% Fin to Carcass Weight Ratio for Sharks.* Col. Vol. Sci. Pap. ICCAT 59: 1025–1036.

Department of Fisheries and Oceans. (2001). *Canadian Atlantic Pelagic Shark Integrated Fishery Management Plan, 2000–2001.* Fisheries and Oceans, Canada.

Dulvy *et al.*, (2008). *You can swim but you can't hide: the global status and conservation of oceanic pelagic sharks.* Aquat. Conserv. 18, 459–482.

European Commission. (2010). *Proposal for a Regulation of the European Parliament and of the Council amending Council Regulation (EC) No 1185/2003 on the removal of fins of sharks on board vessels.* (2010/MARE/005). Brussels.

European Commission. (2005). *Report from the Commission to the Council and the European Parliament on the operation of Council Regulation (EC) No 1185/2003 on the removal of fins of sharks on board vessels.* COM(2005)700

European Commission. (2009). *Communication from the Commission to the European Parliament and the Council on a European Community Action Plan for the Conservation and Management of Sharks.* COM(2009) 40.

European Commission. (2003). *Council Regulation (EC) No. 1185/2003 of 26 June 2003 on the removal of fins of sharks on board vessels.*

FAO (2009). FAOSTAT *Population Annual Time Series 1961–2007.* FAO: Rome Italy.

Fong, Q.S.W. and Anderson J.L. (1998). *Assessment of the Hong Kong Shark Fin Trade. Proceedings of the 9th Conference of the International Institute of Fisheries Economics and Trade, Tromsø, Norway, 1998.* Eide A. and Vassdal T. eds., Volume 2, pp. 669-673, International Institute of Fisheries Economics and Trade : Corvallis, Oregon, United States.

Fowler, S.L. *et al.* (in press 2010). *Global threat status of sharks, rays and chimaeras.*

Gilman, E., Clarke, S., Brothers, N., Alfaro-Shigueto-J., Mandleman, J., Mangel, J., Petersen, S., Piovano, S., Thomson, D., Dalzell, P., Donoso, M., Goren, M., Werner, T. 2007. *Shark Depredation and Unwanted Bycatch in Pelagic Longline Fisheries: Industry Practices and Attitudes and Shark Avoidance Strategies.* Western Pacific Regional Fisheries Management Council, Honolulu, USA.

Hareide, N.R., Carlson J., Clarke M., Clarke S., Ellis J., Fordham S., Fowler S., Pinho M., Raymakers C., Serena F., Séret B., and Polti S. (2007). *European Shark Fisheries: a preliminary investigation into fisheries, conversion factors, trade products, markets and management measures.* European Elasmobranch Association.

Hong Kong Customs and Statistics Department. (2010). *Unpublished data on Hong Kong trade statistics 1996-2009.* Hong Kong Customs and Statistics Department, Hong Kong.

IATTC. (2006). *Meeting Report, Working Group on Stock Assessment 7th Meeting Review of Stock Assessments, La Jolla California* (USA) 15-19 May 2006. http://www.iattc.org/PDFFiles2/SAR-7-Meeting-Report.pdf.

ICCAT. (2005) *Report of the 2005 meeting of the Standing Committee on Research and Statistics (SCRS) Madrid, Spain* (October 3–7, 2005). PLE–013/2005.

ICCAT SCRS. (2006). *International Commission for the Conservation of Atlantic Tunas, Report of the Standing Committee on Research and Statistics (SCRS),* Madrid, Spain, 2–6 October 2006. October 2006 PLE-014/2006

ICCAT. (2004). *Report of the 2004 Inter-sessional meeting of the ICCAT Sub-Committee on By-catches*: Shark Stock Assessment. SCRS/2004/014.

IOTC. (2006). *Report of the Second Session of the IOTC Working Party on Bycatch.* Seychelles, 31 July – 1 August 2006. IOTC-2006-WPBy-R[EN].

IOTC. (2008). *Report of the Eleventh Session of the Scientific Committee.* IOTC-2008-SC-R[E].

IOTC. (2008). *Report of the Fourth session of the Working Party on Ecosystems and Bycatch.* IOTC-2008-WPEB-R[E]

IOTC. (2009). *Report of the Fifth session of the Working Party on Ecosystems and Bycatch.* IOTC-2009-WPEB-R[E] IOTC, (2005). *Report of the Eighth Session of the Scientific Committee,* Victoria, Seychelles, 7–11 November 2005. IOTC-2005-SC-R.

IOTC. (2007). *Report of the Ninth Session of the Scientific Committee.* Victoria, Seychelles, 6-10 November 2006. IOTC-2006-SC-R[EN]. 120 pp.

Lack, M. and Sant, G. (2009). *Trends in Global Shark Catch and Recent Developments in Management.* TRAFFIC International, Cambridge, UK.

Lack, M. and Sant, G. (2006). *Confronting Shark Conservation Head On!* TRAFFIC International, Cambridge, UK.

McCoy M.A. and Ishihara H., (1999). *The socioeconomic importance of sharks in the U.S. flag areas of the Western and Central Pacific. Report to the National Marine Fisheries Service.* Gillett, Preston and Associates Inc.

Mejuto, J., García-Cortés B., Ortiz de Urbina, J. (2009). *Ratios between the wet fin weight and body weights of blue shark (Prionace glauca) in the Spanish surface longline fleet during the period 1993-2006 and their impact on the ratio of sharks species combined.* Collect. Vol. Sci. Pap. ICCAT, 64(5): 1492-1508.

Ministerio de Agricultura, Pesca y Alimentacion. (2006). *Informe Anual de 2005 sobre la aplicacion del reglamento* (CE) No. 1185/2003 del consejo, sobre el cercenamiento de las aletas de los tiburones en los buques.

NMFS (National Marine Fisheries Service). (1993). *Fishery management plan for sharks of the Atlantic Ocean.* US Department of Commerce. 272 pp.

Oceana. (2010). Press release : August 11, 2010. *"La Audiencia Nacional Obliga al Gobierno a dar datos a Oceana sobre la contaminacion por mercurio del pescados vendido en Espagne."* Oceana, Madrid, Spain.

Oceanic Développement and MegaPesca Lda. (2007). *Analysis of the trade aspects of the German proposals to list two species of shark (porbeagle – Lamna nasus – and spiny dogfish – Squalus acanthias) in Appendix II of the CITES Convention.* Report ref: FPA 01/CITES/07 to the European Commission.

Rose C. and McLoughlin, K., (2001). *Review of shark finning in Australian fisheries.* Bureau of Rural Sciences, Canberra, Australia.

Rose D.A. (1996). *An Overview of World Trade in Sharks and Other Cartilaginous Fishes* TRAFFIC International: Cambridge UK.

Santana Garcon, J. *et al.* (in preparation). *Is the shark fin to body weight a good management tool for enforcing a finning ban?*

Soon-Song Kim, Doo-Hae An, Dae-Yeon Moon and Seon Jae Hwang. (2007). *Estimation of ratio of fin weight to body weight of sharks in the eastern Pacific Ocean in 2006.* National Fisheries Research and Development Institute (NFRDI), Republic of Korea. http://www.iattc.org/slides/2007/May/Sharksfin-ppt-1-SAR-8-12f.ppt.

Subasinghe S. (1992). *Shark Fin, Sea cucumber and Jellyfish: A Processor's Guide.* Infofish Technical Handbook 6. Infofish, Kuala Lumpur.

Vannuccini, S. (1999). *Shark Utilization, Marketing and Trade.* FAO Fisheries Technical Paper 389, Food and Agriculture Organization, Rome, Italy.

Annex I

Summaries of national and regional shark finning prohibitions

ARGENTINA

Regulation: Resolution N° 6 of March 12, 2009, Registry of federal fishing advice.

Details: None. Finning is banned; no enforcement measures are mentioned.

AUSTRALIA

Regulation: Direction No. SSJFDIR 2 - Prohibition on Shark Finning (26/10/2005). 1991 Fisheries Act. Various State and Territory regulations.

Details: Central/Federal government regulates 'Commonwealth' (Federal) waters, from three to 200 nautical miles offshore. States and Territories are responsible for regulations governing their own waters out to three nautical miles offshore.

