

## Whiting (*Merlangius merlangus*) in Division 3.a (Skagerrak and Kattegat)

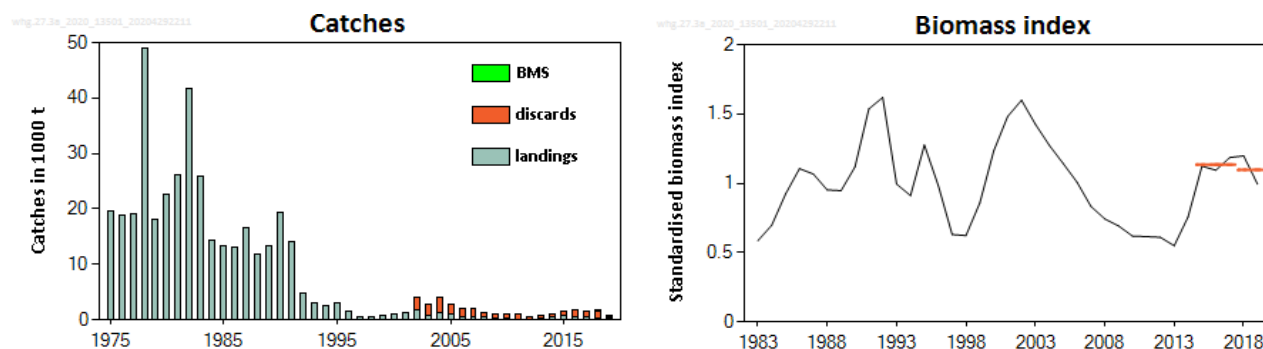
### ICES advice on fishing opportunities

**Please note: The present advice replaces the advice given in June 2019 for catches in and 2021.**

ICES advises that when the precautionary approach is applied, catches in each of the years 2021 and 2022 should be no more than 929 tonnes.

### Stock development over time

Catches have been relatively low in recent years after a substantial industrial fishery ceased in the mid-1990s. The stock-size indicator has been fluctuating and is now close to the long-term mean.



**Figure 1** Whiting in Division 3.a. Summary of the stock assessment. Left: ICES estimates of landings, including industrial bycatches (IBC) and discards. Landings below minimum conservation reference size (BMS) are those officially reported. Discard data have been available since 2002 and BMS data since 2018. Right: stock-size indicator of stock biomass from a combination of NS-IBTS (Q1, Q3) BITS (Q1, Q4) and the Danish national surveys targeting cod (Q4) and sole (Q4). The red horizontal lines show the mean stock indicators for 2018–2019 and 2015–2017.

### Stock and exploitation status

ICES cannot assess the stock and exploitation status relative to the maximum sustainable yield (MSY) and the precautionary approach (PA) reference points because the reference points are undefined.

**Table 1** Whiting in Division 3.a. State of the stock and the fishery relative to reference points.

		Fishing pressure			Stock size					
		2017	2018	2019	2017	2018	2019			
Maximum sustainable yield	FMSY	?	?	?	Unknown	MSY Btrigger	?	?	?	Undefined
Precautionary approach	Fpa,Flim	?	?	?	Unknown	Bpa,Blim	?	?	?	Undefined
Management plan	FMGT	—	—	—	Not applicable	BMGT	—	—	—	Not applicable
Qualitative evaluation	-	?	?	?	Unknown	-	↗	→	↘	Decreasing

### Catch scenarios

The ICES framework for category 3 stocks was applied (ICES, 2012). The index of stock size is derived from the combination of four surveys: the North Sea International Bottom Trawl Survey (NS-IBTS, Q1 and Q3), the Baltic International Trawl Survey (BITS, Q1 and Q4), and two Danish national surveys targeting cod and sole (Q4). The advice is based on the ratio of the mean of the last two index values (Index A) and the mean of the three preceding values (Index B), multiplied by the average catch from the period 2010–2019 (1203 tonnes).

The index is estimated to have decreased by less than 20%; thus, the uncertainty cap was not applied.

The stock status relative to candidate reference points is unknown; therefore, the precautionary buffer was applied to the advice.

The discard rate is 74% of the total catch.

**Table 2** Whiting in Division 3.a. The basis for the catch scenarios.\*

Index A (2018–2019)		1.10
Index B (2015–2017)		1.13
Index ratio (A/B)		0.97
Uncertainty cap	Not applied	-
Average catch for 2010–2019		1203 tonnes
Discard rate for 2010–2019		0.74
Precautionary buffer	Applied	0.80
Catch advice**		929 tonnes
Projected landings corresponding to advice***		242 tonnes
% advice change^		+132%

\*The figures in the table are rounded. Calculations were done with unrounded inputs and computed values may not match exactly when calculated using the rounded figures in the table.

\*\* [Average catch] × [index ratio] × [precautionary buffer].

\*\*\* [Average catch] × [index ratio] × [precautionary buffer] × [1 – discard rate].

^Advice value for 2021 relative to the advice value for 2020 (400 tonnes).

The change in the advice is due to a change in the basis of the advice from category 5 (stocks without the assessment) to category 3 (trend-based advice), following the benchmark in 2020 (ICES, 2020a).

### Basis of the advice

**Table 3** Whiting in Division 3.a. The basis of the advice.

Advice basis	Precautionary approach.
Management plan	ICES is not aware of any agreed precautionary management plan for whiting in this area.

