Sole (*Solea solea*) in Subarea 4 (North Sea)

ICES advice on fishing opportunities

ICES advises that when the proposed EU multiannual plan (MAP) for the North Sea is applied, catches in 2019 that correspond to the F ranges in the MAP are between 7451 tonnes and 21 644 tonnes. According to the MAP, catches higher than those corresponding to F_{MSY} (12 801 tonnes) can only be taken under conditions specified in the MAP, whilst the entire range is considered precautionary when applying the ICES advice rule.

Stock development over time

The spawning-stock biomass (SSB) has increased since 2007 and has been estimated at above MSY $B_{trigger}$ since 2012. Fishing mortality (F) has declined since 1999 and is close to F_{MSY} in 2017. Recruitment (R) has fluctuated without trend since the early 1990s, but without the large year classes that occurred in the preceding period.
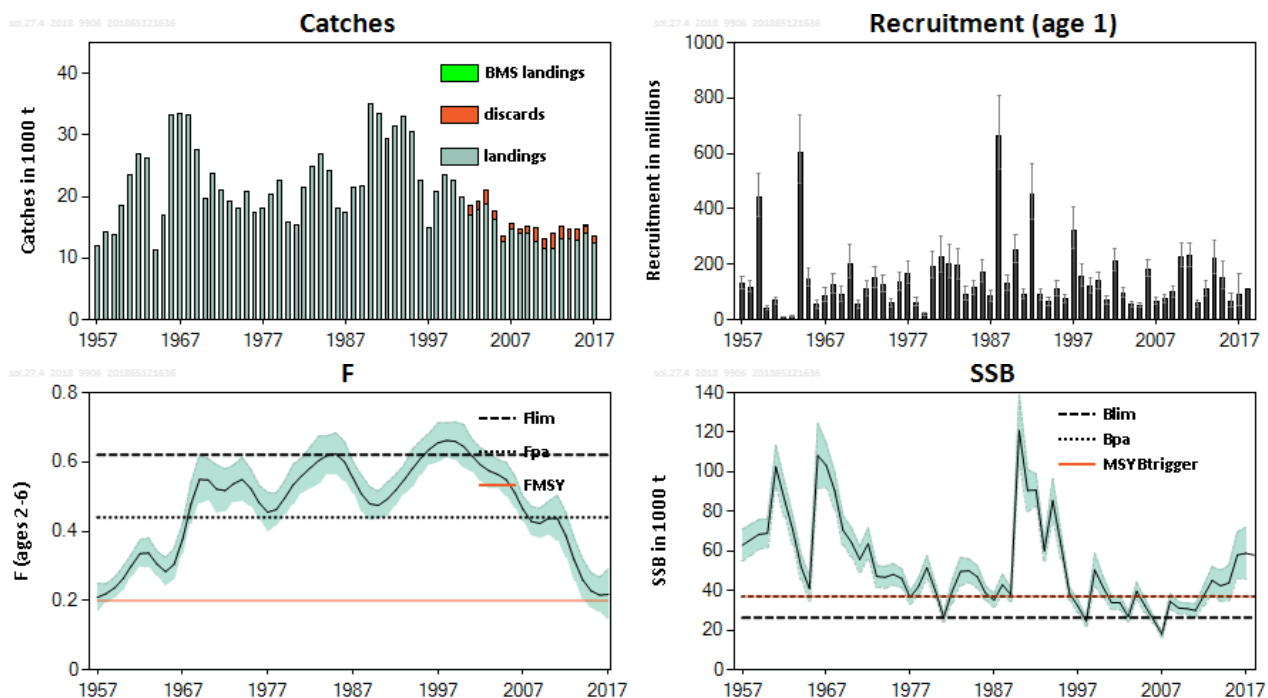

Figure 1   Sole in Subarea 4. Summary of the stock assessment. Estimates of discards are only available since 2002. Shaded areas (F, SSB) and error bars (R) indicate $\pm 2 \times$ standard error (approximately 95% confidence intervals).

Stock and exploitation status

ICES assesses that fishing pressure on the stock is above F_{MSY} but within MAP range and below F_{pa} and F_{lim}; and spawning-stock size is above MSY $B_{trigger}$, B_{MGT}, B_{pa}, and B_{lim}.

