

Thornback ray (*Raja clavata*) in Division 9.a (Atlantic Iberian waters)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 1717 tonnes in each of the years 2021 and 2022. ICES cannot quantify the corresponding catches.

Note: This advice sheet is abbreviated due to the COVID-19 disruption. The previous advice issued for 2019–2020 is attached as Annex 1.

Stock development over time

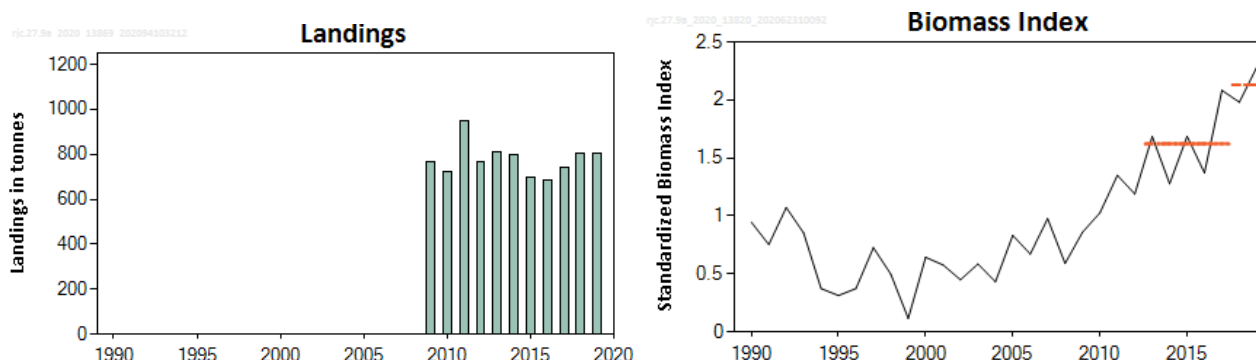


Figure 1 Thornback ray in Division 9.a. Upper Left: ICES estimated landings (all fleets: 2009–2019). Discard data are incomplete and have not been used in the advice. Right: The stock-size indicator (black solid line) is the mean normalized biomass index from Spanish groundfish surveys (SpGFS-GC-WIBTS-Q1&Q4), averaged with the normalized biomass survey index from the Portuguese groundfish survey (PtGFS-WIBTS-Q4). The horizontal lines show the mean stock-size indicators for 2013–2017 and 2018–2019.

Stock and exploitation status

Table 1 Thornback ray in Division 9.a. State of the stock and the fishery relative to reference points.

Table 1 Moriback Bay II Division 3.a: State of the stock and the fishery relative to reference points.										
		Fishing pressure				Stock size				
		2017	2018	2019		2017	2018	2019		
Maximum sustainable yield	F_{MSY}	?	?	?	Unknown	$MSY B_{trigger}$?	?	?	Undefined
Precautionary approach	F_{pa}, F_{lim}	?	?	?	Unknown	B_{pa}, B_{lim}	?	?	?	Undefined
Management plan	F_{MGT}	—	—	—	Not applicable	B_{MGT}	—	—	—	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	↘	↗	Increasing

Catch scenarios

The precautionary buffer was last applied in 2014. The stock size and fishing pressure status relative to reference points is unknown. However, since 2000 there has been a consistent increase in the stock-size indicator and a significant decrease in the fishing effort; therefore, the precautionary buffer was not applied in 2020.

Discarding is known to take place; however, ICES cannot quantify the corresponding dead catch.

Table 2 Thornback ray in Division 9.a. The basis for the catch scenarios *.

Index A (2018–2019)		2.13
Index B (2013–2017)		1.62
Index ratio (A/B)		1.32
Uncertainty cap	Applied	1.20
Advised landings for 2019–2020, issued in 2018		1431 tonnes
Discard rate	Unknown	
Precautionary buffer	Not applied	-
Landings advice **		1717 tonnes
% advice change ***		+20%

* 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 for 2019–2020] × [uncertainty cap].

*** Advice value for 2021 and 2022 relative to the advice value for 2019 and 2020.

The advised landings have increased by 20% compared to last year's advice because the biomass index has increased.

