*13.8 BUM-Blue marlin (*Makaira nigricans*)*

Introduction

A stock assessment was conducted for blue marlin in 2024, through a process that included the Atlantic Blue Marlin Data Preparatory Meeting in March 2024 (Anon., 2024a) and the Blue Marlin Stock Assessment Meeting in June 2024 (Anon., 2024i). The last year of fishery data used in the stock assessment was 2022, applying a grid approach that incorporated both surplus production and age-structured models to reflect uncertainty in biological parameters. A summary of the stock status is provided in **Table 1**. The estimated catches and discards by gear and also by CPC, for the period 2000-2024 are shown in **Table 2.**

Table 1. Blue marlin summary table.

Indicator		***Stock Status***
Maximum Sustainable Yield (MSY)[1]	3,331 t (2,323 t - 4,659 t)[3]	2022
Landing limit 2024	1,670 t	
Current (2024) Yield[2]	2,066 t	
Relative Biomass (B_{2022}/B_{MSY}) if applicable	0.67 (0.30-1.35)[3]	
Relative Fishing Mortality (F_{2022}/F_{MSY})[1]	0.91 (0.40-1.64)[3]	
Stock Status	Overfished: YES (84% probability of being overfished)[4] Overfishing: NO (39% probability of overfishing)[4]	
Management measure in effect	Rec. 19-05, Landing limit 2025 of 1,670 t	

[1] Base case/combined model: model results based on catch data from year-year.
[2] Provisional and subject to revision as of 23 September 2025.
[3] Point estimate, 95% bias corrected confidence intervals are shown.
[4] As estimated from the Kobe plot probability in each quadrant.

