

## Thornback ray (*Raja clavata*) in Subarea 4 and in divisions 3.a and 7.d (North Sea, Skagerrak, Kattegat, and eastern English Channel)

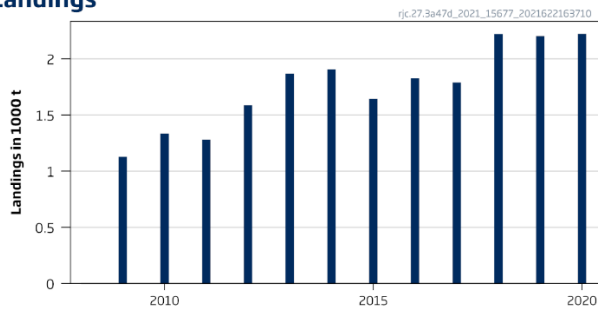
### ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 2446 tonnes in each of the years 2022 and 2023. ICES cannot quantify the corresponding catches.

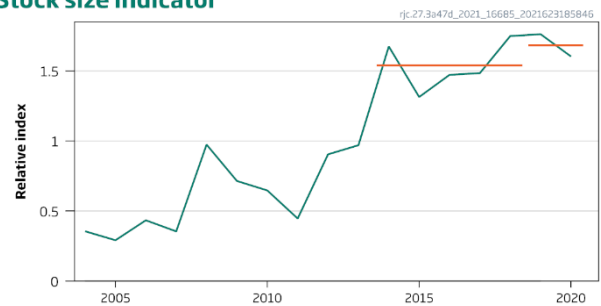
### Stock development over time

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.

**Landings**



**Stock size indicator**



**Figure 1** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. Summary of the stock assessment. Left: ICES estimates of landings of thornback ray since 2009. Right: stock size indicator is the mean normalized exploitable biomass index (individuals of  $\geq 50$  cm total length) from the average of the two NS-IBTS surveys (NS-IBTS-Q1 [G1022] and NS-IBTS-Q3 [G2829]), the BTS-ENG-Q3 (B2453), the FR-CGFS-Q4 (G3425) and BTS-BE-Q3 (B2453). The horizontal lines show the mean stock indicators for 2019–2020 and 2014–2018.

### Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). Biomass indices derived from five surveys (NS-IBTS-Q1, NS-IBTS-Q3, BTS-ENG-Q3, FR-CGFS-Q4 and BTS-BE-Q3) were used to provide a 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 landings advice. The index is estimated to have increased by less than 20% and thus the uncertainty cap was not applied. The precautionary buffer was last applied in 2019 and has therefore not been considered again.

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

**Table 1** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. The basis for the catch scenarios.\*

Index A (2019–2020)		1.68
Index B (2014–2018)		1.54
Index ratio (A/B)		1.09
Uncertainty cap	Not applied	-
Advised landings for 2020 and 2021 (issued in 2019)		2237 tonnes
Discard rate		Unknown
Precautionary buffer	Not applied	-
Landings advice **		2446 tonnes
% Advice change ***		+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.

\*\* [Advised landings for 2020 and 2021]  $\times$  [index ratio].

\*\*\* Advice value for 2022 and 2023 relative to the advice value for 2020 and 2021.

The advised landings for 2022 and 2023 are 9% higher than the previous advice, as the stock size indicator has increased.

## Basis of the advice

**Table 2** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. 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

Species-specific landings data are incomplete prior to 2009 and therefore are not shown.

Fishery-independent trawl survey indices were updated and combined following recommendations of WSKATE (ICES, 2021a, 2021c). The stock-size indicator is based on five surveys (ICES, 2021a), now including the BTS-BE-Q3, instead of four (ICES, 2019), which cover most of the stock area. Consequently, this time-series is now shorter and starts in 2004.

In 2020, only the French waters of the English Channel were sampled during the FR-CGFS-Q4 survey. The index from this survey was thus not considered representative and not included in the calculation of the combined index for 2020 used in the assessment.

## Issues relevant for the advice

Thornback ray is the main commercial skate species in the North Sea and eastern English Channel, straddling two TAC management units.

Catchpole *et al.* (2017) estimated discard survival to be 96% for thornback ray caught in trammelnets, which is in line with the findings of the SUMARiS project for the same métier (99 % discard survival) (Van Bogaert *et al.*, 2020). For beam trawl and otter trawl, the discards survival is estimated to be 54% and 72%, respectively (Van Bogaert *et al.*, 2020).

Thornback ray is also taken in recreational fisheries, but the retained catches are unquantified.

## Reference points

No reference points are defined for this stock.

