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Report of the Workshop to compile and refine catch and landings of elasmobranchs (WKSHARK2)

19–22 January 2016

Lisbon, Portugal



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Executive Summary

WKSHARK2 met in Lisbon, Portugal, 19–22 January 2016, to examine the management of landings data of elasmobranchs (sharks and skates). ICES provides advice for 55 elasmobranch stocks (18% of all ICES stocks) and 16 ICES countries catch elasmobranchs. To complicate matters further, over 150 generic or species-specific codes may be used for submission of national data. Uniquely in ICES, the elasmobranch landings data provided by country must be by species rather than stock, with the responsibility for deciding on the allocations required to compile stock data resting with the expert group. The logistical challenge for the ICES Working Group on Elasmobranch Fish (WGEF) and for ACOM Advice Drafting Group for Elasmobranch Fish (ADGEF) is considerable. The procedures for managing these landings data were established when ICES only provided advice for six elasmobranchs stocks. WKSHARK2 proposes some revisions. A single landings data coordinator will continue to handle all the data from national providers. WKSHARK2 has developed a decision rule to allow the landings data coordinator to compile stock-specific data for the newly established individual stock coordinators. At present the landings data coordinator is a member of WGEF. However WKSHARK2 encourages WGEF to investigate, with the ICES Secretariat, whether this role might better be performed within the secretariat. WKSHARK2 benefitted from a very good input from ICCAT and some procedures were developed on how ICES and ICCAT should interact with regards to reporting and compilation of elasmobranch landings data. WKSHARK2 also reviewed initiatives to refine national landings data by means of reference fleets and new work towards traceability of shark products in international trade. These initiatives are expected to lead to better quality landings data in future.

1 Term of References

2014/2/ACOM38 The **Workshop to compile and refine catch and landings of elasmobranchs** (WKSHARK2), chaired by Maurice Clarke, Ireland will meet in Lisbon, Portugal from 19–22 January 2016, to:

- a) Collate the landings data for sharks, rays, skates and dogfish (including examination of those data supplied to FAO and ICCAT), at the highest spatial resolution and at least per ICES Division, as well as year and Member State.
- b) Compile an agreed landings dataset for each stock considered by ICES WGEF. Review of national data in relation to data quality (including taxonomic categories) and develop protocols to better document the decisions made when ICES WG estimates of landings are required.
- c) Develop a standard operating procedure for stock coordinators.

WKSHARK2 will report by 29 January 2016 for the attention of ICES WGEF and ACOM.

2 Introduction

Provision of advice on elasmobranch stocks has become a challenging task for ICES since the first advice was provided in 2004. Currently, elasmobranchs account for about 18% of all the stocks for which ICES provides advice and this does not include all the elasmobranch stocks in the ICES area. The associated workload for stock coordinators is growing. Currently ICES provides advice on 55 elasmobranch stocks, and 17 countries report catch data, using a variety of species codes and names.

This workshop was instigated by ACOM, to examine ways to explore the collation of landings data per stock, along with quality control. ICES faces several challenges in advice provision for elasmobranchs in the near future. The inclusion of discards data and the need to consider survivorship of discards following from the EU landings obligation in addition to the application of new assessment methods following work by ICES WK LIFE will present challenges. At this juncture, documentation of decisions on landings data and establishment of a standard operating procedure for ICES elasmobranch landings is a pivotal exercise.

This exercise only concerns itself with landings data, as currently, no discards data are used in assessment or advice for elasmobranchs. The data flow was identified and categorized as per Figure 2.1. Uniquely, data provision for elasmobranchs is by species not by stock. ICES WGEF must then compile the landings by stock from the data provided by species. WKSHARK2 provides a documentation of the procedures to be used per stock and an SOP for stock coordinators.

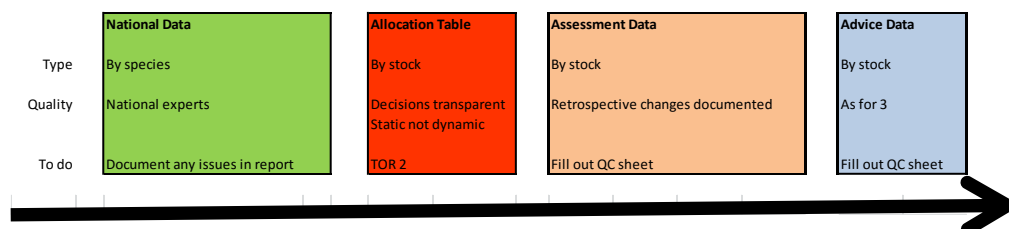


Figure 2.1. Data flow, quality issues and action points.

2.1 Participants

- Ole Thomas Albert, Norway
- Gerard Biais, France
- Maurice Clarke, Ireland (Chair)
- Rui Coelho, Portugal
- Guzman Diez, Spain
- Jim Ellis, UK England and Wales
- Ivone Figueiredo, Portugal
- Helene Gadenne, France
- Janne Haugen, USA
- Graham Johnston, Ireland
- Sophy McCully Phillips, UK England and Wales
- Teresa Moura, Portugal
- Mauricio Ortiz, ICCAT
- Harriet van Overzee, the Netherlands
- Barbara Serra Pereira, Portugal

3 TOR 1: Collation of landings data

Landings data as provided by ICES Member Countries are collated already by ICES WGEF. WKSHARK (ICES, 2011) reviewed various problems arising from these data in relation to deep-water species.

Coding errors may occur and these are very difficult to solve. For instance, blue shark (bsh) may be mis-allocated as the species code 'bsk' and hence be assigned to basking shark. It should also be noted that coding errors can also lead to data for teleost fish being input as elasmobranchs, and vice versa (Ellis *et al.*, 2016). The use of generic reporting codes continues, for instance dgx "various dogfish". In both cases, WGEF has gone to great lengths to apply expert judgement to identify the most likely species/stock to which such reported landings belongs.

Since 2009, most skate and ray species now must legally be landed by species, and the use of generic codes has reduced, though it has not been eliminated. However some species-specific data continue to be confounded. A particular example of this is *Raja montagui* and *Raja brachyura*. A possible solution to species misidentifications is to use market or at-sea sampling, or reference fleets to apply corrections to confounded data. However, there is concern that the levels of sampling prescribed in the EU DCF may be too low to suffice for this purpose.

Case studies of how troublesome landings data are treated by other nations and organization were presented and are provided below.

3.1 Initiative to refine national species-specific data in Norway using a reference fleet

In Norway a general ban on discarding has been active for several decades. For elasmobranchs this means that generally all dead or dying fish should be landed, while live fish may be released. In principle, landings statistics should therefore contain all removals. The only exception is for basking shark and porbeagle, for which dead discarding is allowed, and for rabbit fish for which no regulation exists. All live specimens of any species may be released, and for the prohibited species (e.g. basking shark, porbeagle and silky shark), this is mandatory, as is the reporting of any released individuals.

For some elasmobranchs, e.g. skates, species identification can be specialist work. There is no observer program for Norwegian fishing vessels, and data on landed species are recorded by the fishers themselves, presumably often without necessary taxonomic competence. There are therefore good reasons to assume that certain species groups may not be accurately identified to species. This is also reflected in frequent use of generic groups, like "Skates and rays".

The Norwegian Reference Fleet was established in 2000, first among the oceanic fleet, and from 2005 as well for the coastal fleet. The Oceanic Reference Fleet consists of 17 large vessels and the Coastal Reference Fleet consists of 18 small vessels (9–15m). These selected vessels provide, for economic compensation, detailed information on catches and landings, and provide biological sampling and recording of fishing efforts. The system used for sampling and data storage is almost identical with that used by Institute of Marine Research (IMR) on their research vessels. The crew on vessels in the Reference Fleet are regularly trained and followed up by experienced research technicians from IMR.

Table 3.1 lists the different Norwegian landings categories used and summarizes assumed main difficulties with respect to species identification. Almost all (99.8%) of the shark landings were reported on five commonly known and easily identifiable species in Norwegian waters, namely spurdog, velvet belly, black-mouth catshark, porbeagle, and basking shark. There is no specific reason to question the accuracy of these species identifications. For the remaining species, it may be appropriate to combine in one generic category and distributed by species according to landings data from the Reference Fleet.

For the large pelagic sharks, reported weight is sometimes less than the minimum weight of the species. In these instances the landed weight should be increased to an estimated mean weight of the species.

Rabbit fish is landed by only one category (*Havmus*), and may possibly be a generic group including a few species. However, the Reference Fleet only reports catches of *Chimaera monstrosa*, which also is the only species in Norwegian waters. Therefore all landings are considered to be of *Chimaera monstrosa*.

The skates are largely (94%) reported by the generic group “Other skates and rays”, except for common skate, which in Norwegian is called storskate, literally “big skate”. Anecdotal information indicates that many fishers use this term for big skates of several species. Since common skate is rare and consists of a species complex, there is reason to assume that large skates are frequently misclassified. To correct the landings of skates by species, all skate categories will be combined and distributed by species according to landings data from the Reference Fleet. Allocations will be done by year, ICES-area and gear type.

The actual method applied for redistribution of the generic groups to species level will be documented in a working document to WGEF 2016.

Table 3.1. Norwegian landings of elasmobranchs 2006–2015: Reported landing categories, mean annual reported landings, and indication of the main issues for establishing accurate species-specific catch statistics.

REPORTED CATEGORIES	ENGLISH TRANSLATION	MEAN ANNUAL LANDINGS (TONS)	MULTISPECIES CATEGORY	UNCERTAIN SPECIES IDENTIFICATION	POSSIBLE UNDERREPORTING OF CATCH
Pigghå	Spurdog	526,9			
Svarthå	Velvet belly	11,2			
Hågjel	Black-mouth catshark	8,2			
Gråhå	Birdbeak dogfish	0,0		Y	
Annen hå	Other dogfish and catsharks	0,1	Y		
Brugde	Basking shark	8,6			Y
Håbrann	Porbeagle	14,3			Y
Gråhai	Tope	0,0		Y	
Annen hai	Other sharks	0,9	Y		
Storskate	Common skate	28,5		Y	
Spisskate	Long-nosed skate	0,3		Y	
Piggs skate	Thornback ray	1,5		Y	
Sandskate	Sandy ray	0,0		Y	
Annen skate og rokke	Other skates and rays	506,4	Y		
Havmus	Rabbit fish	156,1	(Y)		
Sum		1263,0			

3.2 Initiative on traceability of shark products of relevance to ICES

A new study on traceability in shark products was presented to CITES in January 2016. This may in time lead to better data on porbeagle catches. The traceability system aims to reduce the risk of illegal products entering into legal chains. The standardized system links the export permit or certificate process to a landings certificate and combines it with a risk-based control method. The landing certificate needs to be uniquely identified and include FAO/ICES catch area.

- 1) Integrating traceability into the normal CITES process has the following steps:
- 2) Application for a CITES export permit and a traceability landing certificate is submitted.
- 3) The CITES management authorities calculates a risk for the permit process considering the applicants history of compliance, consistency of information provided and other information.
- 4) Based on step 2, the authorities can ask for more information or physically inspect the products
- 5) If the outcome is positive the normal CITES export process continues and the risk-based database of exporters is updated. If the outcome is negative, the export permit process is stopped and the risk-based database updated with the submitted information.

To account for differences in use of and access to electronic systems around the world, the global traceability system should allow for mobile data capture and include paper forms that can be converted to electronic information on a later stage. Allowing for traceability in shark products can also assist scientific authorities in the non-detriment finding (NDF) process to ascertain location originality and assess if trade is within sustainable limits (Mundy and Sant, 2015).

4 TOR 2: Agreed landings dataset per stock and quality review

As part of ToR 2, a review was made (in subgroups), of recent (since 2005) national landings. This was to determine where potential data errors could arise. Such errors could include, but are not limited to

- Misidentification of fish
- Errors in transcribing species codes,
- The use of generic categories
- The declaration of species from outside their normal geographic range.

A summary of these reviews, by stock and ecoregion, is provided below. Recommendations, and future decisions as to how these errors be handled by WGEF are provided in Tables 3.1–3.3.

4.1 Data Review of Celtic and North Sea Skate Stocks

Historically, most skate landings were reported under a generic landing category (i.e. 'skates and rays'), with only occasional species-specific landings reported by some nations. This prohibited species-specific assessment and advice from being given. However, from 2008 in the North Sea ecoregion, and 2009 in the Celtic Seas ecoregion, the EC has obliged Member States to provide species-specific landings data for the main skate species occurring in these areas. Following the implementation of species-specific reporting, ICES were subsequently able to provide advice on a stock by stock basis, with advice covering 16 stocks in the Celtic Seas ecoregion, and nine stocks in the North Sea ecoregion.

This regulation has been increasingly adhered to by some member states, however the proportions of landings reported to species level can still range from 0% (Denmark, Germany and Norway in areas IIIa and IV in 2014) to 98% (for Netherlands and the UK (England and Wales) in area IV). Norway, though not bound by the EU regulation, could usefully provide species-specific data in future. If this does not occur, an alternative could be to use the landings from their reference fleet vessels to estimate the relative proportions of each species, and raise these data to allocate their total generic landings to species-specific categories.

It should be noted that the proportion skate and ray landings being reported by species is increasing year-on-year.

Species-specific data provided by member states to ICES since 2011 were examined, on a stock by stock basis. Potential problems that may exist in these data, such as misidentification, were identified and documented in Table 4.1. Expert knowledge was used to determine where species were reported from far outside their known range, and where possible or evident that these records were misidentifications, this was documented, and data were replaced with the corrected species name. However, the original national data are also retained, in case further revisions or additional information come to light which may change the perception of the group. Instances where species-specific data are to be revised are documented in Table 4.1. In the absence of obvious errors through misidentification/misreporting, the questionable landings data were retained, but replaced at the family level (e.g. *Rajidae*).

Historic (i.e. pre–2011) generic data were not attempted to be allocated to species-specific groups at this stage, given time constraints, although this could be a useful exercise going forward to provide a longer time-series (albeit estimated, with many caveats and assumptions). This would need to be completed by respective national experts given their personal knowledge of species and fisheries within their nations.

