

ICES advice for selected skates and rays for 2023

Joint NWWAC/NSAC Focus Group Skates & Rays
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Image Dirk Vonten, Fotolia

Introduction

- Includes advice released autumn 2023 and 2022 (not in detail).
- Any changes to advice rules documented in sheets and referenced here.

Advice on Conservation Aspects

- Some stocks for which ICES provides fishing opportunities advice are more affected by other anthropogenic pressures than by fishing. In these cases, ICES will now include ‘conservation status advice’ in the respective fishing opportunities advice sheet.
- Often “ICES has not identified any conservation aspects”
- But for these stocks:

ICES advice on conservation aspects

Management measures to account for conservation aspects may exist at a national or regional level.

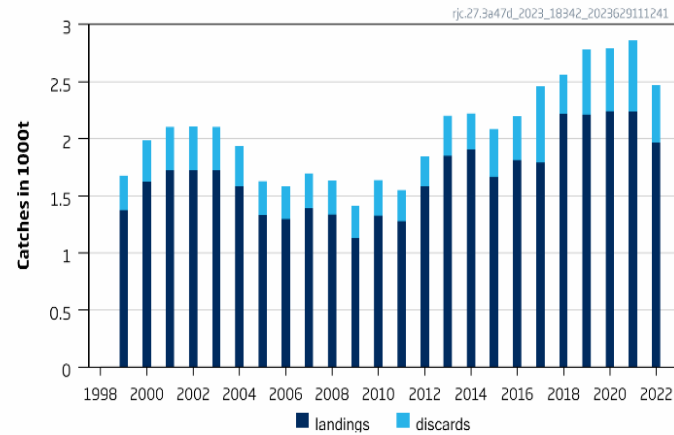
Conservation status

ICES has not reviewed any information on stock-specific conservation status.

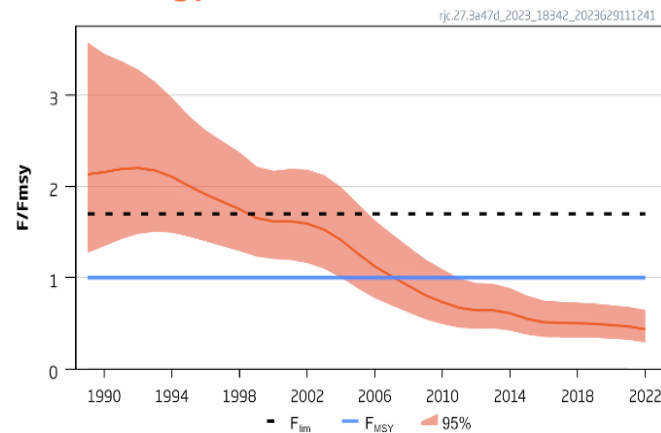
Thornback ray North Sea, Skagerrak, Kattegat, E English Channel (3a47d)

Advice for 2024 and 2025, MSY: 5274 t and 5307 t +116%
(2024 advice)

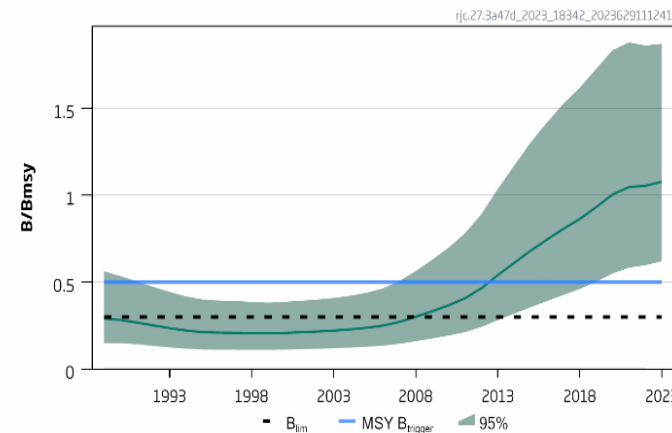
Catches



Relative fishing pressure



Relative biomass



- Benchmark – new method – SPiCT
- F below F_{msy}, Biomass above MSYBtrigger
- Skates and rays managed under single TAC - prevents effective control of single-stock exploitation rates and could lead to overexploitation of some species.

Thornback ray North Sea, Skagerrak, Kattegat, E English Channel (3a47d)



Catch (2022) : 2471 t (20% discards)

F(2023) = 0.42 * Fmsy (=F2022);

Biomass (2023)= 1.13 * BMSY

Table 2a Thornback ray in Subarea 4 and in divisions 3.a and 7.d. Annual catch scenarios for 2024. Weights are in tonnes.

Basis	Total catch (2024)***	Fishing mortality F ₂₀₂₄ /F _{MSY}	Stock size B ₂₀₂₅ /B _{MSY}	% B change *	% Advice change**
ICES advice basis					
MSY approach (15th percentile of predicted catch distribution under F = F _{MSY})	5274	0.80	1.14	0.67	116
Other scenarios					
F _{MSY}	6533	1.00	1.12	-1.36	167
F = F ₂₀₂₃	2807	0.42	1.19	4.7	15
F = 0	0	0	1.24	9.3	-100
F = F _{MSY} fractile 10	5015	0.76	1.15	1.09	105
F = F _{MSY} fractile 20	5489	0.83	1.14	0.32	124
F = F _{MSY} fractile 35	6032	0.92	1.13	-0.55	147

Basis	Total catch (2025)***	Fishing mortality F ₂₀₂₅ /F _{MSY}	Stock size B ₂₀₂₆ /B _{MSY}	% B change *	% Advice change**
ICES advice basis					
MSY approach (15th percentile of predicted catch distribution under F = F _{MSY})	5307	0.80	1.15	0.59	0.63
Other scenarios					
F _{MSY}	6448	1.00	1.11	-3.2	22
F = F ₂₀₂₃	2932	0.42	1.24	8.2	-44
F = 0	0	0	1.34	17.3	-100
F = F _{MSY} fractile 10	5067	0.76	1.16	1.38	-3.9
F = F _{MSY} fractile 20	5506	0.83	1.14	-0.061	4.4
F = F _{MSY} fractile 35	6000	0.92	1.12	-1.70	13.8

