

Smooth-hound (*Mustelus spp.*) in subareas 1–10, 12, and 14 (the Northeast Atlantic and adjacent waters)

ICES stock advice

ICES advises that when the precautionary approach is applied, landings should be no more than 3855 tonnes in each of the years 2018 and 2019. ICES cannot quantify the corresponding catches.

Stock development over time

The stock size indicator has increased since the late 1990s, and there is evidence of increased numbers of juveniles in surveys.

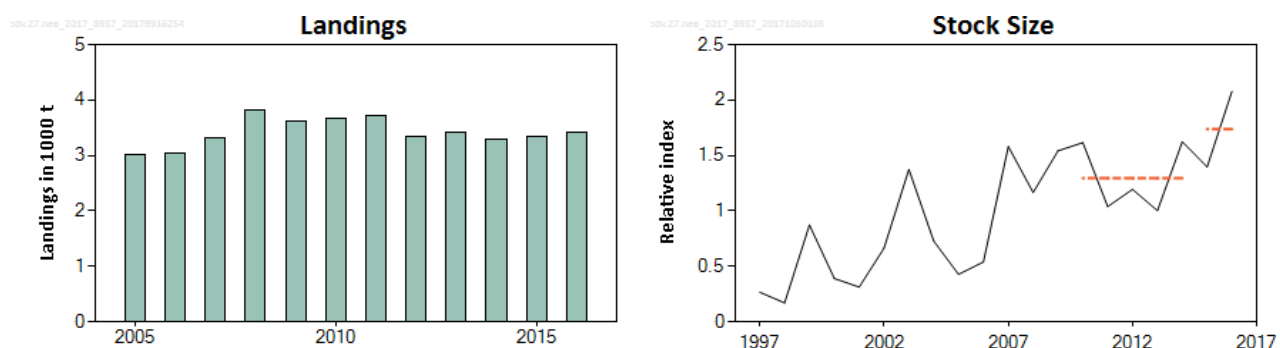


Figure 1 Smooth-hound (*Mustelus spp.*) in subareas 1–10, 12, and 14. Summary of the stock assessment. Left: ICES estimated landings (in thousand tonnes; landings data before 2005 are incomplete and not shown). Right: stock size indicator from three surveys (IBTS-Q1, IBTS-Q3, and EVHOE-WIBTS-Q4; kg h⁻¹), relative to the time-series mean. The dotted horizontal lines show the mean stock indicators for 2015–2016 and 2010–2014.

Stock and exploitation status

Table 1 Smooth-hound in subareas 1–10, 12, and 14. State of the stock and fishery relative to reference points.

	Fishing pressure				Stock size					
		2014	2015	2016		2014	2015	2016		
Maximum sustainable yield	F _{MSY}	?	?	?	Undefined	MSY	?	?	?	Undefined
Precautionary approach	F _{pa} , F _{lim}	?	?	?	Undefined	B _{pa} , B _{lim}	?	?	?	Undefined
Management plan	F _{MGT}	-	-	-	Not applicable	B _{MGT}	-	-	-	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	↘	↗	Increasing

Catch options

The ICES framework for category 3 stocks was applied (ICES, 2012). The stock size indicator was derived from biomass indices from three surveys (IBTS-Q1, IBTS-Q3, and EVHOE-WIBTS-Q4) to provide an overall index for the stock development. The advice is based on a comparison of the last two values (index A) with the five preceding values (index B).

The previous advised landings for 2016 and 2017 were originally derived using landings statistics from 2012–2014. In 2016, a review of the landing statistics of elasmobranchs (ICES, 2016a) was conducted. As a result, the basis used in 2015 to provide advice for 2016 and 2017 has been adjusted to account for the update in the landing statistics in the period 2012–2014.

The index is estimated to have increased by more than 20% (34% increase between index A and index B) and thus the uncertainty cap was applied. The stock size relative to candidate reference points is unknown. However, the precautionary buffer was applied in 2015 and is not applied in 2017.

Table 2 Smooth-hound in subareas 1–10, 12, and 14. The basis for the catch options. The index is based on data for *M. asterias*, landings data reflect *Mustelus* spp.*

Index A (2015–2016)		1.74
Index B (2010–2014)		1.30
Index ratio (A/B)		1.34
Uncertainty cap	Applied	1.2
Advised landings (2016, 2017)		3272 tonnes
Advised landings, adjusted (2016, 2017)** [3272 t × 0.98]		3213 tonnes
Discard rate		Unknown
Precautionary buffer	Not applied	-
Landings advice***		3855 tonnes

* The figures in the table are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

** Advised landings adjusted for the revision of the landings statistics in 2012–2014 (ICES, 2016a).

*** [Advised landings, adjusted (2016, 2017)] × [uncertainty cap].

Basis of the advice

Table 3 Smooth-hound in subareas 1–10, 12, and 14. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	ICES is not aware of any agreed precautionary management plan for smooth-hound in this area.

