

Mackerel (*Scomber scombrus*) in subareas 1–8 and 14, and in Division 9.a (Northeast Atlantic and adjacent waters)

ICES advice on fishing opportunities

ICES advises that when the MSY approach is applied, catches in 2024 should be no more than 739 386 tonnes.

ICES advice on conservation aspects

ICES has not identified any conservation aspects.

Stock development over time

Fishing pressure on the stock is above F_{MSY} but below F_{pa} and F_{lim} ; spawning-stock size is above MSY $B_{trigger}$, B_{pa} , and B_{lim} .

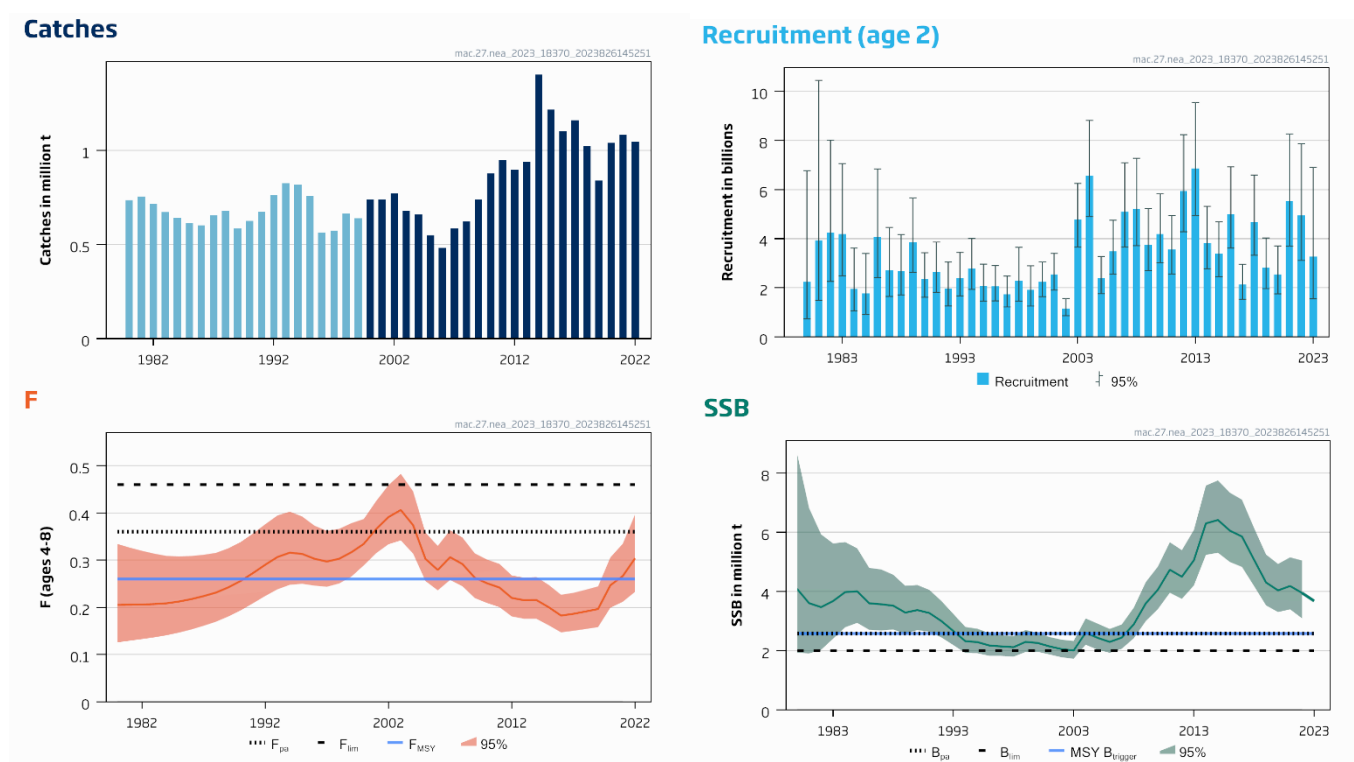


Figure 1 Mackerel in subareas 1–8 and 14, and in Division 9.a. Summary of the stock assessment. Catches prior to 2000 have been down-weighted in the assessment because of the considerable underreporting suspected to have taken place in this period. Abundance estimates of age 0 and 1 from the assessment model poorly reflect year-class strength and therefore recruitment is shown at age 2.

Conservation status

ICES is not aware of any information on stock-specific conservation status.

Catch scenarios

Table 1 Mackerel in subareas 1–8 and 14, and in Division 9.a. Values in the forecast and for the interim year.