Some national recommendations arising from this exercise include:

- Norway to provide species-specific skate landings from all ecoregions. In the absence of these data, to estimate landings from their reference fleet species landing proportions.
- Denmark to provide improved species-specific data for the North Sea ecoregion
- Germany to provide improved species-specific data for the North Sea ecoregion
- Sweden to provide improved species-specific data for the North Sea ecoregion – in particular in providing some clarification on their reported *Dipturus linteus* landings.
- Scotland to provide some clarification on their reported *Rostroraja alba* landings from the Celtic Seas ecoregion.

4.2 Rajidae stocks in Iberian Ecoregion

Information collected by stock and country is summarized in Table 4.2.

Portugal: In the Portuguese official landings statistics only four commercial designations are reported: *Raja clavata*, *Raja brachyura*, *Raja montagui* and *Leucoraja naevus*. Despite the effort made by the Portuguese authorities to differentiate landings by species, the misidentification problems persist. This deficiency is mainly associated with the fact that, with the exception of *Leucoraja naevus*, there are no differences in the commercial value between species. To circumvent this deficiency, an extra effort in data collection was made under the DCF skate pilot study (2010–2013). Robust estimators were developed to estimate landings per species (for more detail on methodology see stock annexes).

Spain: Recent landings data suggest that the proportions allocated to each *Rajidae* species differ significantly from year-to-year, particularly comparing recent with historical dataserries (collected before 2012).

4.3 Rajidae stocks in Bay of Biscay Ecoregion

Information collected by stock and country is summarized in Table 4.3.

France: The Museum National d'Histoire Naturel (MNHN) of France ran Project Mislabelling during 2012–2014. The main objectives of the project were to: 1) identify the type of mislabelling by area and métier; 2) estimate the mislabelling ratio, at local and at national scale; and 3) help to propose improvements on data quality. The study revealed that mislabelling is mostly due to 1) misidentifications made by fish-market staff, with no training on fish taxonomy; 2) aggregation of cryptic species under the same commercial category; 3) distinct species landed in single fish-market boxes when catches are small; and 4) the inexistence of a landing code for the species in the taxonomic repository of the fish market database.

Several solutions were proposed to reduce mislabelling, particularly: 1) training course of the French fish-market staff on chondrichthyans identification; and 2) update the list of species at each fish-market. During 2016, the main outputs of the project will be integrated into the French database HARMONIE (built and maintained under the DCF framework) and more reliable estimates of the French landings from the auctions are expected to be obtained in future. This will be very important in the case of elasmobranchs, especially *Rajidae*, for which it is recognized that misidentification problems exist and are likely to vary among French landing ports.

Spain: As in the case of Iberian ecoregion, recent landings data suggest that the proportions allocated to each *Rajidae* species differ from year to year.

It may not be possible for the Data Co-ordinator to apply all actions prior to the WGEF meeting. In particular, some stocks require information from national landings programmes. Therefore, WGEF members should endeavour to provide these data as early as possible, ideally at the same time as landings data.

4.4 Data Review of Dogfish Stocks

The same exercise was repeated for seven stocks of dogfish and catsharks across the ICES area. Similarly to skate stocks, historically all species were reported into generic categories – however many more generic categories for these taxa exist (e.g. ‘Sharks’, ‘dogfish (*Scyliorhinidae*)’, ‘Unid. DS Squal. Sharks & Dogfish’, ‘Unidentified Dogfish’), confounding data considerably. Unlike skate stocks, dogfish still continue to be landed in generic categories, as no EU regulations exist to enforce species-specific landings from member states. In addition, data are also reported on these stocks at a species-specific level.

The task of how to estimate and allocate reliable species-specific landings data for these stocks is substantial, and attempts were made to do so on the historical data. However, this task was too large for the time available, and not all national experts were available for consultation in this process. This is a task that should be undertaken prior to the WGEF 2016 meeting, with national members quality checking and allocating their own national data, for 2015 (and historically where possible) to species-specific categories.

During this meeting however, where issues were evident with respect to common misidentifications this was documented in Table 4.3. Furthermore, rules were implemented (e.g. “Landings accepted for VI, VIIb,c,j,k. Accept landings of <1t per year from other areas, if >1t replace with ‘*Scyliorhinidae*’”) whereby erroneous data from outside a known species range, were reallocated to a generic category to ensure that inaccurate data are not used in advice, and are only presented at a family level where there is uncertainty.

4.5 Deep-water sharks in the Northeast Atlantic

Landings of *Centroscymnus coelolepis* and *Centrophorus squamosus* have historically been reported by many countries in mixed landings categories. Since 2003 many countries have increased species-specific reporting of landings but some of these data may contain misidentifications (ICES, 2015). WGEF made efforts to split mixed historical landings data by species and the benchmarked procedures are described in stock annexes. However, it is recognized that landing values obtained are still uncertain. Since the settlement of the zero TAC in 2010, discards of these species are believed to be increased.

However catch data by country is scarce, given the low coverage of sampling programs and the difficulties in raising catches to the fleet level. Due to the absence of reliable catch data, the only data available for assessing both stocks derive from the Scottish deep-water survey which only covers a small proportion of the stock.

4.6 Summary Recommendations

Member states supply data call using the standardized InterCatch format (refer to Section 6). Quality checks referring to Tables 4.1–4.3 should be conducted, following rules under the column header '*Solutions to be implemented*'. Where data are reported in generic categories, national delegates should where possible, prior to the WGEF 2016 meeting, examine the spatial and temporal reported landings of generic categories such as 'skates and rays' and 'dogfish' etc., and make expert judgements on where these landings could be best allocated and/or split across species. If this could also be carried out on recent historical data (post 2005), this would be ideal and provide longer time-series of landings data (although with documented assumptions and caveats).

The stock specific data should be archived in a manner that allows transparency in auditing of the decisions used in their compilation. The final data should be static, not allowing any dynamic changes to occur.

Table 4.1: Decision rules made for Celtic and North Sea skate stocks

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Celtic Seas	VIIe	<i>Raja brachyura</i>	rjh-7e	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja montagui</i> common and data are confounded	Accept from all areas by all countries	
Celtic Seas	VIIa,f,g	<i>Raja brachyura</i>	rjh-7afg	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja montagui</i> common and data are confounded	Accept from all areas by all countries	
Celtic Seas	VI and VII	<i>Dipturus batis</i>	rjb-celt	Prohibited species	Species-specific landings from 2011 from most nations	No quantitative estimates	Confounded data between <i>Dipturus</i> spp.	Combine data from all <i>Dipturus</i> spp.	WGEF will replace <i>Dipturus batis</i> , cf. <i>flossada</i> , <i>intermedia</i> , <i>oxyrinchus</i> , <i>nidarosiensis</i> with <i>Dipturus</i> spp.
Celtic Seas	VI and VII	<i>Leucoraja naevus</i>	rjn-678abd	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Celtic Seas	VI and VII	<i>Leucoraja circularis</i>	rji-celt	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Two species called 'sandy ray' locally. Possible misidentification with <i>R. microocellata</i>	Accept from VI, VIIb,c,h-k	IF landings are from VIIaefg, then: France: Replace landings with Rajidae Ireland: replace landings with Rajidae Belgium: replace landings with <i>Raja microocellata</i> UK: replace landings with <i>Raja microocellata</i> All other countries, leave as input
Celtic Seas	VI and VII	<i>Leucoraja fullonica</i>	rjf-celt	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification possible	Accept from all areas by all countries	
Celtic Seas	VIIIf,g	<i>Raja microocellata</i>	rje-7fg	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	
Celtic Seas	VIIe	<i>Raja clavata</i>	rjc-echw	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	
Celtic Seas	VI	<i>Raja clavata</i>	rjc-VI	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	
Celtic Seas	VIIa,f,g	<i>Raja clavata</i>	rjc-7afg	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Celtic Seas	VIIb,j	<i>Raja undulata</i>	rju-7bj	Prohibited species	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	
Celtic Seas	North east Atlantic	<i>Rostroraja alba</i>	rja-nea	Prohibited species	Species-specific landings from 2011 from most nations	No quantitative estimates	Reported from areas outside known distribution	Accept from all areas of <1 t excluding: VIIa,b,e-h; if >1t replace with Rajidae	Scotland landings from IVa and VI to be replaced by <i>Leucoraja fullonica</i>
Celtic Seas	VIIa,e-h	<i>Raja montagui</i>	rjm-7aeh		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja brachyura</i> common and data are confounded	Accept from all areas by all countries	
Celtic Seas	VI, VIIb,j	<i>Raja montagui</i>	rjm-67bj		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja brachyura</i> common and data are confounded	Accept from all areas by all countries	
Celtic Seas	VI and VII	Other skates and rays (<i>A. hyperborea</i>)	raj-celt		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification possible and species out of known range	Accept from VIa,b; Replace area VII landings with Rajidae	All countries
Celtic Seas	VI and VII	Other skates and rays (<i>A. radiata</i>)	raj-celt		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification possible and species out of known range	Accept from VIa,b; Replace area VII landings with Rajidae	All countries

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Celtic Seas	VI and VII	Other skates and rays (<i>Rajella fyllae</i>)	raj-celt		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification possible and species out of known range	Accept from VI, VIIb,c,j,k; Replace area VIIg landings with Rajidae	All countries
Celtic Seas	VIIId,e	<i>Raja microocellata</i>	rje-ech	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	
North Sea	IVc, VIIId	<i>Raja brachyura</i>	rjh-4c7d	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja montagui</i> common and data are confounded	Accept from all areas by all countries	
North Sea	IVa, VI	<i>Raja brachyura</i>	rjh-4aVI	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja montagui</i> common and data are confounded	Accept from all areas by all countries	
North Sea	IV, IIIa	<i>Dipturus batis</i>	rjb-34	Prohibited species	Species-specific landings from 2011 from most nations	No quantitative estimates	Confounded data between <i>Dipturus</i> spp.	Combine data from all <i>Dipturus</i> spp. Accept landings from: IIIa, IVa, Ivb Accept landings of <1t per year from: Ivc, if >1t replace with Rajidae	All countries: Replace <i>Dipturus batis</i> , cf. <i>flossada</i> , <i>intermedia</i> , <i>oxyrinchus</i> , <i>nidarosiensis</i> with <i>Dipturus</i> spp.

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
North Sea	IV, IIIa	<i>Leucoraja naevus</i>	rjn-34	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept landings from: IIIa, IVa, Ivb; Accept landings of <1t per year from: Ivc, if >1t replace with Rajidae	
North Sea	IV, IIIa, VIIId	<i>Raja clavata</i>	rjc-347d	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept from all areas by all countries	
North Sea	VIIId,e	<i>Raja undulata</i>	rju-ech	Precautionary TAC (VIIe only) of 100t - with restriction of no more than 20 kg live weight per fishing trip	Species-specific landings from 2011 from most nations	No quantitative estimates	No known issues	Accept landings from: VIIId; Replace landings from: IIIa, IVa, Ivb with Rajidae; Accept landings of <1t per year from: Ivc, if >1t replace with Rajidae	
North Sea	IV, IIIa, VIIId	<i>Raja montagui</i>	rjm-347d	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification with <i>Raja brachyura</i> common and data are confounded	Accept from all areas by all countries	Accept landings of <1t per year from: Ivc, if >1t replace with Rajidae

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
North Sea	II, IV, IIIa	<i>Amblyraja radiata</i>	rjr-234	Prohibited species	Species-specific landings from 2011 from most nations	No quantitative estimates	Some misidentification with <i>Raja clavata</i>	Accept landings from: IVa,b; Replace landings from: VIId with Rajidae; Accept landings of <1t per year from: IVc, if >1t replace with Rajidae	
North Sea	IV, IIIa, VIId	Other skates and rays (<i>Raja microocellata</i>)	raj-347d	Generic TAC	Species-specific landings from 2011 from most nations	No quantitative estimates		Accept landings from: VIId; Replace landings from: IIIa, IVa, IVb with Rajidae; Accept landings of <1t per year from: IVc, if >1t replace with Rajidae	
North Sea	IV, IIIa, VIId	Other skates and rays (<i>Leucoraja circularis</i>)	raj-347d		Species-specific landings from 2011 from most nations	No quantitative estimates	Two species called 'sandy ray' locally. Possible misidentification with <i>R. microocellata</i>	Accept landings from: IIIa, IVa, IVb; Replace landings from: IVc, VIId with Rajidae;	Belgium: Replace landings from IVc, VIId with <i>Raja microocellata</i>
North Sea	IV, IIIa, VIId	Other skates and rays (<i>Amblyraja hyperborea</i>)	raj-347d		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification possible and species out of known range	Accept landings from: IVa; Replace landings from: IVb,c,VIId, IIIa, with Rajidae;	

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
North Sea	IV, IIIa, VIId	Other skates and rays (<i>Leucoraja fullonica</i>)	<i>raj-347d</i>		Species-specific landings from 2011 from most nations	No quantitative estimates	Misidentification possible and species out of known range	Accept landings from: IIIa, IVa, IVb; Accept landings of <1t per year from: IVc, VIId, if >1t replace with Rajidae	
North Sea	IV, IIIa, VIId	Other skates and rays (<i>Rostroraja alba</i>)	<i>raj-347d</i>		Species-specific landings from 2011 from most nations	No quantitative estimates	Reported from areas outside known distribution	Replace all landings from :IIIa, IVa, IVb with Rajidae. Accept landings from VIId if <1t per year If >1t replace with Rajidae	UK-Scotland landings from IVa to be replaced by <i>Leucoraja fullonica</i>
North Sea	IV, IIIa, VIId	Other skates and rays (<i>Rajella fyllae</i>)	<i>raj-347d</i>		Species-specific landings from 2011 from most nations	No quantitative estimates	Reported from areas outside known distribution	Accept landings from: IVa; Landings from IVb, IVc, VIId, replace with Rajidae	