Table 1   Sole in Subarea 4. State of the stock and fishery relative to reference points.

		Fishing pressure				Stock size		
		2015	2016	2017		2016	2017	2018
Maximum sustainable yield	F_{MSY}	❌	❌	❌ Above	MSY $B_{trigger}$	✅	✅	✅ Above trigger
Precautionary approach	F_{pa}, F_{lim}	✅	✅	✅ Harvested sustainably	B_{pa}, B_{lim}	✅	✅	✅ Full reproductive capacity
Management plan	F_{MGT}	✅	✅	✅ Within range	B_{MGT}	✅	✅	✅ Above

Catch scenarios

Table 2   Sole in Subarea 4. Assumptions made for the interim year and in the forecast.

Variable	Value	Notes
$F_{ages\ 2–6}$ (2018)	0.22	Average exploitation pattern (2015–2017) scaled to average $F_{ages\ 2–6}$ (2015–2017)
SSB (2019)	55 445 tonnes	Short-term forecast (STF)
R_{age1} (2018)	108 555 thousands	RCT3
R_{age1} (2019)	113 058 thousands	Geometric mean (1957–2014)
Total catch (2018)	14 605 tonnes	Short-term forecast
Wanted catch (2018)	13 568 tonnes	STF, average landings rate by age 2015–2017
Unwanted catch (2018)	1037 tonnes	STF, average discard rate by age 2015–2017

Table 3   Sole in Subarea 4. Annual catch scenarios. All weights are in tonnes.

Basis	Total catch* (2019)	Wanted catch** (2019)	Unwanted catch (2019)	F_{total}# (ages 2–6) (2019)	F_{wanted} (ages 2–6) (2019)	$F_{unwanted}$ (ages 1–3) (2019)	SSB (2020)	% SSB change***	% TAC change^	% Advice change^^
ICES advice basis										
EU MAP^^^: F_{MSY}	12801	11800	1001	0.202	0.168	0.063	54818	-1.13	-18.4	-18.6
F = MAP $F_{MSY\ lower}$	7451	6871	579	0.113	0.094	0.035	59539	7.4	-53	-53
F = MAP $F_{MSY\ upper}$	21644	19935	1709	0.367	0.30	0.114	47056	-15.1	38	38
Other scenarios										
MSY approach: F_{MSY}	12801	11800	1001	0.202	0.168	0.063	54818	-1.13	-18.4	-18.6
F_{mp} (former management plan)	12685	11694	992	0.20	0.166	0.062	54920	-0.95	-19.2	-19.3
F = 0	0	0	0	0	0	0	66140	19.3	-100	-100
F_{pa}	25155	23160	1994	0.44	0.37	0.136	43990	-21	60	60
F_{lim}	33281	30614	2667	0.63	0.52	0.195	36935	-33	112	112
SSB (2020) = B_{lim}	45702	41967	3735	1.00	0.83	0.31	26300	-53	191	191
SSB (2020) = B_{pa}	33206	30546	2661	0.63	0.52	0.194	37000	-33	112	111
SSB (2020) = MSY $B_{trigger}$	33206	30546	2661	0.63	0.52	0.194	37000	-33	112	111
F = F_{2018}	13857	12772	1085	0.22	0.183	0.068	53889	-2.8	-11.7	-11.9
Rollover TAC	15694	14463	1231	0.25	0.21	0.078	52273	-5.7	0	-0.20
Mixed-fisheries scenarios†										
A: Max.	19091			0.324			47986	-13	22	21
B: Min.	4158			0.063			61136	10	-74	-74
C: COD	8797			0.138			57036	3	-44	-44
D: SQ effort	12696			0.205			53601	-3	-19	-19
E: Value	12623			0.203			53665	-3	-20	-20
F: Range‡	11872			0.186			55792	1	-24	-25

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† Version 3: All mixed-fisheries scenarios updated as part of the ICES reopening process.