Commonwealth: Finning has been prohibited in tuna longline fisheries since 2000, when permit conditions were amended to prevent concession holders from possessing, carrying and landing shark fins that are not attached to the trunk of a shark. In 2005, shark finning was prohibited in all relevant Commonwealth Fisheries, that is, those that interacted with sharks. The Direction prohibits the carrying, retaining, or landing of dorsal, pectoral, caudal, pelvic and anal fins for all shark species unless these are attached to the shark carcass (either naturally attached or otherwise attached, e.g. with cable ties or a bagging system). This ban was not put into legislation but implemented as a condition on all permits and Statutory Fishing Rights. The conditions vary between fisheries: in the manner in which the fins are allowed to be attached to the carcass (naturally or otherwise); in the species that are permitted to be finned at sea; and in the numbers and types of fins that can be removed and retained with the carcass. In addition, shark bycatch limits are in place for most Commonwealth Fisheries. Fish receiver permits state that shark fins cannot be received without a shark carcass.

The Commonwealth East Coast Tuna and Billfish Fishery: Sharks must be landed with fins attached. Limit of 20 sharks per trip written into permit conditions.

Western Tuna and Billfish Fishery: Sharks must be landed with fins attached. Limit of 20 sharks per trip, with an additional limit of 100 pelagic sharks for single jurisdiction trips on the high seas, written into permit conditions.

Southern and Eastern Scalefish and Shark Fishery ScalefishFishery: Sharks must be landed with fins still attached.

Northern Prawn Fishery: An industry-initiated possession prohibition is in place for all elasmobranchs, and includes the prohibition of retention of any parts of these species: http://www.environment.gov.au/coasts/fisheries/commonwealth/northern-prawn/report/pubs/northern-prawn-report.pdf

Torres Strait Prawn Fishery: Sharks must be landed with fins attached. Maximum trip limit of five sharks, or 30kg of sharks, whichever is less: http://www.pzja.gov.au/resources/publications/manage_notices/prawn_fishery/gn8_270202_61.pdf

Western Deepwater Trawl Fishery: Shark finning is not permitted. Daily catch limit of 100kg trunked weight for gulper sharks

North West Slope Trawl Fishery: Shark finning is not permitted. Daily catch limit of 100kg trunked weight for gulper sharks

New South Wales (June 1999): (*Fisheries Management Act 1994*, Section 8 Notification – Fishing Closure The Taking and Mutilation of Sharks, 4 June 1999, NSW Government Gazette No. 66 (regazetted September 2006)). All sharks must be landed with fins (caudal, dorsal and pectoral) attached, even when the shark has been cut into portions. All parts other than head, gills, guts and belly flaps (with ventral fins attached) must remain on board until the vessel berths. The closure applies to recreational and commercial fishers.

Northern Territory (2003): There is no Territory-wide legislated ban on shark finning. A shark finning ban is written into the license conditions of commercial shark fishers (Northern Territory Offshore Net and Line Fishery) and other fisheries with incidental shark catch (Barramundi, Coastal Net and Coastal Line Fisheries). The following fin to meat ratios apply: 6.5% fresh or frozen fin as a proportion of trunk weight; 13% fresh or frozen fin as a proportion of fillet weight; and 3% fresh or frozen fin as a proportion of whole weight. In addition, there is a trip limit of 500kg converted whole weight of shark in fisheries with incidental shark catch. There are bans on possession of sharks in other commercial fisheries. For recreational fishers, there is a possession limit of 3 sharks of any species.

Queensland (December 2002): (*Fisheries Act 1994*, *Fisheries Regulations 1995*). It is an offence to possess a shark fin on board a boat without possessing the body of the shark. A fisher should have a corresponding number of fins and bodies. Sharks must be divided into portions in a manner that allows an inspector to count the number of sharks. No sharks may be taken by the Trawl Fishery.

South Australia (2003): (*Fisheries Management (General) Regulations 2007* – 17.12.2009, Section 18). All sharks must be landed with fins (dorsal, pectoral and anal) attached. It is illegal to 'mutilate' a shark at sea. 'Mutilate,' in relation to a shark, does not include the removal of pelvic fins and claspers and the removal of the tail at the sub-terminal notch, leaving the caudal lobe attached to the body.

Tasmania (November 2001): (Fisheries (Scalefish) Rules 2004, Rule 72). Shark finning is prohibited. All shark fins must be landed with a corresponding body or trunk from which they came. All fishers are limited to a combined species limit of five shark carcasses on a fishing vessel in Tasmanian state waters. For recreational fishers, the dorsal and pectoral fins must remain attached to all sharks until they are landed.

Western Australia (October 2000): (*Fish Resources Management Regulations, 1995*, Reg 16B). Shark finning is prohibited. All shark fins must be landed with the corresponding body.

Victoria (1972): (*Fisheries Regulations 2009, No. 93*). All sharks must be landed with fins attached. Sharks must be landed whole or in 'carcass' form (with head and guts removed).

BRAZIL

Regulation: Portaria (Decree) 121, 24 August, 1998, of the Ministry of the Environment and IBAMA.

Details: The Regulation prohibits discarding shark carcasses from which the fins have been removed. Transportation on board and landing of shark fins must comply with regulations on the product weight: the total weight of fins shall not exceed 5% of the total weight of carcasses. All unloaded fins and carcasses must be weighed and the weights reported to IBAMA at the end of each fishing trip (fins cannot be kept on board from previous trips).

CANADA

Regulation: Finning prohibition, 1994; Atlantic Fisheries Management Plan, 2001.

Details: Finning is prohibited in Canadian waters and by Canadian licensed vessels outside the EEZ. No shark carcass may be discarded at sea, with or without fins, once it has been taken on board. Fins from the commercial fishery may be sold, traded or bartered only in proper proportion to carcasses sold, traded or bartered with a maximum of 5% by weight fins per dressed carcass weight. Fins may not be stored aboard the vessel after associated carcasses are sold, traded or bartered and must be weighed and monitored at the time of landing.

CAPE VERDE

Regulation: Résolution 3/2005, 21 February, 2005.

Details: None available. The practice of finning is prohibited in the Cape Verde EEZ.

CCAMLR

Regulation: 2006.

Details: All directed fishing for sharks is prohibited, but there are no concrete limits on shark bycatch and no measures specific to shark finning.

COLOMBIA

Regulation: Prohibition on finning in Colombian waters, 2007.

Details: Fins must be attached to the body at the point of landing. Permits are required for transporting and shipping fins once sharks have been landed. Transshipping of fins at sea is prohibited.

COOK ISLANDS

Details: Finning by Cook Islands vessels in the EEZ (exclusive economic zone) and on the high seas is prohibited. The total weight of fins should not exceed 5% of the total weight of carcasses.[1]

COSTA RICA

Regulation: Article 40 of the 2005 Fisheries Law Article 139: Describes the penalties for public officials who permit the landings of fins detached from shark carcasses, and for fishermen who practice the finning.

Details: Regulation AJDIP/47–2001 required fins to be landed attached to shark carcasses. This was replaced by AJDIP/415–2003, permitting fins to be landed detached from shark carcasses and fins to be landed separately if the bodies had been used for bait, which was widely criticised. It was replaced in 2005 by Article 40 of the National Fisheries Law, which requires shark fins to be landed naturally attached to carcasses. This applies to all vessels fishing in the EEZ, wherever Costa Rican vessels fish and foreign vessels that offload in Costa Rica.

ECUADOR

Regulation: A shark finning ban was stipulated in Ministerial Agreement No 097 published in the Official Registry No 263 in 27 August 1993. In July 2007, Executive Decree No 486 *(Expedir las normas para la regulación de la pesca incidental del recurso tiburón)* published in Official Registry No 137 to replace Executive Decree No 2130 of October 2004.

Details: Executive Decree No 2130 of October 2004 had banned

the sale and export of shark fins in Ecuador, but was repealed largely due to resulting unprecedented smuggling of shark fins and loss of product traceability. Under Decree 486, shark fin trade is permitted under controlled conditions aimed at maintaining traceability and chain of custody. Shark finning and directed shark fishing is prohibited. Meat of sharks taken as bycatch must be fully utilised.

EGYPT

Details: A decree from the Ministry of Agriculture and Fisheries prohibits shark fishing throughout Egyptian Red Sea territorial waters to 12 miles from the shore.

EL SALVADOR

Regulation: Diario Oficial Tomo No. 373. December 2006.

Details: Shark finning is prohibited. Sharks must be landed with fins attached naturally (with at least a quarter of the fin still attached). This applies to El Salvador waters and wherever Salvadorean vessels fish. The sale or export of fins is prohibited (be they fresh, frozen or dried) without the corresponding body. Anyone wishing to land sharks must provide 48 hours notice of the expected arrival date and landing location. Sharks can only be landed at authorised sites.