SPiCT assessment

Survey indices showing decline

Advice based on a proportion of FMSY (15th percentile)

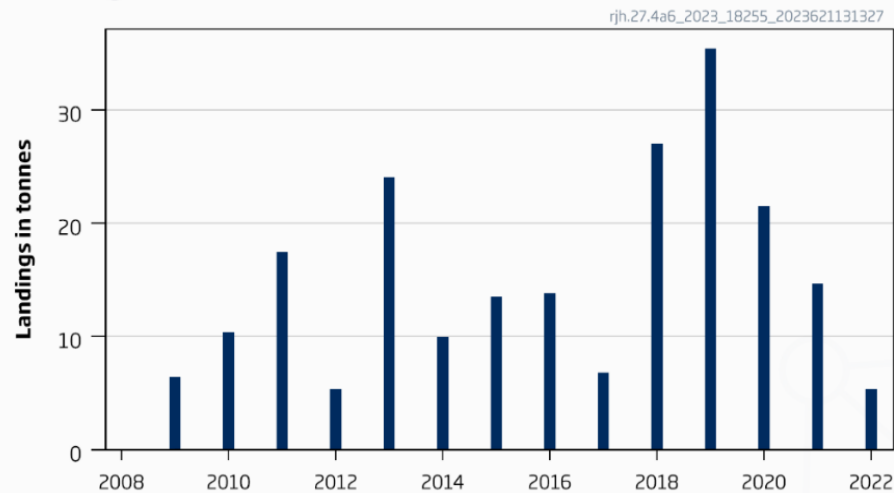
Has become 'standard' for elasmobranchs using SPiCT

Not known how increase in TAC might affect discards

Blonde ray North Sea and West of Scotland (4a6)

Advice for 2024-2027, PA: 7 t landings in each year 0% change

Landings



- Category 5 – no information on abundance or exploitation
- PA buffer not applied (applied in 2021)
- Landings decreasing since 2019
- Skates and rays managed under single TAC - prevents effective control of single-stock exploitation rates and could lead to overexploitation of some species.

Blonde ray North Sea and West of Scotland (4a6)

Landings (2022) : 6 t (discards unquantified but known to take place)

Table 1 Blonde ray in Subarea 6 and Division 4.a. The basis for the catch scenarios*.

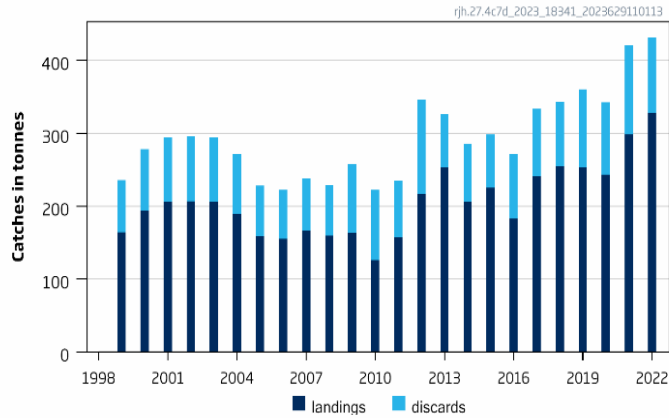
Advised landings for 2022 and 2023 (issued in 2021)	7 tonnes
Discard rate	Unquantified
Precautionary buffer	Not applied -
Landings advice for 2024 – 2027	7 tonnes
% Advice change**	0 %

Advice will be for 4 years until more information (catch and survey data) is available

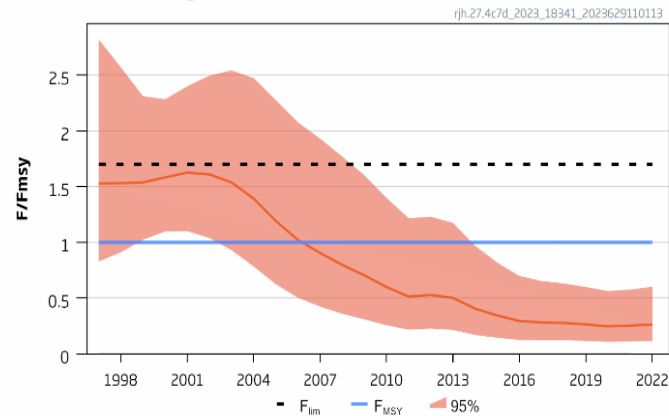
Blonde ray central and south North Sea and E English Channel (4bc7d)

Advice for 2024 and 2025, MSY: 1262 t and 1209 t +561% (2024 advice)

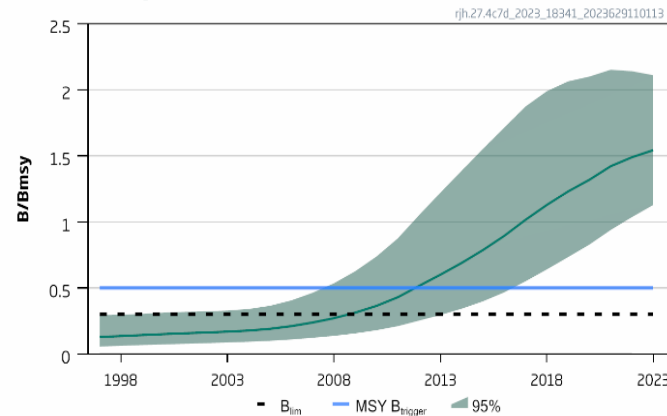
Catches



Relative fishing pressure



Relative exploitable biomass



- Benchmark – new method – SPiCT
- F below F_{msy}, Biomass above MSYBtrigger
- Skates and rays managed under single TAC - prevents effective control of single-stock exploitation rates and could lead to overexploitation of some species.

Blonde ray central and south North Sea and E English Channel (4bc7d)

Catch (2022) : 432 t (24% discards)

F(2023) = 0.26 * Fmsy (=F2022);

Biomass (2023)= 1.59 * BMSY



Table 2a Blonde ray in divisions 4b, 4c and 7d. Annual catch scenarios for 2024. All weights are in tonnes.

