CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Seventeenth meeting of the Conference of the Parties
Johannesburg (South Africa), 24 September – 5 October 2016

DRAFT REGIONAL NON-DETRIMENT FINDINGS FOR SILKY SHARK IN THE INDIAN OCEAN AND THRESHER SHARKS IN THE NORTHEAST ATLANTIC AND MEDITERRANEAN

This document has been submitted by Germany and Sri Lanka, in relation to the Appendix II amendment proposals CoP17 Prop. 42 and Prop. 43, on inclusion of the Silky shark *Carcharhinus falciformis* and Thresher shark species, genus *Alopias*.*

Introduction

Three draft Non-Detriment Findings (NDFs) have been developed as examples of regional NDFs for shark species proposed for listing in Appendix II. The intention is to share these documents with CITES Parties and Regional Fisheries Bodies (RFBs) through the NDF page of the CITES Sharks and Rays website. They may serve as background documents for further consultation and cooperation between range and fishing States and RFBs, if the proposed Appendix II listings are adopted by the Parties at CoP 17.

NDF methodology

Fisheries experts drafted Regional NDFs for the silky shark (*Carcharhinus falciformis*) in the Indian Ocean, with a particular focus on Sri Lankan fisheries[1], and the common thresher shark (*Alopias vulpinus*) and bigeye thresher shark (*A. superciliosus*) in the Northeast Atlantic and Mediterranean. The drafts were produced using the NDF guidance and worksheets developed by Germany[2] which are available in English, Spanish and French on the CITES Sharks and Manta Rays webpages. Annex 1 presents, as an example, the draft NDF data sheets for common thresher *Alopias vulpinus.*

NDF findings

The draft regional NDFs for the silky shark in the Indian Ocean and the common thresher shark in the Northeast Atlantic and Mediterranean are “positive with conditions“. The draft NDFs recommend that trade be conditional upon the adoption of actions to improve fisheries management measures and monitoring; generate data on populations, fisheries and trade; and increase scientific research effort. The latter might include research that will identify additional measures to mitigate fisheries and trade impacts. Some conditions may need to be

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

[1] In consultation with Sri Lanka’s National Aquatic Resources Research and Development Agency (NARA).

[2] Mundy-Taylor, V., Crook. V., Foster, S., Fowler, S., Sant, G. and Rice, J. (2014). CITES Non-detriment Findings Guidance for Shark Species (2nd, Revised Version). A Framework to assist Authorities in making Non-detriment Findings (NDFs) for species listed in CITES Appendix II. Report prepared for the Germany Federal Agency for Nature Conservation (Bundesamt für Naturschutz, BfN). http:// cites.org/sites/default/files/eng/prog/shark/docs/Shark%20 NDF%20guidance%20incl%20Annexes.pdf

adopted before export takes place. Others may be introduced over time. Regular reviews of the NDFs will be necessary to enable progress to be monitored and conditions amended.

The RFMO prohibited status of the Atlantic and Mediterranean stock of the bigeye thresher means that no legal acquisition finding is possible for this species, but the NDF process was undertaken anyway. This was for comparison with the common thresher NDF and in view of the possibility of future legal fisheries. If a legal acquisition finding was possible, the NDF for the bigeye thresher would at present be negative. This is mainly due to lack of data on pressures and management, which of course is partially due to the fact that there is no legal fishery or trade for the species to generate such data. Recommendations are made for improved data collection and management measures in order to enable bigeye thresher recovery to be monitored and, in due course, management plans to be developed to enable sustainable trade.

Existing management measures

Some generic management measures apply to all shark species. All tuna RFMOs and many shark fishing States prohibit shark finning. National (NPOA) and Community (CPOA) Shark Plans have been developed under the framework of the UN FAO International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks). The EU Community Plan of Action (CPOA) for Sharks provides a regulatory framework and operational objectives for the conservation and management of sharks and their long-term sustainable use and applies to EU vessels worldwide. The UN Port States Agreement to prevent, deter and eliminate Illegal, Unreported and Unregulated (IUU) fishing requires that any inspections conducted on fishing vessels entering ports includes verification that all species on board have been taken in compliance with international law, conventions and RFMO measures.

All three species are listed in Appendix II of the Convention on the Conservation of Migratory Species (CMS) and in the CMS MOU on Migratory Sharks.

The IOTC has not yet introduced any Recommendations for silky sharks in the Indian Ocean, although ICCAT and WCPFC have done so in adjacent ocean areas. There are some national management measures and prohibitions. For example, all shark species are protected inside the Maldives' EEZ. Sri Lanka has an NPOA-Sharks and has developed several national instruments, such as policy guidelines, laws and regulations, and an Action Plan to guide the implementation of commitments made under the above treaties. The Fisheries and Aquatic Resources Act, No.2 of 1996 (FARA) is the main legal instrument that provides for the management, regulation, conservation and development of fisheries and aquatic resources in Sri Lanka. It gives effect to Sri Lanka's obligations under certain international and regional fisheries agreements. All EU vessels operating in the Indian Ocean operate under the EU CPOA-Sharks regulations.

Some species-specific management regulations are already in place for both species of thresher sharks in the Atlantic, while ICES, ICCAT and GFCM have all made recommendations and provided advice for reducing mortality. However, the lack of species-specific (fisheries) data and compliance with data collection has been noted to be an issue for ICCAT.

Draft recommendations for NDF conditions

It is recommended that CITES Parties exporting products from shark species listed in Appendix II make improved compliance with existing management regulations and RFMO Recommendations, and monitoring such compliance, the priority condition attached to these NDFs.

Other recommendations for the conditions under which positive NDFs might be issued are summarized in Tables 1 and 2 for silky sharks in the Indian Ocean, and Tables 3 and 4 for thresher sharks in the Northeast Atlantic and Mediterranean. Unless otherwise stated, the conditions and recommendations are for both species of thresher sharks.

Conclusions

The development of these draft regional NDFs, with accompanying recommendations for conditions to be set, drew upon readily available data and information. They may be viewed as an initial inventory of issues surrounding sustainable fisheries and trade for silky and thresher sharks in the regions considered. It is recognized that other sources of information exist.

While some of the recommended conditions may need to be implemented before export permits are issued, Parties, RFBs and industry bodies might also consider phasing in the introduction of other recommended actions over, say, a three-year period. It is also suggested to review these NDFs at least every three years, to confirm that the recommendations are being implemented and that trade is sustainable under these conditions.

These documents are also an invitation for Parties to cooperate on strengthening existing data collection, research and management efforts for sharks, thereby contributing to sustainable fishing on Appendix II listed shark species.

Table 1. Monitoring and data recommendations for silky sharks in the Indian Ocean

Recommendation	***Potential leads***
Population monitoring: Maintain and if possible expand observer programmes to improve species-specific data on size and age composition of catches and discard levels. (e.g. the programme recently implemented by Sri Lanka's NARA (National Aquatic Resources Research & Development Agency) and FARA (Ministry of Fisheries and Aquatic Resources Development)	Parties, IOTC, BOBP-IGO
Reduction of juvenile silky shark mortality: The RFMO and/or Fishing Parties could require vessels to promptly release juvenile silky sharks unharmed.	IOTC, Parties
Research: Investigations into key biological/ecological parameters, life-history and behavioural traits, and the identification of potential mating, pupping and nursery grounds.	Parties, IOTC, BOBP-IGO, IGOs and NGOs
Fisheries monitoring: Improved species-specific fisheries data on catches and landings are needed to ensure harmonisation of data from different sources (e.g. IOTC and FAO).	IOTC, BOBP-IGO, Parties
Monitoring of domestic and international trade: Implementation of specific catch or trade documentation schemes for sharks. New data collection initiatives to quantify more precisely silky shark fin exports and identify and monitor silky shark fin and meat products at species level.	Parties, IGOs, NGOs
IUU fishing activity: Parties should clarify the situation of their flag vessels identified in IUU fishing activities in IOTC compliance reports (e.g. IOTC-2016-CoC13-CR27 Rev1)	IOTC, Parties

Table 2. Management recommendations for silky sharks in the Indian Ocean

Recommendation	***Potential leads***
Implementation of and improved compliance with existing fisheries management regulations (national, regional and international), including: • IOTC Res 13-08 on the deployment of non-entangling Fish Aggregating Devices (FADs) to reduce silky shark bycatch; • shark finning prohibitions (e.g. Sri Lanka Gazette 1206/20 of 17 October 2001); • national regulations prohibiting gillnets longer than 2.5 km.	Parties (in Sri Lanka: FARA and NARA)
Implementation and regular review of national, community and regional shark plans (e.g. SLNPOA-Sharks, EU CPOA-Sharks)	Parties and RFBs
Adopt measures to avoid and reduce silky shark bycatch mortality in purse seine fisheries, e.g. • prohibition and destruction of entangling FADs • promoting/mandating the use of hoppers and other measures on board vessels to facilitate sorting and release of shark bycatch • developing a management plan to monitor and reduce numbers of FADs, including by regulating the use of supply vessels • avoid targeting tuna aggregations smaller than 10 tons	Parties, industry bodies, and RFBs
Adopt measures to avoid and reduce silky shark bycatch mortality in long line fisheries, e.g. • promote the use of hook and leader designs that minimize silky shark bycatch • promote the use of corrodible hooks to reduce post-escape mortality • prohibition of light attractors	Parties, industry bodies, and RFBs
Development of silky shark fin export quotas	RFBs, Parties
Introduce size limits to protect juvenile stock	RFMOs, Parties