Table 4.2: Decision rules made for Biscay and Iberian skate stocks

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Bay of Biscay and Atlantic Iberian waters	IX, VIII	Other skates and rays	raj-89a	TAC Rajidae since 2009	since 1996	since 2003	As the amount of landings of other rays is low there a misidentification problem at species level	Increase the sampling effort on ports to get reliable information of these species, especially in artisanal fleets; Identify properly the landings (and species if possible) of the category Other skates and rays	Use data provided
Bay of Biscay and Atlantic Iberian waters	IX, VIII	<i>Dipturus batis-complex</i>	rjb-89a	TAC =0 since 2009	since 1996	since 2003	Misidentification, non-specific landings	Training courses for identification, to share identification guides in the commercial fleet	Accept data provided
Bay of Biscay and Atlantic Iberian waters	IX, VIII	<i>Raja clavata</i>	rjc-bisc	TAC Rajidae since 2009	since 1996	since 2003	Since 2012 there has been a proportion of landings composition with <i>L. naevus</i>	Clarify the outputs of the National Databases	Apply the ratio in f landings <i>L. naevus</i> / <i>R. clavata</i> available before 2012
Bay of Biscay and Atlantic Iberian waters	IX, VIII	<i>Leucoraja naevus</i>	rjn-bisc	TAC Rajidae since 2009	since 1996	since 2003	Since 2012 there is a confusion in the proportion of landings composition with <i>R. clavata</i>	Clarify the outputs of the National Databases	Apply the ratio in f of landings of <i>L. naevus</i> / <i>R. clavata</i> available before 2012
Bay of Biscay and Atlantic Iberian waters	IX, VIII	<i>Raja brachyura</i>	rjh-pore	TAC Rajidae since 2009	since 1996	since 2003	Misidentification with <i>Raja montagui</i> common and data are confounded	Training courses for identification, to share identification guides in the commercial fleet	Accept data provided. Ask for a revision of the historical series of landings (since 2012) in IXa

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Bay of Biscay and Atlantic Iberian waters	IX, VIII	<i>Raja montagui</i>	<i>rjm-bisc</i>	TAC Rajidae since 2009	since 1996	since 2003	Misidentification with <i>Raja brachyura</i> common and data are confounded	Training courses for identification, to share identification guides in the commercial fleet	Accept data provided. Ask for a revision of the historical series of landings (since 2012) in IXa
Bay of Biscay and Atlantic Iberian waters	IX, VIII	<i>Raja undulata</i>	<i>rju-8ab</i>	TAC =0 2009-2014 specific TAC in 2015	since 1996	since 2003	Probably misidentification with <i>R. microocelata</i> . Only appears in artisanal/coastal fisheries	Training courses for identification, to share identification guides in the commercial fleet	Ask for a revision of the historical series of landings (since 2012) in IXa
Bay of Biscay and Atlantic Iberian waters	IXa	<i>Rajidae</i>	<i>raj-89a</i>	After 2009: TAC implemented for Rajidae; obligation to report by species	Since 2003	NA	Before 2009: Most skate and ray species were landed under Rajidae		1) Pull together all the Rajidae landings with landings by species; 2) Ask IPMA WGEF members the proportions of species by fleet 3) apply the proportions and estimate landings for the species

Table 4.3: Decision rules made for dogfish stocks

ECOREGION	ICES AREA	SPECIES	STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE IMPLEMENTED	WGEF AMENDMENTS NECESSARY
Northeast Atlantic	NE Atlantic	<i>Mustelus spp.</i>	trk-nea	No TAC	Inaccurate and underestimated catch. Many nations land smooth-hounds into generic categories (e.g. dogfish and hounds)	A seasonal bycatch species. Discarded in some fisheries, landed by others. No quantitative estimates	Three species of smooth-hound occur in the ICES area. Likely that the bulk of data refer to <i>M. asterias</i> , and assessment is based on this species. Commercial landings data are available for recent years, but may be compromised by poor data quality.	Data for all <i>Mustelus</i> spp. to be combined and treated as <i>Mustelus</i> spp.	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.
North Sea	IV, IIIa, VIId	<i>Scyliorhinus canicula</i>	syc-347d	No TAC	Inaccurate and underestimated catch. Many nations land <i>Scyliorhinus</i> spp. into generic categories (e.g. dogfish and hounds).	High levels of discards in most fisheries. No quantitative estimates	Potential misidentification with <i>S. stellaris</i>	Landings accepted for all countries. Member states to examine the spatial and temporal reported landings of generic categories (e.g. 'dogfish') to allow for estimation of relative species proportions	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.

ECOREGION	ICES		STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE	WGEF AMENDMENTS
	AREA	SPECIES						IMPLEMENTED	NECESSARY
Celtic Seas	VI, VIIa- c, e-j	<i>Scyliorhinus canicula</i>	syc-celt	No TAC	Inaccurate and underestimated catch. Many nations land <i>Scyliorhinus</i> spp. into generic categories (e.g. dogfish and hounds).	High levels of discards in most fisheries. No quantitative estimates	Potential misidentification with <i>S. stellaris</i>	Landings accepted for all countries. Member states to examine the spatial and temporal reported landings of generic categories (e.g. 'dogfish') to allow for estimation of relative species proportions	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.

ECOREGION	ICES		STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE	WGEF AMENDMENTS
	AREA	SPECIES						IMPLEMENTED	NECESSARY
Celtic Seas	VI, VII	<i>Scyliorhinus stellaris</i>	syt-celt	No TAC	Inaccurate and underestimated catch. Many nations land <i>Scyliorhinus</i> spp. into generic categories (e.g. dogfish and hounds).	No quantitative estimates	Potential misidentification with <i>S. canicula</i>	Landings accepted for VIIa,b,d-g. Member states to examine the spatial and temporal reported landings of generic categories (e.g. 'dogfish') to allow for estimation of relative species proportions	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.
Celtic Seas	VI, VII	<i>Galeus melastomus</i>	sho-celt	No TAC	Inaccurate and underestimated catch. Many nations may land this species into generic categories (e.g. dogfish and hounds).	No quantitative estimates	Potential misidentification with <i>S. canicula</i>	Landings accepted for VI, VIIb,c,j,k. Accept landings of <1t per year from other areas, if >1t replace with <i>Scyliorhinidae</i>	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.

ECOREGION	ICES		STOCK	MANAGEMENT	LANDINGS	DISCARDS	PROBLEMS	SOLUTIONS TO BE	WGEF AMENDMENTS
	AREA	SPECIES						IMPLEMENTED	NECESSARY
Biscay and Iberia	VIIIa,b,d	<i>Scyliorhinus canicula</i>	syc-bisc	No TAC	Inaccurate and underestimated catch. Many nations land <i>Scyliorhinus</i> spp. into generic categories (e.g. dogfish and hounds).	High levels of discards in most fisheries. No quantitative estimates	Potential misidentification with <i>S. stellaris</i>	Landings accepted for all countries. Member states to examine the spatial and temporal reported landings of generic categories (e.g. 'dogfish') to allow for estimation of relative species proportions	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.
Biscay and Iberia	VIIIc, IXa	<i>Scyliorhinus canicula</i>	syc-8c9a	No TAC	Inaccurate and underestimated catch. Many nations land <i>Scyliorhinus</i> spp. into generic categories (e.g. dogfish and hounds).	High levels of discards in most fisheries. No quantitative estimates	Potential misidentification with <i>S. stellaris</i>	Landings accepted for all countries. Member states to examine the spatial and temporal reported landings of generic categories (e.g. 'dogfish') to allow for estimation of relative species proportions	National delegates should (prior to the WGEF 2016 meeting), examine the spatial and temporal reported landings of generic categories of all 'dogfish' etc., using expert knowledge to document, estimate and allocate these landings to species-specific categories.

Table 4.4. Dogfish decisions, all areas combined, as species decision-tree.

AREA	<i>S. CANICULA</i>	<i>S. STELLARIS</i>	<i>G. MELASTOMUS</i>	<i>M. ASTERIAS</i>
3a	Very occasional. Accept national annual landings of <1 t	Absent	Accept	Very occasional. Accept national annual landings of <1 t
6	Accept	Accept	Accept	Accept
4a	Accept	Very occasional. Accept landings <1 t	Accept	Very occasional. Accept national annual landings of <1 t
4b	Accept	Very occasional. Accept national annual landings of <1 t	Occasional	Very occasional. Accept national annual landings of <1 t
4c	Accept	Very occasional accept landings <1 t	Absent	Accept
7a	Accept	Accept	Very occasional accept national annual landings of <1 t	Accept
7bc	Accept	Accept	Accept	Accept
7def	Accept	Accept	Very occasional accept national annual landings of <1 t	Accept
7g-k	Accept	Accept	Accept	Accept

5 ICCAT fisheries statistics on Atlantic elasmobranchs (Sharks and ray species).

The ICCAT Secretariat presented a summary of the available fisheries statistics on Atlantic elasmobranchs sharks and rays species that it is available in their databases. Briefly, the ICCAT fisheries statistics include:

- Task I Nominal Catches (NC): Nominal catch estimates (targeted and bycatch species) and dead discards, classified by fishing fleet, species, year, gear, region, fishing waters (EEZ or High Seas). Task I should include all catches, including recreational fisheries and those of research and training vessels of all tuna and tuna-like species and sharks, whether taken as target species or bycatch.
- Task II Catch & Effort (CE): Catch (species catch composition) and effort statistics, classified by fishing fleet, gear, time strata and area strata. These data may be estimates (raised to the total catches) and/or observed data obtained through various data sources (logbooks, auction sales, port sampling, landing ports, transshipments, etc.).
- Task II size samples: (SZ) Size frequencies of the samples measured for each species classified by fishing fleet, species, gear, sample units, time strata, area strata. And or (CAS) catch-at-size for the total catches.

The Secretariat provided the most recent Task I nominal catch statistics available to the Working Group (Tables 5.1–5.3) for the major shark species: blue shark (BSH), shortfin mako (SMA) and porbeagle shark (POR), as well all catches reported for tope shark (*Galeorhinus galeus*) (GAG) (Table 5.4), common thresher (*Alopias vulpinus*) (ALV) (Table 5.5) and other elasmobranchs (Tables 5.6–5.7; Figure 5.1). In total, Task I nominal catches has been reported for at least 92 different species. However, it was noted that although Task I data are available for many species of sharks, these data are very incomplete.

ICCAT's Shark Working Group in recent years has done extensive work in reviewing and categorizing these information, making specific recommendations on a list of sharks and rays species that are considered to be pelagic species and that have direct or potential interaction(s) with tuna and tuna-like fisheries and therefore are of interest for reporting to ICCAT and provide scientific advice (Table 5.8, copy from Appendix 21 of the Sharks Working Group intersessional meeting 2014 report, *Anon. 2015a* classifying shark and ray species; Table 5.9, list of major and other ICCAT species and taxonomic groups of interest to ICCAT fisheries). Currently, three species (POR, BSH, SMA) are considered major shark species for which quantitative assessments have been done (Anon 2009, Anon 2013, Anon 2010). In addition, in 2012 the Shark WG elaborated an Ecological Risk assessment of 18 sharks and rays species for which would be considered priorities for attention (Anon 2013). Based on these scientific analyses, ICCAT has implemented several management actions aimed to shark conservation and management of these species in the convention area (Table 5.10). It also has requested to ICCAT contracting parties' improvement in the reporting of fisheries statistics related to sharks and rays that interact with tuna fisheries.

In 2014, the Shark WG pointed out that catch records exist for species which are in reality unlikely to be associated with pelagic tuna fishing fleets. The Sharks WG is currently ver-

ifying this information, agreeing that this work requires the collaboration of national scientists and institutions familiar with their fisheries. Another important objective of ICCAT and the Shark WG is the active collaboration with other regional fisheries management organizations as several species of sharks have important fisheries and catches in regional or national areas and pelagic tuna fleets. This is the case of porbeagle in particular for which scientific evaluation and advice has been done in collaboration with the ICES scientific group on elasmobranchs (Anon 2010) and the next evaluation is already scheduled to be done in similar fashion ([ICCAT Rec 15-06](#)). This collaborative scientific work will be extended to other species for which catch composition between regional and pelagic tuna's fleets is significant.

In addition to fisheries statistics of catch and fishing effort, the ICCAT database includes reports of conventional and electronic tagging submitted by national research institutions. An example of these data has been provided for conventional tagging of porbeagle species (Table 5.11; Figure 5.2).

5.1 Integration of ICCAT sharks and rays fishery catches series with other sources.

The ICCAT Task I NC represents the ICCAT contracting parties (<http://www.iccat.int/en/contracting.htm>) official reports of catches of primarily tuna and tuna-like related fleets operating in the convention area. For most of the tunas and pelagic highly migratory species, these statistics represent the total catches. However for sharks and rays species that have coastal or demersal habitats it is not certain up to what extent the annual reports cover catches from non-ICCAT fleets. In addition historically, the reports of elasmobranchs catches by species have been submitted since the 1990's for most species and by contracting parties. It is not clear if historic catches have been fully reported or updated.

Therefore, using ICCAT catch series requires a careful evaluation of the data, with comparisons at the métier and spatio-temporal distribution of the catches to ascertain if these data have been reported or not elsewhere. It also requires reviewing the management regulations both from ICCAT and national or regional regulations as they may affect the catch series statistics for several of the shark species, particularly since 2000's when precautionary management actions were initially implemented in the Atlantic and Mediterranean seas (Table 5.10).

Given these uncertainties, thus the importance of scientific collaboration between RFMOs and national experts to assess and evaluate most of the sharks stocks and provided the best scientific advice for its management.

Within each working group, the data series, especially historical catches, can be reconstructed for use by the groups in the stock assessments. This can be done either by working documents presented by CPCs to the WG, or by work done by the working groups during the session. All the documents, changes and reconstructions carried out for use in the assessments are reported, and the ICCAT Secretariat keeps a catalogue of the data and changes made. In the ICCAT sharks working group this process has been done for the shark species for which stock assessments have been carried out, specifically blue shark

(Anon, 2015b, see section 2–Review of data held by the Secretariat and section 3.–Alternative catch estimations), shortfin mako (Anon, 2013, see section 4.2 Catch estimates) and porbeagle (Anon, 2010, see section 2.4 Catch estimates).