Basis	Total catch*** (2024)	Fishing mortality F ₂₀₂₄ /F _{FMSY}	Stock size B ₂₀₂₅ /B _{FMSY}	% B change*	% advice change**
MSY approach (15th percentile of predicted catch distribution under F = F _{FMSY})	1262	0.75	1.51	-4.6	561
F _{FMSY}	1664	1.00	1.46	-8.0	771
F = F ₂₀₂₃	458	0.26	1.62	2.2	140
F = 0	0	0	1.68	6.1	-100
F = F _{FMSY} fractile 10	1183	0.70	1.52	-4.0	519
F = F _{FMSY} fractile 20	1329	0.79	1.50	-5.2	596
F = F _{FMSY} fractile 35	1501	0.90	1.48	-6.6	686

Basis	Total catch*** (2025)	Fishing mortality F ₂₀₂₅ /F _{FMSY}	Stock size B ₂₀₂₆ /B _{FMSY}	% B change*	% advice change**
ICES advice basis					
MSY approach (15th percentile of predicted catch distribution under F = F _{FMSY})	1209	0.75	1.46	-3.6	-4.2
Other scenarios					
F _{FMSY}	1541	1.00	1.37	-9.7	22
F = F ₂₀₂₃	467	0.26	1.65	8.9	-63
F = 0	0	0	1.76	16	-100
F = F _{FMSY} fractile 10	1140	0.70	1.48	-2.4	-9.7
F = F _{FMSY} fractile 20	1266	0.79	1.44	-4.7	0.32
F = F _{FMSY} fractile 35	1409	0.90	1.40	-7.2	12

SPiCT assessment

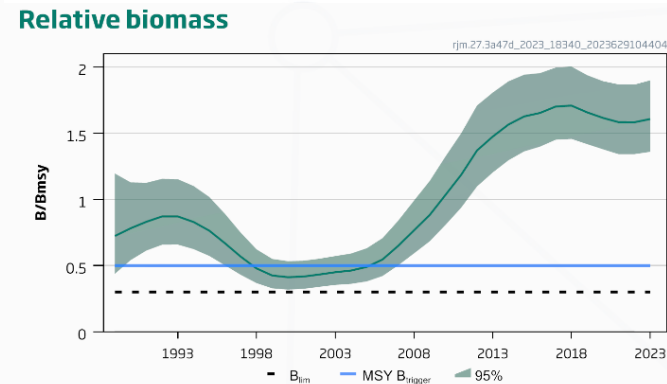
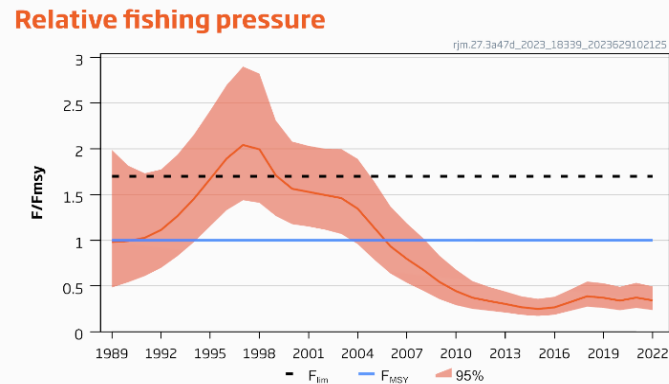
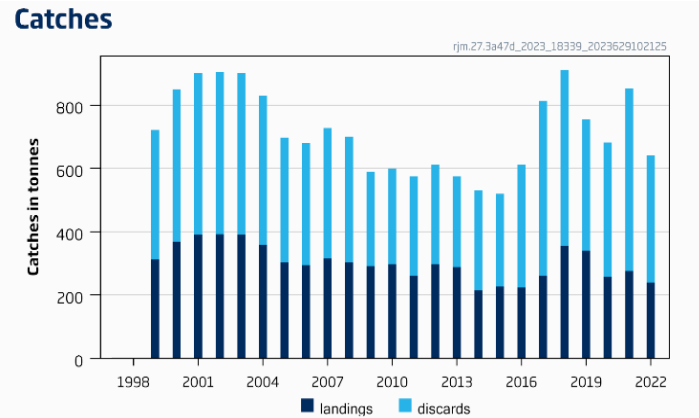
Tagging, genetics, distribution - Division 4b added to the stock in 2023

Advice based on a proportion of FMSY (15th percentile) Has become 'standard' for elasmobranchs using SPiCT

Not known how increase in TAC might affect discards

Spotted ray North Sea, Skagerrak, Kattegat and E English Channel (3a47d)

Advice for 2024 and 2025, MSY: 1517 t and 1415 t +554% (2024 advice)



- Benchmark – new method – SPiCT
- F below Fmsy, Biomass above MSYBtrigger
- Skates and rays managed under single TAC - prevents effective control of single-stock exploitation rates and could lead to overexploitation of some species.

Spotted ray North Sea, Skagerrak, Kattegat and E English Channel (3a47d)

Catch (2022) : 641 t (63% discards)

F(2023) = 0.31 * Fmsy (=F2022);

Biomass (2023)= 1.64 * BMSY



SPiCT assessment

Advice based on a proportion of FMSY (15th percentile)
Has become 'standard' for elasmobranchs using SPiCT

Not known how increase in TAC might affect discards

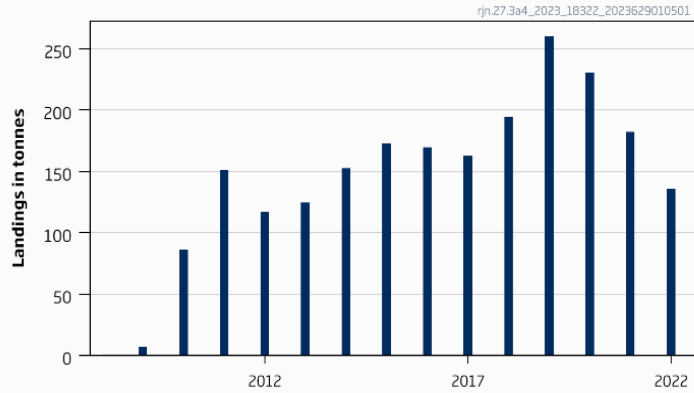
Table 2a Spotted ray in Subarea 4 and in divisions 3.a and 7.d. Annual catch scenarios for 2024. All weights are in tonnes