EUROPEAN UNION (ALL MEMBER STATES)

Regulation: Council Regulation (EC) No 1185/2003.

Details: The Regulation prohibits finning in EU waters and by EU vessels worldwide. Removal of shark fins on board vessels is prohibited, but a derogation allows Member States to issue special permits for on-board fin removal under requirements related to justification of need. Currently, the majority of the Spanish and Portuguese longline vessels are covered by such permits. The theoretical correspondence between the weight of fins retained and the parts of the bodies retained on board is to be established by the Member States, but cannot exceed 5% of the whole ("live") weight of the shark catch. Fins may be landed and transhipped separately from other shark products.

FRENCH POLYNESIA

Regulation: April 2006.

Details: Finning is prohibited in French Polynesia waters for a period of 19 years from 2006, as is the retention of sharks and the trade in all shark parts and products, except for shortfin mako.

GAMBIA

Regulation: 2004.

Details: Sharks should be landed with fins intact, and the remaining parts of the shark should be used and not discarded.

GFCM

Regulation: 2005.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

GUINEA

Regulation: 2009.

Details: None available. Finning is banned in all territorial waters.

HONDURAS

Regulation: No. 02-2010, 5 January 2010.

Details: The regulation established a moratorium on shark fishing (catch, commercialization, and export of sharks and shark products) for the Pacific and Caribbean Sea.

IATTC

Regulation: 2005.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

ICCAT

Regulation: 2004.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

IOTC

Regulation: 2005.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

ISRAEL

Regulation: 1980.

Details: All sharks are protected in Israeli waters.

JAPAN

Regulation: 2008.

Details: All Japanese vessels, except for far seas and coastal vessels operating and landing outside Japanese waters, are required to land all the parts of sharks (although heading, gutting and skinning are allowed).

MARSHALL ISLANDS

Details: Targeted shark fishing was banned in 2004.[2]

MEXICO

Regulation: Mexican Official Standard Rule NOM-029-PESC-2006, adopted May 2007.

Details: Finning is prohibited especially for vessels > 10.5 m; sharks should be fully utilised and may not be landed unless their carcasses are also onboard. Rules apply in Mexican waters and wherever Mexican vessels fish.

NAFO

Regulation: 2005.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

NAMIBIA

Regulation: The Marine Resources Act of 2000 (Act No. 27 of 2000).

Details: The Act generally prohibits the at-sea discard of any commercially caught or by-caught marine resources, including sharks. Observers are onboard most vessels included in this fishery, and it is their duty to report on any sharks that are discarded. Namibia's National Shark Plan, adopted in 2003 but not yet implemented, recommends the formulation of legislation under the Marine Resources Act to prohibit finning of any shark species and require the retention of all sharks from which fins were removed (although the removal of pelvic and caudal fins is prohibited to enable carcasses to be identified to species level). These measures are still pending. Currently, law prohibits dumping of biological materials in territorial waters and discards.

NEAFC

Regulation: 2007.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

NEW CALEDONIA

Regulation: Province Nord - n°243-2006.

Details: Shark fishing is prohibited in coastal areas. Offshore, tuna longliners with special permits are permitted to remove fins on board. The tuna longline fleet uses monofilament line as a means to avoid shark bycatch. No regulation yet exists in Province Sud, but the regulation adopted in Province Nord is to be adopted for the whole territory.

NICARAGUA

Regulations: Decreto No. 9-2005 Reglamento de la Ley No. 489, Ley de Pesca y Acuicultura: Article 42.3 Prohibitions on shark. La Asamblea Nacional del la Republica de Nicaragua Law No. 489, No 251, 2004.

Details: Decreto No. 9-2005 prohibits vessels from having fins on board or landing fins with a weight exceeding 5% of the total weight of the sharks. Fins cannot be exported unless the exporters can demonstrate that the meat has been sold. Article 75 of Law No. 489 No. 251 prohibits capture of sharks in marine

waters for the sole purpose of finning (removal of fins including the tail and disposing of the carcass at sea). This also applies to freshwater sharks in Lake Cocibolca and to the landing, transport, storage and commercialisation of shark fins: fresh, frozen, dried or salted.

NIUE

Details: Shark finning is prohibited.[3]

OMAN

Regulation: Pre-1999. Article 16 of the Executive Regulations of the Marine Fishing and Living Aquatic Resources Protection Law.

Details: It is strictly forbidden to throw any shark part or shark waste in the sea or on the shore. It is prohibited to separate shark fins and tails unless done according to the conditions set by the competent authority. No shark part shall be handled, marketed or exported without a license from the competent authority.

PALAU

Regulation: Marine Protection Bill September 2003. Strengthened in 2009.

Details: Shark fishing is banned. Fishermen must release sharks, dead or alive, even if caught as bycatch.

PANAMA

Regulation: March 2006.

Details: Finning is prohibited in all Panamanian waters. Industrial fishermen have to land sharks with their fins attached naturally to the body, with at least 25% of the fin-body union intact. Artisanal fishers may land the fins separately, but the weight ratio must be 5% fins to whole weight. Trading in fins from finned sharks is also prohibited. Fins may be traded, but only if traders have a certificate that indicates the origin of the fins. If the fins can be shown to have come from finned sharks, there is a fine of up to $100,000 for trading them, regardless of whether the sharks were finned in waters where finning is not prohibited.

PAPUA NEW GUINEA

Details: Longliners not authorised under the Shark Management Plan cannot target sharks or use wire leaders and have no export license for sharks.[3]

SAMOA (WESTERN)

Details: A 5% fin:carcass weight ratio limit applies.[3]

SEAFO

Regulation: 2006

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required.

SEYCHELLES

Regulation: 2006 Regulation under the 1987 Fisheries Act.

Details: The Regulation forbids finning by foreign vessels licensed to operate in Seychelles EEZ and by local vessels of more than 24 metres in length by requiring vessels to land fin to the quantity of no more than 5% of the mass of dressed shark carcass. This rule does not apply to Seychelles vessels of less than 24 metres in length (the majority of the current fleet).

SIERRA LEONE

Regulation: 2008.

Details: Sharks shall not be landed without fins.

SOUTH AFRICA

Regulation: South Africa Marine Living Resource Act, 1998.

Details: The Regulation applies throughout South African waters and to South African vessels wherever they fish. Finning is prohibited; fins can be separated from carcasses, but must be landed together with a fin:carcass (dressed weight) ratio of 8% for domestic vessels, 14% for EU vessels, and 5% for other foreign vessels.

SPAIN

Regulation: Order of the Ministry of Agriculture, Fisheries and Food, laying down specific conditions for the catching of sharks, 2002.

Details: The order prohibits shark finning (removal of fins and discarding the carcass at sea). It applies to all Spanish vessels in waters under national sovereignty or jurisdiction, in waters of other States and on the high seas, and to vessels of third countries in Spanish waters. It is prohibited to hold on board, unload, tranship or transport sharks' fins without the corresponding weight of the rest of the body. Conversion coefficients are to be applied to determine the correlation between the number of fins and the weight of the rest of the body. In cases where fins or the rest of the shark's body are held on board, transhipped, unloaded or transported separately, they should be accompanied by a document certifying the placing on the market of each part, as applicable. As a Member State of the European Union, Spain must abide by the EU finning regulation.

UNITED ARAB EMIRATES

Regulation: UAE Federal Law No. 23 concerning exploitation, protection and development of the living aquatic resources, 1999. Ministerial Decree Ministry of Agriculture & Fisheries.

Details: Article 44 forbids the catch the living aquatic creatures to extract their eggs, skins, fins, and any other parts thereof. Article 50 forbids the discarding of dead fish wastes and carcasses of whales and sharks in the fishing waters.

UNITED STATES

Regulation: Shark Finning Prohibition Act: Public Law 106-557, December 2000.; effective March 2002. Amendment to the National Marine Fisheries Service (NMFS) Consolidated Atlantic Highly Migratory Species Fishery Management Plan, Federal Register Notice 73 FR 40658, July 2008 (corrected version of June 2008 notice).

Details: The Shark Finning Prohibition Act of 2000, which took effect in 2002, extended 1993 rules for the US Atlantic finning ban to US Pacific waters, *inter alia*. A 2008 regulation under the NMFS Atlantic Highly Migratory Species Fishery Management Plan required that all sharks landed from the US Atlantic and Gulf of Mexico have their fins naturally attached. A bill pending in the US Congress, the Shark Conservation Act, would (if adopted) extend the fins-attached rule to the US Pacific, *inter alia*.