‡ Version 2: Row updated

* Differences between the total catch and the sum of wanted and unwanted catches result from rounding.
** "Wanted" and "unwanted" catch are used to describe fish that would be landed and discarded in the absence of the EU landing obligation, based on average discard rate estimates for 2015–2017.
*** SSB 2020 relative to SSB 2019.
^ Total catch in 2019 relative to TAC in 2018 (15694 t).
^^ Total catch in 2019 relative to advice value 2018 (15726 t).
^^^ Proposed EU multiannual plan (MAP) for the North Sea (EU, 2016)
# F_{wanted} and $F_{unwanted}$ do not sum up to the F_{total} as they are calculated using different ages.

Mixed-fisheries assumptions (note: "fleet's stock share" is used to describe the share of the fishing opportunities for each particular fleet, which has been calculated based on the single-stock advice for 2018 and the historical proportion of the stock landings taken by the fleet):
A. Maximum scenario: Each fleet stops fishing when its last stock share is exhausted.
B. Minimum scenario: Each fleet stops fishing when its first stock share is exhausted.
C. COD: Each fleet stops fishing when its individual cod share is exhausted.
D. SQ (*status quo*) effort scenario: The effort of each fleet in 2017 and 2018 is as in 2016.
E. Value scenario: The effort of each fleet is equal to the weighted average of the efforts required to catch the fleet's quota share of each of the stocks, where the weights are the relative catch values of each stock in the fleet's portfolio.
F. Range scenario: where the potential for TAC mismatches in 2018 are minimized within the F_{MSY} range, for the demersal fish stocks for which such a range is available (cod.27.47d20; had.27.46a20; pok.27.3a46; ple.27.420; ple.27.7d; sol.27.4; sol.27.7d).

The advice change (-18.6%) is due to the downwards revision of SSB in the update assessment, as well as low recent recruitment.

Basis of the advice

Table 4   Sole in Subarea 4. The basis of the advice.

Advice basis	Proposed EU multiannual plan (MAP) for the North Sea (EU, 2016)
Management plan	The EU MAP for the North Sea is currently being finalized and is not yet adopted. The advice based on the F_{MSY} range used in the MAP is considered precautionary.

Quality of the assessment

There has been a downward revision of the SSB in the latest assessment, however this revision is within the uncertainty bound of the assessment.

In 2017 the fishery exploitation pattern has shifted towards targeting younger fish than in previous years. The forecast assumes an average exploitation pattern over the last three years, which may render the forecast marginally optimistic. This potential change in exploitation pattern will have to be confirmed next year to understand whether this represents a real change in targeting.

Figure 2   Sole in Subarea 4. Historical assessment results (final-year recruitment estimates included).

Issues relevant for the advice

The EU is finalising a MAP for the North Sea, and ICES was requested to provide advice based on the proposed EU MAP. Between 2014 and 2017 the use of pulse trawls in the main fishery operating in the North Sea has increased and less vessels are operating with traditional beam trawls. The pulse gear allows fishing of softer grounds and as a result the spatial distribution of the main fisheries has changed to the southern part of the Division 4.c. As a consequence a larger proportion of the sole catch is now taken in this area (ICES, 2018c).

BMS landings of sole reported to ICES are currently much lower than the estimates of catches below the minimum conservation reference size (MCRS), 9.2% of the total catch from observer programmes.

Mixed fisheries considerations[§]
Results from a North Sea mixed-fisheries analysis are presented in the ICES mixed fisheries advice (ICES, 2018d). The analysis has been updated taking into account latest changes made to the assessments and forecasts for stocks with reopened advice.

After years of positive development, North Sea cod is again estimated to be the most limiting stock in the Greater North Sea mixed-fisheries model. For 2019, assuming a strictly implemented landing obligation (corresponding to the "Minimum" scenario), cod is estimated to constrain 24 out of 40 fleet segments. Whiting is the second most limiting stock, constraining twelve fleet segments. Conversely, in the "Maximum" scenario, saithe and both plaice stocks (North Sea and Eastern Channel) would be the least limiting for 17, 9, and 3 fleet segments, respectively. Finally, if Norway lobster were managed by separate TACs, Norway lobster in FU 7 would be the least limiting for seven fleet segments. (ICES, 2018a). North Sea sole is least limiting for two fleets in mixed fisheries scenarios (ICES, 2018d).