Quality of the assessment

Species-specific landings data are unreliable, and are combined at genus level. An unknown proportion of landings of smooth-hound may be reported under more generic landings codes for dogfish and sharks and therefore are not accounted for here, and the inshore fleet (< 10 m LOA) may not fully document landings of this non-quota species. Landings data prior to 2015 are uncertain, but landings appear to have been reported more consistently in recent years. There is uncertainty in both the quantities discarded and in the discard survival rate.

The present assessment refers mainly to *M. asterias* (which occurs primarily in subareas 4 and 6–8). Multiple surveys indicate longer-term increases in stock size. Data for other *Mustelus* species are limited and these species extend outside the ICES area.

The assessment uses biomass data from three surveys (IBTS-Q1, IBTS-Q3, and EVHOE-WIBTS-Q4), which all sample larger specimens. Previous assessments also included data from beam-trawl surveys, but they were excluded in the current assessment as these surveys sample juveniles. Data from these surveys indicate increasing catches of pups (ICES, 2017).

Issues relevant for the advice

Three species of smooth-hound occur in the Northeast Atlantic, and within the ICES area almost exclusively in subareas 4 and 6–9. *M. asterias* is the main species occurring in northern Europe (mainly in subareas 4 and 6–8), and this is the species assessed. *M. mustelus* and, to a lesser extent, *M. punctulatus* occur in the southern parts of the ICES area. Data for these species are limited and both species extend to the Mediterranean Sea and off Northwest Africa (CECAF area). ICES has been unable to provide an assessment for these two stocks.

The assessment was based on survey trends for *M. asterias* and landings data from the overall ICES area. Landings may include data for all three species; however, the majority of landings are *M. asterias*. Improved information on species composition and distribution is needed for the southern parts of the ICES area.

Mustelus spp. were traditionally bycatch species, but *M. asterias* is of increasing economic importance to some fleets. The increased retention of this species in some fisheries may be due to various factors, including the increasing stock size (as evidenced by the stock size indicator) and quota restrictions on spurdog.

Mustelus asterias is also taken by recreational fishers and, although they may often be released, post-release survival is unquantified.

Discarding is known to occur, but has not been fully quantified. Discard survival is thought to be highly variable between métiers, but has not been estimated.

Reference points

Reference points are not defined for this stock.

An attempt has been made this year to calculate suitable MSY proxy reference points for this stock, but further investigation is needed (ICES, 2017).

Basis of the assessment

Table 4 Smooth-hound in subareas 1–10, 12, and 14. Basis of assessment and advice.

ICES stock data category	Category 3 (ICES, 2016b).
Assessment type	Landings, survey-based trends (ICES, 2017).
Input data	Surveys: IBTS-Q1, IBTS-Q3, and EVHOE-WIBTS-Q4.
Discards and bycatch	Unknown.
Indicators	None.
Other information	Additional surveys: BTS-Eng-Q3, BTS-UK(E&W)-Q3, and IGFS-WIBTS-Q4 (ICES, 2017).
Working group	Working Group on Elasmobranch Fishes (WGEF)

Information from stakeholders

The observed increase in surveys in the northern part of the stock range is consistent with the perception of commercial and recreational fishers in the area.

History of the advice, catch, and management

Table 5 Smooth-hound in subareas 1–10, 12, and 14. ICES advice and genus-specific estimates of landings. All weights are in tonnes.

Year	ICES advice	Predicted landings corresp. to advice	TAC	ICES genus-specific estimated landings*
2005	No specific advice		No TAC	3013
2006	No specific advice		No TAC	3043
2007	No specific advice		No TAC	3308
2008	No specific advice		No TAC	3816
2009	No expansion in fisheries		No TAC	3628
2010	No new advice, same as for 2009		No TAC	3655
2011	<i>Status quo</i> catch (2006–2009)	2514	No TAC	3709
2012	No new advice, same as for 2011	2514	No TAC	3345
2013	Catch reduction of 4% (20% increase followed by 20% PA buffer)	-	No TAC	3415
2014	No new advice, same as for 2013	-	No TAC	3280
2015	No new advice, same as for 2013	-	No TAC	3349
2016	Precautionary approach	3272	No TAC	3406
2017	Biennial advice	3272	No TAC	
2018	Precautionary approach	≤ 3855		
2019	Precautionary approach (same advice as for 2018)	≤ 3855		

* The data were revised in 2016 (ICES, 2016a), but do not include generic “dogfishes and hounds”.