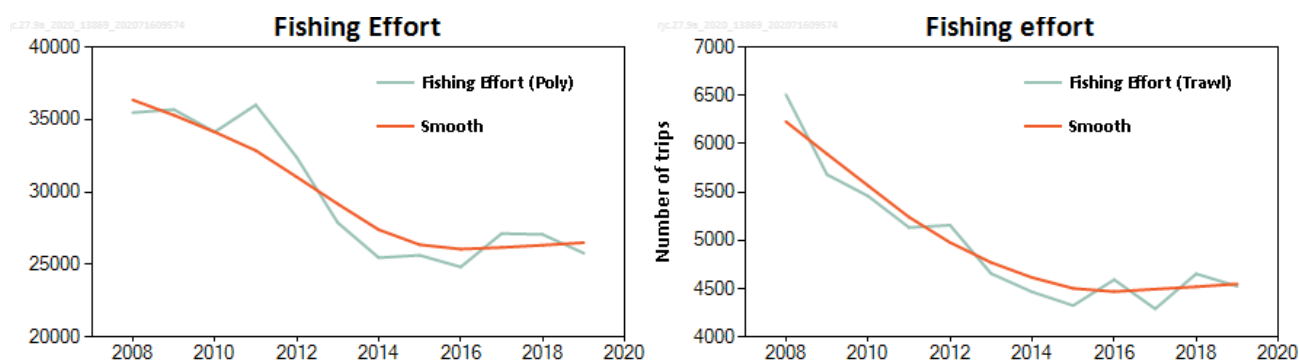


Figure 2 Thornback ray in Division 9.a. Left panel: Fishing effort (number of trips) from the Portuguese polyvalent fleet for all species of skates and rays in the period 2008–2019 (in both panels the red line is the smoothed effort). Right panel: Fishing effort (number of trips) from the Portuguese trawl fleet for all species of skates and rays in the period 2008–2019.

Quality of the assessment

Data from the Portuguese groundfish survey (PtGFS-WIBTS-Q4) were lacking in 2012 and 2019, and incomplete in 2018.

History of the advice, catch, and management

Table 3 Thornback ray in Division 9.a. History of ICES advice and ICES estimates of landings *. All weights are in tonnes.

Year	ICES advice	Landings corresp. to advice	ICES landings
2011	No specific advice		950
2012	No specific advice		764
2013	No TAC. Species-specific measures needed. Catch to decrease by at least 20%.	-	809
2014	No new advice. Same as for 2013.	-	800
2015	Increase of up to 20% from last 3 years' average	911	697
2016	No new advice. Same as for 2015	911	682
2017	Precautionary approach	≤ 1203	744
2018	Precautionary approach (same value as advised catches for 2017)	≤ 1203	806
2019	Precautionary approach	≤ 1431	802
2020	Precautionary approach	≤ 1431	
2021	Precautionary approach	≤ 1717	
2022	Precautionary approach	≤ 1717	

* There is no specific TAC for this stock. Fishing opportunities are managed through an overall TAC by management unit, which includes all species of skates and rays.

Summary of the assessment

Table 4 Thornback ray in Division 9.a. Landings (tonnes) and time-series of survey indices used for the advice. The stock-size indicator is the mean normalized biomass index from the Spanish groundfish surveys (SpGFS-WIBTS-Q1&Q4), averaged with the normalized biomass survey index from the Portuguese groundfish survey (PtGFS-WIBTS-Q4).

Year	Standardized biomass index	Landings (tonnes)
1990	0.95	
1991	0.75	
1992	1.07	
1993	0.85	
1994	0.37	
1995	0.31	
1996	0.37	
1997	0.73	
1998	0.50	
1999	0.12	
2000	0.64	
2001	0.58	
2002	0.45	
2003	0.59	351
2004	0.43	516
2005	0.83	480
2006	0.67	569
2007	0.98	472
2008	0.59	745
2009	0.86	768
2010	1.03	725
2011	1.35	950
2012	1.19	764
2013	1.68	809
2014	1.28	800
2015	1.69	697
2016	1.37	682
2017	2.1	744
2018	1.98	806
2019	2.28	802

Sources and references

ICES. 2020. Working Group on Elasmobranch Fishes (WGEF). ICES Scientific Reports, 2:77.
<https://doi.org/10.17895/ices.pub.7470>.

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Thornback ray (*Raja clavata*) in Division 9.a (Atlantic Iberian waters)

ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 1431 tonnes in each of the years 2019 and 2020. ICES cannot quantify the corresponding catches.

Stock development over time

The stock size indicator shows an increasing trend since 1999. The current level is the highest observed.