For those demersal fish stocks for which the F_{MSY} range is available, a "range" scenario is presented that minimizes the potential for TAC mismatches in 2019 within the F_{MSY} range. This scenario returns a fishing mortality by stock which, if used for setting single-stock fishing opportunities for 2019, may reduce the gap between the most and the least restrictive TACs, thus reducing the potential for quota over- and undershoots. This "range" scenario suggests that the potential for mixed-fisheries mismatch would be lowered with a 2019 TAC in the lower part of the F_{MSY} range for North Sea plaice and North Sea saithe, and at the highest possible value for cod in accordance with the MSY approach and the MAP (EU multiannual plan).

Reference points

Table 5   Sole in Subarea 4. Reference points, values, and their technical basis.

Framework	Reference point	Value	Technical basis	Source
MSY approach	MSY $B_{trigger}$	37 000 t	Default to value of B_{pa}	ICES (2015)
	F_{MSY}	0.202	EQsim analysis, assuming a hockey-stick stock–recruit relationship based on the recruitment period 1958–2010	ICES (2015)
Precautionary approach	B_{lim}	26 300 t	Break-point of hockey-stick stock–recruit relationship, based on the recruitment period 1958–2010	ICES (2015)
	B_{pa}	37 000 t	$B_{lim} \times \exp(1.645 \times 0.2) \approx 1.4 \times B_{lim}$	ICES (2015)
	F_{lim}	0.63	EQsim analysis, based on the recruitment period 1958–2010	ICES (2016)
	F_{pa}	0.44	$F_{lim} \times \exp(-1.645 \times 0.2) \approx F_{lim} / 1.4$	ICES (2016)
Management plan*	MAP MSY $B_{trigger}$	37 000 t	MSY $B_{trigger}$	
	MAP B_{lim}	26 300 t	B_{lim}	
	MAP F_{MSY}	0.202	F_{MSY}	
	MAP target range F_{lower}	0.113-0.202	Consistent with ranges provided by ICES (2015), resulting in no more than 5% reduction in long-term yield compared with MSY	
	MAP target range F_{upper}	0.202 – 0.367	Consistent with ranges provided by ICES (2015), resulting in no more than 5% reduction in long-term yield compared with MSY	

*Proposed EU multiannual plan (MAP) for the North Sea (EU, 2016)

[§] Version 3: Mixed fisheries text updated

Basis of the assessment

Table 6   Sole in Subarea 4. Basis of the assessment and advice.

ICES stock data category	1 (ICES, 2016b)
Assessment type	Age-based analytical assessment (Aarts and Poos, 2009, ICES, 2018b) that uses catches in the model and in the forecast.
Input data	Commercial catches (age frequencies from catch sampling), three survey indices (BTS-ISIS Q3, SNS Q3, DFS Q3). Natural mortality is assumed constant. Maturity-at-age is assumed to be knife-edged (at age 3) and constant over time.
Discards, BMS landings, and bycatch	Discards are included in the assessment. Discard records (1957–2002) are reconstructed. In 2017, 88 % of the landings had associated discarding information, and 95 % of the discards were sampled. BMS landings, where reported, are included with discards as unwanted catch in the assessment from 2016.
Indicators	None
Other information	The stock was last benchmarked in 2015 (ICES, 2015). The main changes were the inclusion of discards and the removal of the Dutch beam trawl fleet commercial index (ICES, 2015).
Working group	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak ([WGNSSK](#))

Information from stakeholders

Stakeholders from different member states have experienced difficulties finding North Sea sole on their fishing grounds in recent years.

History of the advice, catch, and management

Table 7   Sole in Subarea 4. ICES advice, and ICES estimates of landings, discards reported to ICES. All weights are in tonnes.