The Shark Finning Prohibition Act of 2000, implemented through a 2002 NMFS regulation, prohibits any person under US jurisdiction from engaging in finning, possessing shark fins aboard a US fishing vessel without the corresponding carcass, and landing shark fins without the corresponding carcass. Foreign fishing vessels are also prohibited from finning in US EEZ, from landing shark fins without the corresponding carcass in a US port, and from transshipping shark fins in the US EEZ. The regulation established a "rebuttable presumption" that any shark fins possessed on board a US fishing vessel, or landed from any fishing vessel, were taken, held, or landed in violation of these regulations if the total wet weight of the shark fins exceeds 5 percent of the total, dressed weight of shark carcasses landed or found on board the vessel. The Act also requires NMFS to initiate discussion with other nations to develop international agreements on shark finning and data collection.

In addition, since 2008, all sharks landed from US Atlantic and Gulf of Mexico waters must have their fins naturally attached through offloading. Fins may be cut as long as they remain naturally attached to the carcass with at least a small flap of uncut skin. Sharks may be eviscerated and the heads may be removed, but they cannot be filleted or cut into pieces at sea.

WCPFC

Regulation: 2005, revised 2008.

Details: Full utilisation is required (only head, skin and guts may be discarded). Landed fins are not to exceed 5% of landed shark weight. The live release of incidentally caught sharks is encouraged but not required. An initial exemption for fishing vessels under 24m was removed in 2008.

ADDITIONAL REFERENCES:

1. Anon. (2005). Commercial Fisheries, Sharks. Government of Western Australia. Department of Fisheries. CR204. http://www.fish.wa.gov.au/docs/cf/Sharks/CommFisheriesShark_2005.pdf

2. Anon. (2008). Australian Tuna and Billfish Longline Fisheries. Attachment 7. Bycatch and Discarding Workplan November 1, 2008 to October 31, 2010. Australian Fisheries Management Authority. http://www.environment.gov.au/coasts/fisheries/commonwealth/southern-western-tuna-billfish/pubs/attachment-7.pdf

3. Anon. (2009). Shark Finning Report to Congress. Issued Pursuant to the Shark Finning Prohibition Act (Public Law 106-557). U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Marine Fisheries Service. http://www.nmfs.noaa.gov/sfa/domes_fish/ReportsToCongress/SharkFinningReport09.pdf

4. Lack, M. and Meere, F. (2009). *Pacific Islands Regional Plan of Action for Sharks: Guidance for Pacific Island Countries and Territories on the Conservation and Management of Sharks.* Shellack Pty Ltd. http://www.ffa.int/system/files/Pacific%20Islands%20RPOA%20Sharks%20Final%20Report%20__3_.pdf

5. McCoy, M. (2006). *Addressing Shark Finning in FFA Member Countries: Issues and considerations.* Gillett, Preston and Associates Inc.

6. Patterson, HM and Tudman, MJ. (2009). *Chondrichthyan guide for fisheries managers: A practical guide to mitigating chondrichthyan bycatch.* Bureau of Rural Sciences and Australian Fisheries Management Authority, Canberra. http://www.daff.gov.au/__data/assets/pdf_file/0011/1439795/chondrichthyan-guide.pdf

Annex II

ICCAT Recommendation on the Conservation of Sharks

RECOMMENDATION BY THE INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS CONCERNING THE CONSERVATION OF SHARKS CAUGHT IN ASSOCIATION WITH FISHERIES MANAGED BY ICCAT (November 2004)

RECALLING that the United Nations Food and Agriculture Organization (FAO) International Plan of Action for Sharks calls on States, within the framework of their respective competencies and consistent with international law, to cooperate through regional fisheries organizations with a view to ensuring the sustainability of shark stocks as well as to adopt a National Plan of Action for the conservation and management of sharks;

CONSIDERING that many sharks are part of pelagic ecosystems in the Convention area, and that tunas and tuna-like species are captured in fisheries targeting sharks;

Recognising the need to collect data on catch, effort, discards, and trade, as well as information on the biological parameters of many species, in order to conserve and manage sharks;

THE INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS (ICCAT) RECOMMENDS THAT:

1 Contracting Parties, Cooperating non-Contracting Parties, Entities or Fishing Entities (CPCs) shall annually report Task I and Task II data for catches of sharks, in accordance with ICCAT data reporting procedures, including available historical data.

2 CPCs shall take the necessary measures to require that their fishermen fully utilise their entire catches of sharks. Full utilization is defined as retention by the fishing vessel of all parts of the shark excepting head, guts and skins, to the point of first landing.

3 CPCs shall require their vessels to not have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures.

4 The ratio of fin-to-body weight of sharks described in paragraph 3 shall be reviewed by the SCRS and reported back to the Commission in 2005 for revision, if necessary.

5 Fishing vessels are prohibited from retaining on board, transshipping or landing any fins harvested in contravention of this Recommendation.

6 In fisheries that are not directed at sharks, CPCs shall encourage the release of live sharks, especially juveniles, to the extent possible, that are caught incidentally and are not used for food and/or subsistence.

7 In 2005, the SCRS shall review the assessment of shortfin mako sharks (*Isurus oxyrinchus*) and recommend management alternatives for consideration by the Commission, and reassess blue shark (*Prionaca glauca*) and shortfin mako no later than 2007.

8 CPCs shall, where possible, undertake research to identify ways to make fishing gears more selective.

9 CPCs shall, where possible, conduct research to identify shark nursery areas.

10 The Commission shall consider appropriate assistance to developing CPCs for the collection of data on their shark catches.

11 This recommendation applies only to sharks caught in association with fisheries managed by ICCAT.

The Recommendations or Resolutions on shark finning adopted by other RFMOs are very similar to the above.

Annex III

Extracts from reports of meetings of the Indian Ocean Tuna Commission (IOTC) Committees and Working Parties, 2008–2010

Report of the Twelfth Session of the Indian Ocean Tuna Commission
Muscat, Oman, 7-11 June 2008
IOTC-2008-S12-R[E]

Other conservation and management matters

37. The Commission noted the concerns raised by some Members in relation to Resolution 05/05 *Concerning the Conservation of Shark Caught in Association with Fisheries Managed by IOTC*, that this Resolution lacks clarity in relation to Paragraph 4 and whether "5% of the weight of sharks onboard up to the first point of landing" refers to the dressed weight or live weight of sharks retained. The Commission recognised that this is a complex issue and ratios vary depending on factors such as the species concerned, processing methods and the set of fins retained. The Commission agreed that, as an interim measure, CPCs having concerns with the current lack of clarity in the Resolution should notify the Secretariat of the manner in which they are interpreting the current wording of the Resolution, including information on processing methods and fin retention practices. This information should be provided in sufficient detail to enable jurisdictions engaged in compliance activities to determine a vessel's level of compliance with the Resolution. The Commission agreed that this and other relevant information will be reviewed by the Working Party on Ecosystem and Bycatch and the Scientific Committee and a report be provided by the Scientific Committee on options to clarify Resolution 05/05 for consideration at the 2009 Commission meeting.

Report of the Fourth Session of the IOTC Working Party on Ecosystems and Bycatch
Bangkok, Thailand 20 - 22 October 2008
IOTC-2008-WPEB-R[E]

Technical discussions on IOTC Resolution 05/05 concerning the conservation of sharks caught in association with fisheries managed by IOTC

35. In response to a request from the Commission for more information on the technical aspects of IOTC Resolution 05/05 *Concerning the conservation of sharks caught in association with fisheries managed by IOTC*, specifically paragraph 4 "CPCs shall require their vessels to not have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures", the WPEB recommended the following advice be put forward to the Scientific Committee for its consideration.

Though not specified in Resolution 05/05, the adoption of this management measure appears to be in response to concerns about the threats to shark populations from fishing and the practice of shark fining.

The percentage fins:body weight ratio requirement has no clear scientific basis as a conservation measure for sharks in the Indian Ocean, rather it appears to be a broad brush measure to slow down the rate of fishing or deter fishing on sharks by not allowing fins only to be landed and requiring vessels to return to port more often to unload fins and body parts (and therefore not be fishing so much).