5.2 ICCAT Science Strategic Plan and SCRS schedule

At its 2014 meeting, the SCRS adopted the 2015–2020 Science Strategic Plan¹ for the functioning and orientation of the SCRS. The components of the plan included a Mission, a Vision, a SWOT (strengths, weaknesses, opportunities, threats) analysis and the values or guiding principles of the plan. The Plan also comprised Goals, Objectives, the Strategies to achieve each goal as well as measurable targets. A tentative work plan for the time period (scheduling of SCRS meetings) was also included and an estimated budget in the context of the envisioned needs and proposed work of the SCRS for the five year period.

The SCRS tentative work schedule is revised regularly by the SCRS and the ICCAT Commission during their annual meeting, and adjustments or changes are made due to specific SCRS priorities or Commission request to conduct specific assessments. The latest schedule proposed by the SCRS and approved by the Commission in their 2015 annual meetings is shown in Table 5.11. Specifically for the Sharks WG, a blue shark stock assessment (north and south Atlantic stocks) was conducted in 2015, and the next planned assessments are shortfin mako (2017) and porbeagle (2019). In 2016 the Sharks WG will meet for a data preparatory session (25–29 April, Madeira, Portugal), and in 2018 the group will conduct the assessment of other shark species of interest to ICCAT fisheries (other than the 3 main species: BSH, SMA and POR).

¹ https://www.iccat.int/Documents/SCRS/STRATEGIC-PLAN_EN.pdf

Table 5.1: Estimated catches (t) of blue shark (BSH, *Prionace glauca*) by area, gear and flag. (v1, 2015-09-25)

[illegible]

Table 5.2: Estimated catches (t) of shortfin mako (SMA, *Isurus oxyrinchus*) by area, gear and flag. (v1, 2015-09-25)

[illegible]

Table 5. 3: Estimated catches (t) of porbeagle (POR, *Lamna nasus*) by area, gear and flag. (v1, 2015-09-25)

[illegible]

Table 5.4: Estimated catches (t) of tope shark (GAG, *Galeorhinus galeus*) by area, gear and flag. (v1, 2015-09-25)

Qty_t			YearC																		
CatchTypeCode	SpcGearGr	Flag	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
C	All gears	EU.Denmark															1.88482				
		EU.España		0.627	0.902									0.025	0.018	0.353	0	0.029			
		EU.France								311.4503	289.841			231.005	288.7288	197.3553	348.9425				
		EU.Ireland			0.2	0.2				4.961	6.7238	5.526	6.7955	2.684	1.8255	2.908	3.078	0.585	0.258		
		EU.Malta										0.038	0.014	0.0085	0.121	0.228	0.04	0.036			
		EU.Portugal								69.171			0.012	42.5534	0.555	0.24	0.0139				
		South Africa						16.11	7			0.242	0.065								
C Total				0.627	1.102	0.2		16.11	7	74.132	318.1741	295.647	6.8865	276.2759	291.2483	201.0843	353.9592	0.65	0.258		
L	All gears	Argentina	92.707	99.476	88.813	88.746	108.617	49.714	29.273	57.722	79.297	138.17						278.0597	144.0794	301.8892	0
		EU.France																			
		EU.Ireland					0.9		1.7												
		EU.Malta																		0.07	
		EU.Netherlands																14.948	17.421		
		EU.Portugal																0.305	0.058	0.588	
		EU.United Kingdom											93.0796	49.4541	41.1744	23.4638	16.9459	17.2168	16.2578	17.3257	20.6011
		Maroc																25	9	17.1	
		Norway																		0.01	
		Turkey									458	734	668	496	413	618					
		Uruguay								9.24	6.3	4.424									
L Total			92.707	99.476	88.813	88.746	109.517	49.714	30.973	66.962	543.597	876.594	761.0796	545.4541	454.1744	641.4638	16.9459	335.5295	186.8162	336.9829	20.6011
Grand Total			92.71	100.10	89.92	88.95	109.52	65.82	37.97	141.09	861.77	1,172.24	767.97	821.73	745.42	842.55	370.91	336.18	187.07	336.98	20.60

Table 5.5: Estimated catches (t) of common thresher shark (ALV, *Alopias vulpinus*) by area, gear and flag. (v1, 2015-09-25)

Qty_t				YearC																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Table 5.6: Catch series for main shark species (BSH, POR, SMA) and other sharks and rays

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Table 5.7: Catch series for shark species considered in the 2012 ERA by the ICCAT Sharks Working Group.

Catch tones	<i>Alopias supercili- us</i>	<i>Alopias vulpinus</i>	<i>Carcharhinu- s falciformis</i>	<i>Carcharhinu- s longimanus</i>	<i>Carcharhinu- s obscurus</i>	<i>Carcharhinu- s plumbeus</i>	<i>Carcharhinu- s signatus</i>	<i>Carcharodon carcharias</i>	<i>Galeocerdo cuvier</i>	<i>Isurus oxyrinchus</i>	<i>Isurus paucus</i>	<i>Lamna nasus</i>	<i>Prionace glauca</i>	<i>Sphyrna lewini</i>	<i>Sphyrna zygaena</i>
YearC	BTH	ALV	FAL	OCS	DUS	CCP	CCS	WSH	TIG	SMA	LMA	POR	BSH	SPL	SPZ
1950												4.5			
1951												3.0			
1952												3.0			
1953												3.7			
1954												7.1	6.3		
1955												8.7	9.0		
1956												7.5	11.0		
1957												9.3	13.1		
1958												5.7	8.8		
1959												6.3	5.1		
1960												3.2	3.4		
1961												1,931.0	10.6		
1962												3,025.5	8.3		
1963												6,567.0	4.9		
1964												9,284.8	17.1		
1965												5,163.4	13.4		
1966												2,126.0	9.9		
1967												599.5	9.6		
1968												944.2	7.1		
1969												877.9	5.4		
1970												215.2	6.1		
1971											200.0	787.8	9.3		
1972											168.0	1,273.8	16.0		
1973											263.0	1,237.6	13.5		
1974											346.0	737.5	9.5		
1975											389.0	1,198.6	11.4		
1976											92.0	1,493.5	11.4		
1977											465.0	1,131.8	7.3		
1978											299.0	1,158.7	12.2		
1979											313.0	1,581.6	20.9		
1980											474.0	1,606.5	11.0		
1981											999.4	1,383.4	215.3		
1982			0.1		0.0	0.0			0.4	1,709.1	0.2	599.0	15.5		
1983				1.2		0.0			0.7	974.6	0.4	1,170.2	618.9		
1984									0.3	1,793.0	0.3	727.3	126.0		
1985				0.0		0.1			0.2	3,803.2	1.1	687.9	387.7		
1986				0.3		0.1			0.1	1,951.4	0.2	732.2	1,499.0		
1987		30.0	0.2		0.0	0.0		1.0	5.7	1,040.7	1.2	844.9	1,655.5		3.4
1988					0.2	0.0		1.5	2.3	1,561.8	2.8	1,025.4	1,846.1		
1989					0.6	1.0	0.0	2.2	2.2	1,647.9	2.0	1,013.3	1,820.3		
1990					0.2	1.7	0.1	2.1	3.8	1,348.7	1.3	1,308.8	3,038.7		-
1991			13.3		0.2	1.3	1.2	2.7	7.2	1,325.8	1.2	1,991.4	4,317.6		-
1992			340.8	7.5	64.4	111.0			13.3	1,446.1	28.9	2,602.8	3,668.0	362.8	3.9
1993	20.2	2.0	139.5	11.3	35.8	61.5	0.2		11.4	2,965.8	7.8	1,910.5	9,599.8	14.3	-
1994	18.2	6.6	92.3	9.7	270.0	145.5	3.3		9.6	3,148.3	17.7	2,728.7	11,299.6	33.3	3.3
1995	38.8	8.6	126.8	13.5	79.6	326.8	1.3		19.7	5,057.0	16.6	2,139.9	11,583.7	92.6	0.7
1996	14.1	0.1	530.8	7.8	51.8	468.2	0.1		5.1	2,977.4	3.1	1,559.7	11,649.6	49.8	42.1
1997	185.0	30.3	342.8	11.9	47.6	343.2	21.1		5.0	5,758.8	28.6	1,859.2	39,578.3	185.3	83.4
1998	113.6	45.8	33.5	15.3	53.7	153.9	22.7		8.7	5,653.6	10.2	1,468.9	35,623.0	15.8	48.1
1999		1.5	139.9	2.1	38.2	149.2	26.9		1.3	4,285.3	1.9	1,402.7	37,022.6	22.8	37.5
2000	43.2	15.3	117.8	642.1	48.3	174.3	91.0		12.6	5,141.8	19.7	1,468.6	40,663.7	271.7	40.0
2001	108.4	25.0	42.2	543.4	1.1	180.9	30.2		9.8	4,723.9	51.4	508.6	35,799.7	318.7	38.1
2002	113.6	136.4	357.8	205.0	2.4	120.6	9.1		3.8	5,361.1	66.5	848.3	32,765.0	16.0	44.0
2003	132.9	30.3	476.0	178.8	0.1	120.1	23.6		4.2	7,698.4	62.7	647.6	37,982.5	21.9	57.7
2004	120.7	65.0	316.2	188.9	0.0	49.1	0.1	-	21.8	7,597.8	51.6	744.8	36,304.7	19.6	39.9
2005	73.8	103.9	73.5	81.6		60.1		7.8	0.9	6,618.4	0.3	571.2	43,072.1	0.3	56.1
2006	82.8	108.5	6.6	77.6		40.0			7.7	6,330.0	0.7	507.4	43,888.3		360.4
2007	131.3	158.2	232.4	35.8	19.4	11.6	12.7	177.3	64.6	6,911.3	64.6	525.0	50,463.9	0.3	57.3
2008	108.0	70.4	31.1	245.7	2.2	2.5	41.9		64.8	5,440.1	15.2	611.3	53,901.2	56.1	5.9
2009	134.7	147.8	70.4	54.0	14.9	22.3	35.2		69.3	6,143.4	108.5	484.4	58,841.6	63.2	17.2
2010	50.4	51.4	1.1	132.1	0.1	5.2	47.4	17.7	23.4	6,661.4	79.0	135.9	65,193.4	0.3	8.9
2011	41.2	42.2	103.8	6.5	14.8	8.4	13.0	92.1	92.2	7,023.6	90.7	89.6	73,192.3	20.7	190.4
2012	82.4	15.3	62.7	3.6	7.6	4.2	33.9	12.7	57.7	7,359.9	153.8	149.5	63,240.7	1.0	167.8
2013	41.4	55.8	40.8	9.7	5.5	6.2	6,605.3	25.2	20.2	5,560.2	129.7	185.0	56,824.5	2.9	459.4
2014	26.8	63.5	63.1	11.7	-	-	1.3	7.4	3.5	6,058.3	94.2	64.3	62,845.1	6.1	3.6

Table 5.8: List of elasmobranch species and their classification of main habitat preference for potential interactions with fisheries fleets (from Sharks Working Group intersessional meeting, 2014).

[illegible]

Table 5.9: List of the ICCAT sharks and rays to be reported by ICCAT CPCs and considered as oceanic pelagic species with high probability of interaction with tuna and tuna-like fleets.

SpeciesCode	SpeciesCode	ScieName	CoNameEN	CoNameFR	CoNameES	IccSpcGrp	TaxonType
109	SMA	Isurus paucus	Shortfin mako	Taupe bleue	Marrajo dientuso	2-Sharks (major sp.)	1-Species
112	POR	Lamna nasus	Porbeagle	Requin-taupe commun	Marrajo sardinero	2-Sharks (major sp.)	1-Species
126	BSH	Prionace glauca	Blue shark	Peau bleue	Tiburón azul	2-Sharks (major sp.)	1-Species
103	BSK	Cetorhinus maximus	Basking shark	Pélérin	Peregrino	2-Sharks (other sp.)	1-Species
105	ALV	Alopias vulpinus	Thresher	Renard	Zorro	2-Sharks (other sp.)	1-Species
107	BTH	Alopias superciliosus	Bigeye thresher	Renard à gros yeux	Zorro ojón	2-Sharks (other sp.)	1-Species
110	LMA	Isurus paucus	Longfin mako	Petite taupe	Marrajo carite	2-Sharks (other sp.)	1-Species
114	WSH	Carcharodon carcharias	Great white shark	Grand requin blanc	Jaquetón blanco	2-Sharks (other sp.)	1-Species
118	RHN	Rhincodon typus	Whale shark	Requin baleine	Tiburón ballena	2-Sharks (other sp.)	1-Species
132	OCS	Carcharhinus longimanus	Oceanic whitetip shark	Requin océanique	Tiburón oceánico	2-Sharks (other sp.)	1-Species
135	FAL	Carcharhinus falciformis	Silky shark	Requin soyeux	Tiburón Jaquetón	2-Sharks (other sp.)	1-Species
150	SPZ	Sphyrna zygaena	Smooth hammerhead	Requin-marteau commun	Cornuda cruz (=Pez martillo)	2-Sharks (other sp.)	1-Species
151	SPL	Sphyrna lewini	Scalloped hammerhead	Requin-marteau halicorne	Cornuda común	2-Sharks (other sp.)	1-Species
153	SPK	Sphyrna mokarran	Great hammerhead	Grand requin marteau	Cornuda gigante	2-Sharks (other sp.)	1-Species
200	CCG	Carcharhinus galapagensis	Galapagos shark	Requin des Galapagos	Tiburón de Galápagos	2-Sharks (other sp.)	1-Species
202	PSK	Pseudocarcharias kamoharui	Crocodile shark	Requin crocodile	Tiburón cocodrilo	2-Sharks (other sp.)	1-Species
209	ISB	Isistius brasiliensis	Cookie cutter shark	Squalelet féroce	Tollo cigarro	2-Sharks (other sp.)	1-Species
210	LMP	Megachasma pelagios	Megamouth shark	Requin grande gueule	Tiburón bocudo	2-Sharks (other sp.)	1-Species
218	PLS	Pteroplatytrygon violacea	Pelagic stingray	Pastenague violette	Raya-látigo violeta	2-Sharks (other sp.)	1-Species
221	QUL	Squaliolus laticaudus	Spined pygmy shark	Squale nain	Tollo pimeo espinudo	2-Sharks (other sp.)	1-Species
227	RMB	Manta birostris	Giant manta	Mante géante	Manta gigante	2-Sharks (other sp.)	1-Species
228	RMH	Mobula hypostoma	Lesser devil ray	Mante diable	Manta del Golfo	2-Sharks (other sp.)	1-Species
229	RMJ	Mobula japanica	Spinetail mobula			2-Sharks (other sp.)	1-Species
230	RMM	Mobula mobular	Devil fish	Diable de mer méditerranéen	Manta mobula	2-Sharks (other sp.)	1-Species
231	RMO	Mobula thurstoni	Smoothtail mobula	Mante vampire	Diablo chupasangre	2-Sharks (other sp.)	1-Species
232	RMT	Mobula tarapacana	Chilean devil ray			2-Sharks (other sp.)	1-Species
243	RMN	Mobula rochebrunei	Lesser Guinean devil ray	Petit diable de Guinée	Diablito de Guinea	2-Sharks (other sp.)	1-Species
108	THR	Alopias spp	Thresher sharks nei	Renards de mer nca	Zorros nep	2-Sharks (other sp.)	2-Genus
111	MAK	Isurus spp	Mako sharks	Taupes	Marrajos	2-Sharks (other sp.)	2-Genus
154	SPN	Sphyrna spp	Hammerhead sharks nei	Requins marteau nca	Cornudas (Peces martillo) nep	2-Sharks (other sp.)	2-Genus
115	MSK	Lamnidae	Mackerel sharks, porbeagles	Requins taupe nca	Jaquetones, marrajos nep	2-Sharks (other sp.)	4-Family
149	RSK	Carcharhinidae	Requiem sharks nei	Requins nca	Cazones picudos, tintoreras nep	2-Sharks (other sp.)	4-Family
155	SPY	Sphymidae	Hammerhead sharks, etc. ne	Requins marteau, etc. nca	Cornudas, etc. nep	2-Sharks (other sp.)	4-Family
212	MAN	Mobulidae	Mantas, devil rays nei	Mantes, diables de mer nca	Mantas, diablos nep	2-Sharks (other sp.)	4-Family
234	STT	Dasyatidae	Stingrays, butterfly rays nei	Pastenagues, etc. nca	Pastinacas, etc. nep	2-Sharks (other sp.)	4-Family