Year	ICES advice	Predicted landings corresponding to advice	Predicted catch corresponding to advice	Agreed TAC	ICES landings	ICES discards
1987	Rebuild SSB to 40 000 t; TAC	11000		14000	17368	
1988	Increase SSB towards 50 000 t; TAC	11000		14000	21590	
1989	Increase SSB towards 50 000 t; TAC	14000		14000	21805	
1990	80% of F(88); TAC	25000		25000	35120	
1991	SSB > 50 000 t; TAC	27000		27000	33513	
1992	TAC	21000		25000	29341	
1993	No long-term gains in increased F	29000		32000	31491	
1994	No long-term gains in increased F	31000		32000	33002	
1995	No long-term gains in increased F	28000		28000	30467	
1996	Mixed fishery, link plaice advice	23000		23000	22651	
1997	< 80% of F(95)	14.600		18000	14901	
1998	75% of F(96)	18100		19100	20868	
1999	F < F_{pa} (80% of F(97))	20300		22000	23475	
2000	F < F_{pa}	< 19800		22000	22641	
2001	F < F_{pa}	< 17700		19000	19944	
2002	F < 0.37	< 14300		16000	16945	1712
2003	F < F_{pa}	< 14600		15900	17920	1364
2004	F < F_{pa}	< 17900		17000	18757	2353
2005	F < F_{pa}	< 17300		18600	16355	1341
2006	Keep SSB above B_{pa}	< 11900		17700	12594	994
2007	SSB above B_{pa}	< 10800		15000	14635	871
2008	SSB above B_{pa}	< 9800		12800	14071	545
2009	Apply management plan	< 14000		14000	13952	1261
2010	Apply management plan	< 14100		14100	12603	2246

Year	ICES advice	Predicted landings corresponding to advice	Predicted catch corresponding to advice	Agreed TAC	ICES landings	ICES discards
2011	See scenarios	-		14100	11485	1703
2012	Apply first stage of the management plan	< 15700		16200	11602	2528
2013	Apply first stage of the management plan	< 14000		14000	13137	2119
2014	Apply first stage of the management plan	< 11900		11900	13060	1568
2015	Apply second stage of the management plan	< 11400		11900	12867	1763
2016	Apply second stage of the management plan		≤ 12800	13262	14127	1220^
2017	Apply second stage of the management plan		≤ 15300	16123	12370	1250^
2018	Apply second stage of the management plan		≤ 15726	15694		
2019	MAP* F ranges: F_{lower} to F_{upper} (F=0.113 – 0.367), but F higher than F_{MSY} = 0.202 only under conditions specified in the MAP		7451–21644, but catches higher than 12801 only under conditions specified in the MAP			

^ Since 2016 discards correspond to unwanted catch (including BMS landings)
* Proposed EU multiannual plan (MAP) for the North Sea (EU, 2016)

History of the catch and landings

Table 8   Sole in Subarea 4. Catch distribution by fleet in 2017 as estimated by and reported to ICES.

Catch	Wanted catch				Unwanted catch
13620 tonnes	Beam trawl 89 %	Gillnets 5.0 %	Trammel nets 3.5 %	Other 2.3 %	1250 tonnes
	12370 tonnes				

Table 9   Sole in Subarea 4. History of commercial landings; both the official reported values are presented by country, official reported BMS landings, ICES estimated landings and the TAC are presented. All weights are in tonnes.

Year	Belgium	Denmark	France	Germany	Netherlands	UK	Other	Total landings	Total BMS landings	ICES total landings	TAC
1982	1900	524	686	266	17686	403	2	21467		21579	21000
1983	1740	730	332	619	16101	435	0	19957		24927	20000
1984	1771	818	400	1034	14330	586	1	18940		26839	20000
1985	2390	692	875	303	14897	774	3	19934		24248	22000
1986	1833	443	296	155	9558	647	2	12934		18201	20000
1987	1644	342	318	210	10635	676	4	13829		17368	14000
1988	1199	616	487	452	9841	740	28	13363		21590	14000
1989	1596	1020	312	864	9620	1033	50	14495		21805	14000
1990	2389	1427	352	2296	18202	1614	263	26543		35120	25000
1991	2977	1307	465	2107	18758	1723	271	27608		33513	27000
1992	2058	1359	548	1880	18601	1281	277	26004		29341	25000
1993	2783	1661	490	1379	22015	1149	298	29775		31491	32000
1994	2935	1804	499	1744	22874	1137	298	31291		33002	32000
1995	2624	1673	640	1564	20927	1040	312	28780		30467	28000
1996	2555	1018	535	670	15344	848	229	21199		22651	23000
1997	1519	689	99	510	10241	479	204	13741		14901	18000
1998	1844	520	510	782	15198	549	339	19742		20868	19100
1999	1919	828	NA	1458	16283	645	501	*21634		23475	22000
2000	1806	1069	362	1280	15273	600	539	20929		22641	22000
2001	1874	772	411	958	13345	597	394	18351		19944	19000
2002	1437	644	266	759	12120	451	292	15969		16945	16000
2003	1605	703	728	749	12469	521	363	17138		17920	15850
2004	1477	808	655	949	12860	535	544	17828		18757	17000
2005	1374	831	676	756	10917	667	357	15579		16355	18600

