

Rays and skates (Rajidae), mainly thornback ray (*Raja clavata*), in subareas 10 and 12 (Azores grounds and north of Azores)

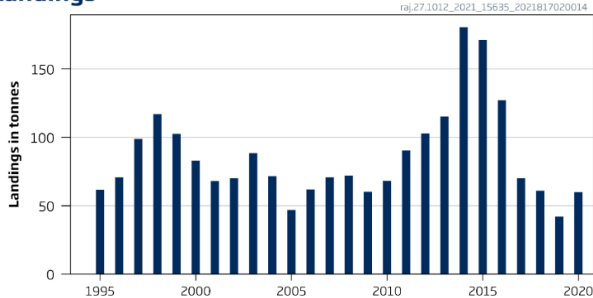
ICES advice on fishing opportunities

ICES advises that when the precautionary approach is applied, landings should be no more than 90 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



Abundance Index

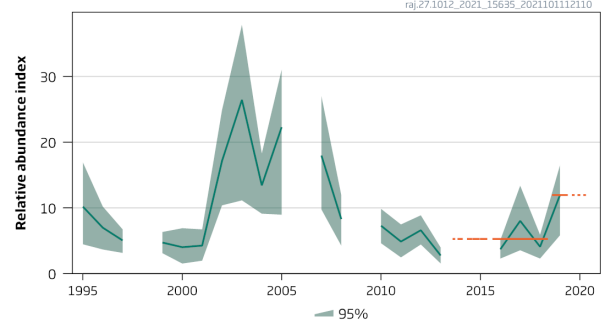


Figure 1 Rays and skates in subareas 10 and 12. Summary of the stock assessment. Left: ICES landings (in tonnes) of rays and skates for ICES subareas 10 and 12. Right: abundance index for *Raja clavata* in the ARQDAÇO(P)-Q2 (L6563) longline survey. The horizontal line indicates the average relative abundance index of the respective year range (2019–2020; 2020 missing) and the preceding five years (2014–2018; 2014–2015 missing). Shaded area represents 95% CI.

Catch scenarios

ICES framework for category 3 stocks (ICES, 2012) was applied. An abundance index derived from the Azorean bottom longline survey ARQDAÇO(P)-Q2 was used as the index of stock development. The advice is based on a comparison of the last two years (2020 missing) index value (index A) with the five preceding values (2014–2015 missing) (index B), multiplied by the recent advised landings. The survey was not carried out in 2014, 2015, or 2020. The abundance index is estimated to have increased by more than 20% and thus the uncertainty cap was applied. The precautionary buffer was applied in 2019 and its application has therefore not been considered again.

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

Table 1 Rays and skates in subareas 10 and 12. The basis for the catch scenarios.*

Index A (2019–2020; 2020 missing)		12.0
Index B (2014–2018; 2014–2015 missing)		5.3
Index ratio (A/B)		2.3
Uncertainty cap	Applied	1.2
Advised landings for 2020, 2021 (issued in 2019)		75 tonnes
Discard rate		Unknown
Precautionary buffer	Not applied	-
Landings advice **		90 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.

** [Advised landings for 2020 and 2021] × [uncertainty cap]

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

The advised landings for 2022 and 2023 are 20% higher than the previous advice, as the stock-size indicator has increased.

Basis of the advice

Table 2 Rays and skates in subareas 10 and 12. The basis of the advice.

Advice basis	Precautionary approach
Management plan	ICES is not aware of any agreed precautionary management plan for skates and rays in this area

Quality of the assessment

The species composition in commercial skate landings is unknown, while thornback ray is the dominant skate species caught in the survey area.

The Azorean longline survey, which constitutes around 90% of the skates and rays caught in the survey, is considered indicative of changes in stock size for thornback ray. The survey abundance index series was recalculated in 2019, excluding the survey strata of the western islands (Flores and Corvo), because these strata were not surveyed in some years.

In 2020, the survey was not conducted due to COVID-19 restrictions and therefore the abundance index for 2020 was not available. The use of a single value for index A in the category 3 approach adds a degree of uncertainty.

Issues relevant for the advice

Other than thornback ray, the status of skate species in the region is uncertain.

Reference points

No reference points are defined for this stock.