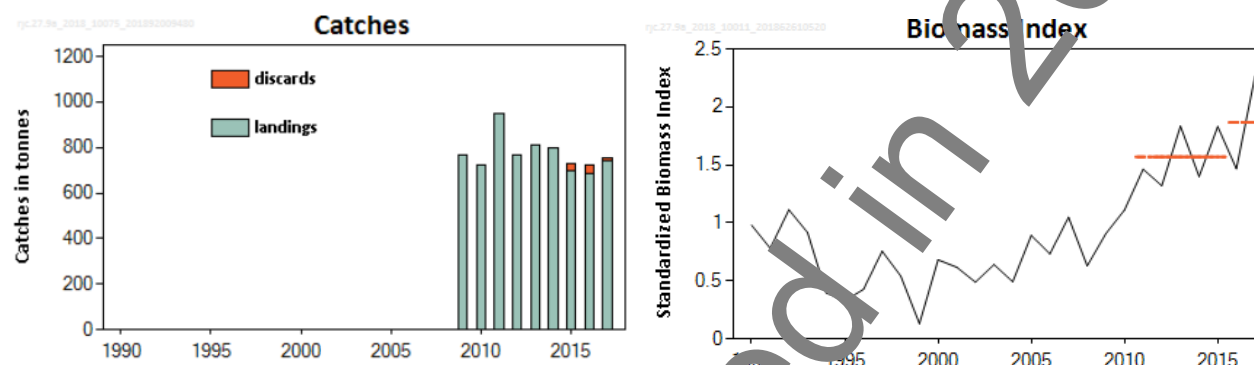


Figure 1 Thornback ray in Division 9.a. Left: ICES estimated landings (all fleets: 2009–2017) and discards (Spanish fleet: 2015–2017) (in tonnes). Right: Stock size indicator (solid line) is the mean normalized biomass index from Spanish groundfish surveys (SpGFS-GC-WIBTS-Q1&Q4), averaged with the normalized biomass survey index from the Portuguese groundfish survey (PtGFS-WIBTS-Q4). The dotted horizontal lines show the mean stock indicators for 2011–2015 and 2016–2017.

Stock and exploitation status

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

Table 1 Thornback ray in Division 9.a. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size					
		2015	2016	2017		2015	2016	2017			
Maximum sustainable yield	F_{MSY}	?	?	?	Unknown	$MSY B_{trigger}$?	?	?	Undefined	
Precautionary approach	F_{pa}	?	?	?	Unknown	B_{pa}	B_{lim}	?	?	?	Undefined
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). The Portuguese groundfish survey (PtGFS-WIBTS-Q4) and the Spanish groundfish surveys (SpGFS-GC-WIBTS-Q1&Q4) were used as indices of stock size. These surveys were normalized to their long-term mean, the two Spanish surveys averaged, and then this index averaged with the Portuguese survey to provide the stock size indicator. The advice is based on a comparison of the two latest index values (Index A) with the five preceding values (Index B), multiplied by the recent advised landings.

The index is estimated to have increased by less than 20% and thus the uncertainty cap was not applied. The stock size relative to candidate reference points is unknown. The precautionary buffer was applied previously in 2014. Given that there has been a consistent long-term increase in the stock size indicator over the whole time-series and stable landings in recent years, the precautionary buffer was not applied.

Discarding is known to take place, but ICES cannot quantify the corresponding dead catch.

Table 2 Thornback ray in Division 9.a. The basis for the catch scenarios*.

Index A (2016–2017)		1.87
Index B (2011–2015)		1.57
Index ratio (A/B)		1.19
Uncertainty cap	Not applied	
Advised landings for 2017–2018 issued in 2016		1203
Discard rate		Unknown
Precautionary buffer	Not applied	
Landings advice**		1431
% Advice change ***		+19%

* 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 for 2017–2018] × [index ratio].

*** Advice value for 2019 and 2020 relative to advice value for 2018.

The advised landings are higher than advised for 2017 and 2018 because the biomass index has increased.

Basis of the advice

Table 3 Thornback ray in Division 9.a. The basis of the advice

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

Quality of the assessment

Improvement of data quality was promoted by the workshop to compile and refine catch and landings of elasmobranchs (WKSHARK2; ICES, 2016a), where ICES revised elasmobranch landings data for the period 2005–2015. Complete stock specific landings data are not available before 2005.

The advice is based on a combined biomass index from three surveys, covering an extensive portion of the stock area. The Portuguese groundfish survey (PtGFS-V-BTS-Q) was not conducted in 2012. All individuals were used to estimate the stock size indicator, and most individuals caught were larger than 50 cm.

Estimates of quantities of discards are only available for the Spanish fleet for the period 2015–2017. The number of samples to estimate discards for the Portuguese fleet were insufficient to quantify discards.

Issues relevant for the advice

Raja clavata is a coastal and shelf species which is usually caught as a bycatch in artisanal fisheries by Portuguese fleets and in Spanish trawl fisheries. It is one of the most commercially important skate species in this ecoregion.

On 22 August 2014 the Portuguese government adopted national legislation (Portaria no. 170/2014) that established a minimum landing size of 520 mm (total length) for specimens of the genus *Leucoraja* or *Raja*, covering all of the continental Portuguese EEZ.