Table 3. Monitoring and data recommendations for thresher sharks in the Northeast Atlantic and Mediterranean

Recommendation	***Potential leads***
Population monitoring: Data on size and age composition of catches and levels of discards are needed. The implementation of a comprehensive observer programme would improve data collection.	ICES, RFMOs, Parties
Identification of nursery/pupping areas For *A. superciliosus*: further research on the importance of the Alboran Sea (off the Iberian peninsula) as a pupping area	ICES, RFMOs, Parties
Fisheries monitoring: Improved species-specific fisheries data on catches and landings are needed to: • ensure harmonisation of data from the different sources (ICCAT, ICES and FAO) • produce estimates of fishing mortality	RFMOs, ICES, Parties
Monitoring of domestic and international trade: It is essential that products (meat and fins) are identified to species level to ensure that the prohibited and look-alike species *Alopias superciliosus* is not being traded instead of permitted bycatch of *A. vulpinus* Measures to improve compliance are needed.	RFMOs, Parties

Table 4. Management recommendations for thresher sharks in the Northeast Atlantic and Mediterranean

Current ICES advice (ICES 2016) is: "*ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019*".

Recommendation	***Potential leads***
Implementation of and improved compliance with existing fisheries management regulations (national, regional and international), including: • The EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU) (Council Regulation (EC) No 1005/2008).	Parties, RFMOs
Development of TACs and bycatch quotas for meat and fin products	RFMOs, ICES, Parties
Fish size limits, to protect breeding stocks	RFMOs, ICES, Parties
Bycatch reduction devices and methodologies	RFMOs, ICES, Parties
Protection of known nursery areas	RFMOs, ICES, Parties

Annex 1. Data sheets for the draft regional NDF for common thresher shark

Figure 1. Flow chart illustrating NDF process

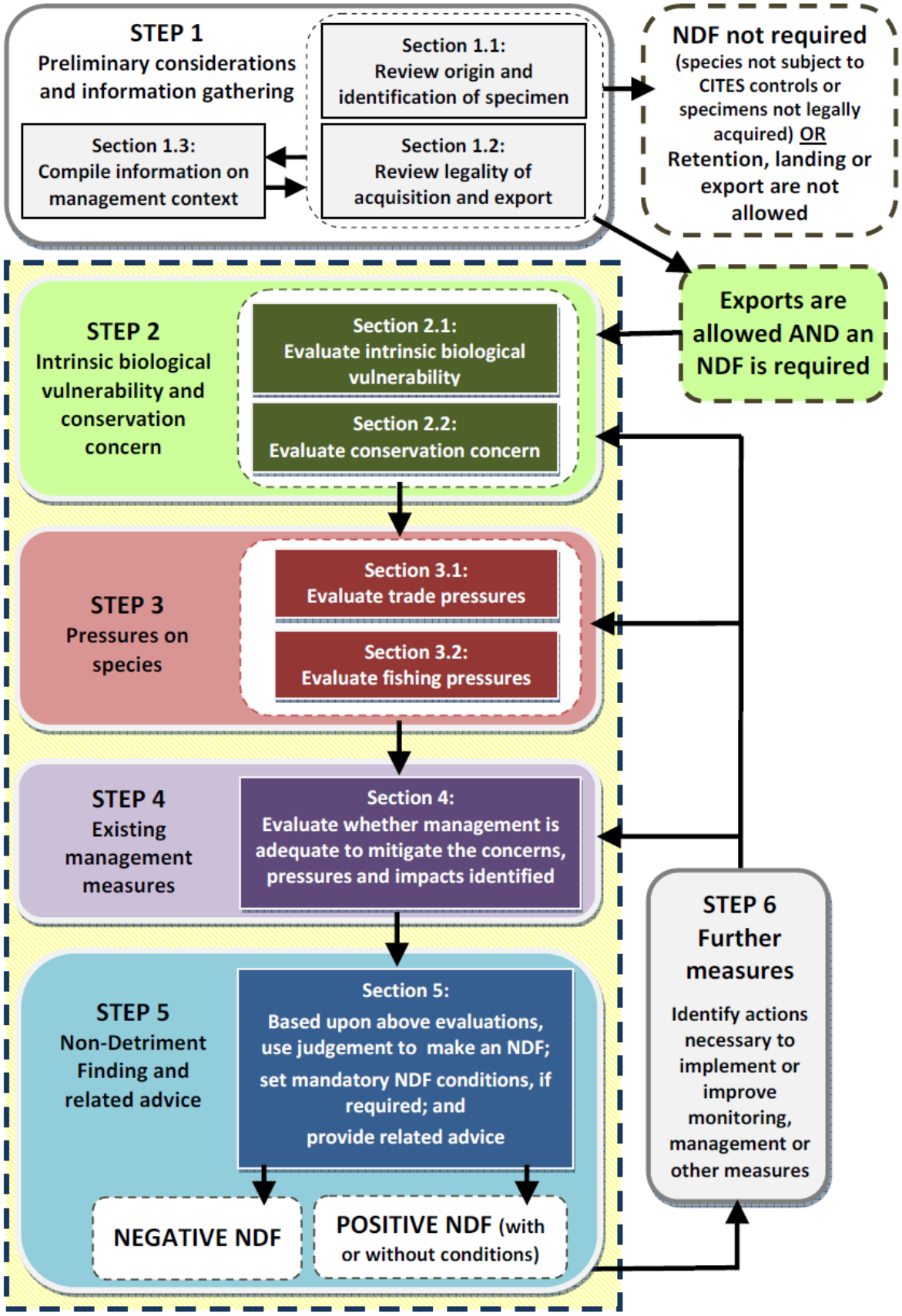


Table 1. Structure of the NDF Guidance

Steps	Sections	Questions
Step 1 Preliminary considerations and information gathering (to be carried out prior to NDF process)	**Section 1.1** Review origin and identification of specimen	**1.1 (a)** Is the specimen subject to CITES controls? **Potentially, in the future**
		1.1 (b) Where, or from which stock of the species, was (will) the specimen (be) taken? **NE Atlantic**
	Section 1.2 Review legality of acquisition and export	**1.2** Was (will) the specimen (be) legally obtained and is export allowed? By-catch in long-line fisheries
	Section 1.3 Compile information on management context	**1.3** What does the available management information tell us? **ICES**
NDF starts here:		
Step 2 Intrinsic biological vulnerability & conservation concern	**Section 2.1** Evaluate intrinsic biological vulnerability	**2.1** What is the level of intrinsic biological vulnerability of the species?
	Section 2.2 Evaluate conservation concern	**2.2** What is the severity and geographic extent of conservation concern?
Step 3 Pressures on species	**Section 3.1** Evaluate trade pressures	**3.1** What is the severity of trade pressure on the stock of the species concerned?
	Section 3.2 Evaluate fishing pressures	**3.2** What is the severity of fishing pressure on the stock of the species concerned?
Step 4 Existing management measures	**Section 4** Evaluate whether management is adequate to mitigate the concerns, pressures and impacts identified	**4.1 (a)** Are existing management measures appropriately designed and implemented to mitigate the pressures affecting the stock/population of the species concerned?
		4.1 (b) Are existing management measures effective (or likely to be effective) in mitigating the pressures affecting the stock/population of the species concerned?
Step 5 Non-Detriment Finding and related advice	**Section 5** Based upon above evaluations, use judgement to make a Non-Detriment Finding; set mandatory NDF conditions, if required; and provide related advice	**5.1** What is the final outcome of the previous steps? Based on the outcomes of the previous steps, the Scientific Authority now has to use its judgement to decide: Is it possible to make a positive NDF (with or without associated conditions)? OR Is a negative NDF required?
NDF finishes here.		
Step 6 Further measures		Identify actions necessary to implement or improve monitoring, management, or other measures.

