

Cuckoo ray (*Leucoraja naevus*) in subareas 6 and 7, and in divisions 8.a–b and 8.d (West of Scotland, southern Celtic Seas, and western English Channel, Bay of Biscay)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, landings in 2023 and 2024 should be no more than 7826 and 8064 tonnes respectively. ICES cannot quantify the corresponding catches.

Management of the catches of skates and rays under a combined TAC prevents effective control of single-stock exploitation rates and could lead to the overexploitation of some species.

Stock development over time

Fishing pressure on the stock is below F_{MSY} , and biomass is above MSY $B_{trigger}$ and B_{lim} .

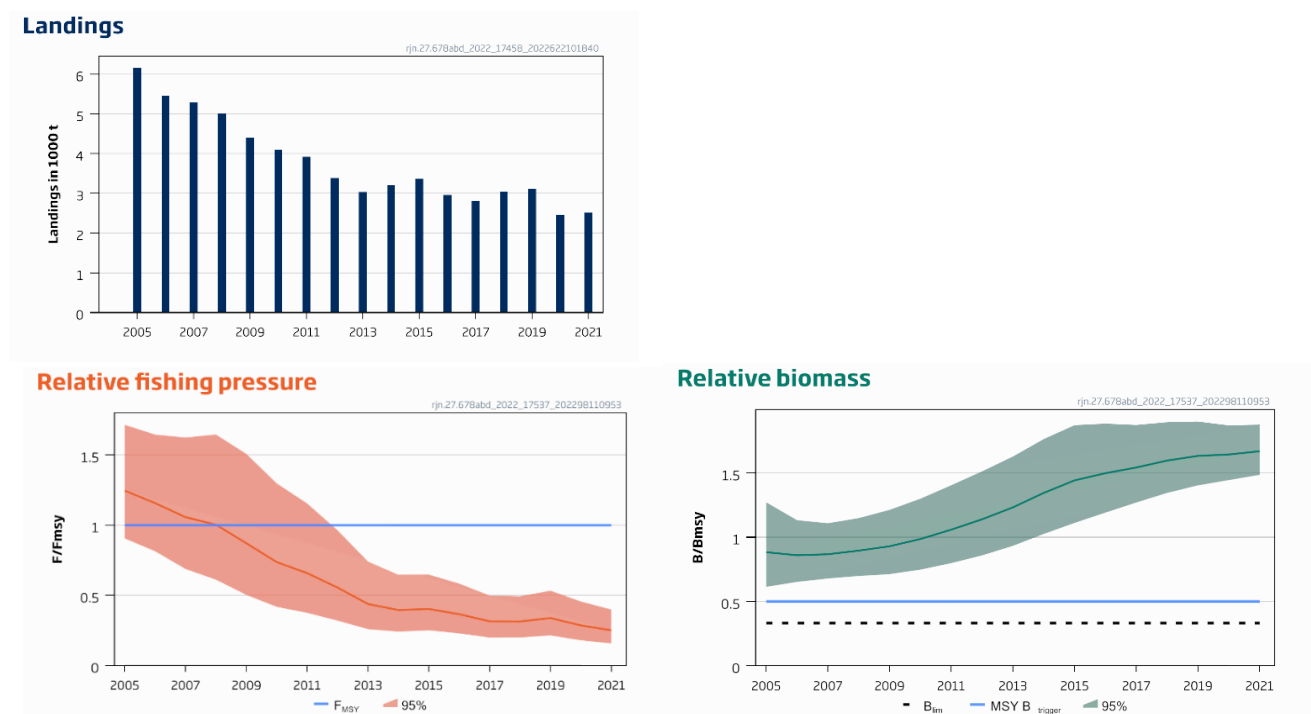


Figure 1 Cuckoo ray in subareas 6 and 7, and in divisions 8.a–b and 8.d. Summary of the stock assessment. ICES landings for the period 2005–2021, relative biomass, and relative fishing pressure.

