Greater-spotted dogfish (*Scyliorhinus stellaris*) in subareas 6 and 7 (West of Scotland, southern Celtic Sea, and the English Channel)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, landings should be no more than 682 tonnes in each of the years 2024 and 2025 . ICES cannot quantify the corresponding discards and catches.

ICES advice on conservation aspects

Management measures to account for conservation aspects may exist at a national or regional level.

Stock development over time

Fishing pressure on the stock is below $F_{MSY\ proxy}$, and the stock-size indicator is above $I_{trigger}$.

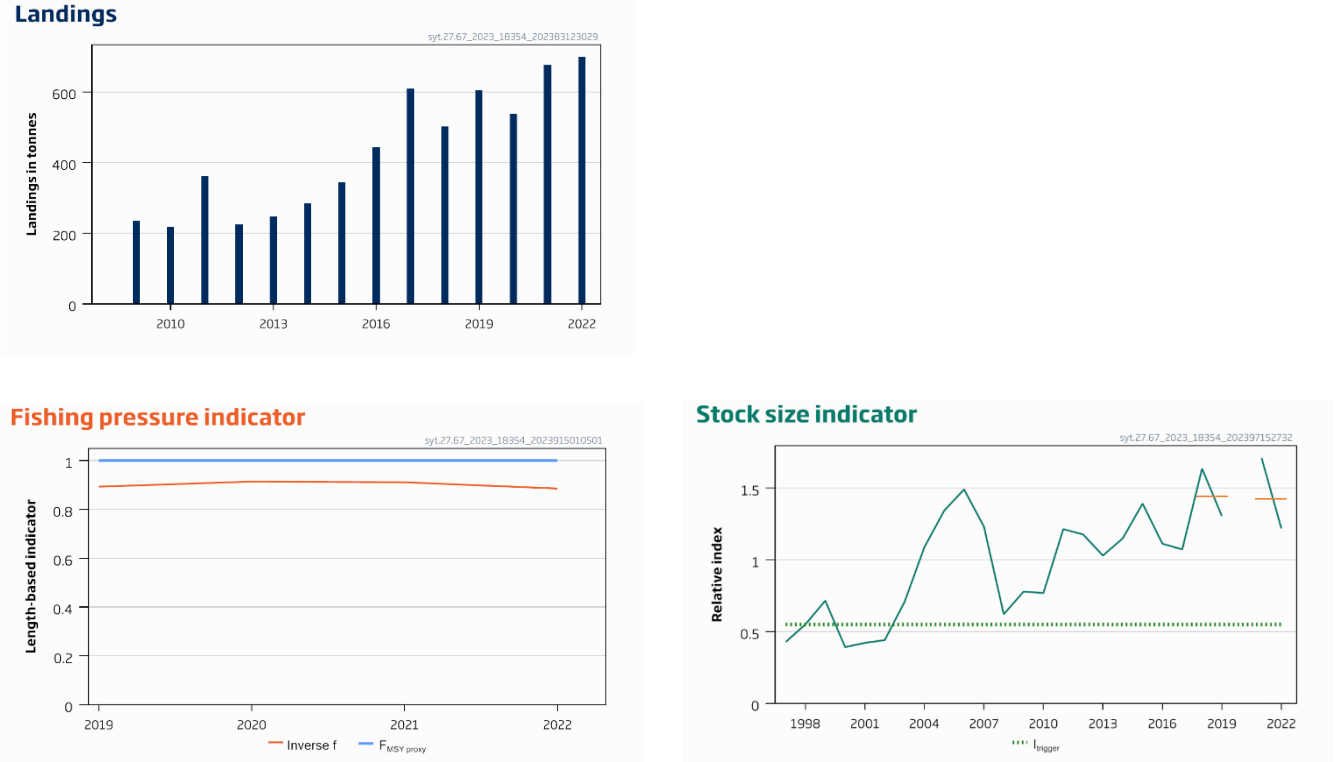

Figure 1 Greater-spotted dogfish in subareas 6 and 7. Summary of the stock assessment. Top: ICES estimates of landings since 2009. Bottom left: fishing pressure proxy ($L_{F=M}/L_{mean}$) from the length-based indicator (LBI) method is used for the evaluation of exploitation status. The proxy fishing pressure is less than that corresponding to $F_{MSY\ proxy}$ when the value is lower than 1 (shown by the horizontal blue line). Bottom right: stock-size indicator is the mean normalized exploitable biomass index (individuals of ≥ 50 cm total length) from the average of the UK(E&W)-BTS-Q3 [B6596] in divisions 7.a and 7.f in kg.hr^{-1} and FR-CGFS-Q4 [G3425] in Division 7.d in kg km^{-2}. The horizontal orange lines show the mean stock-size indicator for the years 2018–2019 (2020 missing) and 2021–2022.