Table 5.10: List of current ICCAT management advice related to sharks and rays (with internet links).

ICCAT KEY	TYPE	RECOMMENDATION / RESOLUTION	ACTIVE
2015-06	Rec	Recommendation by ICCAT on Porbeagle caught in Association with ICCAT Fisheries	1-Jun-2016
2014-06	Rec	Recommendation by ICCAT on Shortfin Mako Caught in Association with ICCAT Fisheries	Yes
2013-10	Rec	Recommendation by ICCAT on Biological Sampling of Prohibited Shark Species by Scientific Observers	Yes
2012-05	Rec	Recommendation by ICCAT on Compliance with Existing Measures on Shark Conservation and Management	Yes
2011-10	Rec	Recommendation by ICCAT on Information Collection and Harmonization of Data on Bycatch and Discards in ICCAT Fisheries	Yes
2011-08	Rec	Recommendation by ICCAT on the Conservation of Silky Sharks Caught in Association with ICCAT Fisheries	Yes
2010-08	Rec	Recommendation by ICCAT on hammerhead sharks (family sphyrnidae) caught in association with fisheries managed by ICCAT	Yes
2010-07	Rec	Recommendation by ICCAT on the conservation of oceanic whitetip shark caught in association with fisheries in the ICCAT convention area	Yes
2010-06	Rec	Recommendation by ICCAT on atlantic shortfin mako sharks caught in association with ICCAT fisheries	Yes
2009-07	Rec	Recommendation by ICCAT on the conservation of thresher sharks caught in association with fisheries in the iccat convention area	Yes
2007-06	Rec	Supplemental Recommendation by ICCAT Concerning Sharks	Yes
2004-10	Rec	Recommendation by ICCAT concerning the conservation of sharks caught in association with fisheries managed by ICCAT	Yes
2003-10	Res	Resolution by ICCAT on the shark fishery	Yes
1995-02	Res	Resolution by ICCAT on cooperation with the Food & Agriculture Organization of the United Nations (FAO) with regard to study on the status of stocks and bycatches of shark species	Yes

Table 5.11: 2015–2020 revised schedule of ICCAT SCRS working group meetings (copy from the 2015 Report of the Standing Committee on Research and Statistics (SCRS), Table 16.2, page 235). Shark working group meetings are identified with "SHK".

2015-2020 TENTATIVE SCHEDULE OF MEETINGS						
	2015	2016	2017	2018	2019	2020
ALB		ALB (N,S,M) Data Prep ALB (N,S,M) SA session				ALB (N,S,M) Data Prep ALB (N,S,M) SA session
BFT	BFT (E,W) Data Prep	BFT (E,W) Data Prep	BFT SA session		BFT Data Prep	BFT SA session
YFT-SKJ-BET	BET Data Prep BET SA session	YFT Data Prep YFT SA session	Management of FAD fishing in the EAF context		SKJ SA session	BET Data Prep BET SA session
SWO			SWO (N,S,M) Data Prep SWO (N,S,M) SA session			
BIL		SAI SA		BUM & WHM SA		
SHK	BSH SA session	SHK Data Prep	SMA SA	Other SHK SA session	POR SA	
SMT	SMT Data Prep	SMT Data Prep	SMT Data Prep	SMT SA session		SMT Data Prep
		Workshop on Ecosystem Based Fishery Management				
		Ad hoc WG FADs	Management of FAD fishing in the EAF context		Workshop on fishery independent abundance indicators	
Methods	WGSAM					
Ecosystems	SC-ECO					
Courses	COURSES					
SCRS-COM	WG DIALOGUE SCRS - COMM					

This schedule has been prepared for planning purposes and will be adapted according to the different requirements and the progress of the SCRS SSP, especially with the incorporation of MSE approaches in the work of the SCRS.

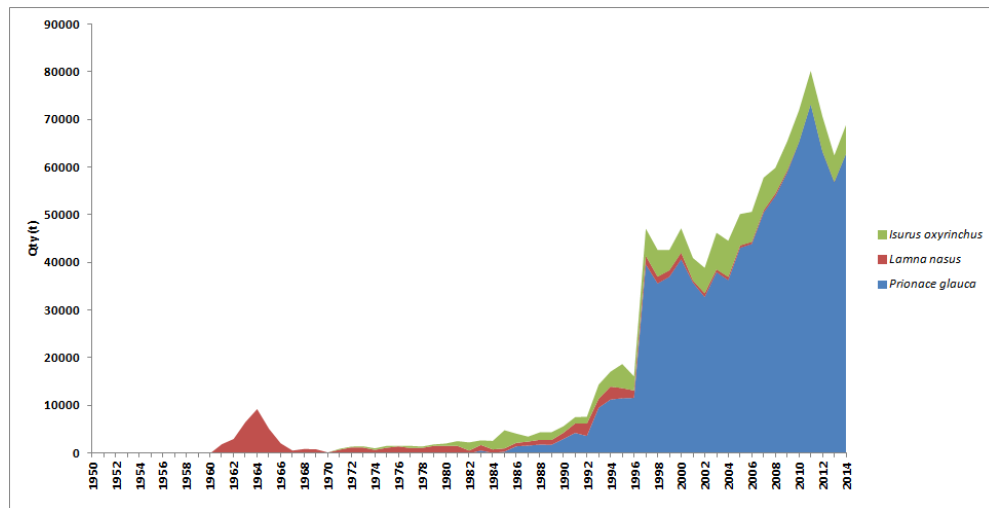


Figure 5.1: Catch series for main ICCAT shark species (BSH, POR, SMA).

6 TOR 3: Standard operating procedure for ICES elasmobranch stock coordinators.

In ICES, 16 countries provide landings data for 55 elasmobranch stocks. National data must be submitted by species rather than stock. This is because of the use of generic reporting categories and unsolvable misuse of species codes at national level. This makes elasmobranchs a unique case for ICES, where data calls must be by species and not stock. Stock specific landings data must be compiled by combining certain codes often using expert judgement. For this reason a single data coordinator is required for WGEF. This role is best performed by a single person in WGEF. In time it could be possible for it to be assumed by the ICES Secretariat.

6.1 Role of national data providers

For ICCAT, ICES Member Countries should provide all landings and discards data for all gears, for the named species in Table 5.9.

The national data provider to ICES WGEF should notify the Elasmobranch Data Coordinator of any special treatment that the data per species should receive or any quality issues that may relate to any data.

6.2 Role of ICES Elasmobranch Landings Coordinator

There is a clear need for WGEF to have a named Landing Coordinator to ensure data integrity of the submitted national landings and Working Group estimates. However, the demands of this task means that this role should not be allocated to those WGEF members who are stock coordinators for multiple stocks (e.g. demersal species).

Some other bodies (e.g. ICCAT and CCAMLR) have members of staff who collate such data, and it is recommended that the ICES Secretariat have a named member of staff to act as a Landings Coordinator from 2017 onwards. For 2016, WGEF should ensure that data are collated in the format proposed above and that decision rules for which data are accepted or transformed (see Section 4) are agreed.

6.2.1 Landings Coordinator Duties

The Landings Coordinator should

- Oversee the collation of national landings data, which should be provided by Member States (through the national coordinator or, with their agreement, the national delegate to WGEF) in an agreed format;
- Undertake preliminary data checks on reporting categories and make corrections after consultation with national WGEF member and stock coordinator (noting that those WGEF members representing nations that have high levels of elasmobranch landings should provide initial input into the additional fields proposed above). In some cases it may be necessary to confirm with the national co-ordinator that no data does or does not equal zero landings.
- To ensure that all landings are attributed to the defined ICES stocks (e.g. thresher). In those cases where landings cannot be attributed to defined advisory stocks, and these should be defined as one of the following:

- Species for which ICES does not currently provide advice should be listed as 'Other stocks'
- Skate species that are caught in Divisions outside currently defined stock areas, as well as generic '*Rajidae*' landings should be allocated to 'raj-celt' or 'raj-89a' or 'raj-347d'
- Unallocated generic categories that are likely to correspond to multiple advisory stocks should be defined as 'Unassigned commercial stocks'
- To provide catch tables to stock coordinators at the very start of WGEF meeting so that they can be agreed as the best available Working Group estimates, and included in both the report and advice sheet (where necessary);
- To ensure that these data are archived each year

6.3 Role of ICES Elasmobranch Stock Coordinators

In relation to landings data, the Stock coordinator should:

- Check the summary catch table(s) at the start of the meeting and identify any potential issues with temporal/spatial patterns in reported national landings that should be checked by the Landings coordinator and/or other appropriate member of WGEF;
- Where countries have not submitted any data, data for these should be requested from the nation (where possible) or extracted from the FAO Capture Production Database (<http://www.fao.org/fishery/statistics/global-capture-production/query/en>). FAO data are usually at least one year older than ICES data and may not be available for the most recent assessment year. Where data are imported, they should be subject to the same decision rules as ICES data.
- Ensure report text is updated, paying particular reference to ICES advice applicable, management applicable, updated landings tables (and figures) and updates to assessments/survey analyses;
- Ensure landings data are correctly included in the report and advice sheet. It should be noted that any backfilling of data using non-ICES sources will result in changes to totals catches. This, in turn, will cause changes in the data quality tables (Figure 5.1). Therefore, an explanatory paragraph should be written in the landing's discussion section in the relevant WGEF report chapter.

Fill in QC sheet: Quality control can be achieved by applying the template as shown in Figure 6.1.

A proposed data-flowchart, outlining individual roles and the data process is illustrated in Figure 6.2.

R. clavata WG year	Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
2012													
2013													
2014													
2015													
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
CV													

Figure 6.1. Example of landings data quality control sheet. This template should be filled in by the stock coordinator at the end of the assessment process. This approach allows for visual recognition of data revisions.

6.4 Information for 2016 data call and suggestions for the future collation of landings data by WGEF

WGEF provide advice on 55 stocks of elasmobranch (Table A2) and also collate landings for a variety of other stocks and species. In addition to species-specific reporting, elasmobranchs are often reported under a variety of generic landings categories. The traditional stock-based Data Call trialled in 2015 resulted in several problems for WGEF, including that generic categories were not submitted by some nations and that data were sometimes provided as separate files by stock and nation, so increasing the workload when collating data.

WGEF considers that it is important that the group collates available landings data for all sharks, dogfish, skates and rays (*Elasmobranchii*) occurring in the ICES area (broadly equating with FAO area 27). The 3-alpha codes as used by FAO for the species/stocks that may of interest to WGEF are provided in Annex 1, although it is acknowledged that the majority of these species are infrequent and/or not typically reported in landings data in the ICES area.

Some of the stocks of interest extend into adjacent FAO areas, such as the Northwest Atlantic (FAO area 21), western Central Atlantic (FAO area 31), eastern Central Atlantic (FAO area 31) and the Mediterranean (FAO area 37). The species for which the stocks extend beyond the ICES area and for which Member States fishing in those areas should be requested to provide data include:

ICES Stock code	Stock name	FAO area				
		21	27	31	34	37
cyo-nea	Portuguese dogfish (<i>Centroscymnus coelolepis</i>) in the Northeast Atlantic		X		X	
guq-nea	Leafscale gulper shark (<i>Centrophorus squamosus</i>) in the Northeast Atlantic		X		X	
por-nea	Porbeagle (<i>Lamna nasus</i>) in the Northeast Atlantic		X		X	X
gag-nea	Tope (<i>Galeorhinus galeus</i>) in the Northeast Atlantic		X		X	X
thr-nea	Thresher sharks (<i>Alopias spp.</i>) in the North Atlantic	X	X	X	X	X
trk-nea	Starry smooth-hound (<i>Mustelus spp.</i>) in the Northeast Atlantic		X		X	X
bsk-nea	Basking shark (<i>Cetorhinus maximus</i>) in the Northeast Atlantic	X	X	X	X	X

To date, WGEF has not used InterCatch, but there is an increasing rationale for ensuring that data provided under data calls are as compatible with InterCatch as possible.