STEP 1:

<table>
<tr><th colspan="4">Worksheet for Step 1</th></tr>
<tr><td colspan="4">Question 1.1(a)
Is the specimen subject to CITES controls?
(How did you identify the species?)</td></tr>
<tr><td>Species name</td><td>Product form</td><td>CITES Appendix</td><td>Source of identification</td></tr>
<tr><td>Common thresher (Alopias vulpinus)</td><td>Meat, fins</td><td>Proposal for Annex II</td><td>ICCAT species identification guide : http://www.iccat.org/en/SCRS.htm
FAO iSharkFin : http://www.fao.org/ipoa-sharks/tools/software/isharkfin/en/</td></tr>
<tr><td colspan="4">NEXT STEPS</td></tr>
<tr><td rowspan="3">In view of the above, is the specimen subject to CITES controls?
Consult “Decision and Next Steps” guidance in Annex 1.</td><td colspan="2">YES</td><td>GO TO Question 1.1(b)</td></tr>
<tr><td colspan="2">NOT CERTAIN</td><td>Describe concerns in more detail below, and GO TO Question 1.1(b)</td></tr>
<tr><td colspan="2">NO</td><td>NDF is not required</td></tr>
<tr><td>Concerns and uncertainties:</td><td colspan="3">There should be absolute certainty that the species is identified as the common thresher (Alopias vulpinus) as the ‘look-alike’ bigeye thresher (A. superciliosus) is a prohibited species. Section 23 of Council Regulation (EU) 2015/104 of 19 January 2015 prohibits EU vessels in the ICCAT convention area either “Retaining on board, transhipping or landing any part or whole carcass of bigeye thresher sharks (Alopias superciliosus) in any fishery”.</td></tr>
</table>

Question 1.1(b) **From which stock will the specimen be taken/was the specimen taken?** (Can origin and stock be confidently identified?)		
	Description/comments	**Sources of information**
Ocean basin	NE Atlantic and Mediterranean	ICES 2009; 2016
Stock location/ distribution/ boundaries (attach a map)	NE Atlantic and Mediterranean	ICES 2009; 2016 See Appendix I for a map
Is this a shared stock (i.e. occurring in more than one EEZ[3] and/or the high seas)?	Yes	
If the stock occurs in more than one EEZ, which other Parties share this stock?	EU, Morocco, Algeria, Tunisia & eastern Mediterranean States	
If a high seas stock, which other Parties fish this stock?	GFCM Members, outside territorial seas.	
Which, if any, RFB(s)[4] cover(s) the range of this stock?	ICES, ICCAT, EU, GFCM	
Are all Parties listed above (which fish or share the stock concerned) Members of the relevant RFB(s)?	Yes	
Are there geographical management gaps?	No	
How reliable is the information on origin?	Recorded at port of landing	EU Data Collection. ICCAT database
NEXT STEPS		
Is information on origin sufficiently detailed for Question 1.2 to be answered? Consult "Decision and Next Steps" guidance in Annex 1. (Apply this answer at end of Question 1.2)		**YES** **NO**

[3] Exclusive Economic Zone
[4] Regional Fisheries Body

Worksheet for Step 1 (continued)		
Question 1.2 **Was (will) the specimen (be) legally obtained and is export allowed?**		
Is the species:	**Description/ comments**	**Sources of information**
Protected under wildlife legislation, a regional biodiversity Agreement, or (for a CMS[5] Party) listed in CMS Appendix I?	*Alopias vulpinus* on Appendix II of CMS (2014) CMS MOU Sharks (2016) *Alopias vulpinus* on Annex I of the 1982 Convention on the Law of the Sea	http://www.cms.int/sharks/en/species http://www.fishbase.org/summary/SpeciesSummary.php?ID=2534&AT=common+thresher
Sourced from illegal fishing activities (e.g. in contravention of finning regulations, or where a TAC[6] is zero or exceeded)?	Unknown/No?	ICCAT, GFCM and EU have finning regulations in place and prohibit target fishing for threshers.
Taken from a no-take marine protected area or during a closed season?	Unknown	
Taken in contravention of RFB recommendations, if any?	No	
Listed as a species whose export is prohibited?	No	Section 23 of Council Regulation (EU) 2015/104 of 19 January 2015 prohibits EU vessels in the ICCAT convention area either "*Retaining on board, transhipping or landing any part or whole carcass of bigeye thresher sharks (Alopias superciliosus) in any fishery*" of "*to undertake a directed fishery for species of thresher sharks of the Alopias genus*". Council Regulation No. 1185/2003 prohibits the removal of shark fins of these species, and subsequent discarding of the body. This regulation is binding on EC vessels in all waters and non-EC vessels in Community waters. See Appendix II for ICCAT recommendations. GFCM has adopted the same recommendations as ICCAT with regard to thresher sharks (REC.ICCAT-GFCM/34/2010/4 (C) - http://www.fao.org/gfcm/activities/environment-and-conservation/en/)
Of concern for any other reason?	Non-compliance of Task I and Task II data collection for ICCAT	Report of the Independent Performance Review of ICCAT (International Commission for the Conservation of Atlantic Tunas) 2009 www.iccat.org

[5] Convention on Migratory Species.
[6] Total Allowable Catch

NEXT STEPS		
In view of the above and the final section of the Worksheet for Question 1.1(b), was the specimen legally acquired and can exports be permitted? Consult "Decision and Next Steps" guidance in **Annex 1**.	**YES**	**GO TO Question 1.3**
	SOME DOUBT	Describe concerns in more detail below, and **GO TO Question 1.3**
	NO	Export cannot be permitted, **NDF is not required**
Concerns and uncertainties:	Common thresher can only be fished and landed as a bycatch.	

Question 1.3 **What does the available management information tell us?**		
Part 1. Global-level information		
	Description/comments	**Sources of information**
Reported global catch	NE Atlantic and Mediterranean. There is a discrepancy between catches reported to ICCAT and to the EU. ICCAT catches varied between 10-198 t in past 10 yrs. Current catch (2014) = 81,1 t EU Catches varied between 41 and 166 t, with current catch (2015) = 42 t (2014 = 43.2 t)	ICES, 2016 see Appendix IV
Species distribution	*A. vulpinus* is widely distributed and has a circumglobal distribution. It can be found in **tropical to cold-temperate seas**, but is most common in temperate waters (Compagno 2001) and most abundant in waters up to 40 or 50 miles offshore (Strasburg 1958; Gubanov 1972; Moreno *et al*. 1989; Bedford 1992). Because the species primarily occurs inside 200 mile EEZs, CITES "Introduction from the Sea" provisions may not often be triggered, except in the Mediterranean. Genetic studies and comparisons of biological characteristics (fecundity and length at maturity) of specimens from different regions of the world show that, although migratory, *A. vulpinus* appears to exhibit little to no immigration and emigration between geographic areas; namely between the Pacific and northwest Atlantic populations (Gubanov 1972; Moreno*et al*. 1989; Bedford 1992; Trejo 2004). In the absence of records of transatlantic migrations a single northeast Atlantic and Mediterranean stock of *A. vulpinus* is assumed (ICES 2007).In the Northeast Atlantic, *A. vulpinus* has been recorded from Norway to the Mediterranean and Black Seas, and off Madeira and the Azores, with juveniles caught in UK waters in the English Channel and southern North Sea (Ellis 2004).	http://www.cms.int/sharks/en/species/alopias-vulpinus
Known stocks/ populations	Two species of thresher shark occur in the ICES areas: common thresher *Alopias vulpinus* and bigeye thresher *A. superciliosus.* Of these, *A. vulpinus* is the dominant species taken in the	ICES, 2009; 2015; 2016

	continental shelf fisheries of the ICES area. There is little information on the stock identity of these circumglobal sharks. ICES assumes a single stock of *A. vulpinus* in NE Atlantic and Mediterranean, extending to CECAF area; nursery grounds found in Alboran Sea (Mediterranean)	
Main catching countries	*Alopias* sp. Spain, France, Portugal	ICCAT database ICES, 2015; 2016
Main gear types by which the species is taken	Taken as bycatch NE Atlantic: *Alopias* sp. Long-line homebased and driftnets Mediterranean: *Alopias* sp. Long-line homebased and driftnets Between 2002 and 2007 thresher sharks were caught mainly by pelagic trawls (48%) and longline gears (25%) and to a lesser extent by nets (8%).	ICCAT database ICES, 2015; 2016 Poisson and Seret (2009)
Global conservation status	*Alopias* vulpinus classified as Vulnerable globally according to IUCN: Goldman, K.J., Baum, J., Cailliet, G.M., Cortés, E., Kohin, S., Macías, D., Megalofonou, P., Perez, M., Soldo, A. & Trejo, T. 2009. *Alopias vulpinus*. The IUCN Red List of Threatened Species 2009: e.T39339A10205317. http://dx.doi.org/10.2305/IUCN.UK.2009-2.RLTS.T39339A10205317.en. Downloaded 16 September 2016 Endangered (A2bd) in Europe and the Mediterranean.	IUCN Red List 2015 IUCN Red List 2009 (assessed in 2007).
Multilateral Environmental Agreements	Convention on the Conservation of Migratory Species (CMS) Appendix II (2014). CMS Migratory Sharks MOU (2016).	
Part 2. Stock/context-specific information		
Stock assessments	No assessments made by ICES or ICCAT. The Working Group Elasmobranch Fishes from ICES first provided advice for thresher sharks in 2015, stating that "*ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019*".	ICES, 2015; 2016
Main management bodies	EU, ICCAT, GFCM	
Cooperative management arrangements	Collaboration between ICCAT and ICES for joint meetings and assessments	ICES, 2016
Non-membership of RFBs		
Nature of harvest	Bycatch	ICES, 2106
Fishery types	Long line, gillnets	ICES, 2016; ICCAT data base
Management units	ICES area NE Atlantic and Mediterranean (see map 1.1b)	
Products in trade	Meat, fins	