History of the catch and landings

Table 6 Smooth-hound in subareas 1–10, 12, and 14. Catch distribution by fleet in 2016 as estimated by ICES.

Catch (2016)	Landings			Discards
	Otter trawl 50%	Gillnets 24%	Other gears 26%	
Unknown	3406 tonnes			Unknown

Table 7 Smooth-hound in subareas 1–10, 12, and 14. History of ICES species-specific estimates of landings inside and outside of the NEAFC regulatory area. All weights are in tonnes.

Year	Inside the NEAFC regulatory area	Outside the NEAFC regulatory area	ICES species-specific estimates of landings
2014	0	3280	3280
2015	0	3349	3349
2016	0	3406	3406

Table 8 Smooth-hound in subareas 1–10, 12, and 14. ICES estimates of landings by country (in tonnes). Data revised in 2016 (ICES, 2016a).

Year	Belgium*	Denmark*	France**	Ireland*	Netherlands*	Portugal**	Spain**	UK*	Total
2005			2685			44	112	171	3013
2006			2722			57	134	130	3043
2007			2958	0		57	138	155	3308
2008			3403	1		41	200	171	3816
2009			3082	0	4	45	297	199	3628
2010			3204	0	9	38	129	275	3655
2011			3241	0	3	43	106	315	3709
2012			2821		23	42	120	339	3345
2013	1		2942		26	41	80	325	3415
2014	1		2836	0	24	17	70	331	3280
2015	1		2963	0	24	15	42	303	3349
2016	3	0	2855		22	18	40	468	3406

* *Mustelus asterias*.

** *Mustelus* spp.

The three species of *Mustelus* in the ICES area occur on the continental shelf and do not extend into the NEAFC Regulatory Area.

Summary of the assessment

Table 9 Smooth-hound in subareas 1–10, 12, and 14. Assessment summary. Biomass indices from three surveys (IBTS-Q1 and IBTS-Q3 in kg h⁻¹ and EVHOE-WIBTS-Q4 in kg km⁻², normalized by their long-term means) and the stock size indicator (the annual mean of the normalized surveys).

Year	IBTS-Q1 (kg h ⁻¹)	IBTS-Q3 (kg h ⁻¹)	EVHOE-WIBTS-Q4 (kg km ⁻²)	Stock size indicator
1997	0.062	1.103	0.000	0.268
1998	0.094	0.152	0.003	0.172
1999	0.664	0.781	0.010	0.874
2000	0.092	1.376	0.002	0.391
2001	0.254	0.165	0.004	0.314
2002	0.293	1.436	0.007	0.665
2003	0.223	5.542	0.005	1.375
2004	0.192	1.047	0.017	0.729
2005	0.152	0.409	0.010	0.428
2006	0.295	1.216	0.004	0.541
2007	0.367	4.375	0.020	1.581
2008	0.146	2.570	0.024	1.166
2009	1.178	1.984	0.013	1.543
2010	0.754	1.446	0.034	1.616
2011	0.458	1.409	0.019	1.039
2012	0.642	0.943	0.023	1.195
2013	0.503	2.674	0.005	1.003
2014	1.117	2.021	0.018	1.624
2015	0.330	1.695	0.036	1.397
2016	1.254	1.696	0.036	2.079

Sources and references

- ICES. 2012. ICES Implementation of Advice for Data-limited Stocks in 2012 in its 2012 Advice. ICES CM 2012/ACOM:68. 42 pp.
- ICES. 2016a. Report of the Workshop to compile and refine catch and landings of elasmobranchs (WKSHARK2), 19–22 January 2016, Lisbon, Portugal. ICES CM 2016/ACOM:40. 69 pp.
- ICES. 2016b. Advice basis. *In* Report of the ICES Advisory Committee, 2016. ICES Advice 2016, Book 1, Section 1.2.
- ICES. 2017. Report of the Working Group on Elasmobranch Fishes (WGEF), 31 May–7 June 2017, Lisbon, Portugal. ICES CM 2017/ACOM:16. 1018 pp.