Lesser spotted dogfish (*Scyliorhinus canicula*) in Subarea 6 and divisions 7.a–c and 7.e–j (West of Scotland, Irish Sea, southern Celtic Seas)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 3540 tonnes in each of the years 2020 and 2021. ICES cannot quantify the corresponding catches.

Stock development over time

Landings have been consistent over the time series. The stock size indicator has increased over the time-series.
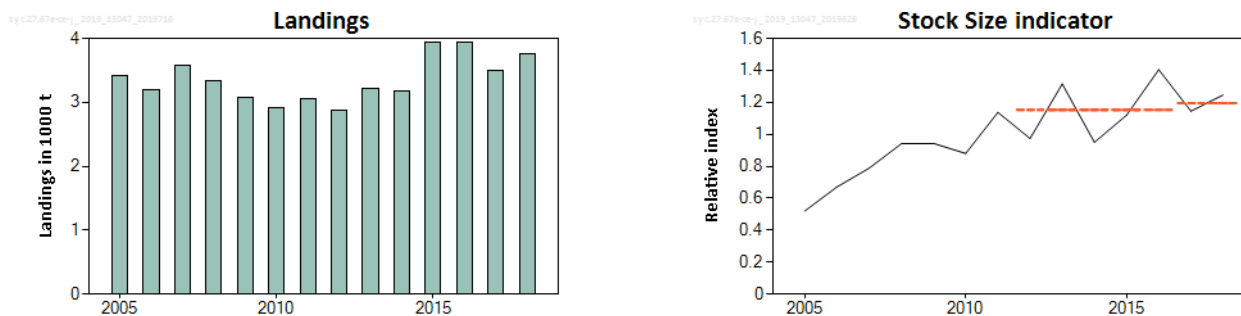

Figure 1   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. Summary of the stock assessment. Left: Recent ICES estimates of species-specific landings. Right: Stock size indicator from four surveys (EVHOE–WIBTS–Q4, IGFS–WIBTS–Q4, SpPGFS–WIBTS–Q4, and UK(E&W)–BTS–Q3, with results from each survey being normalized by their long-term means) relative to the time-series mean. The dotted horizontal lines show the mean stock indicators for 2017–2018 and 2012–2016.

Stock and exploitation status

ICES cannot assess the stock and exploitation status relative to the maximum sustainable yield (MSY) and precautionary approach (PA) reference points because the reference points are undefined.

Table 1   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size			
		2015	2016	2017			2016	2017	2018
Maximum sustainable yield	F_{MSY}	?	?	?	Unknown	MSY $B_{trigger}$	?	?	?	Unknown
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Unknown	B_{pa}, B_{lim}	?	?	?	Unknown
Management plan	F_{MGT}	–	–	–	Not applicable	B_{MGT}	–	–	–	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	↘	↗	Increasing

Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). Biomass indices derived from four surveys (EVHOE–WIBTS–Q4, IGFS–WIBTS–Q4, SpPGFS–WIBTS–Q4, and UK(E&W)–BTS–Q3) were used to provide an overall stock size indicator. The advice is based on the ratio of the mean of the last two index values (Index A) and the mean of the five preceding values (Index B), multiplied by the recent adviced landings. The stock size indicator is estimated to have increased by less than 20%, thus the uncertainty cap was not applied. The precatonary buffer has not been previously applied. Beacause the stock status relative to reference points is unknown, the precautionary buffer was applied in 2019.

Discarding is known to take place, but ICES cannot quantify the corresponding catch. In addition, discard survival, which is known to occur, has not been estimated for all métiers.

Table 2   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. The basis for the catch scenarios.*

Index A (2017–2018)		1.19
Index B (2012–2016)		1.15
Index ratio (A/B)		1.03
Uncertainty cap	Not applied	-
Advised landings for 2018 and 2019 (issued in 2017)		4296 tonnes
Discard rate		Unknown
Precautionary buffer	Applied	0.8
Landings advice **		3540 tonnes
% Advice change ***		−18%

* 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 for 2018–2019] × [index ratio] × [Precautionary buffer].
*** Advice value 2020 relative to the advice value 2019.

The advised landings are lower than advised for 2018 and 2019 because the precautionary buffer was applied.

Basis of the advice

Table 3   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	ICES is not aware of any agreed precautionary management plan for lesser spotted dogfish in this area.

Quality of the assessment

The four trawl surveys used cover most of the stock area and sample mature fish effectively.

Issues relevant for the advice

Scyliorhinids are considered to be productive species in comparison to other demersal elasmobranchs (McCully Phillips *et al*. 2015).

In this area, discard survival of > 90% in beam trawl fisheries has been estimated (Revill *et al*., 2005). Data are lacking for other metiers.

Reference points

Reference points are not defined for this stock.

Basis of the assessment

Table 4   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2018).
Assessment type	Survey trends-based assessment (ICES, 2019).
Input data	Surveys: EVHOE–WIBTS–Q4, IGFS–WIBTS–Q4, SpPGFS–WIBTS–Q4, UK(E&W)–BTS–Q3.
Discards and bycatch	Unknown.
Indicators	None.
Other information	None.
Working group	Working Group on Elasmobranch Fishes (WGEF)

Information from stakeholders

There is no additional available information.