Variable	Value	Notes
$F_{\text{ages 4–8}}$ (2023)	0.38	From the forecast for 2023, based on assumed catch in 2023
SSB (2023) at spawning time	3681064	From the forecast for 2023; tonnes
$R_{\text{age 0}}$ (2023–2024)	4498424	Geometric mean of the abundance at age 0 (1990–2021); thousands
Total catch (2023)	1147407	Sum of expected landings and discards, accounting for the interannual transfers from 2022; tonnes

Table 2 Mackerel in subareas 1–8 and 14, and in Division 9.a. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch	$F_{\text{ages 4–8}}$	SSB at spawning time		% change		
	2024	2024–2025	2024	2025	SSB*	Catch**	Advice***
ICES advice basis							
MSY approach: $F = F_{\text{MSY}}$	739386	0.26	3455125	3434616	-1	-36	-5
Other scenarios							
$F = 0$	0	0	3593282	4174174	16	-100	-100
$\text{Catch}_{2024} = \text{catch}_{2023} - 20\%$	917926	0.33	3418309	3277843	-4	-20	17
$\text{Catch}_{2024} = \text{catch}_{2023}$	1147407	0.43	3368635	3107830	-8	0	47
$\text{Catch}_{2024} = \text{catch}_{2023} + 25\%$	1434259	0.57	3302353	2895825	-12	25	83
$F = F_{2023}$	1039888	0.38	3392255	3148251	-7	-9	33
F_{pa}	984926	0.36	3404090	3199985	-6	-14	26
F_{lim}	1211812	0.46	3354179	2988326	-11	6	55
$\text{SSB}_{2025} = B_{\text{lim}}^{\wedge}$	2359065	1.13	3046688	2000132	-34	106	202
$\text{SSB}_{2025} = B_{\text{pa}}^{\wedge}$	1671572	0.69	3243490	2575295	-21	46	114

* SSB_{2025} relative to SSB_{2024} .

** Catch in 2024 relative to estimated catches in 2023 (1 147 407 tonnes). There is no internationally agreed TAC for 2023.

*** Advice value for 2024 relative to the advice value for 2023 (782 066 tonnes).

\wedge SSB_{2025} values are the closest available approximation to B_{lim} and B_{pa} .

Basis of the advice

Table 3 Mackerel in subareas 1–8 and 14, and in Division 9.a. The basis of the advice.

Advice basis	MSY approach
Management plan	There is no long-term management strategy for Northeast Atlantic (NEA) mackerel agreed by all parties involved in the mackerel fishery. In 2019 Coastal State delegations from Norway, the EU, and the Faroes requested ICES to review new harvest control rule (HCR) options for a management strategy. ICES delivered the advice from this evaluation in August 2020 (ICES, 2020a).

Quality of the assessment

The recent assessments have systematically revised the estimates of SSB upwards and F downwards for the years prior to 2018 (Figure 2). Such systematic revisions do not happen for estimates of the most recent years in the assessment period, and the assessment results are more consistent.

The stock assessment and the short-term forecast include ages from 0 to 12. The abundance estimates at ages 0 and 1 are highly uncertain, and year-class strength only becomes apparent when fish enter the fishery at age 2 to 3. Therefore, recruitment is presented at age 2.