Given that most elasmobranchs are a bycatch species and not subject to routine biological sampling (e.g. age determination), it was considered that neither HI (Header Information) nor SD (Species Data) templates would be used at the present time. Much of the information included in the SI (Species Information) form would be appropriate to elasmobranchs. Whereas data supplied in the data call should be requested in this format, data should be submitted to ICES (accessions@ices.dk) rather than uploaded to InterCatch. The primary reason for this is that, due to the widespread use of generic categories and frequent cases of misidentifications and coding errors, WGEF needs a user-friendly method of reallocating or splitting catches to other taxa (working group estimates).

As such, the 2016 data call for WGEF should usefully stipulate that landings be provided in the standard InterCatch SI format, with the following fields:

COLUMN HEADER	DEFAULT	DESCRIPTION/DATA TO BE INPUT
RecordType	SI	
Country		ISO country code
Year		YYYY
SeasonType	Annual	
Season		
Fleet		See below
AreaType	ICES Division	
FishingArea		ICES Division (e.g. VIIIf)
DepthRange	NA	
Species		3-alpha code
Stock		
CatchCategory		L = landings; D = discards. In the short term only L are required.
ReportingCategory	A	A = All reported
DataToFrom	NA	
Usage	NA	
SamplesOrigin	NA	
QualityFlag	NA	
UnitCATON	Tonnes	All data should be provided as tonnes, to 3 decimal places
CATON		National catch in tonnes
OffLandings	Official landings	
varCATON	NA	
InfoFleet		Free text
InfoStockCoordinator		Free text
InfoGeneral		Free text

WGEF could usefully collate data for the following 'fleets': (i) beam trawl, (ii) all other bottom trawls (including otter and pair trawls), (iii) pelagic trawls, (iv) hooks and lines, (v) nets, (vi) seines and (vii) all other gears. This, however, is not fully compatible with the defined levels in the DCF list of métiers (<https://datacollection.jrc.ec.europa.eu/worddef/fishing-activity-métier>). Member states should provide data by the named gear categories above where possible. If this is not possible, then data should be submitted at level 2.

Level 1	Level 2	Level 3	Level 4
Activity	Gear classes	Gear groups	Gear type
Fishing activity	Dredges	Dredges	Boat dredge [DRB]
	Trawls	Bottom trawls	Bottom otter trawl [OTB]
			Multi-rig otter trawl [OTT]
			Bottom pair trawl [PTB]
			Beam trawl [TBB]
			Midwater otter trawl [OTM]
		Pelagic trawls	Pelagic pair trawl [PTM]
			Hand and Pole lines [LHP] [LHM]
	Hooks and Lines	Rods and Lines	Trolling lines [LTL]
			Trolling lines [LTL]
		Longlines	Drifting longlines [LLD]
			Pots and Traps [FPO]
	Traps	Traps	Fykenets [FYK]
			Stationary uncovered poundnets [FPN]
	Nets	Nets	Trammelnet [GTR]
			Set gillnet [GNS]
			Driftnet [GND]
		Surrounding nets	Purse-seine [PS]
			Lampara nets [LA]
	Seines	Seines	Fly shooting seine [SSC]
			Anchored seine [SDN]
			Pair seine [SPR]
			Beach and boat seine [SB] [SV]
	Other		

The national WGEF representative or the WGEF Landings Coordinator would then need to augment these data with the additional fields (columns) below:

COLUMN HEADER	DEFA ULT	DESCRIPTION/DATA TO BE INPUT
FAOArea		FAO area code (27, 21, 27, 34, 37 etc.)
Category	Default = 1	
WGEFCatego ry	Default = 1	
WGEFSpecies Name		Valid scientific name only
ICESStockNa me		ICES stock name or 'other' if not attributable to an ICES advisory stock
WGEF_CATO N		WGEF estimates of landings
InfoWGEF		Free text to indicate where and why WGEF estimates of landings and species differs from official data

WGEF members who are regular attendees (e.g. France, Ireland, Netherlands, Norway, Portugal, Spain, UK) will be requested to complete these fields, preferably prior to data being submitted to ICES accessions. The Landings Coordinator will assist in the compilation of these data (after submission) for those nations that are not regular participants of the group (these nations often having limited annual landings).

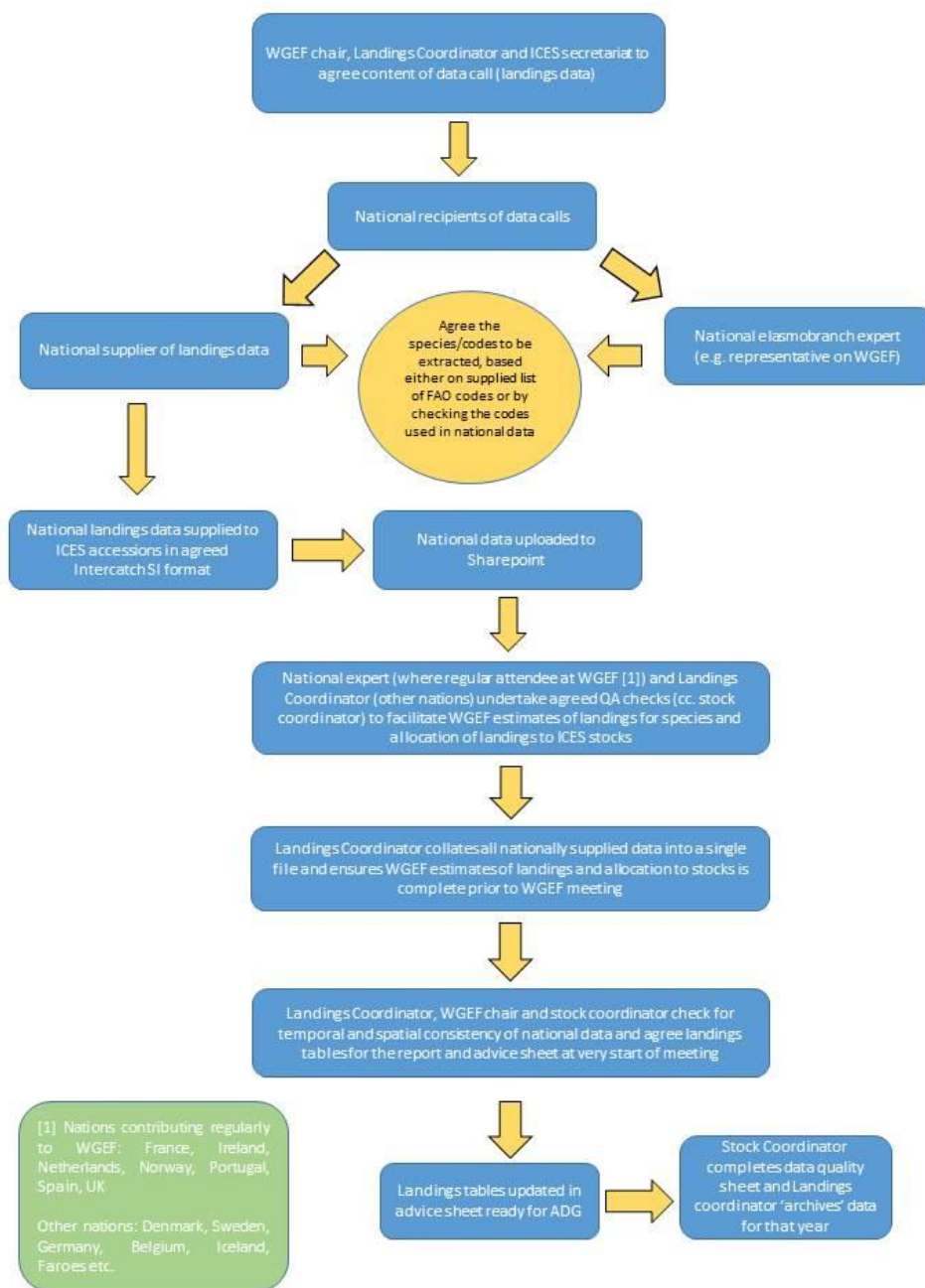


Figure 6.2. Proposed data flow and explanation of new roles within WGEF.

6.5 Future data management

It is proposed that in 2017 that the data collected during the 2016 data call, and future, annual calls, be amalgamated into a database. This procedure should be relatively straightforward due to the new standardization of WGEF data in the InterCatch format.

The use of existing databases was explored. InterCatch itself is not suitable, due to the additional data columns required by WGEF to assign landings categories to their correct species and stocks. The use of one or more of the Regional Databases being developed by ICES was also examined. However, following post-meeting discussions with some of the developers of these databases, it was decided against using this because a) the data are collected at too high a level for WGEF's needs, b) they are designed to hold sampling data as well as landings data, and c) access to these databases is strictly controlled, due to the non-anonymised data they hold.

It is therefore proposed that a purpose-designed database be built in 2017 to hold WGEF Landings data. It is recommended that this be a joint project between WGEF and the Marine Institute Ireland, with technical support and eventual hosting by the ICES secretariat and ICES data centre to be explored.

7 Recommendations

WKSHARK2 recommends to WGEF that the QC template shown in Figure 6.1 be filled in each year for each advice stock.

WKSHARK2 recommends that WGEF and the Irish Marine Institute develop a purpose-designed database in 2017 to hold WGEF landings data. WKSHARK2 further recommends that WGEF and ICES Secretariat investigate means by which these database may be hosted by ICES, perhaps being incorporated into the Regional Database.

8 References

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Appendix 1

Initial list of 3-alpha codes for chondrichthyan fish occurring in the ICES area/FAO area 27.

Table A1: Initial list of 3-alpha codes for chondrichthyan fish occurring in the ICES area/FAO area 27

