

13.16 POR-Porbeagle shark (*Lamna nasus*)

Introduction

A stock assessment for porbeagle was conducted for three of the Atlantic stocks (Northwest, Southwest and Southeast) in 2020 (Anon., 2020c), whereas the Northeast stock was assessed in 2022 in a joint process with the International Council on the Exploration of the Sea (ICES) (Anon., 2022g). The complete description of the stock assessment process and the development of management advice can be found in the Report of the 2020 Porbeagle Stock Assessment (Anon., 2020c) and Report of the 2023 Blue Shark Stock Assessment (Anon., 2023d). A summary of each stock status is provided below (Table 1a to 1c). Table 2 provides estimated catches, by landings and discards by gear, for the period 2000-2024 (NW, NE, SW and SE stocks). The Kobe Phase Plot and uncertainty of current status estimates is summarized in Figure 1. Table 3 provides for the NW-POR estimated probabilities (%) that both the fishing mortality will be below F_{MSY} and spawning stock biomass will be above SSB_{MSY} in future years under different constant catch scenarios.

Table 1a. Northwest Atlantic porbeagle summary table.

<i>Indicator</i>		<i>Stock Status</i>
Maximum Sustainable Yield (MSY)	Not available	2018
TAC (2024)	N/A	
Current (2024) Yield ¹	4 t	
Relative Biomass (B_{2018}/B_{MSY})	0.57 ²	
Relative Fishing Mortality ($F_{2010-2018}/F_{MSY}$)	0.413 ³	
Stock Status	Overfished: YES (98% probability of being overfished)	
Management measures in effect	Overfishing: Unknown probability of overfishing Rec. 04-10, Rec. 07-06, Rec. 15-06	

¹ Task 1 catch as of 26 September 2025.

² Value obtained with the incidental catch model (ICM). The reference point used (Spawning Potential Ratio at Maximum Excess Recruitment (SPR_{MER})) is a proxy for B_{MSY} .

³ Value obtained with the Sustainability Assessment for Fishing Effects (SAFE) approach for the Northwest Atlantic.

Table 1b. Northeast Atlantic porbeagle summary table.

<i>Indicator</i>		<i>Stock Status</i>
Maximum Sustainable Yield	Not available	2021
TAC (2024)	N/A	
Current (2024) Yield ¹	15 t ¹	
ICES-ICCAT Yield in 2021	7.95 t ²	
Relative Biomass (B_{2021}/B_{MSY})	0.464 (0.15-1.43) ³	
Relative Fishing Mortality (F_{2021}/F_{MSY})	0.013 (0.0024-0.073) ³	
Stock Status	Overfished: YES (unknown probability of being overfished)	
Management measures in effect	Overfishing: NO (unknown probability of overfishing) Rec. 04-10, Rec. 07-06, Rec. 15-06	

¹ Task 1 catch as of 26 September 2025.

² The value reported represents the total catches determined at the ICES-ICCAT Working Group on Elasmobranch Fishes (WGEF). While Task 1 reported catch for the Northeast stock was 15.4 t in 2021, the catch shown does not include all dead discards and includes no mortalities resulting from live releases.

³ Range obtained from reference case Stochastic Surplus Production Model in Continuous Time (SPiCT) with 95% Bayesian credibility intervals.

⁴ Value obtained with the SAFE approach for the Northwest Atlantic.

Table 1c. South Atlantic porbeagle summary table.

<i>Indicator</i>		<i>Stock Status</i>
Maximum Sustainable Yield (MSY)	N/A	2018
TAC (2024)	N/A	
Current (2024) Yield ¹	0.5 t ¹	
Relative Biomass (B ₂₀₁₈ /B _{MSY})	Unknown	
Relative Fishing Mortality (F ₂₀₁₀₋₂₀₁₈ /F _{MSY})	0.0113 ²	
Stock Status	Overfished: Undetermined (unknown probability of being overfished) Overfishing: NO (unknown probability of overfishing)	
Management measures in effect	Rec. 04-10 , Rec. 07-06 , Rec. 15-06	

¹ Sum of Task 1 catches for the Southwest and Southeast Atlantic stock areas as of 26 September 2025.

² Value obtained with the SAFE approach for the South Atlantic.