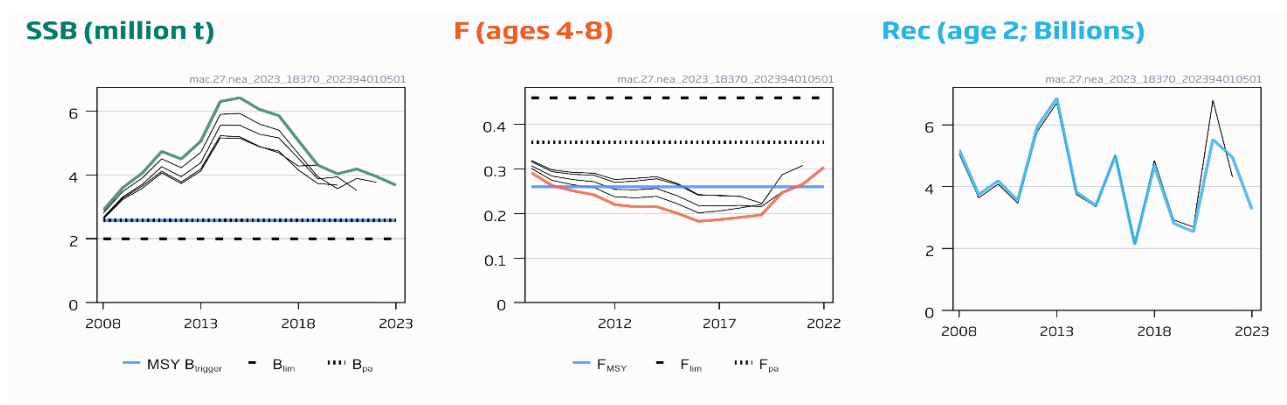


Figure 2 Mackerel in subareas 1–8 and 14, and in Division 9.a. Historical assessment results. Prior to the 2022 assessment, recruitment was presented as age 0 and is not shown.

Issues relevant for the advice

The sum of the unilateral quotas for mackerel and the resulting catches have exceeded the scientific advice by on average 44% since 2010. The F_{MSY} reference point that is used as a basis for the advice has been derived from an evaluation that assumed that annual catches would be aligned with the scientific advice based on the MSY approach. Therefore, failing to adhere to the advised catches as derived from the application of the MSY approach may not be precautionary. Specifically, this may result in an increased risk for the stock to fall below B_{lim} and loss of catch in the long term.

In 2023, ICES has reviewed the most recent evidence regarding mackerel stock structure and concluded that NEA mackerel is a single stock with no separate spawning components, rejecting the former perception that NEA mackerel was composed of three stock components (ICES, 2023c). Consequently, management measures to ensure the protection of the North Sea component have been shown to have no biological basis. In addition, there is no longer any reference to the North Sea, western, or southern component in the ICES advice, and the information on historic advice and TAC per component has been removed. The stock assessment assumes a single stock, and these changes have no impact on the stock assessment and catch advice.

Reference points

Table 4 Mackerel in subareas 1–8 and 14, and in Division 9.a. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	2 580 000	B_{pa} ; tonnes	ICES (2020b)
	F_{MSY}	0.26	Stochastic simulations	ICES (2020b)
Precautionary approach	B_{lim}	2 000 000	B_{loss} in 2003 from the 2019 WGWIDE assessment; tonnes	ICES (2020b)
	B_{pa}	2 580 000	$B_{lim} \times \exp(1.645 \times \sigma)$, $\sigma = 0.15$; tonnes	ICES (2020b)
	F_{lim}	0.46	The F that on average leads to B_{lim}	ICES (2020b)
	F_{pa}	0.36	The F that provides a 95% probability for SSB to be above B_{lim} (F_{P05})	ICES (2020b)

Basis of the assessment

Table 5 Mackerel in subareas 1–8 and 14, and in Division 9.a. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2023a)
Assessment type	Age-based analytical model (SAM).
Input data	Catch data, steel tagging data ([L3182] 1980–2006) and RFID tagging data ([L5543] 2014–2022), and three survey indices: SSB index from the triennial egg survey ([I4189] 1992–2022), abundance indices from the IBTS survey (G1022, G1179, G3239, G4299, G4493, G4748, G4815, G7212 and G9527) (combined Q1 and Q4; age 0, 1998–2020, 2022), and from the IESSNS survey ([A7806] ages 3–11, 2010, 2012–2023). Catches prior to 2000 are given a very low weight in the assessment. Natural mortality (0.15 for all ages and years) is based on tagging studies from the early 1980s.
Discards	Discarding is known to take place (0.3% of the total catch in weight in 2022), but is only quantified for part of the fisheries; the proportion of the landings covered cannot be calculated. Partial discard estimates are included in the assessment and overall discarding in recent years is assumed negligible.
Indicators	None
Other information	Interbenchmarked in 2019 (IBPNEAMac; ICES, 2019), a long-term management strategy evaluation was conducted in 2020 (WKMSEMAC; ICES 2020b)
Working group	Working Group on Widely Distributed Stocks (WGWIDE; ICES 2023b)

History of the advice, catch, and management

Table 6 Mackerel in subareas 1–8 and 14, and in Division 9.a. History of ICES advice, the TAC, and ICES estimates of catch. All weights are in tonnes.