Catch scenarios

Table 1 Cuckoo ray in subareas 6 and 7, and in divisions 8.a–b and 8.d. The basis for the catch scenarios.

Variable	Value	Notes
$F(2022)/F_{MSY}$	0.42	Status quo F/F_{MSY} .
$B(2023)/B_{MSY}$	1.65	Short-term forecast (STF)
Projected landings (2022)	4035	STF (in tonnes)

Table 2a Cuckoo ray in subareas 6 and 7, and in divisions 8.a–b and 8.d. Annual landings scenarios. All weights are in tonnes.

Basis	Total landings (2023)	Fishing mortality F_{2023}/F_{MSY}	Stock size B_{2024}/B_{MSY}	% biomass change [^]	% advice change ^{^^}
ICES advice basis					
MSY approach (15th percentile of predicted landings distribution under $F = F_{MSY}$)	7826	0.85	1.50	-9.1	+148
Other scenarios					
$F = F_{MSY}$	9035	1.00	1.45	-13.8	+187
$F = F_{2021} = F_{sq}$	4035	0.42	1.65	-2.2	+28
$F = 0$	0	0	1.80	7.0	-100
$F = F_{MSY}$ fractile 10	7563	0.82	1.51	-8.5	+140
$F = F_{MSY}$ fractile 20	8040	0.88	1.49	-9.7	+155
$F = F_{MSY}$ fractile 35	8565	0.94	1.47	-13.7	+171

[^] Biomass 2024 relative to biomass 2023.

^{^^} Advice value for 2023 relative to the advice value for 2021 and 2022 (3150 tonnes).

Table 2b Cuckoo ray in subareas 6 and 7, and in divisions 8.a–b and 8.d. Annual catch scenarios for 2024 assuming that catch in 2023 corresponds to the 15th percentile of the predicted catch distribution under $F_{2023} = F_{MSY}$. All weights are in tonnes.

Basis	Total landings (2024)	Fishing mortality F_{2024}/F_{MSY}	Stock size B_{2025}/B_{MSY}	% biomass change [^]	% advice change ^{^^}
ICES advice basis					
MSY approach (15th percentile of predicted landings distribution under $F = F_{MSY}$)	8064	0.85	1.54	2.7	+156
Other scenarios					
$F = F_{MSY}$	9372	1.00	1.49	-0.7	+197
$F = F_{2021} = F_{sq}$	1753	0.17	1.79	19.3	-45
$F = 0$	0	0	1.85	23.3	-100
$F = F_{MSY}$ fractile 10	7783	0.81	1.56	4	+147
$F = F_{MSY}$ fractile 20	8295	0.87	1.51	0.7	+163
$F = F_{MSY}$ fractile 35	8863	0.94	1.91	27.3	+181

[^] Biomass 2025 relative to biomass 2024.

^{^^} Advice value for 2023 relative to the advice value for 2021 and 2022 (3150 tonnes).

Basis of the advice

Table 3 Cuckoo ray in subareas 6 and 7 and Divisions 8.a–b and 8.d. The basis of the advice.

Advice basis	MSY approach
Management plan	ICES is not aware of any agreed precautionary management plan for cuckoo ray in this area

Quality of the assessment

This stock was benchmarked in 2022 (ICES, 2022a) and is now in category 2. The number of surveys used for the biomass index increased from two to eight thus covering nearly all of the stock area.

The assessment uses a stock indicator derived from a swept-area biomass index from eight surveys: EVHOE (Q4 [G9527]), IGFS-WIBTS-Q4 (G7212), NIGFS (Q1 and Q4 [G7144 and G7655]), SP-PORC (Q3 [G5768]), SCOWCGFS (Q1 and Q4 [G4748

and G4815]), and UK-Q1-SWBeam (B2732) , covering nearly all of the stock area. The data were normalized to the long-term mean.

Despite improvement in recent years, some misidentification at species level is still possible, but it is unlikely to occur in significant amounts for this well-known and commercially important species. Stock-specific landings data are not available before 2009. Landings 2005–2009 were estimated based on the proportion of cuckoo ray in the total ray catch in subsequent years.