Conservation status

ICES has not reviewed any information on stock-specific conservation status.

Catch scenarios

ICES framework for category 3 stocks was applied (rfb rule, ICES, 2023a). A combined survey biomass index was used as an indicator of stock development. The advice is based on the ratio of the mean of the last two index values (index A) and the mean of the two preceding values (index B), multiplied by the average of landings in the three last years (2020–2022), a ratio of observed mean length in the landings relative to the target mean length, a biomass safeguard, and a precautionary multiplier.

Table 1 Greater-spotted dogfish in subareas 6 and 7. The basis for the catch scenarios*.

Average landings of the three last years A_y (2020–2022)		638 tonnes
Stock biomass trend		
Index A (2021, 2022)		1.46
Index B (2018, 2019)		1.47
r: Index ratio (A/B)		1.0
Fishing pressure proxy		
Mean catch length ($L_{mean} = L_{2022}$)		87 cm
MSY proxy length ($L_{F=M}$)		77 cm
f: multiplier for relative mean length in catches ($L_{mean}/L_{F=M}$)		1.13
Biomass safeguard		
Last index value (I_{2022})		1.22
Index trigger value ($I_{trigger} = I_{loss} \times 1.4$)		0.54
b: multiplier for index relative to trigger $\min\{I_{2022}/I_{trigger}, 1\}$		1
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability		
m: multiplier (generic multiplier based on life history)		0.95
RFB calculation: $A_{y+1} = A_y \times r \times f \times b \times m$		682 tonnes
Stability clause (+20%/−30% compared to A_y, only applied if $b \geq 1$)	Not applied	-
Discard rate		Unquantified
Landings advice for 2024 and 2025		682 tonnes
% advice change**		6.9 %

* 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.

** Advice value for each of the years 2024 and 2025 relative to the average landings in the three last years (2020–2022).

The advice has increased by 6.9% because of an increase in the biomass index and the application of a new assessment method based on the MSY approach (rfb rule).

Basis of the advice

Table 2 Greater-spotted dogfish in subareas 6 and 7. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is not aware of any agreed precautionary management plan for greater-spotted dogfish in this area

Quality of the assessment

In 2020 the area coverage of the UK(E&W)-BTS-Q3 survey was reduced as a result of COVID-19 restrictions (Division 7.a was not surveyed), and the UK waters of Division 7.d were not sampled during the FR-CGFS-Q4 survey. Therefore, the 2020 indices were not considered representative of this species and were excluded from the assessment. These two surveys cover important habitats of the species distribution.

This is the first time ICES provides a quantitative landings advice for this stock unit. Nevertheless, some landings are included in generic “dogfish” or “catshark” categories, and some landings may be combined with the more common lesser-spotted dogfish (*S. canicula*).

Issues relevant for the advice

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

Discarding is variable between fishing fleets and has not been fully quantified for all the time series. Discard survival, which is likely to occur, has not been estimated. In addition, some catch is also known to be used as pot-bait and may not be recorded. ICES cannot quantify the total dead catch

Reference points

Table 3 Greater-spotted dogfish in subareas 6 and 7. Reference points, values, and their technical basis.

Framework	Reference point*	Value	Technical basis	Source
MSY approach	$I_{trigger}$	0.54	I_{loss} × 1.4, where I_{loss} is the lowest observed historical biomass index value (2000)	ICES (2023b)
	$F_{MSY\ proxy}$	$\frac{L_{mean}}{L_{F=M}} = 1$	Relative value from LBI analysis, assuming M/k = 1.5. $L_{F=M}$ is based on L_c (length at 50% of modal abundance), which is taken from pooled data (2019–2022).	ICES (2023b)
Precautionary approach	B_{lim}	Not defined		
	B_{pa}	Not defined		
	F_{lim}	Not defined		
	F_{pa}	Not defined		
Management plan	SSB_{mgt}	Not defined		
	F_{mgt}	Not defined		

* No reference points are defined for this stock in terms of absolute values. The LBI-estimated values of the ratio $L_{mean}/L_{F=M}$ are used to estimate exploitation status relative to the proxy MSY reference point.