The choice of what percentage fins:body weight to apply is not straight forward. There is a wide range of reported fin to body ratios both within and between species. This may be due to differences in the number and type of fins used in the calculations, the type of carcass weight used, or the kind of processing for dressed carcasses. Variation in fin cutting practices may also lead to differences in calculated ratios. There is currently considerable uncertainty among RFMOs and shark experts about what percentage level is appropriate.

Given the broad brush nature of the ratio measure, it is unlikely to address any sustainability issues that might exist for particular species and it does not necessarily mean that the species most vulnerable to fishing will be better off (to achieve this, species-specific and even fleet-specific ratios would be required, as well as accepted criteria for calculating fin weight to carcass weight ratios). The measure also has limited ability to reduce shark finning practices.

Given the considerable uncertainties associated with deriving an appropriate ratio and the difficulties ensuring fishers comply with it, a wide range of experts, including the IUCN Shark specialist group (IOTC-2008-WPEB-INF01) and the European Elasmobranch Association (IOTC-2008-WPEB-INF04) have recently recommended that sharks should be landed with their fins attached.

The WP is in agreement with these expert opinions. The abandonment of the current measure would remove the need for deriving what would be an arbitrary fin to body weight ratio and enforcing it. The alternative measure of landing sharks with their fins attached could be expected, if fully implemented, to end the practice of finning and also facilitate the collection of data that would be highly beneficial in shark stock assessments (e.g. data on species, sex ratios, numbers and size distributions of catches). The ultimate production of shark stock assessments would then underpin any future conservation and management actions.

In case the current measures are pursued, port sampling of pectoral fins landed (pectoral fins are typically always landed) can provide information on numbers of sharks caught by species groups (pectoral fins can be used to identify species groups).

Report of the Eleventh Session of the Scientific Committee of the IOTC
Victoria, Seychelles, 1-5 December 2008
IOTC-2008-SC-R[E]

Sharks

57. In response to the Commission's request for more information on the technical aspects of IOTC Resolution 05/05 *Concerning the conservation of sharks caught in association with fisheries managed by IOTC*, specifically paragraph 4 "CPCs shall require their vessels to not have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures", the SC recommended that the Commission notes that:

i. Though not specified in Resolution 05/05, the SC is of the opinion that the adoption of this management measure appears to be in response to concerns about the threats to shark populations from fishing and the practice of shark finning

ii. The current percentage fins:body weight ratio requirement has no clear scientific basis as a conservation measure for sharks in the Indian Ocean, rather it appears to be aimed at slowing down the rate of fishing or to deter fishing on sharks by not allowing fins only to be landed and requiring vessels to return to port more often to unload fins and body parts

iii. Maintaining the use of the fin:body weight ratios will preclude the collection of essential information on species-level interactions with fishing fleets, crucial for accurate stock assessments for sharks;

iv. Current scientific evidence clearly indicates that percentage fins:body weight varies widely among species, fin types used in calculations, the type of carcass weight used (whole or dressed), and the method of processing used to remove the fins (fin cutting technique)

v. It was recognised that the best way to guarantee that sharks are fully utilised is to require that the trunks be landed with the fins attached, and if fully implemented, this would facilitate the collection of data that would be highly beneficial in shark stock assessments (e.g. data on species, sex ratios, numbers and size distributions of catches), that the Commission may require from the SC [Table 4]

vi. The ultimate production of shark stock assessments would then underpin any future conservation and management actions

vii. The SC agreed that operational factors (e.g. storage methods and product processing) are likely to make a requirement for the natural attachment of fins to the shark carcass difficult for some operators to apply

viii. The SC agreed that all fins landed should be able to be matched to a carcass. In the cases where fins have been removed from the body prior to the landing, the SC agreed that they should be stored in such a way that they can be cross-referenced to the carcasses – for example, they may be numbered or tagged for identification between carcasses and fins.

58. The SC recommended that the fin:body weight ratio measure be replaced with a resolution that requires shark fins to be landed attached to the body, either naturally, or by other means'.{Table 4}

Table 4 | List of technical measures to assess status of sharks with respect to conservation and stock assessment. Information obtained from a sub-working group formed during the 2008 meeting of the IOTC Working Party on Ecosystems and Bycatch to discuss shark fin:body weight issue.

Type of Measure (ranked in decreasing preference)	Pros	Cons	Notes
1. Land whole shark with fins attached to the body	Full information can be obtained and will enable robust estimates of catches by species, and a wide range of morphometric relationships can be derived	Possible increase of discards	Highly recommended for stock assessment and conservation measures If a vessel has no planned use for the shark bodies, this measure would require that storage space that would otherwise be used for target species would have to be used for sharks. Furthermore, given the presence of fins on the bodies, the stacking of the bodies is less efficacious and overall, fewer sharks can be stored.
2. Land shark with fins separated from carcasses but stored in a way that they can immediately be related to a given carcass	Full information can be obtained and will enable robust estimates of catches by species. Less precise morphometric relationships than in (1) can be expected	Possible increase of discards	Recommended for stock assessment and conservation measures One possibility (among others) is to have the complete set of fins for a given shark placed in a plastic bag, and attached to the torso This measure enables a more optimised use of the haul capacity and is easier to apply on vessels
3. Land fins and body trunks within required fin-to-body ratios all species combined (status quo)	None	Poor level of information obtained. No reliable estimates of total catch or catches by species are possible.	Not recommended by sharks specialist groups (including the IUCN Shark specialist group -IOTC-2008-WPEB-INF01 and the European Elasmobranch Association - IOTC-2008- WPEB-INF04) Cannot be used for stock assessment The 2% or 5% ratio used respectively for dressed and round weight do not reflect the variability among species cutting technique or fin set retained.

13.2 RECOMMENDATIONS TO THE COMMISSION - GENERAL

191. The following recommendations are addressed specifically to the Commission and/or relate to the work of the Secretariat. ...

27. In response to the Commission's request for more information on the technical aspects of IOTC Resolution 05/05 Concerning the conservation of sharks caught in association with fisheries managed by IOTC, specifically paragraph 4 "CPCs shall require their vessels to not have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures", the SC recommended that the Commission notes that: (Paragraph 57)

i. Though not specified in Resolution 05/05, the SC is of the opinion that the adoption of this management measure appears to be in response to concerns about the threats to shark populations from fishing and the practice of shark finning;

ii. The current percentage fins:body weight ratio requirement has no clear scientific basis as a conservation measure for sharks in the Indian Ocean, rather it appears to be aimed at slowing down the rate of fishing or to deter fishing on sharks by not allowing fins only to be landed and requiring vessels to return to port more often to unload fins and body parts;

iii. Maintaining the use of the fin:body weight ratios will preclude the collection of essential information on species-level interactions with fishing fleets, crucial for accurate stock assessments for sharks;

iv. Current scientific evidence clearly indicates that percentage fins:body weight varies widely among species, fin types used in calculations, the type of carcass weight used (whole or dressed), and the method of processing used to remove the fins (fin cutting technique);

v. It was recognised that the best way to guarantee that sharks are fully utilised is to require that the trunks be landed with the fins attached, and if fully implemented, this would facilitate the collection of data that would be highly beneficial in shark stock assessments (e.g. data on species, sex ratios, numbers and size distributions of catches), that the Commission may require from the SC [Table 4];

vi. The ultimate production of shark stock assessments would then underpin any future conservation and management actions;

vii. The SC agreed that operational factors (e.g. storage methods and product processing) are likely to make a requirement for the natural attachment of fins to the shark carcass difficult for some smaller operators to apply.

viii. The SC agreed that all fins landed should be able to be matched to a carcass. In the cases where fins have been removed from the body prior to the landing, the SC agreed that they should be stored in such a way that they can be immediately cross-referenced to the carcasses – for example, they may be numbered and wired or bagged together they may be numbered or tagged for identification between carcasses and fins

28. The SC recommended that the fin:body weight ratio measure be replaced with a resolution that requires shark fins to be landed attached to the body, either naturally, or by other means. (Paragraph 58)

Report of the Fifth Session of the IOTC Working Party on Ecosystems and Bycatch
Mombasa, Kenya 12 - 14 October 2009
IOTC-2009-WPEB-R[E]

3.3 CONSERVATION OF SHARKS CAUGHT IN ASSOCIATION WITH FISHERIES MANAGED BY IOTC (DISCUSSION ON RECOMMENDATIONS FOR LANDING SHARK FINS).