## Basis of the assessment

**Table 3** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. Basis of the assessment and advice.

ICES stock data category	3 ( <a href="#">ICES, 2021a</a> ).
Assessment type	Survey-based trends (ICES, 2021b).
Input data	NS-IBTS-Q1 (G1022), NS-IBTS-Q3 (G2829), BTS-ENG-Q3 (B2453), FR-CGFS-Q4 (G3425) and BTS-BE-Q3 (B2453).
Discards and bycatch	Unknown
Indicators	None
Other information	None
Working group	Working Group on Elasmobranch Fishes ( <a href="#">WGEF</a> )

## History of the advice, catch, and management

**Table 4** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. History of ICES advice, agreed TAC, and ICES estimates of landings. All weights are in tonnes.

Year	ICES advice	Landings corresp. to advice	Agreed TAC*			ICES landings
			2.a and 4	7.d	3.a**	
2006	Zero catch	0	2737	No TAC	No TAC	
2007	Zero catch	0	2190	No TAC	No TAC	
2008	No new advice, same as 2007	0	1643	No TAC	No TAC	
2009	Status quo catch		1643	1044	68	1129
2010	No new advice, same as 2009		1397	887	58	1336
2011	Status quo catch		1397	887	58	1282
2012	No new advice, same as 2011		1395	887	58	1589
2013	No TAC, species-specific measures needed, catch could increase by max. 20%		1256	798	52	1868
2014	No new advice, same as 2013		1256	798	47	1905
2015	No new advice, same as 2014		1382	798	47	1645
2016	Precautionary approach	2110	1313	966	47	1826
2017	Biennial	2110	1378	1063	47	1789
2018	Precautionary approach	≤ 2574	1654	1276	47	2219
2019	Precautionary approach (same advice as for 2018)	≤ 2574	1654	1404	47	2204
2020	Precautionary approach	≤ 2237	1737	1474	47	2222
2021	Same advice as in 2020	≤ 2237	1650	1400	45	
2022	Precautionary approach	≤ 2446				
2023	Precautionary approach	≤ 2446				

\* Combined TAC for skates and rays.

\*\* Since 2013 fishing vessels have not been allowed to retain this species in Division 3.a.

## History of the catch and landings

**Table 5** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. Landings distribution by fleet in 2020 as estimated by ICES.

Catch (2020)	Landings			Discards
	Bottom and beam trawls	Bottom nets	Other gears	
Unknown	74%	13%	13%	Unknown
2222 tonnes				

**Table 6** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. ICES estimates of landings by country (in tonnes). Blank = no data reported; 0 = value less than 0.5.

Year	Belgium	Germany	Denmark	France	UK	Netherlands	Norway	Sweden	Total
2009	154			462	335	178			1129
2010	176		1	541	409	203	6		1336
2011	164		1	534	485	97	0	0	1282
2012	154			769	478	186	2	0	1589
2013	201		2	940	573	149	3		1868
2014	206		8	989	571	131	1		1905
2015	219		4	814	447	161			1645
2016	196	34	3*	890	518	185		0	1826*
2017	173	27	1*	829	596	163		0	1790*
2018	193	33	2*	1117	664	211		0	2220*
2019	192	37	0	1191	589	194		0	2204
2020	169	41	4	1237	488	283			2222

\* Data were revised in 2021 (ICES, 2021b)

## Summary of the assessment

**Table 7** Thornback ray in Subarea 4 and in divisions 3.a and 7.d. Assessment summary. Stock-size indicator is the mean of the normalized exploitable biomass indices (individuals of  $\geq 50$  cm total length) from the average of the two NS-IBTS surveys (NS-IBTS-Q1 and NS-IBTS-Q3), the BTS-ENG-Q3, the FR-CGFS-Q4 and BTS-BE-Q3.

Year	NS-IBTS-Q1 & Q3	BTS-ENG-Q3	FR-CGFS-Q4	BTS-BE-Q3	Stock size indicator
2004	0.117	0.78	0.21	0.31	0.36
2005	0.25	0.31	0.53	0.07	0.29
2006	0.77	0.52	0.43	0.0193	0.43
2007	0.120	0.7	0.59	0.00	0.35
2008	1.49	1.01	0.58	0.82	0.97
2009	0.81	0.73	0.56	0.76	0.71
2010	0.23	1.13	0.58	0.65	0.65
2011	0.178	0.66	0.40	0.55	0.45
2012	1.29	0.98	0.66	0.69	0.90
2013	1.14	0.53	1.40	0.81	0.97
2014	1.45	1.46	1.64	2.2	1.67
2015	1.58	1.41	1.33	0.94	1.31
2016	1.41	1.02	1.88	1.58	1.47
2017	1.71	1.19	1.11	1.93	1.48
2018	1.67	1.36	1.94	2.0	1.75
2019	1.39	1.84	2.2	1.65	1.76
2020	1.39	1.37	NA	2.1	1.60*

\* Does not include FR-CGFS-Q4.

## Sources and references

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[Download the stock assessment data and figures.](#)

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