Year	Belgium	Denmark	France	Germany	Netherlands	UK	Other	Total landings	Total BMS landings	ICES total landings	TAC
2006	980	585	648	475	8299	910	0	11933		12594	17670
2007	955	413	401	458	10365	1203	5	13800		14635	15000
2008	1379	507	714	513	9456	851	15	13435		14071	12800
2009	1353	476	NA	555	12038	951	1	*14898		13952	14000
2010	1268	406	621	537	8770	526	1.38	12129		12603	14100
2011	857	346	539	327	8133	786	2	10990		11485	14100
2012	593	418	633	416	9089	599	3	11752		11602	16200
2013	697	497	680	561	9987	867	0	13291		13137	14000
2014	920	314	675	642	9569	840	0	12547		13060	11900
2015	933	271	532	765	8899	804	0	12203		12867	11900
2016	**767	**355	**362	**861	**9600	**705	**0	**12651	NA	14127	13262
2017	**556	**432	**393	**731	**9155	**513	**0	**11781	**30	12370	16123

*These totals do not include reported official landings of all countries.

**Preliminary reported landings.

NA = not available.

Summary of the assessment

Table 10   Sole in Subarea 4. Assessment summary. Weights are in tonnes. 'High' and 'Low' are 2 standard errors (approximately 95% confidence intervals).