36. Sharks are taken as bycatch in several Indian Ocean tuna fisheries. IOTC Resolution 05/05, paragraph 4 states that: "CPCs shall require their vessels to not have onboard fins that total more than 5% of the weight of sharks onboard, up to the first point of landing. CPCs that currently do not require fins and carcasses to be offloaded together at the point of first landing shall take the necessary measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, or other appropriate measures."

37. In 2008, the WPEB recommended that, since the percentage of fins to body weight ratio requirement has no clear scientific basis, sharks should be landed with their fins naturally attached. This is required for the collection of reliable landing data, which would allow stock assessments. The Secretariat explained that, during last meeting of the IOTC Commission held in Bali in March-April 2009, several proposals were tabled in relation to conservation measures of sharks caught in association with fisheries managed by IOTC. These included the recommendation of WPEB, and others relating to the methods by which shark fins might be landed. However, a consensus was not reach on this matter and the status quo recommendation is still in place. In response to a request from the Commission for more information on the technical aspects of this issue, it was again discussed by the WPEB.

38. It was noted that the 5% ratio of fins to body weight has no clear scientific basis. There is a wide range of reported fin to body weight ratios both within and between species. Factors contributing to this variability include: differences in fin sizes between species; ontogenetic changes in fin sizes within species; and also methodological differences (eg. in fin cutting practices; in the number and type of fins used in the calculations; the type of carcass weight used; and the kind of processing for dressed carcasses). It was noted that there is currently considerable uncertainty among RFMOs and shark experts about what percentage level is appropriate.

39. It was noted that the 5% criterion, if enforced, would tend to reduce the wasteful practice of finning (ie. removing the fins and discarding the carcass). It might also tend to reduce fishing effort, particularly on sharks, since vessels would need to return to port more frequently to unload. However, the 5% criterion would not be valid to collect correct catch statistics and to improve the collection of biological sample. The WPEB further noted that the suggestion that fins could be detached and then re-attached to the carcass in a plastic bag was ecologically unacceptable. Rather, fins might be partially sliced through and folded over, thus minimizing storage space while remaining attached.

40. Therefore, the WPEB reiterated its previous recommendation (i.e. to land sharks with fins naturally attached) because that is the best way to ensure correct catch statistics, and to facilitate collection of biological information, as required to assess shark populations. The WPEB also considered that the landing of sharks with fins naturally attached was the best way to reduce or avoid the practice of finning.

41. In summary, the WPEB recommended that all sharks be landed with fins naturally attached to the body.

3.9 RECOMMENDATIONS RELATING TO SHARKS

52. The WPEB recommends that:

The 5% fin to body weight ratio measure be replaced with a resolution requiring sharks to be landed with fins naturally attached to the body.

[OTHER RECOMMENDATIONS ALSO LISTED ARE NOT INCLUDED HERE.]

Report of the Twelfth Session of the Scientific Committee of the IOTC
Victoria, Seychelles, 30 November-4 December 2009
IOTC-2009-SC-R[E]

Sharks

49. Following from the Commission's request in 2008 for more information on the technical aspects of IOTC Resolution 05/05 Concerning the conservation of sharks caught in association with fisheries managed by IOTC, specifically the '5% rule', and the recommendations made by SC in 2008, the WPEB in 2009 proposed a refinement to the [SC's] 2008 recommendation that 'the fin-body weight ratio measure be replaced with a resolution that requires shark fins to be landed attached to the body, either naturally, or by other means'. In 2009 WPEB recommended that this should read 'fins naturally attached'.

50. Most CPCs supported such a recommendation as it was agreed that the best way to reduce or avoid the pratice of shark finning, ensure accurate catch statistics, and facilitate the collection of biological information is to ensure that all sharks are landed with fins naturally attached to the body. However the oriental longline countries (Japan, China, Korea) were opposed to it indicating that the 5% rule was already well established amongst tuna RFMOs and serving the purpose even if not fully, although it was noted there was a lack of evidence supporting that percentage due to the large variability in the fin:body weight ratio among sharks species. The oriental longline countries, ie. Japan, China, Korea and invited experts recommended to investigate this issue further.

51. The SC unanimously recognised that there was a need to collect more biological information on sharks and more detailed species composition information, and agreed with the principle that shark fins should be matched to a specific carcass for such biological research, as agreed at SC11 (paragraph 27, 28). However it was considered that the mechanism for solving the shark fin problem was a matter for consideration by the Compliance Committee.

13. SUMMARY OF RECOMMENDATIONS MADE IN 2009

13.1 RECOMMENDATIONS – ON DATA AND RESEARCH

9. The SC unanimously recognised that there was a need to collect more biological information on sharks and more detailed species composition information, and agreed with the principle that shark fins should be matched to a specific carcass for such biological research, as agreed at SC11 (paragraph 27, 28). (paragraph 51)

Report of the Fourteenth Session of the Indian Ocean Tuna Commission
Busan, Korea, 1-5 March 2010
IOTC-2010-S14-R[E]

The meeting report does not refer to the inconclusive discussions on implementation of IOTC Resolution 05/05.

Annex IV

Annex IV. United Nations General Assembly Sustainable Fisheries Resolutions

UN General Assembly Sixty-fourth session (March 2010)
Resolution adopted by the General Assembly: 64/72.
Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments

Extracts from preliminary paragraphs:

Recognising further the economic and cultural importance of sharks in many countries, the biological importance of sharks in the marine ecosystem as key predatory species, the vulnerability of certain shark species to overexploitation, the fact that some are threatened with extinction, the need for measures to promote the long-term conservation, management and sustainable use of shark populations and fisheries, and the relevance of the International Plan of Action for the Conservation and Management of Sharks, adopted by the Food and Agriculture Organization of the United Nations in 1999, in providing guidance on the development of such measures,

Reaffirming its support for the initiative of the Food and Agriculture Organization of the United Nations and relevant subregional and regional fisheries management organizations and arrangements on the conservation and management of sharks, and noting with concern that basic data on shark stocks and harvests continue to be lacking, that only a small number of countries have implemented the International Plan of Action for the Conservation and Management of Sharks, and that not all regional fisheries management organizations and arrangements have adopted conservation and management measures for directed shark fisheries and for the regulation of by-catch of sharks from other fisheries,

Expressing concern that, despite the adoption of General Assembly resolution 46/215 of 20 December 1991, the practice of large-scale pelagic drift-net fishing still exists and remains a threat to marine living resources,

Expressing concern also over reports of continued losses of seabirds, particularly albatrosses and petrels, as well as other marine species, including sharks, fin-fish species and marine turtles, as a result of incidental mortality in fishing operations, particularly longline fishing, and other activities, while Recognising considerable efforts by States and through various regional fisheries management organizations and arrangements to reduce by-catch in longline fishing,

I. Achieving sustainable fisheries

13. *Reaffirms* paragraph 10 of resolution 61/105 of 8 December 2006, and calls upon States, including through regional fisheries management organizations or arrangements, to urgently adopt measures to fully implement the International Plan of Action for the Conservation and Management of Sharks for directed and nondirected shark fisheries, based on the best available scientific information, through, *inter alia*, limits on catch or fishing effort, by requiring that vessels flying their flag collect and regularly report data on shark catches, including species-specific data, discards and landings, undertaking, including through international cooperation, comprehensive stock assessments of sharks, reducing shark by-catch and by-catch mortality, and, where scientific information is uncertain or inadequate, not increasing fishing effort in directed shark fisheries until measures have been established to ensure the long-term conservation, management and sustainable use of shark stocks and to prevent further declines of vulnerable or threatened shark stocks;

14. *Calls upon* States to take immediate and concerted action to improve the implementation of and compliance with existing regional fisheries management organization or arrangement and national measures that regulate shark fisheries, in particular those measures which prohibit or restrict fisheries conducted solely for the purpose of harvesting shark fins, and, where necessary, to consider taking other measures, as appropriate, such as requiring that all sharks be landed with each fin naturally attached;

15. *Calls upon* regional fisheries management organizations with the competence to regulate highly migratory species to strengthen or establish precautionary, science-based conservation and management measures, as appropriate, for sharks taken in fisheries within their convention areas consistent with the International Plan of Action for the Conservation and Management of Sharks, taking into account the Course of Actions adopted at the second joint meeting of tuna regional fisheries management organizations and arrangements, held in San Sebastian, Spain, from 29 June to 3 July 2009;

16. *Reiterates* its request to the Food and Agriculture Organization of the United Nations to prepare a report containing a comprehensive analysis of the implementation of the International Plan of Action for the Conservation and Management of Sharks, as well as progress in implementing paragraph 11 of General Assembly resolution 62/177 of 18 December 2007;

UN General Assembly Sixty-third session (2008)
Resolution adopted by the General Assembly: 63/112.
Sustainable fisheries

[Prelims are similar to those for the 64th session, as are operative paragraphs on sharks; only those paragraphs covering shark finning are therefore included here.]