Basis	Total catch (2024)***	Fishing mortality F ₂₀₂₄ /F _{MSY}	Stock size B ₂₀₂₅ /B _{MSY}	% B change*	% advice change**
ICES advice basis					
MSY approach (15th percentile of predicted catch distribution under F = F _{MSY})	1517	0.73	1.51	-7.7	554
Other scenarios					
F _{MSY}	2027	1.00	1.42	-13	774
F = F ₂₀₂₃	673	0.31	1.66	1.16	190
F = 0	0	0	1.77	8.3	-100
F = F _{MSY} fractile 10	1418	0.68	1.53	-6.7	511
F = F _{MSY} fractile 20	1601	0.77	1.50	-8.6	590
F = F _{MSY} fractile 35	1818	0.89	1.46	-11	684
Basis	Total catch (2025)***	Fishing mortality F ₂₀₂₅ /F _{MSY}	Stock size B ₂₀₂₆ /B _{MSY}	% B change*	% advice change**
ICES advice basis					
MSY approach (15th percentile of predicted catch distribution under F = F _{MSY})	1415	0.73	1.43	-5.2	-6.7
Other scenarios					
F _{MSY}	1796	1.00	1.30	-14	18
F = F ₂₀₂₃	680	0.31	1.67	10.4	-55
F = 0	0	0	1.86	23	-100
F = F _{MSY} fractile 10	1336	0.68	1.46	-3.4	-12
F = F _{MSY} fractile 20	1481	0.77	1.41	-6.7	-2.4
F = F _{MSY} fractile 35	1646	0.89	1.35	-10.6	8.5

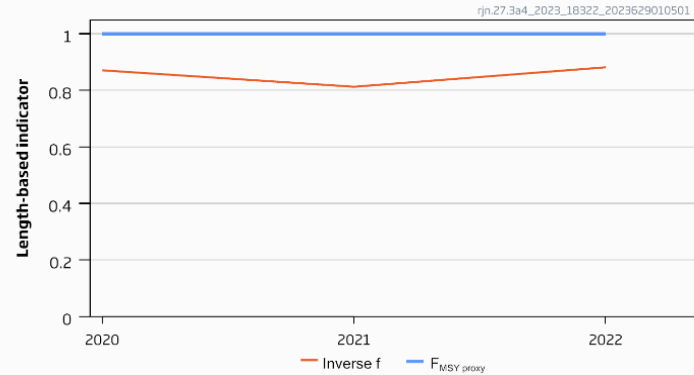
Cuckoo ray North Sea, Skagerrak and Kattegat (3a4)

Advice for 2024 and 2025, MSY: landings 79 t in each year -11%

Landings



Fishing pressure indicator



Stock size indicator



- New method (rfb) and decrease in biomass index
- F below F_{msy} proxy, Biomass above I_{trigger}
- Skates and rays managed under single TAC - prevents effective control of single-stock exploitation rates and could lead to overexploitation of some species.

Cuckoo ray North Sea, Skagerrak and Kattegat (3a4)

Landings (2022) : 136 t (discards and catch unquantified)

Table 1 Cuckoo ray in Subarea 4 and Division 3.a. The basis for the catch scenarios*.

Previous landings advice A_y (2022, 2023)	89 tonnes
Stock biomass trend	
Index A (2021, 2022)	0.194 kg h ⁻¹
Index B (2018, 2019, 2020)	0.24 kg h ⁻¹
r: index ratio (A/B)	0.82
Fishing pressure proxy	
Mean catch length ($L_{\text{mean}} = L_{2022}$)	49 cm
MSY proxy length ($L_{F=M}$)	44 cm
f: multiplier for relative mean length in catches ($L_{\text{mean}}/L_{F=M}$)	1.13
Biomass safeguard	
Last index value (I_{2022})	0.22 kg h ⁻¹
Index trigger value ($I_{\text{trigger}} = I_{\text{loss}} \times 1.4$)	0.087 kg h ⁻¹
b: multiplier for index relative to trigger $\min\{I_{2022}/I_{\text{trigger}}, 1\}$	1
Precautionary multiplier to maintain biomass above B_{lim} with 95% probability	
m: multiplier (generic multiplier based on life history)	0.95
RFB calculation: $A_{y+1} = A_y \times r \times f \times b \times m$	79 tonnes
Stability clause (+20%/-30% compared to A_y , only applied if $b \geq 1$)	Not applied
Discard rate	Unquantified
Landings advice for 2024 and 2025	79 tonnes
% advice change**	-11 %

$$\text{RFB calculation: } A_{y+1} = A_y \times r \times f \times b \times m$$

Other stocks of interest – advice in 2022

Celtic Seas

Thornback ray *Raja clavata* in western Channel 7e to k

rjc.27.afg Irish Sea, Bristol Channel, Celtic Sea north: MSY landings 1833 t

rjc.27.7e western English Channel: PA landings 170 t

raj.27.67a-ce-k hkj other skates and rays West of Scotland, Celtic Sea and West English Channel

Blonde ray *Raja brachyura* e to k

rjh.27.7afg Irish Sea, Bristol Channel, Celtic Sea north: PA landings 573 t

rjh.27.7e western English Channel: PA landings 213 t

hjk no specific data in other rays as no data disaggregated by species

Spotted ray *Raja montagui* e to k

rjm.27.7ae-h Celtic Seas, western English Channel: MSY landings 814 t

raj.27.67a-ce-k hkj other skates and rays West of Scotland, Celtic Sea and West English Channel

Cuckoo ray *Leucoraja naevus* e to k

rjn.27.678abd west of Scotland, south Celtic Seas, western English Channel, Bay of Biscay: MSY landings
2023 7826 t 2024 8064 t

Other stocks of interest

Irish Sea

Blonde ray *Raja brachyura* 7a

rjh.27.7afg Irish Sea, Bristol Channel, Celtic Sea north: PA landings 573 t

Thornback ray *Raja clavata*

rjc.27.afg Irish Sea, Bristol Channel, Celtic Sea north: MSY landings 1833 t

Spotted ray *Raja montagui* 7a

rjm.27.7ae-h Celtic Seas, western English Channel: MSY landings 814 t

Cuckoo ray *Leucoraja naevus* 7a

rjn.27.678abd west of Scotland, south Celtic Seas, western English Channel, Bay of Biscay: MSY landings
2023 7826 t 2024 8064 t