Year	ICES advice	Catch corresponding to advice	TAC *	Official landings	Discards and slipping	ICES catch
1987	Given by stock component		442000	616000	10789	654992
1988	Given by stock component		610000	622000	35566	680491
1989	Given by stock component		532000	576000	7090	585920
1990	Given by stock component		562000	580000	15600	626107
1991	Given by stock component		612000	609000	30700	675665
1992	Given by stock component		707000	729000	25000	760690
1993	Given by stock component		767000	784000	18180	824568
1994	Given by stock component		837000	794000	5370	819087
1995	Given by stock component		645000	729000	7721	756277
1996	Significant reduction in F	-	452000	509000	11415	563472
1997	Significant reduction in F	-	470000	517000	18864	573029
1998	F between 0.15 and 0.2	498000	549000	627000	8012	666316
1999	F of 0.15 consistent with PA	437000	562000	585000	n/a	640309
2000	F = 0.17: F _{pa}	642000	612000	655000	2084	738606
2001	F = 0.17: F _{pa}	665000	670000	660000	1188	737463
2002	F = 0.17: F _{pa}	694000	683000	685000	23774	771422
2003	F = 0.17: F _{pa}	542000	583000	600000	19427	679287
2004	F = 0.17: F _{pa}	545000	532000	587000	19962	660491
2005	F = 0.15 to 0.20	320000–420000	422000	447000	25788	549514
2006	F = 0.15 to 0.20	373000–487000	444000	418084	26594	481181
2007	F = 0.15 to 0.20	390000–509000	502000	511010	15444	586206
2008	F = 0.15 to 0.20	349000–456000	458000	547500	37075	623165
2009	F = 0.15 to 0.20	443000–578000	605000^^	631805	15934	737969
2010	Harvest control rule	527000–572000	885000^^^	831825	13045	877272
2011	See scenarios	529000–672000	959000^^^	926258	10894	948963
2012	Follow the management plan	586000–639000	927000^^^	876271	15174	899551
2013	Follow the management plan	497000–542000	906000^^^	935645	4732	938299

Year	ICES advice	Catch corresponding to advice	TAC *	Official landings	Discards and slipping	ICES catch
2014	Follow the management plan	927000–1011000	1392000 ^{^^^}	1382377	6451	1401788
2015	Follow the management plan	831000–906000	1229000 ^{^^^}	1202677	10431	1215827
2016	MSY approach	≤ 773842	1057000 ^{^^^}	1088420	5971	1100135
2017	MSY approach	≤ 857185	1173000 ^{^^^}	1170804	2832	1159641
2018	MSY approach	≤ 550948	998000 ^{^^^}	990715 [‡]	2890	1023144
2019	MSY approach	≤ 770358	864000 ^{^^^}	828649 [‡]	7807	839727
2020	MSY approach	≤ 922064	1090879 ^{^^^}	1016909 [‡]	9280	1039513
2021	MSY approach	≤ 852284	1199103 ^{^^^}	944063 [‡]	3129	1081540
2022	MSY approach	≤ 794920	1188227 ^{^^^}	940857 [^]	3556	1046720
2023	MSY approach	≤ 782066	1188265 ^{^^^}			
2024	MSY approach	≤ 739386				

n/a = not available.

* For all areas, except some catches in international waters in Subarea 2.

[^] Preliminary.

^{^^} Does not include the unilateral Norway–Faroe Islands TAC, first declared in 2009, nor the Icelandic quota.

^{^^^} No internationally agreed quotas. Values presented are the sum of declared quotas (including interannual transfers).

[‡] Incomplete/missing as a result of part of the data being unavailable under data confidentiality clauses

History of the catch and landings

Table 7 Mackerel in subareas 1–8 and 14, and in Division 9.a. Landings distribution by fleet and discards, as estimated by ICES.

Catch (2022)	Landings			Discards
	Pelagic trawl 71%	Purse-seine 28.2%	Others 0.8%	
1046720 tonnes	1043164 tonnes			3556 tonnes*

* Only quantified for part of the fisheries.

Table 8 Mackerel in subareas 1–8 and 14, and in Division 9.a. History of commercial catch and landings; ICES estimates are presented by country. All weights are in tonnes. “Misreported” refers to assumed area misreporting between divisions 4.a and 6.a, and “Unallocated” indicates differences between official reported values and ICES estimates.