Part 3. Data and data sharing		
Reported national catch(es)	EU and ICCAT See Appendix III the distribution of the catch of thresher shark (common and bigeye) by ICES statistical rectangle by year and by gear type for the period 2002–2007, with catch primarily on the continental shelf in sub-division VIIIa (38%) and VIIIb (17%) and on the less extend in sub-divisions VIIId (10%) and VIIg (10%).	Poisson and Seret (2009)
Are catch and/or trade data available from other States fishing this stock?	Yes. Chinese Taipei, Senegal and South Korea (NE Atlantic) and Chinese Taipei (Med) in ICCAT database. Catches registered as 0 (zero)	www.iccat.org
Reported catches by other States	Zero (0)	www.iccat.org
Catch trends and values	Unknown	
Have RFBs and/or other States fishing this stock been consulted during or contributed data during this process?	No	

NEXT STEPS

The information collated in the above worksheets can now be passed to the Scientific Authority, so that the NDF process can begin with Step 2

Worksheet for Step 2		
Question 2.1 **What is the level of intrinsic biological vulnerability of the species?**		
Intrinsic biological factors *see p. 73 of Guidance Notes*	**Level of vulnerability**	**Indicator/metric** *see p. 73 of the Guidance Notes*
a) Median age at maturity	Low	
	Medium	8 years male and 6 years female (*A. vulpinus*)
	High	
	Unknown	
b) Median size at maturity	Low	
	Medium	
	High	Lmat for female *A. vulpinus* is 384 cm fork length
	Unknown	
c) Maximum age/longevity in an unfished population	Low	
	Medium	Tmax *A. vulpinus* = 22 years (male) and 24 years (female)
	High	
	Unknown	
d) Maximum size	Low	
	Medium	
	High	Linf *A. vulpinus* = 410 cm (male) and 483 cm (female) fork length
	Unknown	
e) Natural mortality rate (M)	Low	
	Medium	
	High	
	Unknown	k = 0.16 (male) and 0.11 (female) *A. vulpinus*
f) Maximum annual pup production (per mature female)	Low	
	Medium	*A. vulpinus*: 2-7 pups per year (avg. 4)
	High	
	Unknown	
g) Intrinsic rate of population increase (r)	Low	
	Medium	
	High	
	Unknown	
	Low	Circumglobal distribution; likely NE Atlantic stocks

h) Geographic distribution of stock	Medium	
	High	
	Unknown	
i) Current stock size relative to historic abundance	Low	
	Medium	
	High	Compilation of all sources of trend data for *Alopias* in the Atlantic indicates a decline exceeding 80% from virgin biomass in the 1950s, (Anon 2016. CITES CoP17 Inf. 14 (https://cites.org/com/cop/17/inf/index.php)).
	Unknown	
j) Behavioural factors	Low	Cortes et al. (2009) found that *A vulpinus* had a low susceptibility to capture in Atlantic pelagic longline fisheries.
	Medium	A nursery area for *A. superciliosus* is suspected in the waters off the southwestern Iberian Peninsula (Moreno and Moron, 1992 in ICES 2015).. Recreational anglers catch *A vulpinus* pups in a nursery ground in the Adriatic Sea.
	High	
	Unknown	
k) Trophic level	Low	
	Medium	
	High	4.2 (Ferretti *et al*., 2007)
	Unknown	

SUMMARY for Question 2.1
Intrinsic biological vulnerability of species

Provide an assessment of the overall intrinsic biological vulnerability of the species (tick appropriate box below). Explain how these conclusions were reached and the main information sources used.

High	*Medium*	*Low*	*Unknown*

Explanation of conclusion and sources of information used:

Data on life-history parameters from Northern Atlantic only (ICCAT Shark Species Group report 2014), except on growth parameters for *A. superciliosus* from Fernandez-Carvalho *et al.*2011 in ICES 2015.

The intrinsic biological vulnerability of the species is high, due to its low productivity (Ferretti et al. 2008, Cortes et al. 2009), but its susceptibility to pelagic longline fisheries is low (Cortes et al. 2009, 2015).

Cortés, E., F. Arocha, L. Beerkircher, F. Carvalho, A. Domingo, M. Heupel, H. Holtzhausen, M.N. Santos, M. Ribera, and C. Simpfendorfer. 2010. Ecological Risk Assessment of pelagic sharks caught in Atlantic pelagic longline fisheries. Aquat. Living Resour. 23:23-34.

Cortés, E. Domingo, A., Miller, P., Forselledo, R., Mas, F., Arocha, F., Campana, S., Coelho, R., Da Silva, C., Hazin, F.H.V., Hotzhausen, H., Keene, K., Lucena, F., Ramirez, K., Santos, M.N., Semba- Murakami, Y. & Yakowa, K. 2015. Expanded Ecological Risk Assessment of Pelagic Sharks Caught in Atlantic Pelagic Longline Fisheries. Collected Volume of Scientific Papers. ICCAT. 71(6): 2637 2688.

Ferretti, F., Myers, R.A., Serena. F. and Lotze, H.K. 2008. Loss of Large Predatory Sharks from the Mediterranean Sea *Conservation Biology*, Volume 22, No. 4, 952–964.

Question 2.2 What is the severity and geographic extent of the conservation concern?		
Conservation concern factors	**Level of severity/ scope of concern**	**Indicator/metric** *see p.78 of the Guidance Notes*
Conservation or stock assessment status	Low	
	Medium	
	High	***See below***
	Unknown	
	Comments: Although there are not stock assessments of either species in the area, the IUCN Red List status has recently been uplisted for the NE Atlantic and Mediterranean to Endangered.	
Population trend	Low	
	Medium	
	High	
	Unknown	
	Comments: Ferretti *et al.* (2008) show a >95% decline in *A. vulpinus* in the Ionian Sea from 1978 to 1999 and a 98% decline in the Spanish Mediterranean from 1979 to 2004. Anon 2016. (CITES CoP17 Inf. 14 (https://cites.org/com/cop/17/inf/index.php)) suggest a decline of >80% from baseline in the Atlantic.	
Geographic extent/ scope of conservation concern	None	
	Low	
	Medium	
	High	In the area considered
	Unknown	
	Comments: Threats from (over)fishing throughout NE Atlantic and Mediterranean (ICES, 2015)	

SUMMARY for Question 2.2

Severity and geographic extent of conservation concern

Assess the overall severity and geographic extent of the conservation concern for this species or stock (tick appropriate box below). Explain how these conclusions were reached and main sources of information used.

High	*Medium*	*Low*	*Unknown*

Explanation of conclusion and sources of information used:

Although no stock assessments have been carried out, the species is considered Endangered (IUCN) in the Northeast Atlantic and Mediterranean. It is likely that there is only one stock in this area, so replenishment is not expected and the area should be managed accordingly.

Worksheet for Step 3

Question 3.1
What is the severity of trade pressure on the stock of the species concerned?

Factor	Level of severity of trade pressure	Indicator/metric	
(a) Magnitude of legal trade	Low		
	Medium		
	High		
	Unknown	Limited catch and trade data available	
	Level of confidence (*circle as appropriate*): *(see p.83 of Guidance Notes)*		
	Low	Medium	High

Reasoning (e.g. has this assessment involved the exercise of precaution, and/or has severity of trade pressure been increased in light of the assessment in Step 2?)

ICES (2016) notes: "Thresher sharks have not been reported consistently at either a species-specific or generic level. Some discrepancies have been noted when different data sources are compared (e.g. FAO, ICCAT, national data). Landings of thresher shark in coastal waters are most likely to represent *A. vulpinus*, but some of these landings may also be reported as 'sharks nei'."

The quantity of thresher shark fins (all three species) identified in Hong Kong (Special Administrative Region) fin markets in the early 2000s equated to between 350,000 and 3.9 million individual thresher sharks, or a biomass of 12,000 to 85,000mt being killed and traded per year. This comprised roughly 2.3% of the estimated global shark fin trade. Much of this trade goes through Hong Kong (SAR), where thresher shark fins are traded as "wu gu" ; the majority of fins in this category are from threshers although some mixing with Longfin Mako *Isurus paucus* has been documented (Clarke et al. 2006).

Threshers comprised (0.1%) of samples analysed in a 2014 study of shark fins processed in Hong Kong (Field et al. submitted). This study is continuing and will provide longer-term data on trends in proportions of species in trade.