Table 2. Estimated catches and discards of Atlantic blue marlin (*Makaira nigricans*) by gear, 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	A+M			5414	4376	3808	4320	3118	3513	3070	4268	3607	3132	3018	2805	2813	2150	2774	2079	2153	2749	2000	1993	2408	2551	1795	1941	2066
Landings			Longline	3270	2595	1924	2229	1825	2004	1940	2369	2479	2073	1984	1462	1381	992	1302	1269	1227	1570	1105	1234	1400	1225	925	973	914
			Other surf.	2014	1635	1618	1767	1084	1433	989	1676	821	846	837	1040	1059	952	1212	584	637	795	490	496	744	988	559	514	465
			Sport (HL+RR)	71	123	216	305	174	51	103	179	269	152	177	247	292	142	200	112	220	276	256	134	136	181	159	307	384
Landings(FP)			Other surf.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	12	8
Discards			Longline	60	22	37	19	34	24	38	42	37	40	19	56	77	59	57	109	57	80	53	64	65	49	41	51	210
			Other surf.	0.1	2	11	0.4	1	1	0.5	0.3	1	21	1	0	5	4	3	5	13	29	97	65	64	108	80	83	85
			Sport (HL+RR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
Landings		CP	Angola	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	**0**
			Barbados	19	18	11	11	0	0	25	0	0	0	9	13	14	11	12	34	11	24	21	13	22	12	9	10	9
			Belize	0	0	0	0	0	0	0	4	0	3	3	7	47	19	8	5	13	1	6	0	2	0	0	0	9
			Brazil	476	780	387	579	205	612	298	262	182	150	135	114	84	114	105	89	79	64	37	20	13	2	3	5	3
			Cabo Verde	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	**0**
			Canada	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.5	1	0.1	0.3	0	0.1	0	0.1	0	0.3	0.0
			China PR	23	92	88	89	58	96	99	65	13	77	100	99	61	45	40	44	50	40	42	46	37	4	10	35	37
			Costa Rica	2	2	0	0.2	2	1	3	2	11	9	12	19	14	19	34	53	48	74	35	27	15	24	11	8	23
			Cuba	55	56	34	3	4	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Curaçao	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	2	20	15	2	6	1	**0**
			Côte d'Ivoire	288	208	111	171	115	21	8	132	66	72	54	17	48	48	87	15	72	44	32	163	41	148	6	70	81
			EU-España	140	94	29	12	51	24	91	39	58	166	260	132	191	148	209	288	225	321	106	103	437	461	204	53	23
			EU-France	305	329	340	340	345	360	361	358	395	265	281	285	264	162	303	190	168	209	152	171	282	162	174	216	288
			EU-Netherlands	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
			EU-Portugal	22	18	8	32	27	88	105	135	158	106	142	54	65	26	23	46	50	57	74	19	28	37	36	48	45
			El Salvador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	1	0	0	0	**0**
			FR-St 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	**0**
			Gabon	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Ghana	639	795	999	415	470	759	405	683	191	140	116	332	234	163	236	88	44	162	60	44	53	278	121	196	42
			Great Britain	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	**0**
			Grenada	87	104	69	72	45	42	33	49	54	32	69	53	32	63	63	56	53	54	62	69	49	31	30	79	38
			Guatemala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	23	0	15	0	0	0	**0**
			Guinea Ecuatorial	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	
			Japan	883	335	267	442	540	442	490	920	1028	822	731	402	430	189	280	293	296	430	287	357	293	284	317	386	425
			Korea Rep	1	1	0	0.1	0.5	6	33	64	91	36	85	57	34	24	10	4	27	26	26	13	27	13	11	13	12
			Liberia	712	235	158	115	188	304	162	274	76	56	46	133	94	178	293	35	127	65	24	18	21	119	31	55	66
			Maroc	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	4	7	82	64	46	27	46	39	37	41
			Mauritania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	
			Mexico	68	37	50	70	90	86	64	91	81	93	89	68	106	86	67	72	66	60	68	51	39	43	29	44	35
			Namibia	0	0	3	0	5	9	57	0	50	2	23	10	0	8	36	8	32	57	84	53	51	70	8	99	11
			Panama	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	21	0.1	14	12	0	0	**0**
			Philippines	38	0	0	0	0	0	0	0	8	0	3	4	1	2	2	0	0	0	0	0	0	0	0	0	**0**
			Russian Federation	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
			S Tomé e Príncipe	32	32	32	32	9	21	26	66	68	70	72	74	76	78	81	11	10	13	5	88	34	109	75	76	87
			Senegal	0	11	24	32	11	1	5	91	114	61	41	64	164	45	72	10	82	39	25	21	358	73	38	38	51
			Sierra Leone	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	
			South Africa	0.0	1	4	0	0	0	0	2	0	0	1	0.2	0.2	0.4	1	1	0.3	0	0	0	0	0.4	0.2	0.0	0.3
			St Vincent and Grenadines	0	0	20	0	0	0	0	1	3	2	1	0	0	2	0	0	0	2	2	1	2	2	0	0.4	
			Trinidad and Tobago	51	17	16	11	12	10	14	20	37	30	25	27	46	48	49	35	19	0.1	0.1	0.1	0.1	1	0.1	0.1	
			UK-Bermuda	2	2	2	2	2	2	2	2	2	0	1	2	2	3	3	3	2	1	2	1	1	1	1	1	1
			UK-British Virgin Islands	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			UK-Sta Helena	4	3	4	1	1	2	2	3	4	2	2	2	12	2	1	1	0.3	0.3	0.0	0.0	0.1	0	0	0	**0**
			UK-Turks and Caicos	0	0	0	0	0.1	0	2	1	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
			USA	24	16	17	19	26	16	17	9	13	6	4	6	14	9	1	9	19	13	20	17	17	22	22	23	18
			Uruguay	0	0	1	5	3	2	8	5	0	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
			Venezuela	125	84	88	120	101	160	172	222	130	120	155	122	161	123	160	144	180	198	133	118	73	97	123	115	145
		NCC	Chinese Taipei	485	240	294	319	315	151	99	233	148	195	153	199	133	78	62	61	75	73	74	40	70	76	40	58	94
			Guyana	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	29	27	128	39	75	81	0	
		NCO	Benin	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Dominica	0	64	69	75	36	44	55	58	106	76	76	60	0	0	85	62	49	74	52	45	64	54	54	57	55
			Dominican Republic	23	23	115	207	142	30	38	47	67	60	65	100	98	99	96	73	170	183	176	87	58	72	72	67	71
			Jamaica	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.3	0	0	0	0.1	1
			Mixed flags (FR+ES)	147	151	131	148	171	150	136	135	139	164	178	186	181	191	173	176	0	0	0	0	0	0	0	0	
			NEI (BIL)	53	184	258	167	89	7	160	209	205	177	0	34	0	0	0	0	0	0	0	0	0	0	0	0	
			NEI (ETRO)	492	274	17	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Saint Kitts and Nevis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	8	12	0	2	5	4	4	4
			Seychelles	8	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Sta Lucia	12	5	9	18	17	21	53	46	70	72	58	64	119	99	111	53	91	134	93	82	78	61	85	0.0	49
			Togo	53	141	103	775	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
			Vanuatu	0	0	0	0	2	1	0.3	0	0	0	7	8	6	3	2	0	0	0	0	0	0	0	0	0	
Landings(FP)		CP	EU-España	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	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	12	12	8
Discards			Belize	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
			Brazil	0	0	0	0	0	0	2	0.2	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
			Canada	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.2	0	0.1	7	0.0	0	**0**
			Curaçao	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	**0**
			EU-España	0	0	0	0	0	0	0	0	0	18	0.4	0	1	4	3	5	7	7	80	57	55	102	71	76	176
			EU-France	0	0	0	0	0	0	0	0	0	1	0	0	2	1	0.3	0.5	6	11	12	9	5	5	8	7	2
			EU-Portugal	0	0	0	0	0	0	0	0	0	0	0	0	7	4	4	3	5	7	8	9	8	4	5	5	4
			El Salvador	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	**0**
			Guatemala	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	2	0	0	0	**0**
			Japan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	8	16	8	2	14	57
			Korea Rep	0	0	0	0	0	0	0	0	0	0	0	5	0	0	1	1	0	0	0	0	0	0	0	0	**0**
			Mexico	0	0	0	0	0	0	0.2	0.4	0.2	0.3	0.2	0.0	0.1	0.1	0	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0	**0**
			Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0.0	0	0	**0**
			UK-Bermuda	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.2	0.4	0	0	0.1
			USA	60	25	49	19	35	25	36	42	38	42	19	50	39	55	53	81	25	47	22	24	20	9	16	18	15
		NCC	Chinese Taipei	0	0	0	0	0	0	0	0	0	0	0	0.4	32	0	0	24	27	26	16	22	21	20	18	13	32