Country	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Belgium	20	37		125	102	191	351	106	62	114	125	177	146	97	22	2	5
Denmark	36853	34264	35800	41505	42164	42502	50142	36780	28526	21971	27416	30011	29177	22522	34376	27900	25665
Estonia					616		3302	2286	3741	4422	7356	3595	2673	219			
Faroe Islands	2622	5032	10000	11131	3347	12575	21568	31199	16851	11513	11229	11620	21023	24184	19768	14014	13030
France	10706	14911	19000	6480	962	3836	11573	11782	15663	20916	17835	16367	19445	20956	21878	22906	20266
Germany	16457	24921	21600	14537	13719	13236	26508	24415	16227	15374	21412	19949	22979	25307	26532	24061	23244
Greenland																	
Guernsey																	
Iceland									92	925	357				53	122	
Ireland	85800	69980	74300	30138	35088	36982	89028	78534	54313	53129	66650	59675	71233	70452	72172	67355	61102
Jersey																	
Latvia					311	4700	1508	389	233								
Lithuania													2085				
Netherlands	28664	31343	38200	69418	82860	89543	44335	35789	36760	23700	30163	28621	32385	36095	33444	30424	27532
Norway	163450	150400	151700	208266	239965	257800	258094	202205	136436	137523	158177	160738	174098	180372	184291	163406	157363
Poland						600					22						
Portugal	4388	3112	3819	2789	3576	2015	2158	2893	3023	2080	2897	2002	2253	3119	2934	2749	2289
Romania							2903										
Spain	21884	16609	17892	22011	17234	20864	27113	29165	33371	46470	44607	45915	38321	44142	50123	23762	
Sweden	1003	6601	6400	4227	5100	5934	7099	6285	5307	4714	5146	5233	4994	5098	5232	445	4437
United Kingdom	210815	187760	193900	200019	232829	256275	237841	212147	146205	321821	185948	160152	184902	192631	194045	183008	214771
USSR/Russian Federation	27924	12088	28900	13361	42440	49600	28041	44537	44545	53732	67836	51348	50772	41567	45811	40026	49489
Misreported							109625	18647				-211	4816		6009		
Unallocated	34330	25361	8100	12956	15038		4632	29228	10839	5679	11498	38996	66235	62825	50543	59172	41335
Discards	35576	7090	15600	30750	25000	18380	5370	7721	11415	18864	8030		3832	1188	23774	9481	19962
Total	680492	589509	625211	667713	760351	815033	931194	774108	563610	742969	666682	634399	731369	730774	771007	668833	660491

Table 8 (cont.)

Country	2005	2006	2007	2008	2009	2010*	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Belgium	1	3	1	2	3	29	21	39	62	56	52	143	128	168	66	124	110	242
Denmark	23212	24219	25223	26726	23491	41445	35958	36501	33218	42222	46871	41139	40028	30690	30563	38485	32796	21434
Estonia									1367									
Faroe Islands	9769	12067	13430	11289	14062	70987	122050	107630	143001	150236	108412	93267	99667	81079	62665	69064	105096	133757
France	16338	14953	20038	15602	18340	11379	12766	20467	14643	21719	25704	20189	22950	21471	17869	21878	16442	17373
Germany	19040	16608	18221	15502	22703	19055	24083	18944	20931	28456	28257	23411	24858	19883	16904	25030	11996	14128
Greenland							62	7402	54148	78581	30351	36142	46388	62973	30241	26577	33360	18039
Guernsey		10					10	5	9	9	4			12	9			
Iceland	363	4222	36706	112286	116160	121008	159263	149282	151235	172960	169333	170374	167366	168330	128077	151534	132109	129976
Ireland	45687	40664	49259	44760	61056	57994	61596	63049	56511	103178	88744	76526	84915	66747	53312	74114	60752	52272
Jersey	9	8	6	7	8	6	7	8	8	7	3	3		3	2	5		
Latvia																		
Lithuania		95	7				23			9598	554	2540				815	6655	
Netherlands	22734	24157	24244	19972	23568	23088	28395	25817	21159	46665	39807	37929	43766	30392	22698	30321	24594	26385
Norway	119678	121993	131691	121524	121229	233952	208065	176023	164607	277731	242231	209352	222356	187207	159107	211672	270653	294086
Poland	570	1368	978								24		1	4057	3706	5302	1779	105
Portugal	1509	2620	2605	2381	1753	4120	3263	5691	5388	7950	8295	6688	4331	4565	3940	4799	4723	3567
Romania																		
Spain		54136	62946	64637	114074	52737	18725	19386	16414	37806	34530	30036	32885	30036	21112	34307	27783	29424
Sweden	3204	3209	3858	3664	7303	3429	3248	4564	2906	4422	3930	3663	3701	3966	2958	3671	3513	3244
United Kingdom	152801	95815	133688	112394	157010	160417	180972	169745	163807	287851	247986	217638	225409	190028	152146	203716	209876	197003
USSR/Russian Federation	40495	33580	35408	32728	41414	59310	73601	74587	80817	116433	128433	121644	138061	118255	126544	128817	136176	102129
Misreported																		
Unallocated	68414	4954	12453	1069	-139	5271	5961	5237	3336	9457	1876	3480		392				
Discards	25788	26594	15444	37075	15934	13045	10894	15174	4732	6451	10430	5971	2832	2890	7807	9280	3129	3556
Total	549514	481276	586206	621618	737969	877272	948963	899551	938299	1401788	1215827	1100135	1159641	1023144	839727	1039513	1081540	1046720

Table 12 Mackerel in subareas 1–8 and 14, and in Division 9.a. History of catch and landings; the ICES estimates are presented by area. All weights are in tonnes.