Clarke, S.C., Magnussen, J.E., Abercrombie, D.L., McAllister, M.K. & Shivji, M.S. (2006) Identification of shark species composition and proportion in the Hong Kong shark fin market based on molecular genetics and trade records. *Conservation Biology* 20: 201-211.

Fields, A. T., Fisher, G. A., Shea, S. K. H., Zhang, H., Abercrombie, D. L., Feldheim, K. A., Babcock, E. A., Chapman, D. D. (submitted). Species composition of the global shark fin trade.

Question 3.2
What is the severity of fishing pressure on the stock of the species concerned?

Factor	Level of severity of trade pressure	Indicator/metric	
(b) Magnitude of illegal trade	Low		
	Medium		
	High		
	Unknown		
	Level of confidence: *(see p. 83 of Guidance Notes)*		
	Low	Medium	High

Reasoning: There is no information available.

Worksheet for Step 4		
Preliminary stage: Compile information on existing management measures		
Existing management measures	**Generic or species-specific?**	**Description/comments/sources of information**
(SUB-)NATIONAL		
Fishing for threshers prohibited in Spain.	Species-specific	Fishing for threshers is specifically banned in Spain.
REGIONAL/INTERNATIONAL		
European vessels are prohibited to target in the ICCAT area.	Species-specific	Article 23 of European Commission (EC) Regulation Number 43/2014 prohibits European vessels having a directed fishery for thresher sharks in the ICCAT convention area.
EC Community Plan of Action for Sharks (CPOA)	Generic	EC COM(2009) 40 final states that: In general terms, as regards fishing opportunities for sharks, two types of Regulations lay down the rules for directed shark fisheries and by-catches of sharks: a) Two-yearly Council Regulations fix fishing opportunities for Community fishing vessels for certain deep-sea fish stocks every two years, covering EU and NEAFC (Northeast Atlantic Fisheries Commission) waters; b) Annual Council Regulations fixing fishing opportunities and associated conditionsfor certain fish stocks, applicable in Community waters and, for Community vessels, in waters where catch limitations are required, including those administrated by the NEAFC, NAFO and CCAMLR. (http://ec.europa.eu/fisheries/marine_species/wild_species/sharks/sharks_action_plan/index_en.htm)
Prohibition of removal of shark fins	Generic	Council Regulation No. 1185/2003 prohibits removal of shark fins of these species, and subsequent discarding of the body. This regulation is binding on EC vessels in all waters and non-EC vessels in Community waters.
No directed fishery for common thresher is allowed	Species-specific	Section 23 of Council Regulation (EU) 2015/104 of 19 January 2015 prohibits EU vessels in the ICCAT convention area either "*Retaining on board, transhipping or landing any part or whole carcass of bigeye thresher sharks (Alopias superciliosus) in any fishery*" of "*to undertake a directed fishery for species of thresher sharks of the Alopias genus*".
Data collection	Species-specific	ICCAT Rec. 09-07 CPCs shall require the collection and submission of Task I and Task II data for *Alopias* spp. other than *A. superciliosus* in accordance with ICCAT data reporting requirements.
Research ICCAT	Species-specific	ICCAT Rec. 09-07 CPCs shall, where possible, implement research on thresher sharks of the species *Alopias spp* in the Convention area in order to identify potential nursery areas. Based on this research, CPCs shall consider time and area closures and other measures, as appropriate. Conclusions 2016 ICCAT Shark Working Group: Re: 09-07 the Group felt that part of the 2017 funds should be allocated to other shark species (hammerheads and thresher) also with high priority.
Assessments	Species-specific	ICES and ICCAT intend to cooperate on assessments (ICES, 2015)

NEXT STEPS

- GO TO **Question 4.1(a).**

<table>
<tr><th colspan="5">Question 4.1(a) continued: Are existing management measures appropriately designed and implemented to mitigate pressures?</th></tr>
<tr><th>Factor</th><th>Existing management measure(s)</th><th>Relevant monitoring, control and surveillance (MCS) measure(s)</th><th colspan="2">Overall assessment of compliance regime
(tick as appropriate)</th></tr>
<tr><td colspan="5">TRADE PRESSURE</td></tr>
<tr><td rowspan="5">(a) Magnitude of legal trade</td><td rowspan="4">Article 23 of European Commission (EC) Regulation Number 43/2014 prohibits European vessels having a directed fishery for thresher sharks in the ICCAT convention area. Fishing for thresher sharks is specifically banned in Spain.
ICCAT Rec. 09-07 CPCs shall require the collection and submission of Task I and Task II data for Alopias spp other than A. superciliosus in accordance with ICCAT data reporting requirements.</td><td rowspan="4">EU and ICCAT Data Collection regulations</td><td>Unknown (no information on compliance)</td><td></td></tr>
<tr><td>Poor (limited relevant compliance measures in place)</td><td></td></tr>
<tr><td>Moderate (some relevant compliance measures in place)</td><td></td></tr>
<tr><td>Good (comprehensive relevant compliance measures in place)</td><td></td></tr>
<tr><td colspan="4">Reasoning/comments (e.g. Are management measures being implemented to varying degrees? Which compliance measures are lacking?)
Data collection of Task I and Task II is not being complied with (ICCAT Performance Review)
ICES 2016: There can be large inter-annual variation in reported landings, as well as, differences in values reported to ICCAT and ICES. Further studies to refine landings data for thresher shark are required.
Landings of thresher shark in coastal waters are most likely to represent A. vulpinus, but some of these landings may also be re-ported as ‘sharks nei’.</td></tr>
<tr><td rowspan="5">(b) Magnitude of illegal trade</td><td rowspan="4"></td><td rowspan="4"></td><td>Unknown (no information on compliance)</td><td></td></tr>
<tr><td>Poor (limited relevant compliance measures in place)</td><td></td></tr>
<tr><td>Moderate (some relevant compliance measures in place)</td><td></td></tr>
<tr><td>Good (comprehensive relevant compliance measures in place)</td><td></td></tr>
<tr><td colspan="4">Reasoning/comments (e.g. Are management measures being implemented to varying degrees? Which compliance measures are lacking?)
No information.</td></tr>
</table>

Question 4.1(a) continued: Are existing management measures appropriately designed and implemented to mitigate pressures?				
Factor	**Existing management measure(s)**	**Relevant monitoring, control and surveillance (MCS) measure(s)**	**Overall assessment of compliance regime** *(tick as appropriate)*	
FISHING PRESSURE				
(a) Fishing mortality (retained catch)	Current advice from the ICES Working Group Elasmobranch Fishes (ICES, 2016) is: "*ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019*". There is, however, no estimate of fishing mortality as yet.		Unknown (no information on compliance)	
			Poor (limited relevant compliance measures in place)	
			Moderate (some relevant compliance measures in place)	
			Good (comprehensive relevant compliance measures in place)	
	Reasoning/comments (e.g. Are management measures being implemented to varying degrees? Which compliance measures are lacking?) An analysis of vulnerability of 9 pelagic shark species to pelagic longline fishing in the North Atlantic showed that the common thresher was one of the less vulnerable species due to its relatively high productivity and low susceptibility to the fishing gear (Cortés *et al*., 2010).			
(b) Discard mortality	Limited information on discard survival from European fisheries, but there have been several studies elsewhere in the world. Braccini *et al.* (2012) found that about two thirds of thresher shark captured in gillnets were dead, even with a short soak time, although this was based on a small sample size. Moderate to high levels of mortality have been reported in pelagic longline fisheries, with most studies indicating that about half of the thresher sharks captured are in poor condition or dead (see Ellis *et al.*, 2014 WD and references therein).		Unknown (no information on compliance)	
			Poor (limited relevant compliance measures in place)	
			Moderate (some relevant compliance measures in place)	
			Good (comprehensive relevant compliance measures in place)	

<table>
<tr><th colspan="5">Question 4.1(a) continued: Are existing management measures appropriately designed and implemented to mitigate pressures?</th></tr>
<tr><th>Factor</th><th>Existing management measure(s)</th><th>Relevant monitoring, control and surveillance (MCS) measure(s)</th><th colspan="2">Overall assessment of compliance regime
(tick as appropriate)</th></tr>
<tr><td></td><td colspan="4">Reasoning/comments (e.g. Are management measures being implemented to varying degrees? Which compliance measures are lacking?)
Information on discard mortality needed for NE Atlantic and Mediterranean, via observer programme(s)</td></tr>
<tr><td rowspan="5">(c) Size/age/ sex selectivity</td><td rowspan="4">Limited information available from French observer programme between 2003 and 2009 in NE Atlantic and Mediterranean</td><td rowspan="4"></td><td>Unknown (no information on compliance)</td><td></td></tr>
<tr><td>Poor (limited relevant compliance measures in place)</td><td></td></tr>
<tr><td>Moderate (some relevant compliance measures in place)</td><td></td></tr>
<tr><td>Good (comprehensive relevant compliance measures in place)</td><td></td></tr>
<tr><td colspan="4">Reasoning/comments (e.g. Are management measures being implemented to varying degrees? Which compliance measures are lacking?)
Information on size/age/sex selectivity needed through observer programme(s)</td></tr>
<tr><td rowspan="5">(d) Magnitude of IUU fishing</td><td rowspan="4"></td><td rowspan="4"></td><td>Unknown (no information on compliance)</td><td></td></tr>
<tr><td>Poor (limited relevant compliance measures in place)</td><td></td></tr>
<tr><td>Moderate (some relevant compliance measures in place)</td><td></td></tr>
<tr><td>Good (comprehensive relevant compliance measures in place)</td><td></td></tr>
<tr><td colspan="4">Reasoning/comments (e.g. Are management measures being implemented to varying degrees? Which compliance measures are lacking?)
There is an EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU), which entered into force on 1 January 2010 (EC 1005/2008). Although the Commission is working actively with all stakeholders to ensure coherent application of the IUU Regulation, no information is available as to compliance. http://ec.europa.eu/fisheries/cfp/illegal_fishing/index_en.htm</td></tr>
<tr><td colspan="5"><u>NEXT STEPS</u>
• Go to Question 4.1(b).</td></tr>
</table>