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

Issues relevant for the advice

ICES catch advice is based on the 15th percentile of predicted catch distribution, which was considered more precautionary than the 35th percentile. The advice is substantially larger than the previous advice, and it cannot be quantified how this increase will impact discard rates for this species.

This is a common offshore species of varying commercial value. This species is a bycatch in demersal fisheries, especially for offshore trawl and gillnet fisheries targeting gadoids, anglerfish, megrim, and *Nephrops*. As one of the smaller and less valuable species in the skate complex, it is not targeted, but total landings of the complex represent a high monetary value. There can be high levels of discarding of cuckoo rays. Discard survival is variable.

Data from the French on-board observation programme (2007–2015) indicated that cuckoo ray occurs in about 80% of the hauls for twin-rig trawlers targeting demersal fish, with no apparent variation.

In 2017 a minimum landing size of 45 cm (total length) was implemented for Rajiformes in France.

Reference points

Table 4 Cuckoo ray in subareas 6 and 7 and Divisions 8.a–b and 8.d. Reference points, values, and their technical basis.

Framework	Reference point*	Value	Technical basis	Source
MSY approach	MSY B_{trigger}	$0.5 \times B_{\text{MSY}} = 0.25 \times K^*$	Relative value. B_{MSY} is estimated directly from the Bayesian surplus production assessment model and changes when the assessment is updated.	ICES (2022a)
	F_{MSY}	1*	Relative value. F_{MSY} is estimated directly from the assessment model and changes when the assessment is updated.	ICES (2022a)
Precautionary approach	B_{lim}	$0.3 \times B_{\text{MSY}}$	Relative value (equilibrium yield at this biomass is 50% of MSY)	ICES (2022a)
	B_{pa}^{**}	Not defined		
	F_{lim}	$1.7 \times F_{\text{MSY}}$	Relative value (the F that drives the stock to B_{lim}).	ICES (2022a)
	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 SPiCT-estimated values of the ratios F/F_{MSY} and B/B_{MSY} are used to estimate stock status relative to the MSY reference points.

** B_{pa} and F_{pa} are not defined. The assessment provides probability distributions for B and F, so it is possible to directly estimate the probabilities of $B < B_{\text{lim}}$ and of $F > F_{\text{lim}}$.

Basis of the assessment

Table 5 Cuckoo ray in subareas 6 and 7 and divisions 8.a–b and 8.d. The basis of the assessment.

ICES stock data category	2 (ICES, 2022b)
Assessment type	Surplus Production Model in Continuous Time (SPiCT; ICES, 2022a, 2022c)
Input data	Commercial landings. Surveys (EVHOE (Q4; [G9527]), IGFS-WIBTS-Q4 [G7212], NIGFS (Q1 and Q4) [G7144 and G7655], SP-PORC (Q3) [G5768] and SCOWCGFS (Q1 and Q4) [G4748 and G4815])
Discards and bycatch	Discarding is known to take place but cannot be quantified
Indicators	None
Other information	A benchmark assessment was carried out in 2022 (ICES, 2022a)
Working group	Working Group on Elasmobranch Fishes (WGEF)

History of the advice, catch, and management

Table 6 Cuckoo ray in subareas 6 and 7, and in divisions 8.a–b and 8.d. History of ICES advice and ICES estimates of landings*. All weights are in tonnes.

Year	ICES advice	Landings corresp. to advice	ICES landings
2009	No specific advice		4408
2010	No specific advice		4096
2011	No specific advice		3916
2012	No specific advice		3388
2013	Decrease catch by at least 36%	-	3028
2014	No new advice, same as 2013	-	3209
2015	Decrease landings by 34%	1998	3360
2016	No new advice, same as 2015	1998	2955
2017	Precautionary approach	≤ 2734	2804
2018	Precautionary approach (same value as advised catches for 2017)	≤ 2734	3037
2019	Precautionary approach	≤ 3281	3111
2020	Precautionary approach	≤ 3281	2453
2021	Precautionary approach	≤ 3150	2517
2022	Precautionary approach	≤ 3150	
2023	MSY approach	≤ 7826	
2024	MSY approach	≤ 8064	

* There is no specific TAC for this stock. Fishing opportunities are managed through an overall TAC across each of the two management units (Subarea 6 and divisions 7.a–c and 7.e–k; and subareas 8–9), which includes all species of skates and rays.