I. Achieving sustainable fisheries

14. *Calls upon* States to take immediate and concerted action to improve the implementation of and compliance with existing regional fisheries management organization or arrangement and national measures that regulate shark fisheries, in particular those measures which prohibit or restrict fisheries conducted solely for the purpose of harvesting shark fins, and, where necessary, to consider taking other measures, as appropriate, such as requiring that all sharks be landed with each fin naturally attached;

15. *Requests* the Food and Agriculture Organization of the United Nations to prepare a report containing a comprehensive analysis of the implementation of the International Plan of Action for the Conservation and Management of Sharks, as well as progress in implementing paragraph 11 of General Assembly resolution 62/177, for presentation to the Committee on Fisheries at its twenty-eighth session, in 2009;

UN General Assembly Sixty-second session (2007)
Resolution adopted by the General Assembly: 62/177.
Sustainable fisheries

[Prelims are similar to those for the 64th session, as are operative paragraphs on sharks; only those paragraphs covering shark finning are therefore included here.]

I. Achieving sustainable fisheries

12. *Calls upon* States to take immediate and concerted action to improve the implementation of and compliance with existing regional fisheries management organization or arrangement and national measures that regulate shark fisheries, in particular those measures which prohibit or restrict fisheries conducted solely for the purpose of harvesting shark fins, and, where necessary, to consider taking other measures, as appropriate, such as requiring that all sharks be landed with each fin naturally attached;

13. *Requests* the Food and Agriculture Organization of the United Nations to prepare a report containing a comprehensive analysis of the implementation of the International Plan of Action for the Conservation and Management of Sharks, as well as progress in implementing paragraph 11 of the present resolution, for presentation to the Committee on Fisheries at its twenty-eighth session, in 2009;

UN General Assembly Sixty-first session (2006)
Resolution adopted by the General Assembly: 61/105.
Sustainable fisheries

[Prelims are similar to those for the 64th session, as are operative paragraphs on sharks; only those paragraphs covering shark finning are therefore included here.]

I. Achieving sustainable fisheries

10. *Urges* States, including those working through subregional or regional fisheries management organizations and arrangements, to implement fully the International Plan of Action for the Conservation and Management of Sharks, notably through the collection of scientific data regarding shark catches and the adoption of conservation and management measures, particularly where shark catches from directed and non-directed fisheries have a significant impact on vulnerable or threatened shark stocks, in order to ensure the conservation and management of sharks and their long-term sustainable use, including by banning directed shark fisheries conducted solely for the purpose of harvesting shark fins and by taking measures for other fisheries to minimise waste and discards from shark catches, and to encourage the full use of dead sharks;

UN General Assembly Fifty-ninth session (2004)
Resolution adopted by the General Assembly: 59/25.
Sustainable fisheries

[Prelims are similar to those for the 64th session, as are operative paragraphs on sharks; only those paragraphs covering shark finning are therefore included here.]

I. Achieving sustainable fisheries

73. *Urges* States, including those working through subregional or regional fisheries management organizations and arrangements in implementing the International Plan of Action for the Conservation and Management of Sharks, to collect scientific data regarding shark catches and to consider adopting conservation and management measures, particularly where shark catches from directed and nondirected fisheries have a significant impact on vulnerable or threatened shark stocks, in order to ensure the conservation and management of sharks and their long-term sustainable use, including by banning directed shark fisheries conducted solely for the purpose of harvesting shark fins and by taking measures for other fisheries to minimise waste and discards from shark catches, and to encourage the full use of dead sharks;

74. *Requests* the Food and Agriculture Organization of the United Nations to develop programmes to assist States, including developing States, in carrying out the tasks mentioned in paragraph 73 above, in particular the adoption of appropriate conservation and management measures, including the banning

of directed shark fisheries conducted solely for the purpose of harvesting shark fins;

75. *Reaffirms* the requests contained in paragraph 50 of its resolution 58/14, and invites the Food and Agriculture Organization of the United Nations to report to the Secretary-General, for inclusion in his report on sustainable fisheries, on progress regarding the preparation of the study mentioned therein, as well as the programmes mentioned in paragraph 74 above, and to consider at the sixty-second session of the General Assembly whether additional action is required;

UN General Assembly Fifty-eighth session (2003)
Resolution adopted by the General Assembly: 58/14.
Sustainable fisheries

[Prelims are similar to those for the 64th session.]

I. Achieving sustainable fisheries

48. *Urges* States, including those working through subregional or regional fisheries management organizations and arrangements in implementing the International Plan of Action for the Conservation and Management of Sharks, to collect scientific data regarding shark catches and to consider adopting conservation and management measures, particularly where shark catches from directed and nondirected fisheries have a significant impact on vulnerable or threatened shark stocks, in order to ensure the conservation and management of sharks and their long-term sustainable use, including by banning directed shark fisheries conducted solely for the purpose of harvesting shark fins and by taking measures for other fisheries to minimise waste and discards from shark catches, and to encourage the full use of dead sharks;

Annex V

Annex V. World Conservation Congress Recommendations on shark finning

IUCN WCC RECOMMENDATION 4.114
Global policy against shark finning (2008)
AWARE that shark finning (removal and retention of the fins and the discard at sea of the carcass) causes the death of millions of sharks each year, threatens many shark populations and potentially the very survival of species considered 'Vulnerable', 'Endangered' or 'Critically Endangered', threatening not only traditional sustainable fisheries but also recreational fisheries of socio-economic importance;

RECALLING that Recommendation 3.116 *Shark Finning* adopted by the 3rd IUCN World Conservation Congress (Bangkok, 2004), urged States with fisheries that capture sharks, whether in directed fishing activities or as accidental by-catch in other fisheries, to require that sharks be landed only with their fins naturally attached to their bodies, or alternately, that the weight of the fins retained on-board vessels must never exceed 5% of the weight of the carcasses (without heads or guts), and to take measures to ensure compliance with the 5% ratio through certification, monitoring by an observer, and other appropriate measures when the landing of fins separate from carcasses is allowed;

RECOGNISING that in practice there is debate over the correct ratio that should be used between the weight of the fins and the weight of the carcass in order to be effective in preventing finning, and in addition that this system can be impractical, particularly when limited human resources are charged with monitoring the landings from industrial vessels with capacities of several-hundred tons, and that this hinders the collection of catch data for individual species;

ALSO RECOGNISING that the most straightforward way to implement a finning ban is to require that sharks be landed with their fins naturally attached to their bodies, which can be done in a way that does not compromise storage, and which would avoid debates about the correct ratio between the weight of the fins and the weight of the carcass, save the inspectors' time when they verify compliance with the regulations, and provide optimal conditions for the collection of accurate catch data by species;

AWARE that Article 12 of Resolution 62/177 adopted by the United Nations General Assembly during its 62nd Session, "*Calls upon* States to take immediate and concerted action to improve the implementation of and compliance with existing regional fisheries management organization or arrangement and national measures that regulate shark-fisheries, in particular those measures which prohibit or restrict fisheries conducted solely for the purpose of harvesting shark fins, and where necessary, to consider taking other measures, as appropriate, such as requiring that all sharks be landed with each fin naturally attached";

ALSO AWARE that many States have strengthened or are in the process of developing Plans of Action for Sharks and strengthening legislation to prevent shark finning, and that new fisheries-management measures often require pilot studies and a phase-in period in order to be implemented effectively; and

ALARMED that recent global information on the trade and landing of shark fins indicates that finning is widely practiced, to a great extent without management or regulation, and that due to the biological characteristics of sharks, this results in unsustainable levels of mortality, requiring immediate action;

The World Conservation Congress at its 4th Session in Barcelona, Spain, 5–14 October 2008:
1. CALLS ON those States with fisheries that capture sharks, whether in directed fishery activities or as accidental by-catch of other fisheries, to require at the point of first landing that sharks be landed only if their fins are naturally attached to their bodies, though allowing for partial detachment of fins to permit efficient storage and species identification;

2. CALLS ON those States that are members of Regional Fisheries Management Organizations to take the necessary diplomatic actions to improve and implement effectively existing shark-related measures including the prohibition, within the scope of the corresponding jurisdiction, of onboard transportation of fins separate from shark carcasses unless a certificate is issued at the point of first landing to confirm that the fins were naturally attached to the bodies, and

3. RECOMMENDS that States evaluate the effectiveness of their control and capacity systems to ensure compliance with these measures, drawing on the experience and resources of the Food and Agriculture Organization of the United Nations (FAO), the RFMOs, other States, and the Shark Specialist Group of the IUCN Species Survival Commission.