The national legislation adopted on 29 December 2011 (Portaria no. 315/2011) was updated by the Portuguese government on 21 March 2016 (Portaria no. 47/2016). The new legislation prohibits, throughout the whole of the continental Portuguese EEZ, the catch, retention onboard, and landing of any skate species belonging to Rajiformes during

the months of May and June, which covers part of the spawning period. For each fishing trip during these two months vessels are permitted to retain on board and to land a maximum of 5% bycatch, in weight, of the Rajiformes species.

Reference points

No reference points are defined for this stock

Basis of the assessment

Table 4 Thornback ray in Division 9.a. Basis of assessment and advice.

ICES stock data category	3 (ICES, 2016b)
Assessment type	Survey-based trends (ICES, 2018)
Input data	Surveys: PtGFS-WIBTS-Q4 and SpGFS-GC-WIBTS-Q1&Q4
Discards and bycatch	Discards have only been estimated for the Spanish fleet since 2015.
Indicators	None
Other information	None
Working group	Working Group on Elasmobranch Fishes (WGEF)

Information from stakeholders

No additional information is available.

History of the advice, catch, and management

Table 5 Thornback ray in Division 9.a. History of ICES advice and ICES estimates of landings*. All weights are in tonnes.

Year	ICES advice	Landings corresp. to advice	ICES species-specific landings: minimum estimate based on reported landings [^]
2011	No specific advice		950
2012	No specific advice		764
2013	No TAC. Species-specific measures needed. Catch to decrease by at least 20%	-	809
2014	No new advice. same as 2013	-	800
2015	increase up to 20% from last 3 years' average	911	697
2016	No new advice. same as 2015	911	682
2017	Precautionary approach	≤ 1203	744
2018	Precautionary approach (same values as advised catches for 2017)	≤ 1203	
2019	Precautionary approach	≤ 1431	
2020	Precautionary approach	≤ 1431	

* There is no specific TAC for this stock. Fishing opportunities are managed through an overall TAC by management unit, which includes all species of skates and rays.

[^] Landings revised in 2018.

History of the catch and landings

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

Table 6 Thornback ray in Division 9.a. Catch distribution by fleet in 2017 as estimated by ICES. Portugal does not have official landings with information by fleet, and all polyvalent landings are classified as "unspecified gears".

Catch (2017)	Landings				Discards*
	bottom trawl	longlines	fixed nets	unspecified gears	
Unknown	30%	1%	2%	67%	Unquantified
	744 tonnes				

* Discards are only available for Spain and are not considered to have been fully quantified.

Table 7 Thornback ray in Division 9.a. ICES estimates of landings by country (in tonnes). Data revised in 2018. For 2003 to 2008 species-specific landings data are only available from Portugal. Discards only available for the Spanish fleet (in tonnes).

Year	Spain	Discards (Spain)	Portugal	Total
2003	Unreported		351	Unknown
2004	Unreported		516	Unknown
2005	Unreported		480	Unknown
2006	Unreported		569	Unknown
2007	Unreported		472	Unknown
2008	Unreported		745	Unknown
2009	29		739	768
2010	115		611	725
2011	139		811	950
2012	194		570	764
2013	166		43	809
2014	215		585	800
2015	120	31	546	697
2016	123	43	559	682
2017	124	7	620	744

Summary of the assessment

Table 8 Thornback ray in Division 9.a. Time-series of survey indices used for the advice. Stock size indicator is the mean normalized biomass index from the Spanish groundfish survey (SpGFS-WIBTS-Q1&Q4), averaged with the normalized biomass survey index from the Portuguese groundfish survey (PtGFS-WIBTS-Q4).

Year	PtGFS-WIBTS-Q4	SpGFS-WIBTS-Q1&Q4	Stock size indicator
1990	0.98		0.98
1991	0.78		0.78
1992	1.113		1.113
1993	1.14	0.69	0.92
1994	0.57	0.23	0.398
1995	0.597	0.06	0.33
1996		0.43	0.43
1997	1.3	0.08	0.76
1998	0.7	0.612	0.54
1999		0.13	0.13
2000	0.3	0.34	0.68
2001	0.77	0.47	0.62
2002	0.45	0.53	0.49
2003		0.64	0.64
2004		0.49	0.49
2005	1.07	0.72	0.89
2006	0.43	1.04	0.73
2007	1.08	1.02	1.05
2008	0.74	0.52	0.63
2009	1.22	0.601	0.908
2010	1.115	1.108	1.111
2011	1.24	1.69	1.46
2012		1.32	1.32
2013	1.05	2.615	1.83
2014	1.05	1.75	1.400
2015	1.37	2.29	1.83
2016	1.406	1.53	1.47
2017	1.907	2.62	2.26

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.

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Advice provided in 2018