Year	Subarea 6			Subarea 7 and divisions 8.a, 8.b, 8.d, and 8.e			Subareas 3 and 4			Subareas 1, 2, 5, and 14			Divisions 8.c and 9.a			Total		
	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch
1969	4800		4800	47404		47404	739175		739175	7		7	42526		42526	833912		833912
1970	3900		3900	72822		72822	322451		322451	163		163	70172		70172	469508		469508
1971	10200		10200	89745		89745	243673		243673	358		358	32942		32942	376918		376918
1972	13000		13000	130280		130280	188599		188599	88		88	29262		29262	361229		361229
1973	52200		52200	144807		144807	326519		326519	21600		21600	25967		25967	571093		571093
1974	64100		64100	207665		207665	298391		298391	6800		6800	30630		30630	607586		607586
1975	64800		64800	395995		395995	263062		263062	34700		34700	25457		25457	784014		784014
1976	67800		67800	420920		420920	305709		305709	10500		10500	23306		23306	828235		828235
1977	74800		74800	259100		259100	259531		259531	1400		1400	25416		25416	620247		620247
1978	151700	15100	166800	355500	35500	391000	148817		148817	4200		4200	25909		25909	686126	50600	736726
1979	203300	20300	223600	398000	39800	437800	152323	500	152823	7000		7000	21932		21932	782555	60600	843155
1980	218700	6000	224700	386100	15600	401700	87931		87931	8300		8300	12280		12280	713311	21600	734911
1981	335100	2500	337600	274300	39800	314100	64172	3216	67388	18700		18700	16688		16688	708960	45516	754476
1982	340400	4100	344500	257800	20800	278600	35033	450	35483	37600		37600	21076		21076	691909	25350	717259
1983	320500	2300	322800	235000	9000	244000	40889	96	40985	49000		49000	14853		14853	660242	11396	671638
1984	306100	1600	307700	161400	10500	171900	43696	202	43898	98222		98222	20208		20208	629626	12302	641928
1985	388140	2735	390875	75043	1800	76843	46790	3656	50446	78000		78000	18111		18111	606084	8191	614275
1986	104100		104100	128499		128499	23309	7431	30740	101000		101000	24789		24789	594697	7431	602128
1987	183700		183700	100300		100300	290829	10789	301618	47000		47000	22187		22187	644016	10789	654805
1988	115600	3100	118700	75600	2700	78300	308550	29766	338316	120404		120404	24772		24772	644926	35566	680492
1989	121300	2600	123900	72900	2300	75200	279410	2190	281600	90488		90488	18321		18321	582419	7090	589509
1990	114800	5800	120600	56300	5500	61800	300800	4300	305100	118700		118700	21311		21311	611911	15600	627511
1991	109500	10700	120200	50500	12800	63300	358700	7200	365900	97800		97800	20683		20683	637183	30700	667883
1992	141906	9620	151526	72153	12400	84553	364184	2980	367164	139062		139062	18046		18046	735351	25000	760351
1993	133497	2670	136167	99828	12790	112618	387838	2720	390558	165973		165973	19720		19720	806856	18180	825036
1994	134338	1390	135728	113088	2830	115918	471247	1150	472397	72309		72309	25043		25043	816025	5370	821395
1995	145626	74	145700	117883	6917	124800	321474	730	322204	135496		135496	27600		27600	748079	7721	755800
1996	129895	255	130150	73351	9773	83124	211451	1387	212838	103376		103376	34123		34123	552196	11415	563611
1997	65044	2240	67284	114719	13817	128536	226680	2807	229487	103598		103598	40708		40708	550749	18864	569613
1998	110141	71	110212	105181	3206	108387	264947	4735	269682	134219		134219	44 164		44164	658652	8012	666664
1999	116362		116362	94290		94290	313014		313014	72848		72848	43796		43796	640311		640311
2000	187595	1	187595	115566	1918	117484	285567	165	285732	92557		92557	36074		36074	736524	2084	738608
2001	143142	83	143142	142890	1081	143971	327200	24	327224	67097		67097	43198		43198	736274	1188	737462
2002	136847	12931	149778	102484	2260	104744	375708	8583	384291	73929		73929	49576		49576	749131	23774	772905
2003	135690	1399	137089	90356	5712	96068	354109	11785	365894	53883		53883	25823	531	26354	659831	19427	679288
2004	134033	1705	135738	103703	5991	109694	306040	11329	317369	62913	9	62922	34840	928	35769	640529	19962	660491