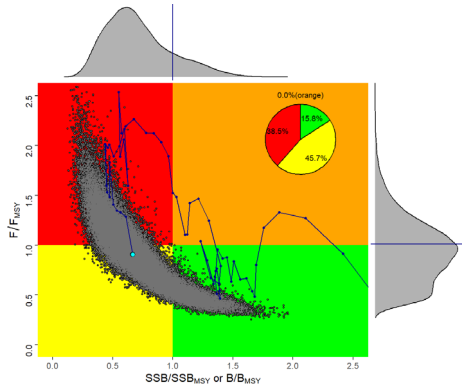

Figure 1. Kobe plot for the Atlantic blue marlin stock status in 2022, estimated during the 2024 stock assessment (Anon., 2024i). The line indicates the stock status trajectory starting in 1952. The inserted pie chart indicates the probability of the stock being within each Kobe colour quadrant. The probability distributions shown in each axis represent uncertainty around current B/B$_{MSY}$ (SS3, SSB/SSB$_{MSY}$) and F/F$_{MSY}$.

Outlook

Projections resulting from the Bayesian Surplus Production and age-structured models indicated that constant catch scenarios equal to or less than 2,250 t resulted in a low probability (less than 5%) of stock biomass falling below critical thresholds (10% or 20% of B$_{MSY}$) by 2034. Higher catch scenarios showed increasing risk.

Management recommendation

The results of the final combined models were used to produce estimated probabilities of achieving the Convention objectives (B≥B$_{MSY}$, F≤F$_{MSY}$) for a given level of constant catch, for each year up to 2034 (**Table 3**). The Committee emphasizes that unaccounted uncertainties, mostly associated with the levels of landings and dead discards, continue to hamper the ability of the Committee to provide sound management advice. The results from the 2024 stock assessment models were used to support management advice under multiple constant catch scenarios, taking into account the uncertainties associated with landings and dead discards.