<table>
<tr><th colspan="6">Question 4.1(b): Are existing management measures effective (or likely to be effective) in mitigating the pressures?</th></tr>
<tr><th>Factor</th><th>Existing management measure(s)</th><th colspan="2">Are relevant data collected and analysed to inform management decisions? (e.g. landings, effort, fisheries independent data) Tick as appropriate</th><th colspan="2">Is management consistent with expert advice? Tick as appropriate</th></tr>
<tr><td colspan="6">TRADE PRESSURE</td></tr>
<tr><td rowspan="5">(a) Magnitude of legal trade</td><td rowspan="4"></td><td>No data OR data are of poor quality OR data are not analysed (adequately) to inform management</td><td></td><td>No expert advice on management identified</td><td></td></tr>
<tr><td>Limited relevant data are collected AND analysed to inform management</td><td></td><td>Not consistent</td><td></td></tr>
<tr><td>Some relevant data are collected AND analysed to inform management</td><td></td><td>Expert advice partially implemented</td><td></td></tr>
<tr><td>Comprehensive data collected AND analysed to inform management</td><td></td><td>Consistent</td><td></td></tr>
<tr><td colspan="5">Management measure(s) effective/likely to be effective? (circle as appropriate)
Yes Partially No Insufficient information</td></tr>
<tr><td colspan="5">Reasoning/comments (e.g. Is effectiveness compromised by poor design and/or implementation, or is a greater diversity or amount of management required? What data are required to better inform and evaluate management decisions? How is management inconsistent with expert advice?)
The only data available are catch data reported to ICCAT, EU and FAO. There is a high level of discrepancy between the values.
No fishery independent data are available.
ICES first provided advice for thresher sharks in 2015, stating that “ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019”.
Trade in fins and meat – common thresher meat highly valued (Fact sheet Shark Trust www.sharktrust.org)</td></tr>
</table>

Factor	Existing management measure(s)	Are relevant data collected and analysed to inform management decisions? (e.g. landings, effort, fisheries independent data) *Tick as appropriate*		Is management consistent with expert advice? *Tick as appropriate*	
TRADE PRESSURE					
(b) Magnitude of illegal trade		No data OR data are of poor quality OR data are not analysed (adequately) to inform management		No expert advice on management identified	
		Limited relevant data are collected AND analysed to inform management		Not consistent	
		Some relevant data are collected AND analysed to inform management		Expert advice partially implemented	
		Comprehensive data collected AND analysed to inform management		Consistent	
	Management measure(s) effective/likely to be effective? (circle as appropriate) Yes Partially No **Insufficient information**				
	Reasoning/comments (e.g. Is effectiveness compromised by poor design and/or implementation, or is a greater diversity or amount of management required? What data are required to better inform and evaluate management decisions? How is management inconsistent with expert advice?)				

<table>
<tr><th>Factor</th><th>Existing management measure(s)</th><th colspan="2">Are relevant data collected and analysed to inform management decisions? (e.g. landings, effort, fisheries independent data)
Tick as appropriate</th><th colspan="2">Is management consistent with expert advice?
Tick as appropriate</th></tr>
<tr><td colspan="6">FISHING PRESSURE</td></tr>
<tr><td rowspan="5">(a) Fishing mortality (retained catch)</td><td rowspan="4"></td><td>No data OR data are of poor quality OR data are not analysed (adequately) to inform management</td><td></td><td>No expert advice on management identified</td><td></td></tr>
<tr><td>Limited relevant data are collected AND analysed to inform management</td><td></td><td>Not consistent</td><td></td></tr>
<tr><td>Some relevant data are collected AND analysed to inform management</td><td></td><td>Expert advice partially implemented</td><td></td></tr>
<tr><td>Comprehensive data collected AND analysed to inform management</td><td></td><td>Consistent</td><td></td></tr>
<tr><td colspan="5">Management measure(s) effective/likely to be effective? (circle as appropriate)
Yes Partially No Insufficient information</td></tr>
<tr><td colspan="5">Reasoning/comments (e.g. Is effectiveness compromised by poor design and/or implementation, or is a greater diversity or amount of management required? What data are required to better inform and evaluate management decisions? How is management inconsistent with expert advice?)

ICES first provided advice for thresher sharks in 2015 (ICES 2016), stating that “ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019”.</td></tr>
</table>

Factor	Existing management measure(s)	Are relevant data collected and analysed to inform management decisions? (e.g. landings, effort, fisheries independent data) *Tick as appropriate*		Is management consistent with expert advice? *Tick as appropriate*	
FISHING PRESSURE					
(b) Discard mortality		No data OR data are of poor quality OR data are not analysed (adequately) to inform management		No expert advice on management identified	
		Limited relevant data are collected AND analysed to inform management		Not consistent	
		Some relevant data are collected AND analysed to inform management		Expert advice partially implemented	
		Comprehensive data collected AND analysed to inform management		Consistent	
	Management measure(s) effective/likely to be effective? (circle as appropriate) Yes Partially No **Insufficient information**				
	Reasoning/comments (e.g. Is effectiveness compromised by poor design and/or implementation, or is a greater diversity or amount of management required? What data are required to better inform and evaluate management decisions? How is management inconsistent with expert advice?) An observer programme is required to gather information on discards and discard mortality				

Factor	Existing management measure(s)	Are relevant data collected and analysed to inform management decisions? (e.g. landings, effort, fisheries independent data) *Tick as appropriate*		Is management consistent with expert advice? *Tick as appropriate*	
FISHING PRESSURE					
(c) Size/age/ sex selectivity		No data OR data are of poor quality OR data are not analysed (adequately) to inform management		No expert advice on management identified	
		Limited relevant data are collected AND analysed to inform management		Not consistent	
		Some relevant data are collected AND analysed to inform management		Expert advice partially implemented	
		Comprehensive data collected AND analysed to inform management		Consistent	
	Management measure(s) effective/likely to be effective? (circle as appropriate) Yes Partially No **Insufficient information**				
	Reasoning/comments (e.g. Is effectiveness compromised by poor design and/or implementation, or is a greater diversity or amount of management required? What data are required to better inform and evaluate management decisions? How is management inconsistent with expert advice?) An observer programme is required to gather information on discards and discard mortality				

Factor	Existing management measure(s)	Are relevant data collected and analysed to inform management decisions? (e.g. landings, effort, fisheries independent data) *Tick as appropriate*		Is management consistent with expert advice? *Tick as appropriate*	
FISHING PRESSURE					
(d) Magnitude of IUU fishing		No data OR data are of poor quality OR data are not analysed (adequately) to inform management		No expert advice on management identified	
		Limited relevant data are collected AND analysed to inform management		Not consistent	
		Some relevant data are collected AND analysed to inform management		Expert advice partially implemented	
		Comprehensive data collected AND analysed to inform management		Consistent	
	Management measure(s) effective/likely to be effective? (circle as appropriate) Yes Partially No **Insufficient information**				
	Reasoning/comments (e.g. Is effectiveness compromised by poor design and/or implementation, or is a greater diversity or amount of management required? What data are required to better inform and evaluate management decisions? How is management inconsistent with expert advice?)				

NEXT STEPS

- Add notes in the Worksheet for **Section 6.1** on improvements in data availability/monitoring required to evaluate the effectiveness/likely effectiveness of management under **Question 4.1(b)**.
- Add notes in the Worksheet for **Section 6.2** on improvements in management (including compliance systems) required to more fully mitigate the pressures impacting the stock/population of the shark species concerned.
- Go to **Step 5**

Worksheet for Step 5

Question 5.1

Based on the outcomes of the previous steps, is it possible to make a positive NDF (with or without associated conditions) or is a negative NDF required?