Year	Subarea 6			Subarea 7 and divisions 8.a, 8.b, 8.d, and 8.e			Subareas 3 and 4			Subareas 1, 2, 5, and 14			Divisions 8.c and 9.a			Total		
	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch	Land.	Disc.	Catch
2005	79960	8201	88162	90278	12158	102436	249741	4633	254374	54129		54129	49618	796	50414	523726	25788	549514
2006	88077	6081	94158	66209	8642	74851	200929	8263	209192	46716		46716	52751	3607	56358	454587	26594	481181
2007	110788	2450	113238	71235	7727	78962	253013	4195	257208	72891		72891	62834	1072	63906	570762	15444	586206
2008	76358	21889	98247	73954	5462	79416	227252	8862	236113	148669	112	148781	59859	750	60609	586090	37075	623165
2009	135468	3927	139395	88287	2921	91208	226928	8120	235049	163604		163604	107747	966	108713	722035	15934	737969
2010	106732	2904	109636	104128	4614	108741	246818	883	247700	355725	5	355729	50826	4640	55466	864229	13045	877272
2011	160756	1836	162592	51098	5317	56415	301746	1906	303652	398132	28	398160	26337	1807	28144	938070	10894	948963
2012	121115	952	122067	65728	9701	75429	218400	1089	219489	449325	1	449326	29809	3431	33240	884377	15174	899551
2013	132062	273	132335	49871	1652	51523	260921	337	261258	465846	15	465861	24867	2455	27322	933567	4732	938299
2014	180068	340	180408	93709	1402	95111	383887	334	384221	684082	91	684173	53591	4284	57875	1395337	6451	1401788
2015	134728	30	134757	98563	3155	101718	295877	34	295911	632493	78	632571	43735	7133	50869	1205396	10431	1215827
2016	206326	200	206526	37300	1927	39227	248041	570	248611	563440	54	563494	39056	3220	42276	1094163	5971	1100135
2017	225959	151	226110	21128	1992	23119	269404	400	269804	603806	62	603869	36512	227	36739	1156809	2832	1159641
2018	157239	90	157329	32037	1611	33649	341527	620	342147	455689	51	455740	33761	518	34279	1020254	2890	1023144
2019	122995	144	123139	32840	5902	38742	307235	812	308047	345019	18	345037	23832	931	24763	831920	7807	839727
2020	130577	341	130918	48806	8065	56871	456479	732	457211	356985		356985	37386	143	37529	1030233	9280	1039513
2021	146519	117	146635	15901	2524	18425	221019	423	221442	663111		663111	31862	65	31928	1078411	3129	1081540
2022	63850	222	64072	25065	685	25750	350760	2470	353231	571403		571403	32086	178	32264	1043164	3556	1046720

Table 9 Mackerel in subareas 1–8 and 14, and in Division 9.a. Catches inside and outside the NEAFC regulatory areas (RAs), as estimated by ICES, as well as total catches. Weights are in tonnes.

Year	Inside the NEAFC RAs	Outside the NEAFC RAs	Total catch	Percentage inside the NEAFC RAs
2018	213608	809536	1023144	21
2019	207200	632527	839727	25
2020	247901	791612	1039513	24
2021*	195938	749427	945365	21
2022*	186199	758393	944591	20

* Without catches from the Russian Federation, as it did not report catches inside/outside the NEAFC RAs for 2021 and 2022. In the past, around 90% of Russian catches were taken inside the NEAFC RAs.

Summary of the assessment

Table 10 Mackerel in subareas 1–8 and 14, and in Division 9.a. Assessment summary. Weights are in tonnes and recruitment in thousands.