Table 2. Estimated catches, by landings and discards of Atlantic porbeagle by gear and area for the period 2000-2024.

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
TOTAL		1769	1223	1074	887	954	740	642	671	619	495	102	120	225	323	78	104	41	48	27	16	14	15	22	23	19
ANE		567	506	610	527	578	367	302	421	391	349	21	14	25	10	5	8	9	8	4	0.5	3	5	15	18	15
ANW		888	574	262	164	204	237	211	102	143	65	114	85	102	24	31	30	26	19	16	13	10	7	19	10	4
ASE		0	0.5	1	0	3	1	0	5	30	37	0	7	26	29	38	3	1	0.5	4	0	0	0	0.3	0	0.3
ASW		214	141	181	187	105	133	122	143	55	26	10	14	12	0	0	0.1	0	0	0	0.0	0	0	0	0	0.2
MED		0.5	1	0.0	0.1	3	2	1	0.4	2	1	0.4	2	0.3	0.4	2	0.0	0	0	0.4	0.1	0.2	0.1	0	0	0
Landings																										
ANE		33	41	83	142	275	63	62	301	229	143	9	2	1	1	0.5	5	3	1	0.1	0.1	0.4	0.0	0.3	0.4	0.3
ANW		533	465	527	385	303	305	240	120	162	206	13	12	24	9	5	3	6	7	4	0.4	3	5	9	7	6
ASE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASW		213	141	181	187	105	133	122	143	55	26	10	14	12	0	0	0.1	0	0	0	0	0	0	0	0	0
MED		0.1	0.1	0.3	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Discards																										
ANE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASW		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Landings																										
ANE		73	76	42	21	20	4	3	2	1	0	0.3	0	2	0	0	0	0	0	0.1	0	0.1	0	0	0	0
ANW		13	24	54	27	11	14	34	8	41	77	0	0.0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASE		17	1	3	5	7	5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ASW		2	6	3	11	18	3	4	8	7	3	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MED		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CP		7	4	10	101	50	14	6	0.1	3	17	7	0.3	0.4	0	0	0	0	0	0.0	0.0	0	0	0	0	0
EU		1	0.5	0	0	5	0.1	0	1	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Portugal		8	12	10	28	24	24	26	15	11	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
EU-Sweden		2	3	2	1	1	0.3	1	0.1	1	0.2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Netherlands		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Germany		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-France		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Denmark		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Ireland		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Norway		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Korea Rep		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Japan		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Liberia		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Morocco		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Russia Federation		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Chinese Taipei		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Barbados		13	8	10	14	5	19	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Cuba		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-FR-Saint Pierre et Miquelon		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Korea Rep		47	52	21	7	20	27	18	5	10	11	13	48	98	0	0	0	0	0	0	0	0	0	0	0	0
EU-USA		1	1	1	0.0	0.5	0.0	0.3	0.1	0.4	0.4	2	9	19	27	5	8	4	8	3	12	5	1	0.4	3	0
EU-Venezuela		6	2	0.2	0.1	0	0	0	0	1	3	3	9	19	69	4	5	4	8	4	0	0	0	0	0	0
EU-NCC		19	18	22	12	8	7	5	2	2	2	3	15	50	1	5	4	0	0	0	0	0	0	0	0	0
EU-ASE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Portugal		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Ghana		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Guinea Ecuatorial		0	0	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Japan		0	0	0	0	0	0	0	0	5	29	25	6	7	25	15	13	3	1	0.4	0	0	0	0	0	0
EU-Korea Rep		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-NCC		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-CP		60	67	74	49	37	52	32	23	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-China PR		36	4	0	5	4	2	2	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-España		7	13	1	0.2	0.3	0.2	3	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Netherlands		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Portugal		0	1	1	4	1	1	2	10	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Japan		7	4	3	2	11	3	3	4	12	10	2	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0
EU-Korea Rep		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Panama		1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Philippines		0.3	0.1	0.2	0.2	1	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Uzbekistan		4	20	8	34	8	28	34	3	40	14	6	12	12	0	0	0	0	0	0	0	0	0	0	0	0
EU-NCC		84	29	63	92	39	43	47	99	0	0	2	9	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Falklands		0.1	0.1	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-NEI (Flag related)		15	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-MED		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-France		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EU-Italy		0	0	0	0	0	2	1	1	0	2	0.0	0.5													

