

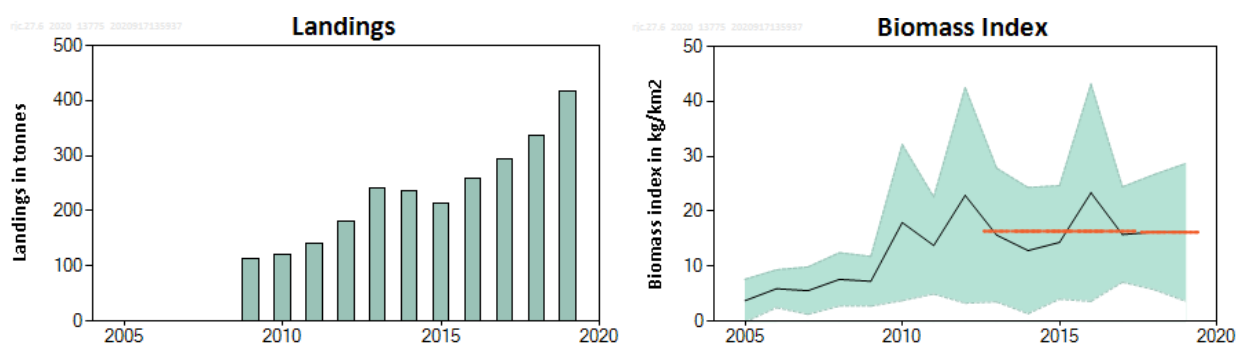
## Thornback ray (*Raja clavata*) in Subarea 6 (West of Scotland)

### ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 137 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 and 2020 is attached as Annex 1.*




### Stock development over time



**Figure 1** Thornback ray in Subarea 6. Left: ICES estimated species-specific landings for 2009–2019 (in tonnes). Species-specific data were not available for earlier years. Right: Mean biomass ( $\text{kg km}^{-2}$ ; data from IGFS-WIBTS-Q4) with the 95% confidence interval (CI) shown. Horizontal lines signify the mean stock-size indicator values for 2013–2017 and 2018–2019.

### Stock and exploitation status

**Table 1** Thornback ray in Subarea 6. State of the stock and the fishery relative to reference points.

		Fishing pressure				Stock size				
		2017	2018	2019		2017	2018	2019		
Maximum sustainable yield	$F_{\text{MSY}}$	?	?	?	Unknown	$\text{MSY } B_{\text{trigger}}$	?	?	?	Undefined
Precautionary approach	$F_{\text{pa}}, F_{\text{lim}}$	?	?	?	Unknown	$B_{\text{pa}}, B_{\text{lim}}$	?	?	?	Undefined
Management plan	$F_{\text{MGT}}$	—	—	—	Not applicable	$B_{\text{MGT}}$	—	—	—	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-				Stable

## Catch scenarios

The precautionary buffer was last applied to the landings advice in 2016. The stock size and fishing pressure status relative to reference points is unknown and the precautionary buffer is therefore applied in 2020.

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

**Table 2** Thornback ray in Subarea 6. The basis for the catch scenarios.\*

Index A (2018–2019)		16.19
Index B (2013–2017)		16.40
Index ratio (A/B)		0.99
Uncertainty cap	Not applied	-
Advised landings for 2019–2020 issued in 2018		174 tonnes
Discard rate	Unknown	
Precautionary buffer	Applied	0.8
Landings advice **		137 tonnes
% advice change ***		-21%

\* 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] × [Index ratio] × [Precautionary buffer].

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

The advised landings have decreased by more than 20% due to the decrease in the biomass index and the application of the precautionary buffer.

## History of the advice, catch, and management

**Table 3** Thornback ray in Subarea 6. 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		141
2012	No specific advice		181
2013	No TAC, species-specific measures needed, catch could increase by up to 20%	-	241
2014	No new advice, same as 2013	-	236
2015	No changes to generic skates TAC, no species-specific measures needed	205	213
2016	No new advice, same as 2015	205	260
2017	Precautionary approach	≤ 145	294
2018	Precautionary approach (same value as advised catches for 2017)	≤ 145	337
2019	Precautionary approach	≤ 174	416
2020	Precautionary approach	≤ 174	
2021	Precautionary approach	≤ 137	
2022	Precautionary approach	≤ 137	

\* 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 Subarea 6. Time-series of survey (IGFS-WIBTS-Q4) indices ( $\text{kg km}^{-2}$ ) used for the advice.