Year	Recruitment (age 2)			SSB at spawning time			Total catch	F (ages 4–8)		
	Low	Value	High	Low	Value	High		Low	Value	High
1980	738556	2236661	6773556	1929717	4089931	8668385	734950	0.126	0.21	0.33
1981	1482481	3935162	10445665	1906223	3606692	6824085	754045	0.129	0.21	0.33
1982	2255093	4250320	8010857	2031684	3472009	5933427	716987	0.133	0.21	0.32
1983	2477846	4181532	7056617	2405542	3678958	5626478	672283	0.137	0.21	0.31
1984	1055106	1953170	3615633	2791467	3979779	5673949	641928	0.141	0.21	0.31
1985	914783	1763044	3397881	2941137	4008008	5461878	614371	0.146	0.21	0.31
1986	2413122	4062330	6838664	2703953	3602549	4799773	602201	0.153	0.22	0.31
1987	1645845	2707304	4453334	2684762	3569947	4746984	654992	0.161	0.22	0.31
1988	1705889	2665714	4165588	2714143	3521030	4567797	680491	0.170	0.23	0.32
1989	2621896	3850196	5653929	2577521	3288174	4194763	585920	0.181	0.24	0.33
1990	1614577	2351096	3423590	2695479	3373583	4222278	626107	0.193	0.26	0.34
1991	1807124	2641378	3860763	2642309	3273562	4055622	675665	0.21	0.27	0.36
1992	1256626	1957547	3049428	2448205	3002776	3682970	760690	0.22	0.29	0.38
1993	1664834	2394688	3444507	2189003	2663959	3241967	824568	0.24	0.31	0.39
1994	1933108	2783885	4009096	1921814	2321191	2803563	819087	0.25	0.32	0.40
1995	1451810	2073325	2960908	1913380	2290216	2741269	756277	0.25	0.31	0.39
1996	1466815	2063895	2904021	1825198	2174716	2591166	563472	0.25	0.30	0.37
1997	1218996	1735510	2470881	1823874	2144903	2522439	573029	0.24	0.30	0.36
1998	1451094	2299761	3644767	1797995	2118203	2495437	666316	0.25	0.30	0.37
1999	1255030	1906540	2896261	1955252	2297701	2700127	640309	0.27	0.32	0.38
2000	1631376	2231701	3052937	1963930	2261229	2603532	738606	0.29	0.33	0.39
2001	1905587	2546612	3403273	1870992	2145615	2460547	737463	0.31	0.37	0.43
2002	858620	1155583	1555255	1776826	2053280	2372746	771422	0.33	0.39	0.46
2003	3661266	4783942	6250872	1727292	2006047	2329787	679287	0.34	0.41	0.48
2004	4904673	6577625	8821210	2201692	2609154	3092025	660491	0.31	0.37	0.45
2005	1760759	2399484	3269909	2032428	2433808	2914455	549514	0.26	0.30	0.36
2006	2549599	3480919	4752431	1927087	2296686	2737170	481181	0.24	0.28	0.33
2007	3664024	5095654	7086659	2064174	2441423	2887618	586206	0.26	0.31	0.36
2008	3714761	5197356	7271667	2419214	2891383	3455707	623165	0.24	0.29	0.35
2009	2691002	3749368	5223987	2998720	3599313	4320194	737969	0.22	0.26	0.31
2010	3016440	4193134	5828850	3401426	4057815	4840869	877272	0.21	0.25	0.30
2011	2556669	3556127	4946294	3957832	4736686	5668809	948963	0.20	0.24	0.29
2012	4281527	5939342	8239066	3751514	4500692	5399482	899551	0.181	0.22	0.27
2013	4942486	6867546	9542402	4203695	5057375	6084418	938299	0.176	0.22	0.26
2014	2765711	3834283	5315712	5239637	6303439	7583226	1401788	0.176	0.22	0.26
2015	2447345	3387247	4688118	5310901	6418653	7757462	1215827	0.162	0.20	0.25
2016	3615580	5004656	6927402	4996244	6056742	7342338	1100135	0.147	0.183	0.23

Year	Recruitment (age 2)			SSB at spawning time			Total catch	F (ages 4–8)		
	Low	Value	High	Low	Value	High		Low	Value	High
2017	1523690	2120346	2950643	4830993	5859454	7106864	1159641	0.150	0.186	0.23
2018	3323155	4681101	6593949	4187213	5076992	6155849	1023144	0.154	0.191	0.24
2019	1964768	2814162	4030761	3530572	4306452	5252841	839727	0.158	0.197	0.24
2020	1748546	2544660	3703247	3305920	4038542	4933521	1039513	0.199	0.25	0.31
2021	3700171	5528431	8260036	3398574	4186470	5157025	1081540	0.21	0.27	0.33
2022	3116177	4953325	7873566	3091402	3951017	5049663	1046720	0.23	0.30	0.40
2023	1549418	3269823	6900492		3681064†					

† Estimated value from the forecast.

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