- Based on the information generated and evaluations made in the previous **Steps**, the Scientific Authority now has to decide whether to make a positive NDF for the export (with or without mandatory conditions), or a negative NDF. A decision tree to assist in this decision-making process is provided in the Guidance Notes in **Annex 1**.
- The final decision regarding the NDF should be indicated in the relevant box at the end of this Worksheet. Under "*Reasoning/comments*" include justification for the decision made and describe any **mandatory conditions** (for a positive NDF) and/or **recommendations as to further measures** (e.g. improvements in monitoring and/or management required – relevant for both positive and negative NDFs).

Step 2: Intrinsic biological vulnerability and conservation concern					
Intrinsic biological vulnerability (Question 2.1)	**High**	Medium	Low	Unknown	
Conservation concern (Question 2.2)	**High**	Medium	Low	Unknown	

Step 3: Pressures on species			**Step 4: Existing management measures**
Pressure	**Level of severity (Questions 3.1 and 3.2)**	**Level of confidence (Questions 3.1 and 3.2)**	**Are the management measures effective* at addressing the concerns/pressures/impacts identified? (Question 4.1(b))** **taking into account evaluation of management appropriateness and implementation under Question 4.1(a)*
Trade pressures			
(a) Magnitude of legal trade	High Medium Low **Unknown**	High Medium **Low**	Yes **Partially** No Insufficient information Not applicable**
(b) Magnitude of illegal trade	High Medium Low **Unknown**	High Medium **Low**	Yes Partially No **Insufficient information** Not applicable**

** Only to be used where the trade pressure severity was assessed as "Low" for any of the Factors in **Step 3** and a judgement is made that the impacts on the shark stock/population concerned are so low that mitigation is not required.

Pressure	Level of severity (Questions 3.1 and 3.2)	Level of confidence (Questions 3.1 and 3.2)	Are the management measures effective* at addressing the concerns/pressures/impacts identified? (Question 4.1(b)) **taking into account evaluation of appropriateness and implementation under Question 4.1(a)*
Fishing pressures			
(a) Fishing mortality (retained catch)	High **Medium** Low Unknown	High Medium **Low**	Yes **Partially** No Insufficient information Not applicable**
(b) Discard mortality	**High** Medium Low Unknown	High **Medium** Low	Yes Partially No **Insufficient information** Not applicable**
(c) Size/age/sex selectivity of fishing	High **Medium** Low Unknown	High **Medium** Low	Yes Partially No **Insufficient information** Not applicable**
(d) Magnitude of IUU fishing	High Medium Low **Unknown**	High Medium **Low**	Yes Partially No **Insufficient information** Not applicable**
Only to be used where the fishing pressure severity was assessed as "Low" for any of the Factors in **Step 3 and a judgement is made that the impacts on the shark stock/population concerned are so low that mitigation is not required.			

A) Can a positive NDF be made?	**YES** - *go to B*	**NO** - *go to **Step 6** and list recommendations for measures to improve monitoring/management under Reasoning/comments below*
B) Are there any mandatory conditions to the positive NDF?	**YES** - *list under Reasoning/comments below and go to C*	**NO** - *go to C*
C) Are there any other further recommendations? *(e.g. for improvements to monitoring/management)*	**YES** - *go to **Step 6***	**NO**

Reasoning/comments *(include justification for decision made and information on mandatory conditions and/or further recommendations)*

It is recommended to revisit the NDF after 3 years to confirm that the recommendations made in this NDF have been carried out.

Following a precautionary approach the levels of landings should not exceed the current levels (42 t).

The current ICES advice as formulated in the ICES Working Group Elasmobranch Fishes report (ICES 2016) should be followed: "*ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019*".

There is an EC Community Plan of Action for Sharks (CPOA) which offers countries guidelines and operational objectives for writing National Action Plans pursuing the following specific objectives:

(a) To broaden the knowledge both on shark fisheries and on shark species and their role in the ecosystem;
(b) To ensure that directed fisheries for shark are sustainable and that by-catches of shark resulting from other fisheries are properly regulated;
(c) To encourage a coherent approach between the internal and external Community policy for sharks.

See: (http://ec.europa.eu/fisheries/marine_species/wild_species/sharks/sharks_action_plan/index_en.htm)

NEXT STEPS

- OPTION 1: If improvements in monitoring or management are required (whether in the case of a **positive or negative NDF**) go to **Step 6**
- OPTION 2: If no improvements in monitoring or management are required, make a **positive NDF** and stipulate any **mandatory conditions**, if appropriate, to the Management Authority and any other relevant bodies.

Worksheet for Step 6

Further measures

Section 6.1

Improvement in monitoring or information is required

In the space below, authorities are encouraged to list the improvements in monitoring or information that are required to address cases where:

(i) The severity of trade/fishing pressures has been assessed as unknown.

(ii) The level of confidence in the evaluation of trade/fishing pressures is low.

(iii) There is insufficient information on the effectiveness of management.

Recommendations should be made in **consultation with the national fisheries management agency** and should be as **specific as possible** to address any gaps/shortcomings identified with **clearly defined objectives.** Time-frames for implementation should be specified where possible, including with regard to the review of progress on implementation.

See pages 98 to 99 of **Annex 1** for additional Guidance Notes on completing this Worksheet.

Monitoring and data recommendations for common thresher sharks in the Northeast Atlantic & Mediterranean

Recommendation	***Potential leads***
Population monitoring: Data on size and age composition of catches and levels of discards are needed. The implementation of a comprehensive observer programme would improve data collection.	ICES, RFMOs, Parties
Identification of nursery/pupping areas	ICES, RFMOs, Parties
Fisheries monitoring: Improved species-specific fisheries data on catches and landings are needed to: • ensure harmonisation of data from the different sources (ICCAT, ICES and FAO) • produce estimates of fishing mortality	RFMOs, ICES, Parties
Monitoring of domestic and international trade: It is essential that products (meat and fins) are identified to species level to ensure that the prohibited and look-alike species *Alopias superciliosus* is not being traded instead of permitted bycatch of *A. vulpinus* Measures to improve compliance are needed.	RFMOs, Parties

Section 6.2

Improvement in management is required

In the space below, authorities are encouraged to list the improvements in management that are required to address cases where management has been assessed as partially effective or ineffective at addressing any of the concerns/pressures/impacts identified, particularly where a fishing or trade pressure is assessed as medium or high (confidence levels: low, medium or high).

As noted above for **Section 6.1**, recommendations should be made in **consultation with the national fisheries management agency** and should be as **specific as possible** to address any gaps/shortcomings identified with **clearly defined objectives.** Time-frames for implementation should be specified where possible, including with regard to the review of progress on implementation.

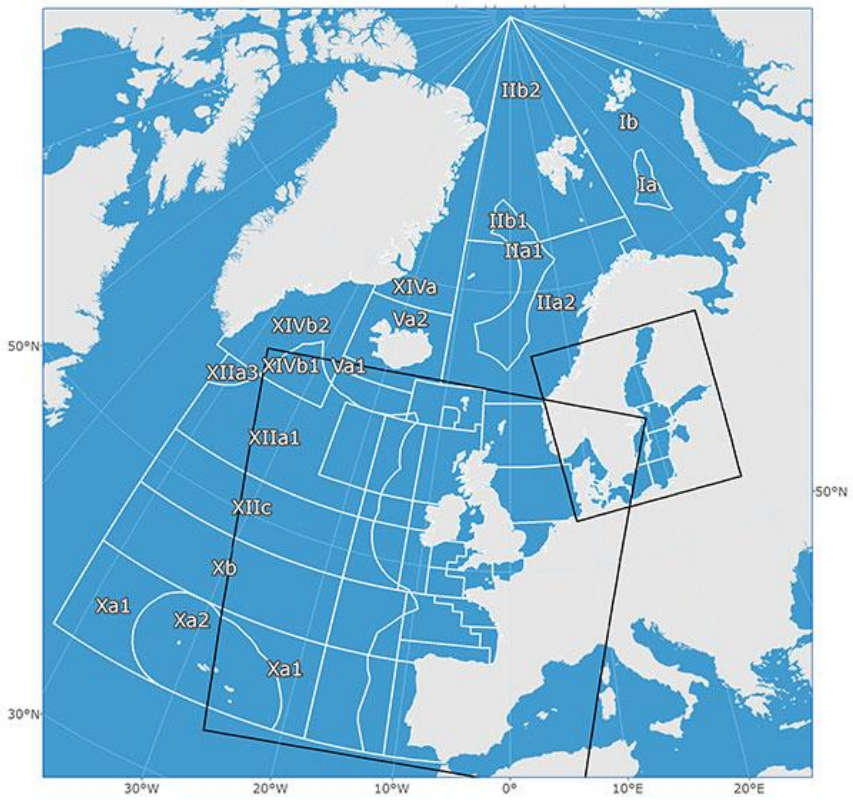
See page 100 of **Annex 1** for additional Guidance Notes on completing this Worksheet.