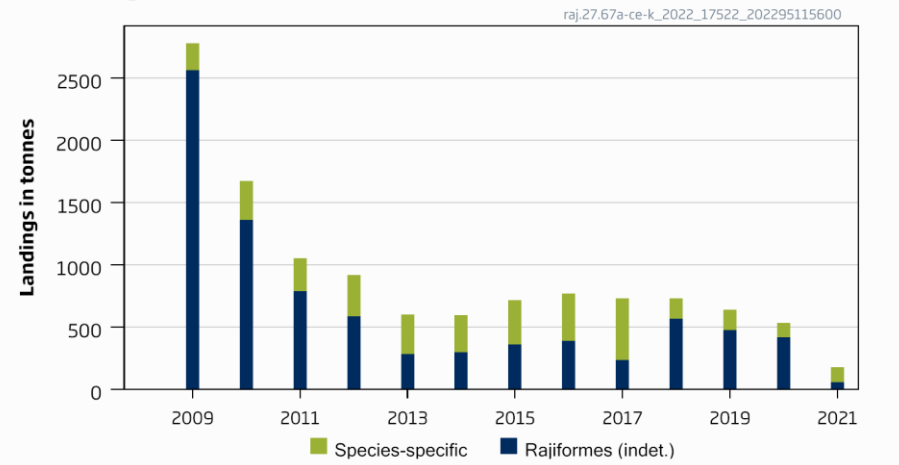
Channel

Undulate ray *Raja undulata* 7d and e

rju.27.7de English Channel: MSY landings 2023 4839 2024 4675

Can not provide catch advice

Landings



- Lack of reliable catch and survey data
- This covers skates (order Rajiformes) not reported to species level, species reported outside of defined stock boundaries (e.g. blonde ray) and deepwater skates and northerly species
- Reported landings of skates in Celtic Seas that are not specified to species had declined from more than 2562 tonnes in 2009 to 58 tonnes in 2021 – improved reporting
- Stock identity for many unknown

These stocks (individual and 'other') include advice:

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

Where to find these:

ICES library

<https://ices-library.figshare.com/>

I find works best to search stock code

e.g. rju.27.7de

<https://ices-taf.shinyapps.io/advicexplorer/>



**Thank you
for your
attention!**

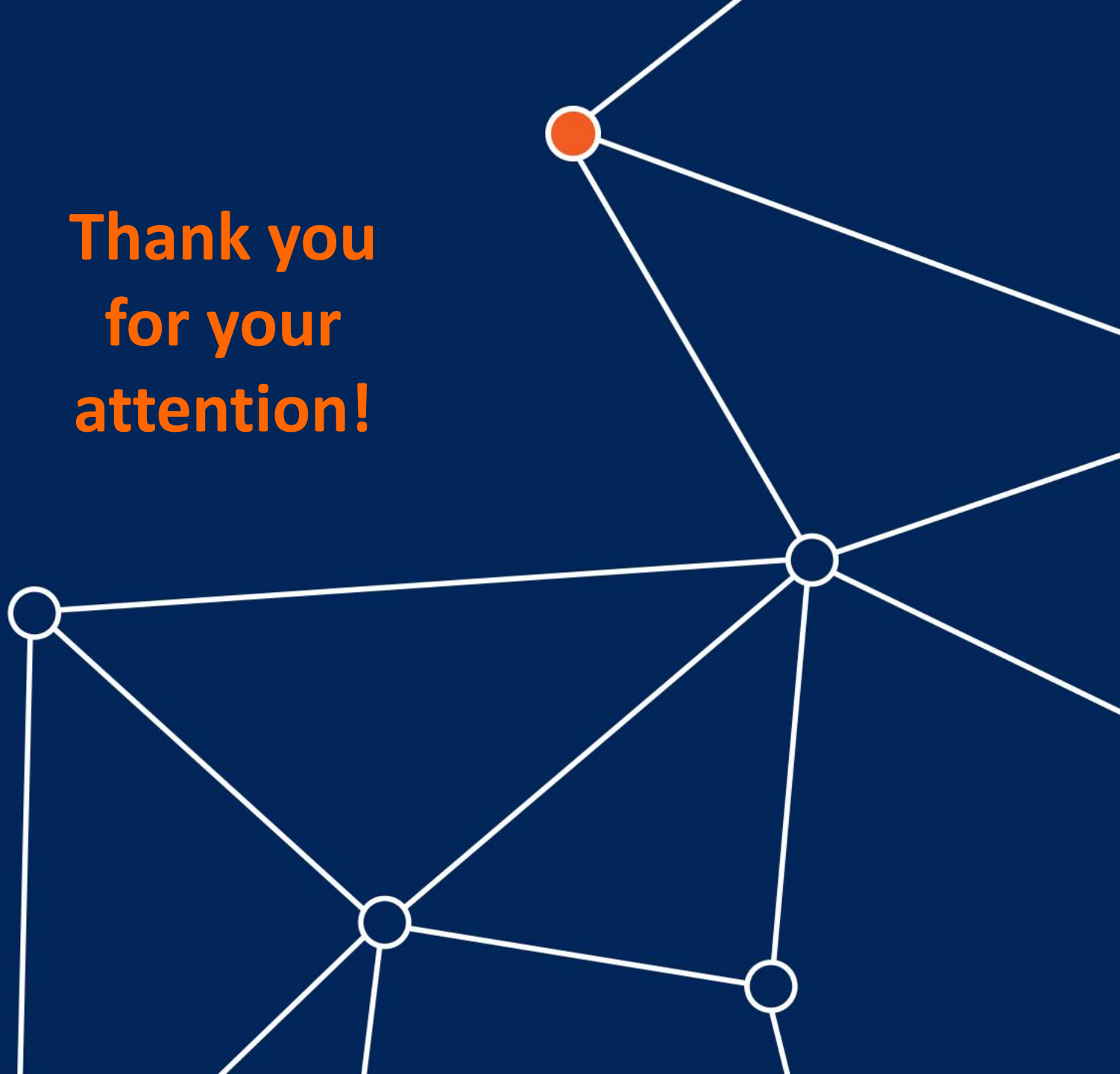


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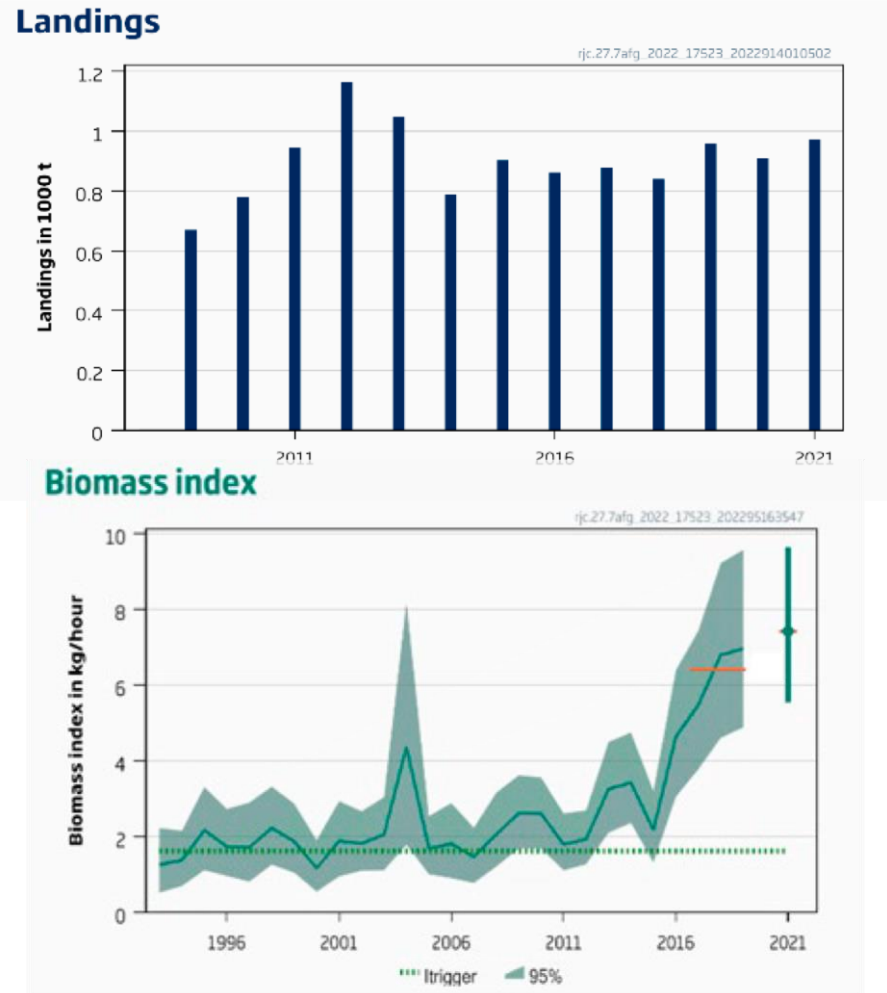
Joanne.morgan@ices.dk

Science for sustainable seas



Thornback ray Irish Sea, Bristol Channel, Celtic Sea north (7afg)

Advice for 2023 and 2024, MSY: landings 1833 t each year – can not quantify catches +15%

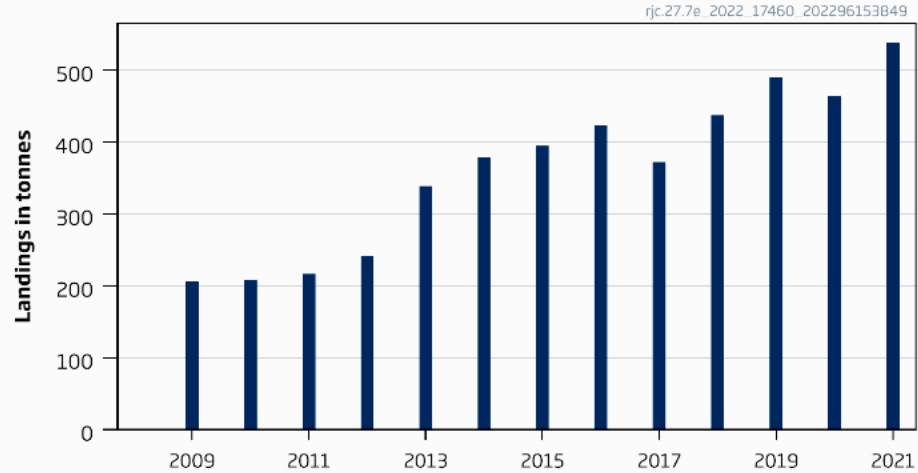


- Rfb rule
- Increase in biomass index
- Fishing pressure below Fmsy
Proxy and biomass above
Itrigger

Thornback ray western English Channel (7e)

Advice for 2023 and 2024, PA: 170 t each year 0%

Landings



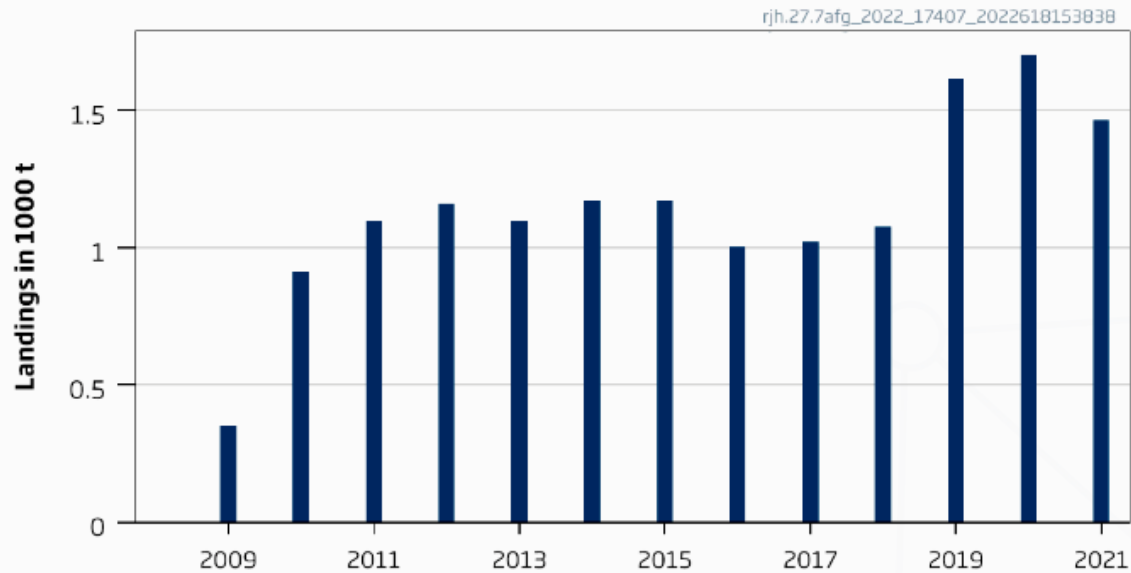
- Landings only – category 5
- PA buffer not applied