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD E	TAXOCODE	FAMILY	ICES STOCK OR COMPLEX OF INTEREST	FAO AREA
Section 2	Spurdog	<i>Squalus acanthias</i>	DGS	1090100704	Squalidae	dgs-nea	27 only
Section 2	Dogfish nei	<i>Squalus spp</i>	DGZ	10901007XX	Squalidae	dgs-nea	27 only
Section 3	Leafscale gulper shark	<i>Centrophorus squamosus</i>	GUQ	1090100803	Squalidae	guq-nea	27 (and 34)
Section 3	Portuguese dogfish	<i>Centroscyrnus coelolepis</i>	CYO	1090101601	Squalidae	cyo-nea	27 (and 34)
Section 4	Kitefin shark	<i>Dalatias licha</i>	SCK	1090101801	Squalidae	sck-nea	27 only
Section 5	Friilled shark	<i>Chlamydoselachus anguineus</i>	HXC	1050100101	Chlamydoselachid ae	Other deep-water sharks	27 only
Section 5	Bluntnose sixgill shark	<i>Hexanchus griseus</i>	SBL	1050200201	Hexanchidae	Other deep-water sharks	27 only
Section 5	Bigeyed sixgill shark	<i>Hexanchus nakamurai</i>	HXN	1050200202	Hexanchidae	Other deep-water sharks	27 only
Section 5	Sharpnose sevengill shark	<i>Heptranchias perlo</i>	HXT	1050200301	Hexanchidae	Other deep-water sharks	27 only
Section 5	Friilled and cow sharks	<i>Hexanchiformes</i>	HXW	105XXXXXXX		Other deep-water sharks	27 only
Section 5	Goblin shark	<i>Mitsukurina owstoni</i>	LMO	1060301201	Mitsukurinidae	Other deep-water sharks	27 only
Section 5	Mouse catshark	<i>Galeus murinus</i>	GAM	1080100106	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	Atlantic ghost catshark	<i>Apristurus atlanticus</i>	CSU	1080101402	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	Iceland catshark	<i>Apristurus laurussonii</i>	APQ	1080101411	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	Madeira catshark	<i>Apristurus maderensis</i>	APF	1080101415	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	Ghost catshark	<i>Apristurus manis</i>	APA	1080101416	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	Smalleye catshark	<i>Apristurus microps</i>	APX	1080101417	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	Deep-water catsharks	<i>Apristurus spp</i>	API	10801014XX	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 5	False catshark	<i>Pseudotriakis microdon</i>	PTM	1080502801	Pseudotriakidae	Other deep-water sharks	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD		FAMILY	ICES STOCK OR COMPLEX OF	
			E	TAXOCODE		INTEREST	FAO AREA
Section 5	Little sleeper shark	<i>Somniosus rostratus</i>	SOR	1090100202	Squalidae	Other deep-water sharks	27 only
Section 5	Gulper shark	<i>Centrophorus granulosus</i>	GUP	1090100801	Squalidae	Other deep-water sharks	27 only
Section 5	Little gulper shark	<i>Centrophorus uyato</i>	CPU	1090100802	Squalidae	Other deep-water sharks	27 only
Section 5	Lowfin gulper shark	<i>Centrophorus lusitanicus</i>	CPL	1090100804	Squalidae	Other deep-water sharks	27 only
Section 5	Taiwan gulper shark	<i>Centrophorus niaukang</i>	CEK	1090100808	Squalidae	Other deep-water sharks	27 only
Section 5	Velvet belly	<i>Etmopterus spinax</i>	ETX	1090101001	Squalidae	Other deep-water sharks	27 only
Section 5	Great lanternshark	<i>Etmopterus princeps</i>	ETR	1090101005	Squalidae	Other deep-water sharks	27 only
Section 5	Smooth lanternshark	<i>Etmopterus pusillus</i>	ETP	1090101006	Squalidae	Other deep-water sharks	27 only
Section 5	Cookie cutter shark	<i>Isistius brasiliensis</i>	ISB	1090101101	Squalidae	Other deep-water sharks	27 only
Section 5	Large-tooth cookiecutter shark	<i>Isistius plutodus</i>	ISP	1090101102	Squalidae	Other deep-water sharks	27 only
Section 5	Birdbeak dogfish	<i>Deania calcea</i>	DCA	1090101401	Squalidae	Other deep-water sharks	27 only
Section 5	Rough longnose dogfish	<i>Deania hystricosa</i>	SDH	1090101402	Squalidae	Other deep-water sharks	27 only
Section 5	Arrowhead dogfish	<i>Deania profundorum</i>	SDU	1090101403	Squalidae	Other deep-water sharks	27 only
Section 5	Longnose velvet dogfish	<i>Centroscymnus crepidater</i>	CYP	1090101602	Squalidae	Other deep-water sharks	27 only
Section 5	Shortnose velvet dogfish	<i>Centroscymnus cryptacanthus</i>	CYY	1090101603	Squalidae	Other deep-water sharks	27 only
Section 5	Roughskin dogfish	<i>Centroscymnus owstoni</i>	CYW	1090101604	Squalidae	Other deep-water sharks	27 only
Section 5		<i>Centroscymnus spp</i>	CZI	10901016XX	Squalidae	Other deep-water sharks	27 only
Section 5	Smallmouth knifetooth dogfish	<i>Scymnodon obscurus</i>	SYO	1090101701	Squalidae	Other deep-water sharks	27 only
Section 5	Knifetooth dogfish	<i>Scymnodon ringens</i>	SYR	1090101702	Squalidae	Other deep-water sharks	27 only
Section 5	Velvet dogfish	<i>Scymnodon squamulosus</i>	SSQ	1090101704	Squalidae	Other deep-water sharks	27 only
Section 5	Scymnodon dogfish nei	<i>Scymnodon spp</i>	QUX	10901017XX	Squalidae	Other deep-water sharks	27 only
Section 5	Black dogfish	<i>Centrosyllium fabricii</i>	CFB	1090101901	Squalidae	Other deep-water sharks	27 only
Section 5	Spined pygmy shark	<i>Squaliolus laticaudus</i>	QUL	1090102802	Squalidae	Other deep-water sharks	27 only
Section 5	Angular roughshark	<i>Oxynotus centrina</i>	OXY	1090500601	Oxynotidae	Other deep-water sharks	27 only
Section 5	Sailfin roughshark	<i>Oxynotus paradoxus</i>	OXN	1090500602	Oxynotidae	Other deep-water sharks	27 only
Section 5	Bramble shark	<i>Echinorhinus brucus</i>	SHB	1090600901	Echinorhinidae	Other deep-water sharks	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD		FAMILY	ICES STOCK OR COMPLEX OF	
			E	TAXOCODE		INTEREST	FAO AREA
Section 5	Pale ray	<i>Bathyraja pallida</i>	BYP	1100400219	Rajidae	Other deep-water sharks	27 only
Section 5	Richardson's ray	<i>Bathyraja richardsoni</i>	BYQ	1100400221	Rajidae	Other deep-water sharks	27 only
Section 5	Spinetail ray	<i>Bathyraja spinicauda</i>	RJQ	1100400227	Rajidae	Other deep-water sharks	27 only
Section 5	Soft skate	<i>Malacoraja spinacidermis</i>	RJP	1100400801	Rajidae	Other deep-water sharks	27 only
Section 5	Kreffft's ray	<i>Malacoraja krefftii</i>	JFT	1100400803	Rajidae	Other deep-water sharks	27 only
Section 5	Blue ray	<i>Breviraja caerulea</i>	BVC	1100404002	Rajidae	Other deep-water sharks	27 only
Section 5	Gulper sharks nei	<i>Centrophorus spp</i>	CWO	10901008XX	Squalidae	Other deep-water sharks	27 only
Section 5	Lanternsharks nei	<i>Etmopterus spp</i>	SHL	10901010XX	Squalidae	Other deep-water sharks	27 only
Section 5	Deania dogfish nei	<i>Deania spp</i>	DNA	10901014XX	Squalidae	Other deep-water sharks	27 only
Section 5	Bathyraja rays nei	<i>Bathyraja spp</i>	BHY	11004002XX	Rajidae	Other deep-water sharks	27 only
Section 6	Porbeagle	<i>Lamna nasus</i>	POR	1060800301	Lamnidae	por-nea	27,34,37
Section 7	Basking shark	<i>Cetorhinus maximus</i>	BSK	1060100301	Cetorhinidae	bsk-nea	21,27,31,34,37
Section 8	Blue shark	<i>Prionace glauca</i>	BSH	1080200401	Carcharhinidae	Blue shark	21,27,31,34
Section 9	Shortfin mako	<i>Isurus oxyrinchus</i>	SMA	1060800201	Lamnidae	Shortfin mako	21,27,31,34
Section 9	Mako sharks	<i>Isurus spp</i>	MAK	10608002XX	Lamnidae	Other pelagic sharks	27 only
Section 10	Tope shark	<i>Galeorhinus galeus</i>	GAG	1080401103	Triakidae	gag-nea	27,34,37
Section 11	Thresher	<i>Alopias vulpinus</i>	ALV	1060600601	Alopiidae	thr-nea	21,27,31,34,37
Section 11	Bigeye thresher	<i>Alopias superciliosus</i>	BTH	1060600603	Alopiidae	thr-nea	21,27,31,34,37
Section 11	Thresher sharks nei	<i>Alopias spp</i>	THR	10606006XX	Alopiidae	thr-nea	21,27,31,34,37
Section 12	Megamouth shark	<i>Megachasma pelagios</i>	LMP	1060500101	Megachasmidae	Other pelagic sharks	27 only
Section 12	Longfin mako	<i>Isurus paucus</i>	LMA	1060800203	Lamnidae	Other pelagic sharks	27 only
Section 12	Great white shark	<i>Carcharodon carcharias</i>	WSH	1060800701	Lamnidae	Other pelagic sharks	27 only
Section 12	Mackerel sharks,porbeagles nei	<i>Lamnidae</i>	MSK	10608XXXXX	Lamnidae	Other pelagic sharks	27 only
Section 12	Mackerel sharks	<i>Lamniformes</i>	LMZ	106XXXXXXX		Other pelagic sharks	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD		FAMILY	ICES STOCK OR COMPLEX OF	
			E	TAXOCODE		INTEREST	FAO AREA
Section 12	Sandbar shark	<i>Carcharhinus plumbeus</i>	CCP	1080201001	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	OCS	1080201011	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Dusky shark	<i>Carcharhinus obscurus</i>	DUS	1080201016	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Silky shark	<i>Carcharhinus falciformis</i>	FAL	1080201017	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Bull shark	<i>Carcharhinus leucas</i>	CCE	1080201018	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Copper shark	<i>Carcharhinus brachyurus</i>	BRO	1080201020	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Spinner shark	<i>Carcharhinus brevipinna</i>	CCB	1080201021	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Bignose shark	<i>Carcharhinus altimus</i>	CCA	1080201026	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Carcharhinus sharks nei	<i>Carcharhinus spp</i>	CWZ	10802010XX	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Requiem sharks nei	<i>Carcharhinidae</i>	RSK	10802XXXXX	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Tiger shark	<i>Galeocerdo cuvier</i>	TIG	1080201703	Carcharhinidae	Other pelagic sharks	27 only
Section 12	Smooth hammerhead	<i>Sphyrna zygaena</i>	SPZ	1080300501	Sphyrnidae	Other pelagic sharks	27 only
Section 12	Scalloped hammerhead	<i>Sphyrna lewini</i>	SPL	1080300506	Sphyrnidae	Other pelagic sharks	27 only
Section 12	Smalleye hammerhead	<i>Sphyrna tudes</i>	SPQ	1080300508	Sphyrnidae	Other pelagic sharks	27 only
Section 12	Great hammerhead	<i>Sphyrna mokarran</i>	SPK	1080300510	Sphyrnidae	Other pelagic sharks	27 only
Section 12	Hammerhead sharks nei	<i>Sphyrna spp</i>	SPN	10803005XX	Sphyrnidae	Other pelagic sharks	27 only
Section 12	Hammerhead sharks, etc. nei	<i>Sphyrnidae</i>	SPY	10803XXXXX	Sphyrnidae	Other pelagic sharks	27 only
Section 12	Pelagic stingray	<i>Dasyatis violacea</i>	PLS	1100500316	Dasyatidae	Other pelagic sharks	27 only
Section 12	Giant manta	<i>Manta birostris</i>	RMB	1100800702	Mobulidae	Other pelagic sharks	27 only
Section 12	Devil fish	<i>Mobula mobular</i>	RMM	1100801007	Mobulidae	Other pelagic sharks	27 only
Section 12	Manta rays	<i>Manta spp</i>	MNT	11008007XX	Mobulidae	Other pelagic sharks	27 only
Section 12	Mobula nei	<i>Mobula spp</i>	RMV	11008010XX	Mobulidae	Other pelagic sharks	27 only
Section 12	Mantas, devil rays nei	<i>Mobulidae</i>	MAN	11008XXXXX	Mobulidae	Other pelagic sharks	27 only
Sections 13-20	Arctic skate	<i>Amblyraja hyperborea</i>	RJG	1100400168	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Shorttail skate	<i>Amblyraja jenseni</i>	RJJ	1100400171	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Starry ray	<i>Amblyraja radiata</i>	RJR	1100400103	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Blue skate	<i>Dipturus batis</i>	RJB	1100400101	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Norwegian skate	<i>Dipturus nidarosiensis</i>	JAD	1100400188	Rajidae	Rajiformes (multiple stocks)	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD		FAMILY	ICES STOCK OR COMPLEX OF	
			E	TAXOCODE		INTEREST	FAO AREA
Sections 13-20	Longnosed skate	<i>Dipturus oxyrinchus</i>	RJO	1100400111	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Sandy ray	<i>Leucoraja circularis</i>	RJI	1100400106	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Shagreen ray	<i>Leucoraja fullonica</i>	RJF	1100400107	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Cuckoo ray	<i>Leucoraja naevus</i>	RJN	1100400110	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Blonde ray	<i>Raja brachyura</i>	RJH	1100400105	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Thornback ray	<i>Raja clavata</i>	RJC	1100400102	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Madeiran ray	<i>Raja maderensis</i>	JFY	1100400183	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Small-eyed ray	<i>Raja microocellata</i>	RJE	1100400109	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Brown ray	<i>Raja miraletus</i>	JA1	1100400186	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Spotted ray	<i>Raja montagui</i>	RJM	1100400104	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Raja rays nei	<i>Raja spp</i>	SKA	11004001XX	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Undulate ray	<i>Raja undulata</i>	RJU	1100400112	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Deep-water ray	<i>Rajella bathyphila</i>	JRH	1100400140	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Bigelow's ray	<i>Rajella bigelowi</i>	JRW	1100400141	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Round ray	<i>Rajella fyllae</i>	RJY	1100400131	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20,23	White skate	<i>Rostroraja alba</i>	RJA	1100400125	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Rays and skates nei	<i>Rajidae</i>	RAJ	11004XXXXX	Rajidae	Rajiformes (multiple stocks)	27 only
Sections 13-20	Rays, stingrays, mantas nei	<i>Rajiformes</i>	SRX	110XXXXXXX		Rajiformes (multiple stocks)	27 only
Section 21	Smooth-hound	<i>Mustelus mustelus</i>	SMD	1080400713	Triakidae	trk-nea	27,34,37
Section 21	Starry smooth-hound	<i>Mustelus asterias</i>	SDS	1080400715	Triakidae	trk-nea	27,34,37
Section 21	Blackspotted smooth-hound	<i>Mustelus punctulatus</i>	MPT	1080400720	Triakidae	trk-nea	27,34,37
Section 21	Smooth-hounds nei	<i>Mustelus spp</i>	SDV	10804007XX	Triakidae	trk-nea	27,34,37
Section 22	Angelshark	<i>Squatina squatina</i>	AGN	1090300401	Squatinidae	agn-nea	27 only
Section 22	Angelsharks, sand devils nei	<i>Squatinidae</i>	ASK	10903XXXXX	Squatinidae	agn-nea	27 only
Section 24	Greenland shark	<i>Somniosus microcephalus</i>	GSK	1090100201	Squalidae	Greenland shark	27 only
Section 25	Blackmouth catshark	<i>Galeus melastomus</i>	SHO	1080100104	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_CODE E	TAXOCODE	FAMILY	ICES STOCK OR COMPLEX OF INTEREST	FAO AREA
Section 25	Atlantic sawtail catshark	<i>Galeus atlanticus</i>	GHA	1080100112	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 25	Small-spotted catshark	<i>Scyliorhinus canicula</i>	SYC	1080100301	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 25	Nursehound	<i>Scyliorhinus stellaris</i>	SYT	1080100302	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 25	Crest-tail catsharks nei	<i>Galeus spp</i>	GAU	10801001XX	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 25	Catsharks, nursehounds nei	<i>Scyliorhinus spp</i>	SCL	10801003XX	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Section 25	Catsharks, etc. nei	<i>Scyliorhinidae</i>	SYX	10801XXXXX	Scyliorhinidae	Scyliorhinidae (multiple stocks)	27 only
Generic categories	Houndsharks, smoothhounds nei	<i>Triakidae</i>	TRK	10804XXXXX	Triakidae	Generic category	27 only
Generic categories	Ground sharks	<i>Carcharhiniformes</i>	CVX	108XXXXXXXX		Generic category	27 only
Generic categories	Dogfish sharks nei	<i>Squalidae</i>	DGX	10901XXXXX	Squalidae	Generic category	27 only
Generic categories	Dogfish and hounds nei	<i>Squalidae, Scyliorhinidae</i>	DGH	10901XXXXX04 0		Generic category	27 only
Generic categories	Dogfish sharks, etc. nei	<i>Squaliformes</i>	SHX	109XXXXXXXX		Generic category	27 only
Generic categories	Batoid fish nei	<i>Batoidimorpha (Hypotremata)</i>	BAI	199XXXXXXXX0 52		Generic category	27 only
Generic categories	Various sharks nei	<i>Selachimorpha (Pleurotremata)</i>	SKH	199XXXXXXXX0 53		Generic category	27 only
Generic categories	Sharks, rays, skates, etc. nei	<i>Elasmobranchii</i>	SKX	199XXXXXXXX0 54		Generic category	27 only
Generic categories	Cartilaginous fish nei	<i>Chondrichthyes</i>	CAR	199XXXXXXXX0 55		Generic category	27 only
Generic categories	Deep-water sharks nei	<i>Elasmobranchii</i>	DWS	199XXXXXXXX0 56		Generic category	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD		FAMILY	ICES STOCK OR COMPLEX OF	
			E	TAXOCODE		INTEREST	FAO AREA
Miscellaneous	Sand tiger shark	<i>Carcharias taurus</i>	CCT	1060200501	Odontaspidae	Other	27 only
Miscellaneous	Smalltooth sand tiger	<i>Odontaspis ferox</i>	LOO	1060200601	Odontaspidae	Other	27 only
Miscellaneous	Bigeye sand tiger shark	<i>Odontaspis noronhai</i>	ODH	1060200602	Odontaspidae	Other	27 only
Miscellaneous	Crocodile shark	<i>Pseudocarcharias kamoharai</i>	PSK	1060403601	Pseudocarchariidae	Other	27 only
Miscellaneous	Milk shark	<i>Rhizoprionodon acutus</i>	RHA	1080204002	Carcharhinidae	Other	27 only
Miscellaneous	Longnose spurdog	<i>Squalus blainville</i>	QUB	1090100701	Squalidae	Other	27 only
Miscellaneous	Shortnose spurdog	<i>Squalus megalops</i>	DOP	1090100708	Squalidae	Other	27 only
Miscellaneous	Blackchin guitarfish	<i>Rhinobatos cemiculus</i>	RBC	1100100507	Rhinobatidae	Other	27 only
Miscellaneous	Common guitarfish	<i>Rhinobatos rhinobatos</i>	RBX	1100100524	Rhinobatidae	Other	27 only
Miscellaneous	Roughtail stingray	<i>Dasyatis centroura</i>	RDC	1100500307	Dasyatidae	Other	27 only
Miscellaneous	Common stingray	<i>Dasyatis pastinaca</i>	JDP	1100500326	Dasyatidae	Other	27 only
Miscellaneous	Tortonese's stingray	<i>Dasyatis tortonesei</i>	JDO	1100500331	Dasyatidae	Other	27 only
Miscellaneous	Round stingray	<i>Taeniura grabata</i>	RTB	1100501901	Dasyatidae	Other	27 only
Miscellaneous	Common eagle ray	<i>Myliobatis aquila</i>	MYL	1100700801	Myliobatidae	Other	27 only
Miscellaneous	Bull ray	<i>Pteromyia laeus bovinus</i>	MPO	1100701102	Myliobatidae	Other	27 only
Miscellaneous	Lusitanian cownose ray	<i>Rhinoptera marginata</i>	MRM	1100702406	Myliobatidae	Other	27 only
Miscellaneous	Spiny butterfly ray	<i>Gymnura altavela</i>	RGL	1101001501	Gymnuridae	Other	27 only
Miscellaneous	Marbled electric ray	<i>Torpedo marmorata</i>	TTR	1110100207	Torpedinidae	Other	27 only
Miscellaneous	Electric ray	<i>Torpedo nobiliana</i>	TTO	1110100208	Torpedinidae	Other	27 only
Miscellaneous	Common torpedo	<i>Torpedo torpedo</i>	TTV	1110100213	Torpedinidae	Other	27 only
Miscellaneous	Sharpenose sharks nei	<i>Rhizoprionodon spp</i>	RHZ	10802040XX	Carcharhinidae	Other	27 only
Miscellaneous	Guitarfish nei	<i>Rhinobatos spp</i>	GUZ	11001005XX	Rhinobatidae	Other	27 only
Miscellaneous	Guitarfish, etc. nei	<i>Rhinobatidae</i>	GTF	11001XXXXX	Rhinobatidae	Other	27 only
Miscellaneous	Stingrays nei	<i>Dasyatis spp</i>	STI	11005003XX	Dasyatidae	Other	27 only
Miscellaneous	Stingrays, butterfly rays nei	<i>Dasyatidae</i>	STT	11005XXXXX	Dasyatidae	Other	27 only
Miscellaneous	Eagle rays	<i>Myliobatis spp</i>	MWX	11007008XX	Myliobatidae	Other	27 only
Miscellaneous	Cownose rays	<i>Rhinoptera spp</i>	NZX	11007024XX	Myliobatidae	Other	27 only