Management recommendations for common thresher sharks in the Northeast Atlantic and Mediterranean

Current ICES advice (ICES 2016) is: "*ICES advises that when the precautionary approach is applied for common thresher shark Alopias vulpinus and bigeye thresher shark Alopias superciliosus in the Northeast Atlantic, fishing mortality should be minimized and no targeted fisheries should be permitted. This advice is valid for 2016 to 2019*".

Recommendation	***Potential leads***
Implementation of and improved compliance with existing fisheries management regulations (national, regional and international), including: • The EU Regulation to prevent, deter and eliminate illegal, unreported and unregulated fishing (IUU) (Council Regulation (EC) No 1005/2008).	Parties, RFMOs
Development of TACs and bycatch quotas for meat and fin products	RFMOs, ICES, Parties
Fish size limits, to protect breeding stocks	RFMOs, ICES, Parties
Bycatch reduction devices and methodologies	RFMOs, ICES, Parties
Protection of known nursery areas	RFMOs, ICES, Parties

Appendix I
Map of ICES areas (www.ices.dk)



Appendix II.

ICCAT 09-07 BYC

RECOMMENDATION BY ICCAT ON THE CONSERVATION OF THRESHER SHARKS CAUGHT IN ASSOCIATION WITH FISHERIES IN THE ICCAT CONVENTION AREA

RECALLING that the Commission adopted the *Resolution by ICCAT on Atlantic Sharks* [Res. 01-11], the *Recommendation by ICCAT Concerning the Conservation of Sharks Caught in Association with Fisheries Managed by ICCAT* [Rec. 04-10], the *Recommendation by ICCAT to Amend the Recommendation 04-10 on the Conservation of Sharks Caught in Association with the Fisheries Managed by ICCAT* [Rec. 05-05], the *Supplemental Recommendation by ICCAT Concerning Sharks* [Rec. 07-06] and the *Recommendation by ICCAT on the Conservation of Bigeye Thresher Sharks (Alopias superciliosus) Caught in Association with Fisheries Managed by ICCAT* [Rec. 08-07],

CONSIDERING that thresher sharks of the family *Alopiidae* are caught as by-catch in the ICCAT Convention area,

NOTING that at its 2009 Meeting the Standing Committee on Research and Statistics (SCRS) recommended that the Commission prohibit retention and landings of bigeye thresher shark (*Alopias superciliosus*),

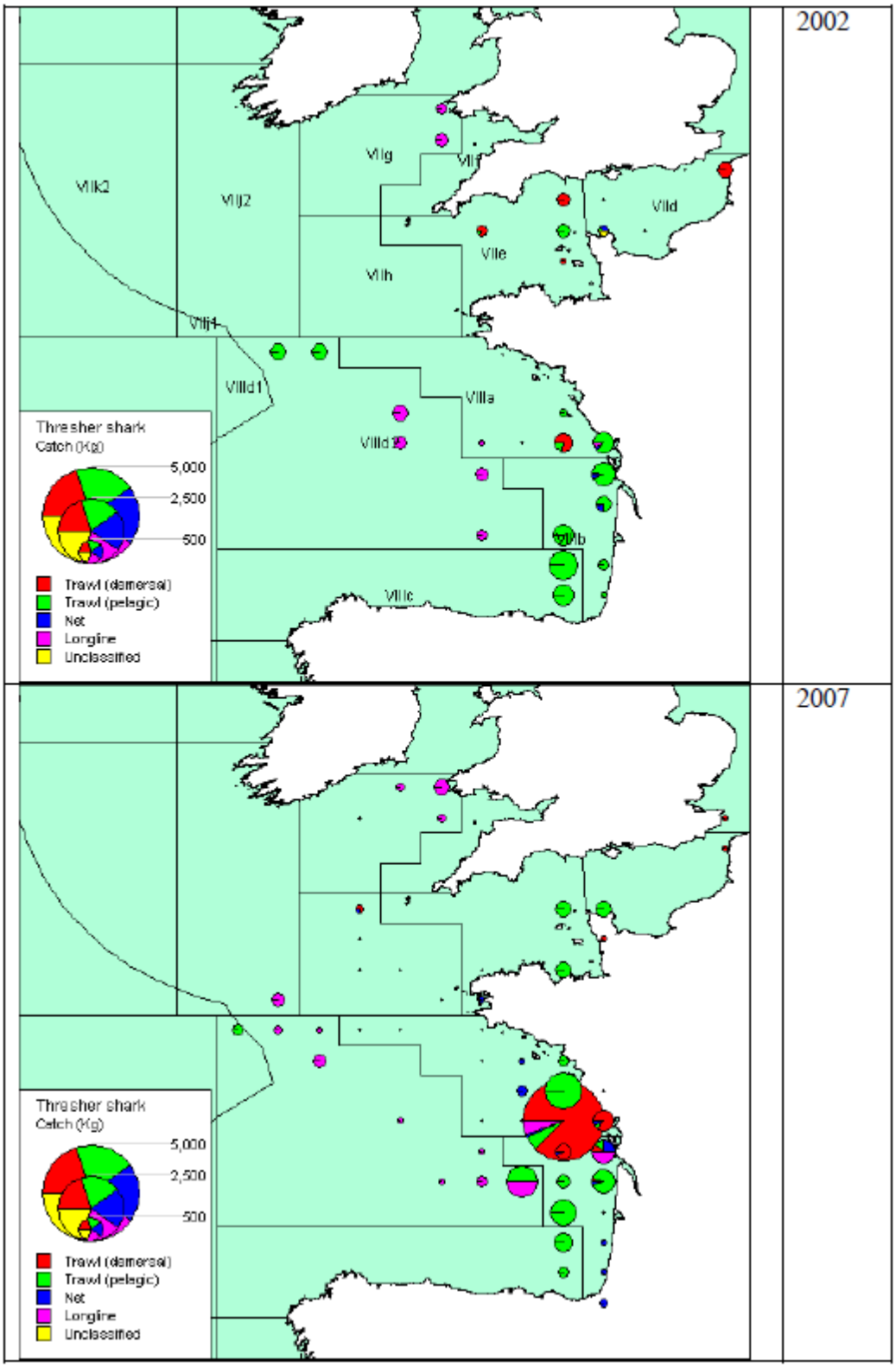
RECALLING the need to annually report Task I and Task II for catches of sharks in conformity with the *Recommendation by ICCAT Concerning the Conservation of Sharks Caught in Association with Fisheries Managed by ICCAT* [Rec. 04-10],

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

1. Contracting Parties, and Cooperating non-Contracting Parties, Entities or Fishing Entities (hereafter referred to as CPCs) shall prohibit, retaining onboard, transshipping, landing, storing, selling, or offering for sale any part or whole carcass of bigeye thresher sharks (*Alopias superciliosus*) in any fishery with exception of a Mexican small-scale coastal fishery with a catch of less than 110 fish.
2. CPCs shall require vessels flying their flag to promptly release unharmed, to the extent practicable, bigeye thresher sharks when brought along side for taking on board the vessel.
3. CPCs should strongly endeavor to ensure that vessels flying their flag do not undertake a directed fishery for species of thresher sharks of the genus *Alopias spp.*
4. CPCs shall require the collection and submission of Task I and Task II data for *Alopias spp* other than *A. superciliosus* in accordance with ICCAT data reporting requirements. The number of discards and releases of *A. superciliosus* must be recorded with indication of status (dead or alive) and reported to ICCAT in accordance with ICCAT data reporting requirements.
5. CPCs shall, where possible, implement research on thresher sharks of the species *Alopias spp* in the Convention area in order to identify potential nursery areas. Based on this research, CPCs shall consider time and area closures and other measures, as appropriate.
6. *Recommendation by ICCAT on the Conservation of Bigeye Thresher Sharks (Alopias superciliosus) Caught in Association with Fisheries Managed by ICCAT* [Rec. 08-07] is superseded by this Recommendation.

Appendix III

Distribution of thresher sharks (*Alopias vulpinus* and *A. superciliosus*) catch by gear by ICES statistical rectangles, 2002 and 2007. From: Poisson and Seret (2009).



Appendix IV

Table 11.4. Thresher sharks in the Northeast Atlantic and Mediterranean Sea. Reported landings of thresher shark (*Alopias* spp.) for the period 2005-2015 (Data following the 2016 Data call).

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Denmark	0.0										
France	21.3	26.2	36.3	16.9	29.0	26.4	49.6	33.2	32.2	40.9	38.6
Ireland		0.3									
Netherlands			0.1								
Portugal	49.4	78.9	54.8	22.9	27.2	12.7	3.3	0.6	1.3	0.2	0.9
Spain	4.1	17.7	73.8	107.5	104.6	0.2	0.0	0.1	0.0	0.0	0.0
UK	0.4	0.0	1.1	0.8	0.7	1.6	1.3	0.8	1.1	2.0	2.5
Total	75.3	123.1	166.1	148.1	161.6	41.0	54.3	34.8	34.6	43.2	42.0

Source: ICES 2016

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