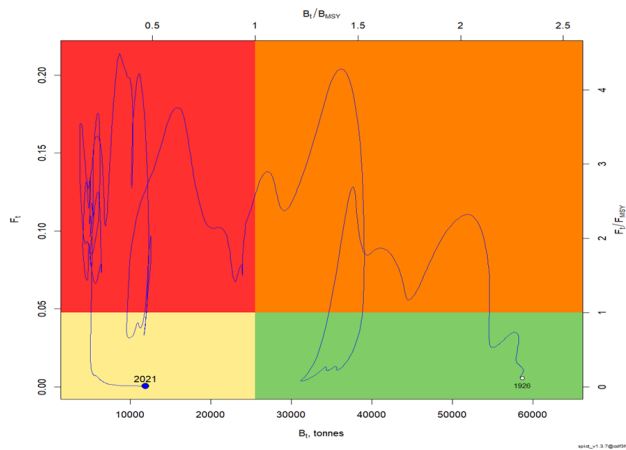


Figure 1. Kobe plot for the Northeast Atlantic porbeagle stock status in 2021, estimated during the 2022 stock assessment. The line indicates the stock status trajectory starting in 1926.

Outlook

Due to changes in management practices that would have affected the development of CPUE series and potentially length composition data, in 2020 the Committee was constrained to use non-traditional stock assessment methods. Overfished stock status could only be determined for the NW stock and overfishing

stock status, for the combined stocks in the North Atlantic and the South Atlantic. The Committee formally assessed the NE stock together with the ICES WGEF in 2021-2022.

A Sustainability Assessment for Fishing Effects (SAFE) was used to evaluate whether the combined North and combined South Atlantic stocks were experiencing overfishing, and an Incidental Catch Model (ICM) was used to evaluate whether the NW Atlantic stock was currently overfished and to determine the stock's capacity for future removals. The 2022 stock assessment was carried out using the Stochastic Surplus Production Model in Continuous Time (SPiCT).

Results of the SAFE approach indicated that neither the North Atlantic nor the South Atlantic stocks are undergoing overfishing. An equal mix of annual and biennial reproduction was considered the most likely scenario for the porbeagle population in the NW Atlantic, so these productivity assumptions were used for the base case formulation of the ICM. Two alternate parameterizations of the ICM were evaluated to determine the model's sensitivity to life history assumptions as well as to the assumed population size in 2018. The base case formulation of the ICM estimated biomass in 2018 to be 57% of the MSY proxy reference point (overfished). Due to the large reduction in recent reported removals, the Committee considered it unlikely that the stock is undergoing overfishing. Projections conducted with the ICM for the NW stock indicated that removals of less than 214 t would allow rebuilding with a 60% probability by 2070. If removals remained similar to 2014-2018 (mean = 47 t), the stock was predicted to rebuild with at least a 50% probability between 2030 and 2035. The Committee emphasized, however, that recent removals are very likely underestimated because few CPCs report dead discards, and post-release mortality of live discards was not taken into account.

For the Northeast stock, the exploited biomass was estimated in 2022 to be 50% of the MSY. The stock remains overfished, but overfishing is not occurring (**Figure 1**). During the 2022 Porbeagle Northeast Stock Assessment, long-term projections using constant catch were not presented (Kobe Strategy matrix was not created). Projections will be produced during the next porbeagle stock assessment.

Management recommendation

North Atlantic

The Committee recommended that the Commission work with countries catching porbeagle and relevant Regional Fisheries Management Organization (RFMOs) to ensure recovery of North Atlantic porbeagle stocks. Porbeagle fishing mortality should be kept at levels in line with scientific advice and with removals not exceeding the current level. New targeted porbeagle fisheries should be prevented, porbeagles retrieved alive should be released following best handling practices to increase survivorship, and all catches should be reported. Management measures and data collection should be harmonized as much as possible among all relevant RFMOs dealing with these stocks, and ICCAT should facilitate appropriate communication.

Porbeagle stocks are also subject to mortality from CPCs' coastal fisheries and countries that are not ICCAT Parties. Therefore, the Committee recommended that CPCs implement a live release requirement for all porbeagle caught in their waters and that ICCAT develop integrated management approaches (with other countries, other Regional Fisheries Bodies, FAO) to assure the sustainability of Atlantic porbeagle stocks.