History of the advice, catch, and management

Table 5   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. History of ICES advice, agreed TAC and estimates of landings. All weights are in tonnes.

Year	ICES advice	Landings corresp. to advice	Agreed TAC	ICES landings*
2005	No advice		No TAC	3426
2006	No advice		No TAC	3195
2007	No advice		No TAC	3579
2008	No advice		No TAC	3344
2009	*Status quo* catch		No TAC	3080
2010	No new advice, same as for 2009		No TAC	2909
2011	Maintain catch at recent level		No TAC	3064
2012	No new advice, same as for 2011		No TAC	2868
2013	Increase catch by maximum 20% + no species-specific TAC		No TAC	3219
2014	No new advice, same as for 2013		No TAC	3176
2015	No new advice, same as for 2014		No TAC	3948
2016	Precautionary approach	Increase by no more than 18% compared to the average catches in 2012–2014	No TAC	3932
2017	Biennial advice	Same catch value as advised for 2016	No TAC	3490
2018	Precautionary approach	≤ 4296	No TAC	3763
2019	Precautionary approach (same advice as for 2018)	≤ 4296	No TAC	
2020	Precautionary approach	≤ 3540		
2021	Same advice as in 2020	≤ 3540		

* Data do not include generic "dogfishes & hounds".

History of the catch and landings

The distribution of this species may extend into the NEAFC Regulatory Area, but the main component of the stock occurs in the shelf seas. Estimates of landings are presented in table 7, however, total catches from the NEAFC Regulatory Area are not quantified, but are assumed negligible.

Table 6   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. Catch distribution by fleet in 2018 as estimated by ICES.

Catch (2018)	Landings			Discards
Unknown	Bottom trawl 77%	Beam trawl 18%	Other gears 5%	Unknown
	3763 tonnes			

Table 7   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. 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	3176	3176
2015	0	3948	3948
2016	0	3932	3932
2017	0	3490	3490
2018	0	3763	3763

Table 8   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. ICES estimates of landings by country (in tonnes).*

Year	Belgium	Spain	France	UK	Ireland	Netherlands	Total
2005	240	34	2936	123	92	0	3426
2006	225	33	2873	22	42	0	3195
2007	199	37	3101	115	128	0	3579
2008	165	12	2728	191	248	0	3344
2009	168	17	2479	226	190	0	3080
2010	165	28	2368	111	232	6	2909
2011	227	48	2359	111	317	1	3064
2012	236	109	2060	241	221	1	2868
2013	216	26	2284	380	310	4	3219
2014	141	18	2292	389	336	0	3176
2015	252	20	2024	1282	367	3	3948
2016	194	9	1969	1333	425	1	3932
2017	209	12	1678	1067	524	0	3490
2018	181	25	1518	1628	411	0	3763

* 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.

Summary of the assessment

Table 9   Lesser spotted dogfish in Subarea 6 and divisions 7.a–c and 7.e–j. Assessment summary. Biomass indices were derived from four trawl surveys (EVHOE–WIBTS–Q4, IGFS–WIBTS–Q4, SpPGFS–WIBTS–Q4 and UK(E&W)–BTS–Q3). The stock size indicator is the annual mean of the normalized survey indices.

Year	EVHOE–WIBTS–Q4	IGFS–WIBTS–Q4	SpPGFS–WIBTS–Q4	UK(E&W)–BTS–Q3	Stock size indicator
2005	0.60	0.57	0.36	0.55	0.52
2006	0.80	0.59	0.53	0.77	0.67
2007	0.89	0.70	0.82	0.74	0.79
2008	1.22	0.89	0.79	0.87	0.94
2009	1.05	1.03	0.73	0.96	0.94
2010	0.66	1.20	0.79	0.86	0.88
2011	1.01	1.45	0.75	1.34	1.14
2012	1.22	0.80	0.70	1.18	0.97
2013	1.08	0.93	1.97	1.28	1.32
2014	0.60	0.99	1.10	1.11	0.95
2015	1.32	1.22	0.97	0.98	1.12
2016	1.14	1.46	1.95	1.06	1.40
2017	-	1.22	1.23	0.99	1.14
2018	1.40	0.95	1.31	1.33	1.25

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. 2018. Advice basis. *In* Report of the ICES Advisory Committee, 2018. ICES Advice 2018, Book 1, Section 1.2. https://doi.org/10.17895/ices.pub.4503.

ICES. 2019. Working Group on Elasmobranch Fishes (WGEF). ICES Scientific Reports. 1:25. http://doi.org/10.17895/ices.pub.5594.

McCully Phillips, S. R., Scott, F. and Ellis, J. R. 2015. Having confidence in Productivity Susceptibility Analyses: A method for underpinning scientific advice on skate stocks? Fisheries Research, 171: 87–100.

Revill, A. S., Dulvy, N. K., and Holst, R. 2005. The survival of discarded lesser-spotted dogfish (*Scyliorhinus canicula*) in the Western English Channel beam trawl fishery. Fisheries Research, 71: 121–124. https://doi.org/10.1016/j.fishres.2004.07.006.