Year	Recruitment age 1 thousands	High	Low	SSB tonnes	High	Low	Wanted Catch tonnes	Unwanted catch * tonnes	F ages 2-6	High	Low
1957	133586	157780	113215	62970	70918	55022	12067		0.21	0.25	0.168
1958	118413	141127	99368	65698	73524	57872	14287		0.22	0.25	0.192
1959	442829	525378	373296	68439	75878	61000	13832		0.24	0.27	0.21
1960	41904	50109	35033	68968	76176	61760	18620		0.26	0.30	0.23
1961	69102	82692	57706	102554	113288	91812	23566		0.30	0.33	0.27
1962	11006	13107	9242	86468	95311	77627	26877		0.34	0.38	0.30
1963	12735	15343	10570	70850	78098	63602	26164		0.34	0.38	0.29
1964	602766	739981	490716	52098	58468	45728	11342		0.30	0.34	0.27
1965	147946	184193	118926	41059	47244	34874	17043		0.28	0.32	0.24
1966	54857	70962	42366	108191	124445	91935	33340		0.30	0.35	0.26
1967	87350	116541	65513	103223	114496	91944	33439		0.38	0.42	0.33
1968	126355	168771	94627	90639	99873	81405	33179		0.48	0.54	0.42
1969	90175	122013	66711	70546	77938	63154	27559		0.55	0.62	0.48
1970	202188	273397	149540	64468	71802	57134	19685		0.55	0.61	0.49
1971	55491	72436	42512	55752	62245	49259	23652		0.52	0.59	0.45
1972	110079	143120	84674	63768	71655	55881	21086		0.52	0.58	0.46
1973	150542	192918	117475	47238	52624	41852	19309		0.54	0.59	0.48
1974	126237	158797	100370	46738	52195	41281	17989		0.55	0.61	0.49
1975	59910	76267	47099	48240	53640	42840	20773		0.52	0.58	0.47
1976	135636	172781	106534	46192	50928	41456	17326		0.48	0.53	0.43
1977	165074	209107	130275	36520	39757	33283	18003		0.46	0.51	0.40
1978	62074	79665	48360	42090	46347	37833	20280		0.46	0.51	0.41
1979	18378	23319	14483	51612	57554	45670	22598		0.50	0.55	0.45
1980	192025	246077	149732	40029	43793	36265	15807		0.53	0.59	0.48
1981	227767	303143	171106	26438	28554	24322	15403		0.56	0.61	0.51
1982	203001	271088	152025	39534	45281	33787	21579		0.58	0.64	0.52
1983	194315	254562	148257	49678	56755	42601	24927		0.60	0.67	0.53
1984	92609	119680	71641	50063	55946	44180	26839		0.62	0.68	0.56
1985	114664	143186	91867	47072	52710	41434	24248		0.62	0.68	0.56
1986	171169	214649	136385	38707	42227	35187	18201		0.60	0.66	0.54
1987	84358	104816	67917	35217	38657	31777	17368		0.55	0.60	0.51
1988	662255	807989	542366	42986	48293	37679	21590		0.51	0.56	0.45
1989	130468	159730	106592	38033	41443	34623	21805		0.48	0.53	0.43
1990	250123	305429	204951	120762	138934	102586	35120		0.47	0.52	0.43
1991	91004	111032	74640	90560	101035	80087	33513		0.49	0.54	0.44
1992	450654	560374	362087	90815	98986	82644	29341		0.52	0.56	0.47
1993	88517	111469	70298	60068	64997	55139	31491		0.55	0.59	0.50
1994	64306	80660	51226	85544	96531	74557	33002		0.58	0.64	0.52
1995	110938	139687	88154	62538	68852	56224	30467		0.61	0.66	0.56
1996	73770	92865	58636	38419	41643	35195	22651		0.64	0.68	0.59
1997	323391	408938	255935	32185	35349	29021	14901		0.66	0.71	0.60
1998	154837	198916	120495	24500	26795	22205	20868		0.66	0.71	0.61
1999	120138	151206	95378	50473	58883	42063	23475		0.66	0.71	0.60
2000	138983	170734	113113	41738	46976	36500	22641		0.64	0.71	0.58
2001	69884	85393	57238	33990	37205	30775	19944		0.62	0.66	0.57
2002	211702	256362	174845	34007	37577	30437	16945	1712	0.59	0.64	0.54
2003	97264	117909	80204	26853	29201	24505	17920	1364	0.57	0.63	0.52
2004	54509	66205	44869	39733	44238	35228	18757	2353	0.56	0.61	0.52
2005	51612	61457	43386	32306	35663	28949	16355	1341	0.55	0.60	0.50
2006	183551	217751	154646	25407	27366	23448	12594	994	0.51	0.56	0.46
2007	66759	79223	56274	18029	19422	16636	14635	871	0.46	0.50	0.42
2008	74905	88903	63114	34538	38581	30495	14071	545	0.43	0.47	0.39

Year	Recruitment age 1 thousands	High	Low	SSB tonnes	High	Low	Wanted Catch tonnes	Unwanted catch * tonnes	F ages 2-6	High	Low
2009	99144	119446	82238	31239	34245	28233	13952	1261	0.42	0.47	0.38
2010	228454	275533	189385	30900	33733	28067	12603	2246	0.44	0.49	0.39
2011	229017	276039	190176	29984	33249	26719	11485	1703	0.44	0.50	0.37
2012	58348	71408	47660	37528	42642	32414	11602	2528	0.39	0.45	0.32
2013	111226	139986	88318	45170	52129	38211	13137	2119	0.32	0.38	0.25
2014	219372	287938	167293	42460	50247	34673	13060	1568	0.26	0.32	0.20
2015	152536	208939	111324	43907	52808	35006	12867	1763	0.23	0.28	0.176
2016	65144	96452	43967	57983	69725	46241	14127	1220	0.22	0.27	0.164
2017	89941	166122	48704	58895	71933	45857	12370	1250	0.22	0.29	0.144
2018	108555**			58012							

* Unwanted catch values include discards and BMS landings from 2016 onwards
** RCT3 estimate

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