REPORT SECTION	ENGLISH NAME	SCIENTIFIC NAME	3A_COD		FAMILY	ICES STOCK OR COMPLEX OF	
			E	TAXOCODE		INTEREST	FAO AREA
Miscellaneous	Eagle rays nei	<i>Myliobatidae</i>	EAG	11007XXXXX	Myliobatidae	Other	27 only
Miscellaneous	Butterfly rays nei	<i>Gymnura spp</i>	RBY	11010015XX	Gymnuridae	Other	27 only
Miscellaneous	Torpedo rays	<i>Torpedo spp</i>	TOE	11101002XX	Torpedinidae	Other	27 only
Miscellaneous	Electric rays nei	<i>Torpedinidae</i>	TOD	11101XXXXX	Torpedinidae	Other	27 only
Miscellaneous	Electric rays, etc.nei	<i>Torpediniformes</i>	TOF	111XXXXXXX	Torpedinidae	Other	27 only

Appendix 2 Draft Data Call

Member States should be requested to:

Provide national landings data for all categories of elasmobranch fish for the period 2005-2015. These data should be provided in a single file (e.g. ES_Elasmobranch_Landings2005_2015.csv or *.xls) and should follow the InterCatch SI format, and be reported by Year, Fleet (see below), ICES Division and landings should be provided in tonnes (three decimal places).

Where practicable, 'fleet' data should be provided for the following categories: (i) beam trawl, (ii) all other bottom trawls (including otter and pair trawls), (iii) pelagic trawls, (iv) hooks and lines, (v) nets, (vi) seines and (vii) all other gears. If Member States are unable to provide data by these named gear categories, then data should be submitted at Level 2.

Submitted data should include national landings for all elasmobranch species in FAO area 27, as well as national landings for FAO areas 34 (cyo-nea, guq-nea), 34 and 27 (por-nea, gag-nea, trk-nea) and 21,31,34,37 (thr-nea, bsk-nea).

National coordinators for France, Ireland, Netherlands, Norway, Portugal, Spain, UK should liaise with their national WGEF delegates to ensure that additional fields, as indicated in the WKSHARK2 report, are completed prior to submission to accessions@ices.dk. For other Member States, data can be submitted directly to ICES.

Data should be submitted to the ICES Secretariat by 1st May 2016. A list of relevant FAO codes is available on request, or can be found in the WKSHARK2 report.

Table A2 Elasmobranch stocks for which ICES currently provide advice

ICES STOCK CODE	STOCK NAME
Widely distributed species and migratory stocks	
dgs-nea	Spurdog (<i>Squalus acanthias</i>) in the Northeast Atlantic
cyo-nea	Portuguese dogfish (<i>Centroscymnus coelolepis</i>) in the Northeast Atlantic
guq-nea	Leafscale gulper shark (<i>Centrophorus squamosus</i>) in the Northeast Atlantic
sck-nea	Kitefin shark (<i>Dalatias licha</i>) in the Northeast Atlantic
por-nea	Porbeagle (<i>Lamna nasus</i>) in the Northeast Atlantic
gag-nea	Tope (<i>Galeorhinus galeus</i>) in the Northeast Atlantic
Thr-nea	Thresher sharks (<i>Alopias</i> spp.) in the North Atlantic
trk-nea	Starry smooth-hound (<i>Mustelus</i> spp.) in the Northeast Atlantic
agn-nea	Angel shark (<i>Squatina squatina</i>) in the Northeast Atlantic
bsk-nea	Basking shark (<i>Cetorhinus maximus</i>) in the Northeast Atlantic
raj-mar	Rays and skates (mainly thornback ray) in the Azores and Mid-Atlantic Ridge
rja-nea	White skate (<i>Rostroraja alba</i>) in the Northeast Atlantic
Bay of Biscay and Iberian coast	
rjb-89a	Common skate (<i>Dipturus batis</i> -complex) in Subarea VIII and Division IXa (Bay of Biscay and Atlantic Iberian waters)
rjn-bisc	Cuckoo ray (<i>Leucoraja naevus</i>) in Subarea VIII (Bay of Biscay and Cantabrian Sea)
rjn-pore	Cuckoo ray (<i>Leucoraja naevus</i>) in Division IXa (west of Galicia, Portugal, and Gulf of Cadiz)
rjh-pore	Blonde ray (<i>Raja brachyura</i>) in Division IXa (west of Galicia, Portugal, and Gulf of Cadiz)
rjc-bisc	Thornback ray (<i>Raja clavata</i>) in Subarea VIII (Bay of Biscay and Cantabrian Sea)
rjc-pore	Thornback ray (<i>Raja clavata</i>) in Division IXa (west of Galicia, Portugal, and Gulf of Cadiz)
rjm-bisc	Spotted ray (<i>Raja montagui</i>) in Subarea VIII (Bay of Biscay and Cantabrian Sea)
rjm-pore	Spotted ray (<i>Raja montagui</i>) in Division IXa (west of Galicia, Portugal, and Gulf of Cadiz)
rju-8ab	Undulate ray (<i>Raja undulata</i>) in Divisions VIIa,b (Bay of Biscay)
rju-8c	Undulate ray (<i>Raja undulata</i>) in Divisions VIIc (Cantabrian Sea)
rju-9a	Undulate ray (<i>Raja undulata</i>) in Division IXa (west of Galicia, Portugal, and Gulf of Cadiz)
raj-89a	Other skates and rays in Subarea VIII and Division IXa (Bay of Biscay and Atlantic Iberian waters)
sho-89a	Black-mouth dogfish (<i>Galeus melastomus</i>) in Subarea VIII and Division IXa (Bay of Biscay and Atlantic Iberian waters)
syc-8c9a	Lesser-spotted dogfish (<i>Scyliorhinus canicula</i>) in Divisions VIIc and IXa (Atlantic Iberian waters)
syc-bisc	Lesser-spotted dogfish (<i>Scyliorhinus canicula</i>) in Divisions VIIa,b,d (Bay of Biscay)
Celtic Seas	
rjb-celt	Common skate (<i>Dipturus batis</i>) complex (flapper skate (<i>Dipturus</i> cf. <i>flossada</i>) and blue skate (<i>Dipturus</i> cf. <i>intermedia</i>)) in Subareas VI and VII (excluding VII d)
rji-celt	Sandy ray (<i>Leucoraja circularis</i>) in Subareas VI and VII (Celtic Sea and West of Scotland)
rjf-celt	Shagreen ray (<i>Leucoraja fullonica</i>) in Subareas VI and VII (Celtic Sea and West of Scotland)
rjn-celt	Cuckoo ray (<i>Leucoraja naevus</i>) in Subareas VI and VII (Celtic Sea and West of Scotland)
rjh-7afg	Blonde ray (<i>Raja brachyura</i>) in Divisions VIIa, f, g (Irish and Celtic Sea)
rjh-7e	Blonde ray (<i>Raja brachyura</i>) in Division VIIe (western English Channel)
rjc-7afg	Thornback ray (<i>Raja clavata</i>) in Divisions VIIa, f, g (Irish and Celtic Sea)

ICES Stock CODE	STOCK NAME
rjc-echw	Thornback ray (<i>Raja clavata</i>) in Division VIIe (Western English Channel)
rjc-VI	Thornback ray (<i>Raja clavata</i>) west of Scotland (Subarea VI)
rje-7ech	Small-eyed ray (<i>Raja microocellata</i>) in the English Channel (Divisions VIIId,e)
rje-7fg	Small-eyed ray (<i>Raja microocellata</i>) in Divisions VIIIf, g (Bristol Channel)
rjm-67bj	Spotted ray (<i>Raja montagui</i>) in Subarea VI and Divisions VIIb,j (west of Scotland and Ireland)
rjm-7aeh	Spotted ray (<i>Raja montagui</i>) in Divisions VIIa and VII e-h (southern Celtic seas)
rju-7bj	Undulate ray (<i>Raja undulata</i>) in Divisions VIIb,j (Southwest of Ireland)
rju-ech	Undulate ray (<i>Raja undulata</i>) in Divisions VIIId, e (English Channel)
raj-celt	Other skates and rays in Subareas VI and VII (excluding VIIId)
sho-celt	Black-mouth dogfish (<i>Galeus melastomus</i>) in Subareas VI and VII (Celtic Sea and West of Scotland)
syc-celt	Lesser-spotted dogfish (<i>Scyliorhinus canicula</i>) in Subarea VI and Divisions VIIa–c, e–j (Celtic Seas and west of Scotland)
syt-celt	Greater-spotted dogfish (<i>Scyliorhinus stellaris</i>) in Subareas VI and VII (Celtic Sea and West of Scotland)
North Sea	
rjb-34	Common skate (<i>Dipturus batis</i> -complex) in Subarea IV and Division IIIa (North Sea and Skagerrak)
rjn-34	Cuckoo ray (<i>Leucoraja naevus</i>) in Subarea IV and Division IIIa (North Sea and Skagerrak and Kattegat)
rjh-4aVI	Blonde ray (<i>Raja brachyura</i>) in Division IVa and subarea VI (Northern North Sea and west of Scotland)
rjh-4c7d	Blonde ray (<i>Raja brachyura</i>) in Divisions IVc and VIIId (Southern North Sea and eastern English Channel)
rjc-347d	Thornback ray (<i>Raja clavata</i>) in Subarea IV, and Divisions IIIa and VIIId (North Sea, Skagerrak, Kattegat and eastern English Channel)
rjm-347d	Spotted ray (<i>Raja montagui</i>) in Subarea IV, and Divisions IIIa and VIIId (North Sea, Skagerrak, Kattegat, and Eastern English Channel)
rjr-234	Starry ray (<i>Amblyraja radiata</i>) in Subareas II, IIIa and IV (Norwegian Sea, Skagerrak, Kattegat and North Sea)
raj-347d	Other skates and rays in the North Sea ecoregion (Subarea IV, and Divisions IIIa and VIIId)
syc-347d	Lesser-spotted dogfish (<i>Scyliorhinus canicula</i>) in Subarea IV, and Divisions IIIa and VIIId (North Sea, Skagerrak, Kattegat, and Eastern English Channel)