Basis of the assessment

Table 4 Greater-spotted dogfish in subareas 6 and 7. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2023a)
Assessment type	Trends from combined biomass index and length-based indicator (ICES, 2023b)
Input data	Commercial landings, surveys combined biomass standardized index from UK(E&W)-BTS-Q3 [B6596], FR-CGFS-Q4 [G3425], length composition from commercial catches. Life history parameters (k < 0.2 $year^{-1}$ and L_{inf} = 127.4 cm)
Discards and bycatch	Discarding is known to take place but cannot be quantified
Indicators	Length-based indicator
Other information	None
Working group	Working Group on Elasmobranch Fishes (WGEF)

History of the advice, catch, and management

Table 5 Greater-spotted dogfish in subareas 6 and 7. History of ICES advice and ICES estimated landings. All weights are in tonnes.

Year	ICES advice	Catch corresp. to advice	ICES estimated landings (tonnes)*
2009	*Status quo* catch		235
2010	-		218
2011	No advice	-	363
2012	No advice	-	225
2013	-	-	248
2014	-	-	285
2015	-	-	345
2016	Decrease by 6% compared to the average catches in 2012–2014	-	444
2017	Same catch value advised for 2016	-	609

Year	ICES advice	Catch corresp. to advice	ICES estimated landings (tonnes)*
2018	Precautionary approach: decrease by 36% compared to the average catches in 2014–2016	-	502
2019	Precautionary approach (same advice as for 2018)	-	605
2020	No advice	-	538
2021	No advice	-	677
2022	Precautionary approach	Decrease by 18% compared to the average catches in 2018–2020	699
2023	Precautionary approach	Decrease by 18% compared to the average catches in 2018–2020	
2024	MSY approach	≤ 682	
2025	MSY approach	≤ 682	

* The increase in landings in 2009–2017 is considered to be the result of improved reporting rather than an actual increase.

History of the catch and landings

The distribution of this stock does not extend into the NEAFC regulatory areas.

Table 6 Greater spotted dogfish in subareas 6 and 7. Catch distribution by fleet in 2022 as estimated by ICES.

Catch (2022)	Landings				Discards
Unquantified	All other bottom trawls 78%	Hooks and lines 7%	Beam trawl 6 %	Other gear 9%	Unquantified
	699 tonnes				

Summary of the assessment

Table 7 Greater spotted dogfish in subareas 6 and 7. Assessment summary. All weights are in tonnes.

Year	Stock-size indicator	Landings	Fishing pressure indicator	
	Combined biomass index (ratio)	tonnes	Inverse f*	Length-based fishing pressure proxy (f, $L_{mean}/L_{F=M}$)
1997	0.43			
1998	0.55			
1999	0.72			
2000	0.39			
2001	0.42			
2002	0.44			
2003	0.71			
2004	1.09			
2005	1.34			
2006	1.49			
2007	1.23			
2008	0.62			
2009	0.78	235		
2010	0.77	218		
2011	1.21	363		
2012	1.18	225		
2013	1.03	248		
2014	1.15	285		
2015	1.39	345		
2016	1.11	444		
2017	1.07	609		
2018	1.64	502		
2019	1.30	605	0.89	1.12
2020	-	538	0.91	1.09

Year	Stock-size indicator	Landings	Fishing pressure indicator	
	Combined biomass index (ratio)	tonnes	Inverse f*	Length-based fishing pressure proxy (f, $L_{mean}/L_{F=M}$)
2021	1.71	677	0.91	1.10
2022	1.22	699	0.89	1.13

* Inverse f is calculated as $L_{F=M}/L_{mean}$.

Sources and references

ICES. 2022. ICES technical guidance for harvest control rules and stock assessments for stocks in categories 2 and 3. *In* Report of ICES advisory Committee, 2022. ICES Advice 2022, Section 16.4.11. https://doi.org/10.17895/ices.advice.19801564

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