Blonde ray Irish Sea, Bristol Channel, Celtic Sea north (7afg)

Advice for 2023 and 2024, PA: landings 573 t each year – can not quantify catches -20%

- Category 5
- PA buffer applied

Landings

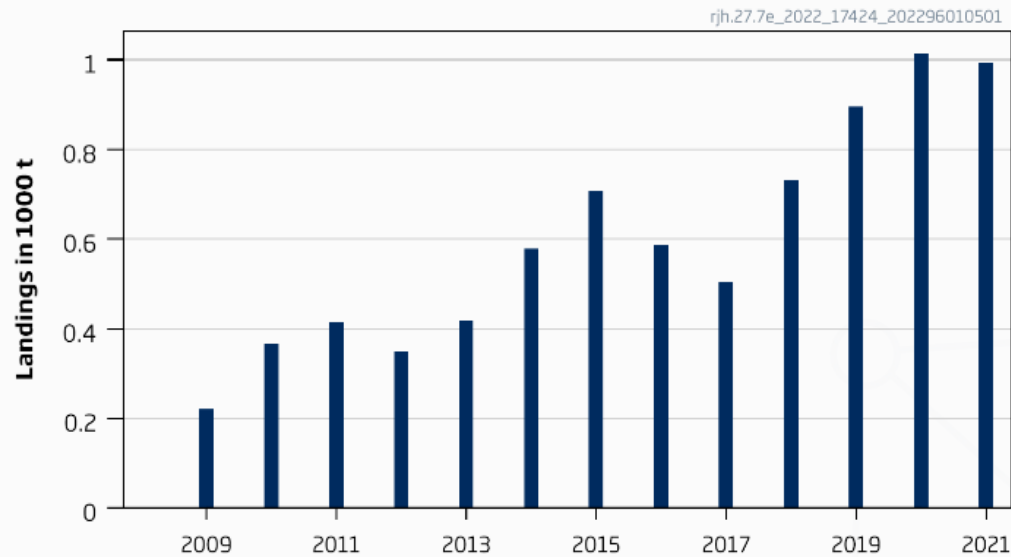


Blonde ray western English Channel (7e)

Advice for 2023 and 2024, PA: landings 213 t each year – can not quantify catches -20%

- Category 5
- PA buffer was applied

Landings

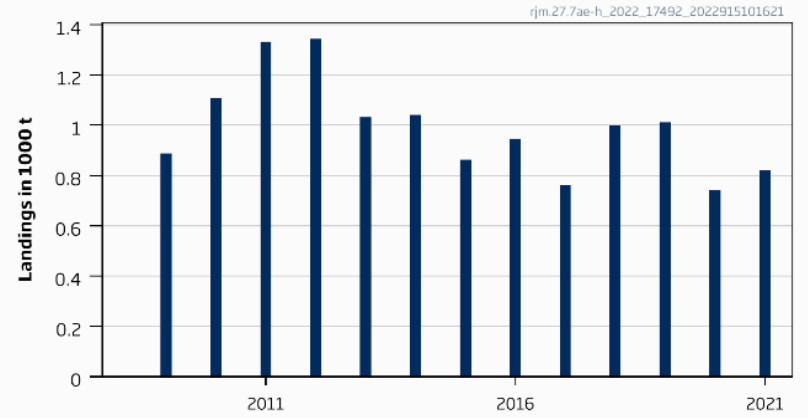


Spotted ray south Celtic Seas, west English Channel (7a e-h)

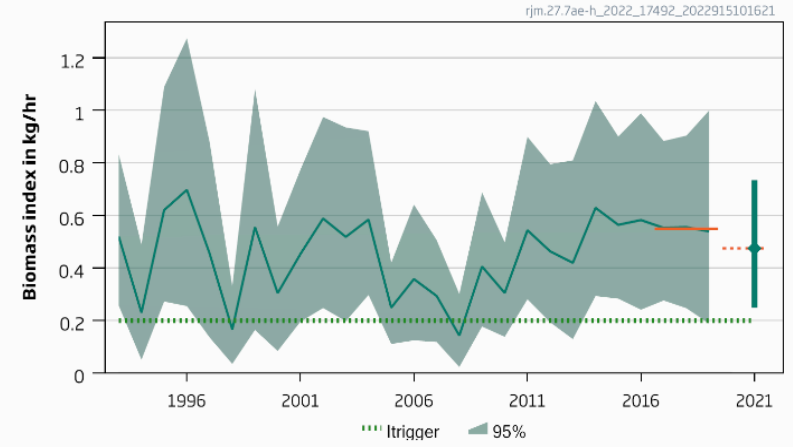
Advice for 2023 and 2024, MSY: landings 814 t each year – can not quantify catches -22%

- Rfb rule
- Decrease in biomass index
- Fishing pressure at Fmsy proxy Biomass above Itrigger