Year	Biomass index $\text{kg km}^{-2}$	Upper 95% CI	Lower 95% CI	Landings tonnes
2005	3.7	7.6	-0.149	
2006	5.9	9.4	2.5	
2007	5.6	9.9	1.26	
2008	7.6	12.5	2.8	
2009	7.3	11.8	2.8	114
2010	18.0	32	3.7	120
2011	13.8	23	5.0	141
2012	23	43	3.3	181
2013	15.7	28	3.5	241
2014	12.8	24	1.38	236
2015	14.3	25	4.0	213
2016	23	43	3.6	260
2017	15.8	24	7.1	294
2018	16.2	27	5.8	337
2019	16.2	29	3.7	416

## Sources and references

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

*Recommended citation:* ICES. 2020. Thornback ray (*Raja clavata*) in Subarea 6 (West of Scotland). In Report of the ICES Advisory Committee, 2020. ICES Advice 2020, rjc.27.6. <https://doi.org/10.17895/ices.advice.5789>.

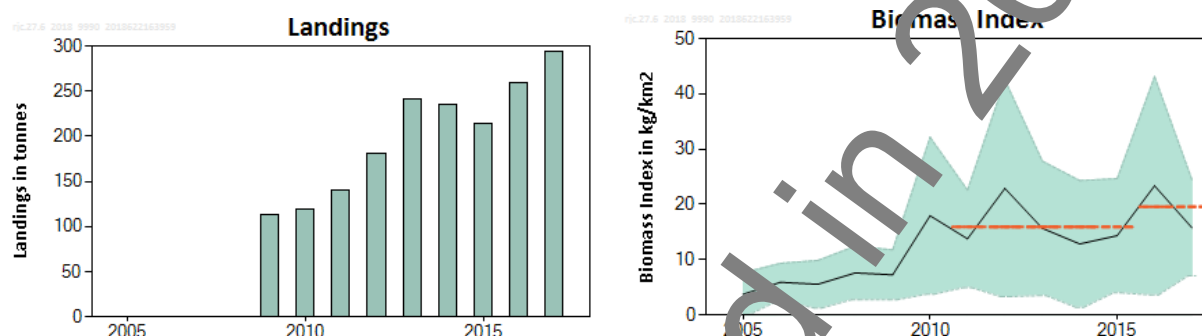
## Thornback ray (*Raja clavata*) in Subarea 6 (West of Scotland)

### ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 174 tonnes in each of the years 2019 and 2020. ICES cannot quantify the corresponding catches.

### Stock development over time

The stock size indicator increased from 2005 to 2010 and has fluctuated without trend since.



**Figure 1** Thornback ray in Subarea 6. Left: ICES estimated species-specific landings for 2009–2017 (in tonnes). Species-specific data were not available for earlier years. Right: Mean biomass ( $\text{kg km}^{-2}$  [IGFS-WIBTS-Q4]) and the 95% CI area. Dashed lines show the mean stock size indicator values for 2012–2015 and 2016–2017.

### 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** Thornback ray in Subarea 6. 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	$F_{pa}, F_{lim}$	?	?	?	Unknown	$B_{pa}, B_{lim}$	?	?	?	Undefined
Management plan	$F_{MGT}$	—	—	—	Not applicable	$B_{MGT}$	—	—	—	Not applicable
Qualitative evaluation		?	?	?	Unknown	-	↗	↗	↘	Decreasing

### Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). The Irish Groundfish Survey (IGFS-WIBTS-Q4) was used as the index of stock size. 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 more than 20% and, thus, the uncertainty cap was applied. The stock status relative to candidate reference points is unknown. The precautionary buffer was applied to the landings advice in 2016; it is therefore not applied again.