History of the catch and landings

This stock is distributed primarily in EU waters, and while catches from the NEAFC Regulatory Area are not quantified, they are assumed negligible.

Table 7 Cuckoo ray in subareas 6 and 7 and divisions 8.a–b and 8.d. Catch distribution by fleet in 2021 as estimated by ICES.

Catch	Landings			Discards
	Bottom trawl	Beam trawl	Other gears	
Unknown	90%	2%	8%	Unquantified
	2517 tonnes			

Table 8 Cuckoo ray in subareas 6 and 7 and divisions 8.a–b and 8.d. ICES estimates of landings by country (in tonnes). Data revised in 2016 (ICES, 2016) and 2018 (ICES, 2018). Blank cell = no data reported; 0 = value less than 0.5.

Year	Belgium	Spain	UK	Ireland	Netherlands	France	Total
2009	81	778	321	12		3217	4408
2010	70	480	421	55	0	3069	4096
2011	112	387	402	106		2909	3916
2012	93	311	306	108		2571	3388
2013	97	374	269	93	0	2195	3028
2014	48	300	262	83	0	2515	3209
2015	51	659	266	79		2621	3360
2016	27	688	254	69		2233	2955
2017	26	305	260	69	0	2144	2804
2018	28	345	272	114		2288	3037
2019	25	295	289	103		2398	3111
2020	18	192	186	73		1984	2453
2021	0	145	166	55		2151	2517

Summary of the assessment

Table 9 Cuckoo ray in subareas 6–7, and in divisions 8.a–b and 8.d. Assessment summary. Biomass is relative to B_{MSY} at the end of the year and fishing mortality relative to F_{MSY} . High and low values are 90% probability intervals of the posterior distribution. Catches are in tonnes.

Year	Relative biomass			Landings (tonnes)	Relative fishing pressure		
	Relative B	High	Low		Relative F	High	Low
2005	0.88	1.27	0.61	6149	1.25	1.72	0.91
2006	0.86	1.13	0.65	5455	1.16	1.65	0.81
2007	0.87	1.11	0.68	5283	1.06	1.63	0.69
2008	0.90	1.15	0.70	5010	1.00	1.65	0.61
2009	0.93	1.21	0.71	4408	0.87	1.51	0.50
2010	0.99	1.30	0.75	4096	0.74	1.30	0.42
2011	1.06	1.40	0.80	3916	0.66	1.16	0.38
2012	1.14	1.51	0.86	3388	0.56	0.96	0.32
2013	1.23	1.63	0.93	3028	0.44	0.74	0.26
2014	1.35	1.76	1.03	3209	0.40	0.65	0.24
2015	1.44	1.87	1.11	3360	0.40	0.65	0.25
2016	1.50	1.88	1.19	2955	0.37	0.58	0.23
2017	1.54	1.87	1.27	2804	0.32	0.50	0.20
2018	1.60	1.90	1.34	3037	0.31	0.49	0.20
2019	1.63	1.90	1.40	3111	0.34	0.53	0.21
2020	1.64	1.87	1.44	2453	0.29	0.46	0.18
2021	1.67	1.88	1.49	2516	0.25	0.40	0.16

Sources and references

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

Recommended citation: ICES. 2022. Cuckoo ray (*Leucoraja naevus*) in subareas 6 and 7, and in divisions 8.a–b and 8.d (West of Scotland, southern Celtic Seas, and western English Channel, Bay of Biscay). *In* Report of the ICES Advisory Committee, 2022. ICES Advice 2022, rjn.27.678abd. <https://doi.org/10.17895/ices.advice.19754470>