Basis of the assessment

Table 3 Rays and skates in subareas 10 and 12. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2021a)
Assessment type	Survey-based trends (ICES, 2021b)
Input data	Azorean demersal bottom longline survey (ARQDAÇO(P)–Q2(L6563))
Discards and bycatch	Unknown
Indicators	None
Other information	None
Working group	Working Group on Elasmobranch Fishes (WGEF)

History of the advice, catch, and management

Table 4 Rays and skates in subareas 10 and 12. ICES advice and ICES estimated landings. All weights are in tonnes.

Year	ICES advice	Predicted landings corresp. to advice	ICES landings
2008	No advice	-	72
2009	No advice	-	62
2010	No advice	-	73
2011	No advice	-	93
2012	No advice	-	104
2013	No TAC for this stock, additional measures needed + catch should decrease by 36% (20% reduction followed by 20% PA buffer)	-	116
2014	No new advice, same catch value as for 2013	-	190
2015	No new advice, same catch value as for 2014	-	171
2016	Precautionary approach	≤ 87	127
2017	Biennial advice	≤ 87	64
2018	Precautionary approach	≤ 78	61
2019	Precautionary approach (same advice as for 2018)	≤ 78	42
2020	Precautionary approach	≤ 75	60
2021	Same advice as in 2020	≤ 75	
2022	Precautionary approach	≤ 90	
2023	Precautionary approach	≤ 90	

History of the catch and landings

Whilst various skate species may be caught in the NEAFC Regulatory Area, the quantities caught and the species composition are both uncertain; catches cannot be quantified.

Table 5 Rays and skates in subareas 10 and 12. Catch distribution by fleet in 2020 as estimated by ICES.

Catch (2020)	Landings	Discards
Unknown	Hooks and lines 100%	Unknown
	60 tonnes	

Table 6 Rays and skates in subareas 10 and 12. 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	3	187	190
2015	0	171	171
2016	0	127	127
2017	0	64	64
2018	0	61	61
2019	0	42	42
2020	0	60	60

Table 7 Rays and skates in subareas 10 and 12. ICES estimates of landings by country (in tonnes). += landings of < 0.01 tonnes.

Year	Spain		France			Portugal	Total
	12.b	10.a	10.a	12.a	12.c	10.a.2	
2005			0.060	0.63		47	48
2006				0.029		62	62
2007				0.0135		71	71
2008			0.063	+		72	72
2009	1.51		0.16	0.76		60	62
2010	5.1		0.066	0.28		68	73
2011	1.76		0.156	0.36		91	93
2012	0.67		+	0.26		103	104
2013	0.49		0.081			115	116
2014	2.5		0.030	0.189		187	190
2015					0.055	171	171
2016						127	127
2017						64	64
2018						61	61
2019						42	42
2020					0.100	60	60

Summary of the assessment

Table 8 Rays and skates in subareas 10 and 12. Assessment summary. Abundance index (catch per unit effort relative to the abundance index, weighted by the size of the strata) of thornback ray from the Azores (ICES Subarea 10) from the Azorean bottom longline survey (ARQDAÇO(P)-Q2).

Year	Lower CI (2.5)	Abundance index	Upper CI (97.5)
1995	4.5	10.2	16.9
1996	3.7	7.0	10.2
1997	3.2	5.1	6.7
1998	NA	NA	NA
1999	3.1	4.7	6.3
2000	1.53	4.0	6.9
2001	1.97	4.3	6.7
2002	10.4	17.2	25
2003	11.1	26	38
2004	9.1	13.4	18.3
2005	9.0	22	31
2006	NA	NA	NA
2007	9.8	18.0	27
2008	4.2	8.3	11.9
2009	NA	NA	NA
2010	4.6	7.3	9.9
2011	2.5	4.9	7.5
2012	4.4	6.6	8.9
2013	1.53	2.8	4.0
2014	NA	NA	NA
2015	NA	NA	NA
2016	2.3	3.7	5.1
2017	3.6	8.0	13.4
2018	2.3	4.1	5.9
2019	5.8	12.0	16.5
2020	NA	NA	NA

NA = not available.

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. <https://doi.org/10.17895/ices.pub.5322>.

ICES. 2021a. Advice on fishing opportunities. *In* Report of the ICES Advisory Committee, 2021. ICES Advice 2021, section 1.1.1. <https://doi.org/10.17895/ices.advice.7720>.

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

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