Considering the underreporting of removals, and the current low stock status of the NW Atlantic stock, the Committee recommended that total removals (i.e. the sum of landings, dead discards, and post-release mortality of live releases) do not exceed current levels (including unreported removals) to allow for stock recovery. However, the Commission should be aware that actual removals (particularly dead discards and post-release mortalities of live releases) are higher than what is being reported and the Kobe matrix is overly optimistic to the extent that removals are underreported.

Considering the underreporting of removals, the current stock status of the NE Atlantic stock $B_{2022}/B_{MSY}=0.464$ (0.15-1.43), and the lack of reliable projections to build Kobe II Strategy Matrix (**Table 3**), the Committee recommended that total removals (i.e. the sum of landings and estimated dead discards) at the very least shall not exceed the average reported ICCAT catch since the implementation of the zero TAC recommendation (i.e. 2010-2021 which current estimates would be 9.3 t) to allow for stock recovery.

South Atlantic

Although the Committee had, until now, considered two southern stock units (SW and SE), new information suggests a single stock of porbeagle in the South Atlantic, which may even extend across Indian and Pacific Ocean basins. Until more research on stock structure is undertaken, the Committee recommended leaving the management units as currently defined. The Committee was not able to draw any conclusions on the overfished status of the southern stock(s). It was noted that conventional data (e.g. landings, representative length compositions) cannot be collected for any northern or southern porbeagle stocks, so the Committee concluded that alternative (e.g. fishery independent) data collection methods that allow CPUE or length-frequency data (or other altogether different forms of data) to be collected are required to provide more reliable estimates of stock status in the North and in the South Atlantic.

Table 3. Kobe II strategy matrix showing the probability of being above the overfished reference point (a proxy for B_{MSY}) by 5-year time period for removals scenarios ranging from 0 to 24,000 individuals (0-734 t) for Northwest Atlantic porbeagle.

Animals (#)	Ton (mt)	2020	2025	2030	2035	2040	2045	2050	2055	2060	2065	2070
0	0	2%	21%	47%	68%	83%	92%	96%	98%	99%	99%	100%
1000	31	3%	21%	44%	63%	77%	87%	92%	95%	97%	98%	99%
2000	61	2%	19%	40%	57%	71%	81%	87%	91%	94%	95%	96%
3000	92	1%	16%	35%	50%	62%	72%	79%	85%	88%	90%	92%
4000	122	2%	15%	32%	47%	58%	66%	73%	78%	82%	84%	87%
5000	153	2%	13%	27%	41%	50%	58%	64%	68%	72%	76%	78%
6000	183	1%	12%	25%	37%	45%	52%	57%	62%	65%	67%	70%
7000	214	2%	10%	22%	32%	39%	46%	50%	54%	57%	60%	62%
8000	245	2%	10%	19%	27%	34%	39%	44%	47%	50%	53%	55%
9000	275	2%	8%	17%	23%	30%	34%	38%	41%	43%	45%	47%
10000	306	2%	8%	14%	20%	25%	29%	31%	34%	36%	38%	39%
11000	336	1%	6%	13%	17%	21%	25%	27%	29%	31%	32%	33%
12000	367	2%	7%	11%	15%	18%	21%	23%	24%	26%	27%	28%
13000	398	2%	5%	9%	12%	14%	16%	18%	19%	20%	21%	22%
14000	428	2%	5%	7%	9%	12%	13%	14%	15%	16%	17%	18%
15000	459	1%	3%	5%	6%	8%	9%	10%	11%	11%	12%	12%
16000	489	2%	3%	4%	5%	6%	7%	8%	9%	9%	10%	10%
17000	520	2%	2%	3%	4%	5%	5%	6%	6%	6%	7%	7%
18000	550	2%	2%	2%	3%	3%	4%	4%	4%	5%	5%	5%
19000	581	2%	1%	2%	2%	3%	3%	3%	3%	3%	3%	4%
20000	612	2%	1%	1%	2%	2%	2%	2%	2%	2%	3%	3%
21000	642	2%	1%	1%	1%	1%	1%	2%	2%	2%	2%	2%
22000	673	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
23000	703	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%
24000	734	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%