State members Australia, Japan and Spain indicated that they would abstain in the vote on this motion.

State and agency members of the United States abstained during the vote on this motion. The United States Department of State provided the following statement for the record:

"The United States supports strong and effective efforts to conserve and manage shark populations, including through bans on the wasteful practice of shark finning. We support the broad goals of this motion. Domestically, the United States does require that sharks be landed with their fins naturally attached in our Atlantic and Gulf of Mexico Fisheries, and we plan to consider whether such a requirement is appropriate for our Pacific fisheries as well. Consistent with the direction provided by the 2007 United Nations General Assembly Sustainable Fisheries Resolution (62/177), we urge governments to take immediate action to improve compliance with shark finning bans, including,

where necessary, to consider requiring that sharks be landed with fins naturally attached."

IUCN WCC RECOMMENDATION 3.116
Shark finning (2004)
Recognising the economic and cultural importance of sharks in many countries, their support to food security, their biological importance in the marine ecosystem, the vulnerability of some shark species to exploitation, and the need for measures promoting sustainable and long-term use of shark populations and fisheries developed from them;

CONCERNED that shark finning (removing any fin of the shark and discarding the body at sea) causes the death of tens of millions of sharks, threatens many shark populations and potentially the very survival of species considered rare and vulnerable, and endangers not only traditional sustainable fisheries but also recreational fisheries of socio-economic importance;

CONCERNED ALSO that the elimination of large quantities of predators at the apex of the marine ecosystem could have dramatic and undesirable ecological impacts altering the balance of the marine ecosystems and could jeopardise the production of other species of commercial interest;

AWARE that information on trade and landings indicate that finning is practiced widely, and to a great extent without management or regulation, and that due to the biological characteristics of sharks, it also results in unsustainable levels of mortality;

CONCERNED MOREOVER that finning hinders the collection of specific scientific information on particular species, which is essential to monitor shark catch, landings, and biological parameters, and implement sustainable management of these fisheries, as required under international agreements and statutes;

NOTING that finning is contrary to the principles of Article 7.2.2 (g) of the *Code of Conduct for Responsible Fisheries* of the United Nations Food and Agriculture Organization (FAO) and to the principles, objectives and goals of the FAO *International Plan of Action for the Conservation and Management of Sharks* (UN FAO IPOA–Sharks); and

ALSO AWARE that at its 58th and 59th sessions, the United Nations General Assembly urged Member States to develop and implement national and, where appropriate, regional plans of action to activate the *International Plan of Action for the Conservation and Management of Sharks*, to gather scientific information on shark catch, and to consider the adoption of conservation and management actions, "including by banning directed shark fisheries conducted solely for the purpose of harvesting shark fins" (paragraph 48 of Resolution A/RES/58/14);

The World Conservation Congress at its 3rd Session in Bangkok, Thailand, 17–25 November 2004:
1. URGES states with fisheries that capture sharks, whether in directed fishing activities or as accidental by-catch in other fisheries, to implement the *International Plan of Action for the Conservation and Management of Sharks*, through the development of national and regional action plans incorporating a precautionary approach, that recognise the nutritional and socio-economic importance of sharks in some regions, that reduce to a minimum waste and discard from shark catch and that promote use of the entire catch through, *inter alia*, the implementation of bans on finning (removing any fin of the shark and discarding the body at sea) in their maritime water and by their flag vessels worldwide;

2. URGES states with fisheries that capture sharks, whether in directed fishery activities or as accidental by-catch in other fisheries, or which facilitate the landing of shark products by international flag vessels, to require that all sharks be landed with the fins attached to their bodies and to guarantee full utilization of shark catches;

3. FURTHER URGES in those cases where this is not possible, vessels should be required to have on board fins that total no more than five percent of the weight of sharks (defined as all parts of the shark excepting head and guts), up to the point of first landing and those states that do not currently require fins and carcasses to be landed together, should take necessary measures to ensure compliance with the five percent ratio through certification, monitoring by an observer, and other appropriate measures, for example as required by the 2004 International Commission for the Conservation of Atlantic Tunas (ICCAT) Resolution;

4. RECOMMENDS that all states should evaluate the effectiveness of their monitoring and capacity to enforce these measures, drawing upon the expertise and resources of FAO, Regional Fisheries Organizations, other states and the IUCN Shark Specialist Group;

5. URGES states to support the development and adoption of a new resolution of the United Nations General Assembly to ban all shark finning in international waters; and

6. VIGOROUSLY RECOMMENDS that states implement Resolution 12.6 *Conservation and Management of Sharks* and related decisions of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

The Ministry of Foreign Affairs, Japan, provided the following statement for the record:

"This Recommendation is inconsistent with the last year's and this year's United Nations resolutions, as well as the FAO International Plan of Action for the Conservation and Management of Sharks and the FAO Code of Conduct for Responsible Fisheries, in several points such as a requirement for landing shark bodies with their fins adhered and a ban on transfer of shark fins in international waters."

The Key point of shark conservation issue is that fishery activities that only target shark fins are deteriorating shark resources. We have to recognise that a ban on finning without identifying species and areas with a real problem will never lead to a real conservation and management of shark resources.

Further, it is not appropriate to discuss fishery issues in the United Nations General Assembly, since there is no expert on fisheries. Therefore we cannot support this Recommendation.

The United States Department of State provided the following statement for the record:

"The United States supports strong and effective efforts to conserve and manage shark populations, including through bans on the practice of shark finning. We would just like to make a brief statement specifically in regard to operative paragraph 4. Given recent advances on this issue in the United Nations General Assembly, we believe that future efforts are best directed towards the UN Food and Agriculture Organization, Regional Fisheries Management Organizations and other relevant international bodies with direct responsibility for the conservation and management of living marine resources. We support specific measures by these organizations to address this issue, consistent with the resolution recently adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT)."

The Shark Specialist Group (SSG), part of the IUCN (International Union for Conservation of Nature) Species Survival Commission, is a global network of 160 experts in shark biology, conservation, management, fisheries, and taxonomy. The SSG works to assess the threat status of sharks, rays and chimaeras, collate knowledge into scientific publications and reports, and give independent, science-based advice to decision makers and management authorities.

IUCN Shark Specialist Group
c/o Department of Biology
Simon Fraser University
8888 University Drive
Burnaby, BC, V5A 1S6
+1 778-782-3989

iucnshark@gmail.com
www.iucnssg.org

The European Elasmobranch Association (EEA) coordinates the activities of national member organisations dedicated to the study, management or conservation of chondrichthyans (sharks, skates, rays and chimaeras). The EEA's scientific network formulates scientific policy and priorities to advance research, sustainable management, conservation, and education on chondrichthyans throughout Europe.

Further information:
European Elasmobranch Assocation (EEA)
heikezidowitz@web.de
info@eulasmo.org
www.eulasmo.org

About the authors: Sarah Fowler has 30 years experience as a marine ecologist and biodiversity conservation expert, working in government advisory bodies, environmental consultancy and non-governmental organisations. She has been deputy, co-chair or vice-chair of the IUCN Shark Specialist Group since its establishment in 1991, and was a co-founder of the European Elasmobranch Association and the UK Shark Trust. Sarah was awarded an OBE for services to marine conservation and is a Pew Fellow in Marine Conservation.

Bernard Séret is a senior scientist at IRD (Institut de Recherche pour le Développement), ocean biologist by education, he is a ichthyologist specialized in chondrichthyan fishes for 30 years. He sojourned and made several missions overseas and took part to numerous exploratory cruises in the Atlantic, Southern Ocean and South Pacific. He is the author of about 165 papers, with more than 100 on Chondrichthyes, including the description of several new species of sharks, rays and chimaeras. His current researches concern the biodiversity, the fisheries and the conservation of the Chondrichthyan fishes. He is the scientific chair of EEA, IUCN SSG expert and French representative of ICES-WGEF.