Landings

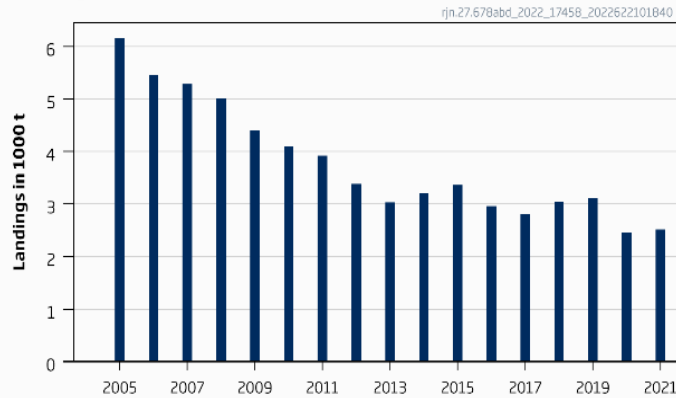


Biomass Index

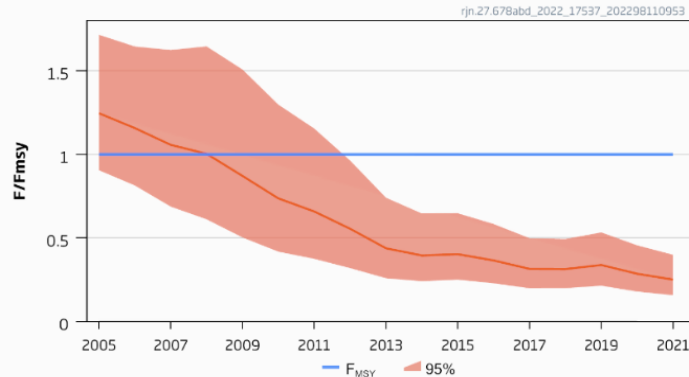


Advice for 2023 and 2024, MSY: landings 7826 t and 8064 t – can not quantify catches +148%

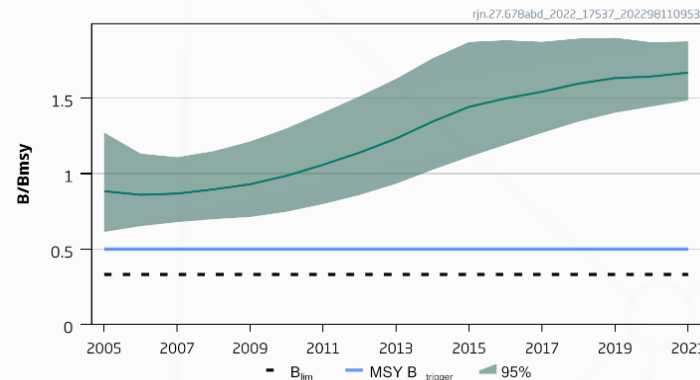
Landings



Relative fishing pressure



Relative biomass

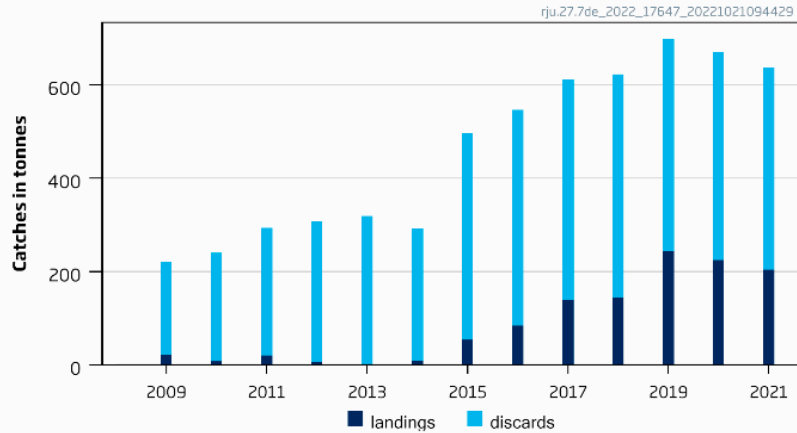


- Benchmark 2022 -SPiCT
- Fishing pressure below F_{msy}
Biomass above MSY B_{trigger}

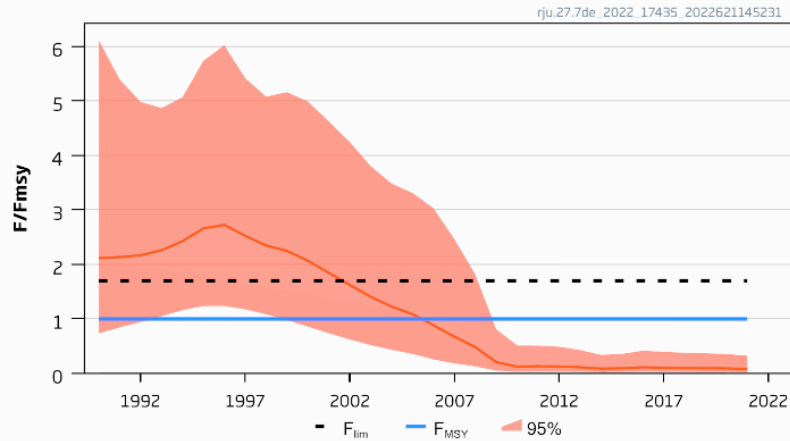
Undulate ray English Channel (7de)

Advice for 2023 and 2024, MSY: landings 4839 t and 4675 t +89%

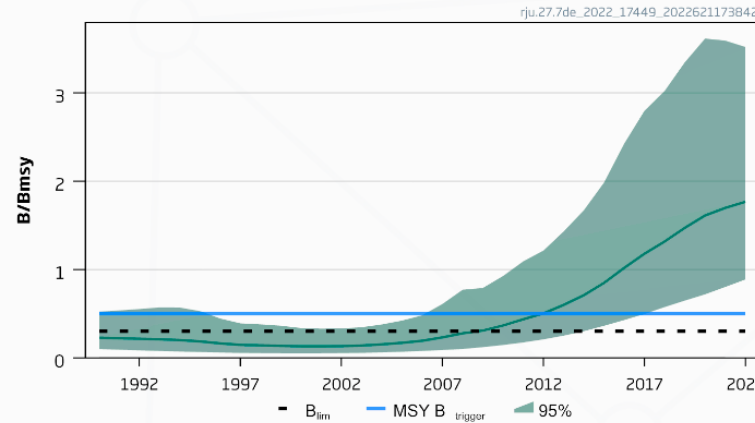
Catches



Relative fishing pressure



Biomass Index



- Benchmark 2022 - SPiCT
- F below Fmsy, Biomass above MSY Btrigger
- Advice based on a proportion of FMSY (15th percentile) Has become 'standard' for elasmobranchs using SPiCT