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

**Table 2** Thornback ray in Subarea 6. The basis for the catch scenarios\*.

Index A (2016–2017)		19.57
Index B (2011–2015)		15.91
Index ratio (A/B)		1.23
Uncertainty cap	Applied	1.20
Advised landings for 2017–2018 issued in 2016		145 tonnes
Discard rate		Unknown
Precautionary buffer	Not applied	-
Landings advice**		174 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 [2017–2018] x [Uncertainty cap].

\*\*\* 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 Subarea 6. 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

The Irish survey is considered to cover a large proportion of the stock area.

The quality of landings data has improved in recent years, especially following the Workshop to compile and refine catch and landings of elasmobranchs (WKSHARK2) where ICES revised elasmobranch landings data for the period 2009–2015 (ICES, 2016a). Although some misidentification at the species level is still possible, it is unlikely to occur in significant amounts for this well-known and commercially important species.

The apparent increase in landings from 2009 to 2011 might have also been influenced by the introduction of mandatory species-specific reporting of skate landings.

### Issues relevant for the advice

*Raja clavata* is a coastal and shelf species that is caught as bycatch in trawl and gillnet fisheries. As one of the larger species in the skate complex, it is also targeted in some local, seasonal fisheries with trawls and static nets.

### Reference points

No reference points are defined for this stock.

### Basis of the assessment

**Table 4** Thornback ray in Subarea 6. Basis of assessment and advice.

ICES stock data category	3 (ICES, 2016b).
Assessment type	Survey-based trends (ICES, 2018).
Input data	Surveys: IGFS-WIBTS-Q4.
Discards and bycatch	Discarding is known to take place but has not been fully quantified.
Indicators	None.
Other information	None.
Working group	Working Group on Elasmobranch Fishes (WGEE)

## Information from stakeholders

There is no additional available information.

## History of the advice, catch, and management

**Table 5** Thornback ray in Subarea 6. 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		141
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2014	No new advice, same as 2013	-	236
2015	No changes to generic skates TAC, no species-specific measures needed	205	213
2016	No new advice, same as 2015	205	260
2017	Precautionary approach	≤145	294
2018	Precautionary approach (same value as advised catches for 2017)	≤145	
2019	Precautionary approach	≤174	
2020	Precautionary approach	≤174	

\* 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.

## History of the catch and landings

This stock is distributed primarily in EU waters. While catches from the NEAFC area are not quantified, they are assumed negligible.

**Table 6** Thornback ray in Subarea 6. Catch distribution by fleet in 2017 as estimated by ICES.

Catch (2017)	Landings			Discards
Unknown	bottom trawl	Seine net	other gear	Unquantified
	99%	0.5%	0.5%	
	294 tonnes			

**Table 7** Thornback ray in Subarea 6. History of landings. ICES estimates of landings by country (in tonnes). Data revised in 2016 (ICES, 2016a) and 2018 (ICES, 2018).

Year	Spain	UK	Ireland	France	Total
2009	5	56	3	39	114
2010	2	61	33	24	120
2011	10	57	56	19	141
2012	6	67	69	39	181
2013	23	120	71	28	241
2014	21	120	85	10	236
2015	12	113	87	2	213
2016	12	147	99	2	260
2017	49	113	130	1	294

## Summary of the assessment

**Table 8** Thornback ray in Subarea 6. Time-series of survey (IGFS-WIBTS-Q4) indices ( $\text{kg km}^{-2}$ ) used for the advice.

Year	Biomass index ( $\text{kg km}^{-2}$ )	Upper 95% CI	Lower 95% CI
2005	3.74	7.63	0
2006	5.92	9.35	2
2007	5.57	9.87	0
2008	7.61	12.47	2.49
2009	7.27	11.78	1.26
2010	17.95	32.15	2.76
2011	13.78	22.59	2.76
2012	22.90	42.50	3.76
2013	15.68	27.84	4.97
2014	12.85	24.31	3.30
2015	14.34	24.66	3.52
2016	23.37	43.11	1.38
2017	15.78	24.44	4.02

## 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. 2018. Report of the Working Group on Elasmobranch Fishes (WGEF), 19–28 June 2018, Lisbon, Portugal. ICES CM 2018/ACOM:16.