Given these uncertainties, the Committee reiterated its recommendation in 2024 that the Commission adopt catch limits based on total catch (i.e., landings plus dead discards) of 1,670 t or lower, rather than landings alone as in *Recommendation by ICCAT to establish rebuilding programs for blue marlin and white marlin/roundscale spearfish* (Rec. 19-05), and maintain these limits until the increasing biomass trend observed in the 2024 stock assessment is confirmed at the next blue marlin stock assessment. It is critical that CPCs report complete catch data, including both landings and dead discards, to ensure accurate assessments and effective management of the blue marlin stock.

Table 3. Kobe II matrices for Atlantic blue marlin giving the probability that F≤F$_{MSY}$, B≥B$_{MSY}$ and the joint probability of F≤F$_{MSY}$ and B≥B$_{MSY}$, between 2025 and 2034, with various constant catch levels (landing plus dead discards) based on Bayesian Surplus Production model and SS model base case model results.

a) Probability that F≤F$_{MSY}$

Catch (t)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
0	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
1000	97%	98%	98%	99%	99%	99%	99%	99%	99%	99%
1250	93%	94%	95%	96%	96%	97%	97%	97%	98%	98%
1500	85%	87%	89%	90%	91%	92%	93%	94%	94%	95%
1750	74%	77%	80%	82%	84%	85%	86%	87%	88%	89%
2000	63%	66%	69%	71%	73%	75%	77%	78%	79%	80%
2250	52%	55%	58%	60%	62%	64%	66%	67%	69%	70%
2500	42%	45%	48%	50%	52%	53%	55%	56%	58%	59%
2750	35%	37%	39%	40%	42%	43%	44%	45%	46%	47%
3000	28%	30%	31%	32%	33%	34%	35%	36%	36%	37%
3250	23%	24%	24%	25%	26%	26%	27%	27%	27%	28%
3500	18%	19%	19%	19%	19%	20%	19%	20%	20%	20%

b) Probability that B≥B$_{MSY}$

Catch (t)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
0	35%	45%	56%	65%	72%	78%	83%	86%	89%	92%
1000	32%	39%	46%	53%	59%	64%	69%	73%	76%	79%
1250	31%	37%	44%	50%	55%	60%	65%	69%	72%	75%
1500	30%	36%	41%	47%	52%	56%	60%	64%	67%	70%
1750	29%	34%	39%	44%	48%	52%	56%	59%	62%	65%
2000	29%	33%	37%	40%	44%	47%	51%	54%	56%	59%
2250	28%	31%	35%	38%	41%	43%	46%	48%	51%	53%
2500	27%	30%	32%	35%	37%	39%	41%	43%	45%	46%
2750	27%	29%	30%	32%	34%	35%	37%	38%	39%	40%
3000	26%	27%	28%	29%	30%	31%	32%	33%	34%	34%
3250	25%	26%	27%	27%	27%	28%	28%	28%	29%	29%
3500	25%	25%	25%	24%	24%	24%	24%	24%	24%	24%

c) Probability that F≤F$_{MSY}$ and B≥B$_{MSY}$

Catch (t)	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
0	35%	45%	56%	65%	72%	78%	83%	86%	89%	92%
1000	32%	39%	46%	53%	59%	64%	69%	73%	76%	79%
1250	31%	37%	44%	50%	55%	60%	65%	69%	72%	75%
1500	30%	36%	41%	47%	52%	56%	60%	64%	67%	70%
1750	29%	34%	39%	44%	48%	52%	56%	59%	62%	65%
2000	29%	33%	37%	40%	44%	47%	51%	54%	56%	59%
2250	28%	31%	35%	38%	40%	43%	46%	48%	51%	53%
2500	27%	30%	32%	35%	37%	39%	41%	43%	44%	46%
2750	26%	28%	30%	31%	33%	34%	36%	37%	38%	39%
3000	24%	25%	26%	28%	29%	30%	30%	31%	32%	32%
3250	21%	22%	22%	23%	23%	24%	24%	25%	25%	25%
3500	17%	18%	18%	18%	18%	19%	18%	19%	19%	19%