### Quality of the assessment

Whiting in Division 3.a was benchmarked in April 2020 (ICES, 2020a). The main conclusion of the benchmark was to raise the stock to ICES category 3 and provide advice based on the trends of a combined biomass index. The new index was calculated using four bottom trawl surveys in the area.

It was not possible to conduct an analytical assessment for the stock. A possible reason could be an unknown amount of stock mixing with whiting in Subarea 4 and the western Baltic. Linkages between this stock and the neighbouring whiting stocks remain a source of uncertainty.

### Issues relevant for the advice

Whiting in Division 3.a are caught as bycatch in demersal fisheries and are mostly discarded. Since 2018, the stock is fully under the EU landing obligation. Below minimum size (BMS) landings of whiting reported to ICES are currently much lower than the estimates of discards, which in 2019 comprised 78% of the total catch based on catch monitoring programmes.

### Reference points

No reference points are defined for this stock.

## Basis of the assessment

**Table 4** Whiting in Division 3.a. Basis of the assessment and advice.

ICES stock data category	3 (ICES, 2019).
Assessment type	Survey-based trends (ICES, 2020a).
Input data	NS-IBTS-Q1, NS-IBTS-Q3, BITS-Q1, BITS-Q4, Danish cod survey (Q4), and Danish sole survey (Q4). Commercial catches (international landings and discards; ICES, 2020b).
Discards and bycatch	Used to provide advice. Discard information is available from 2002.
Indicators	None.
Other information	This stock was benchmarked in 2020 (ICES, 2020a).
Working group	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK)

## Information from stakeholders

There is no additional available information for this stock.

## History of the advice, catch, and management

**Table 5** Whiting in Division 3.a. ICES advice and official landings. All weights are in tonnes.

Year	ICES advice/single-stock exploitation boundaries**	Catch corresponding to advice	Landings corresponding to advice	Agreed TAC	ICES landings*	ICES catches*
1987	Precautionary TAC	-		17000	16657	
1988	Precautionary TAC	-		17000	11764	
1989	Precautionary TAC	-		17000	13283	
1990	Precautionary TAC	-		17000	19423	
1991	TAC	-		17000	14041	
1992	No advice	-		17000	4921	
1993	Precautionary TAC	-		17000	3047	
1994	If required, precautionary TAC	-		17000	2536	
1995	If required, precautionary TAC	-		15200	3090	
1996	If required, precautionary TAC	-		15200	1493	
1997	If required, TAC equal to recent catches	-		15200	414	
1998	No advice			15200	486	
1999	TAC, average period 1993–1996	6000		8000	858	
2000	TAC, average period 1996–1998	1500		4000	992	
2001	TAC, average period 1996–1998	1500		2500	1184	
2002	TAC, average period 1996–1998	1500		2000	1669	4042
2003	TAC, average period 1996–1998	1500		1500	839	2676
2004	TAC, average period 1996–1998	1500		1500	1298	4080
2005	Average period 1996–1998	1500		1500	1048	2673
2006	Average period 1996–1998	1500		1500	578	2075
2007	Average period 1996–1998	1500		1500	429	1953
2008	Recent average catches	1050		1050	407	1201
2009	Same advice as last year	1050		1050	289	1067
2010	Same advice as last year	1050		1050	248	1050
2011	No advice	-		1050	114	1050
2012	Reduce catch	-		1050	63	440
2013	20% Reduction in catches (average of the last 3 years)	< 500		1050	183	870
2014	No new advice, same as for 2013	< 500		1050	439	1088
2015	No new advice, same as for 2014	< 500	< 212	1050	712	1531

Year	ICES advice/single-stock exploitation boundaries**	Catch corresponding to advice	Landings corresponding to advice	Agreed TAC	ICES landings*	ICES catches*
2016	Precautionary approach (same advised catch value as given for 2015)	≤ 500		1050	543	1850
2017	Precautionary approach (same advised catch value as given for 2015)	≤ 500		1050	431	1615
2018	Precautionary approach	≤ 400		1050	372	1729 <sup>^</sup>
2019	Precautionary approach	≤ 400		1660	179	806 <sup>^</sup>
2020	Precautionary approach	≤ 400		1660		
2021	Precautionary approach	≤ 929				
2022	Precautionary approach	≤ 929				

\* Includes bycatch in small-mesh industrial fishery.

\*\* Single-stock boundary and the exploitation of this stock should be conducted in the context of mixed fisheries, protecting stocks outside safe biological limits.

<sup>^</sup> Since 2018, discards include BMS landings.

### History of the catch and landings

**Table 6** Whiting in Division 3.a. Catch distribution by fleet in 2019 as estimated by ICES.

Catch (2019)	Landings		Discards
	Human consumption 58%	Total industrial (Denmark) 42%	
806 tonnes	179 tonnes		627 tonnes

**Table 7** Whiting in Division 3.a. History of commercial catch and landings for each country participating in the fishery are presented together with ICES estimates of catch and discards. All weights are in tonnes.

Year	Denmark			Norway	Sweden	Others	Landings	ICES estimate of discards	ICES estimate of catch
	Human consumption	Industrial bycatch	Total						
1975	-	-	19018	57	611	4	19690		
1976	-	-	17870	48	1002	48	18968		
1977	-	-	18116	46	975	41	19178		
1978	-	-	48102	58	899	32	49091		
1979	-	-	16971	63	1033	16	18083		
1980	-	-	21070	65	1516	3	22654		
1981	1027	23915	24942	70	1054	7	26073		
1982	1183	39758	40941	40	670	13	41664		
1983	1311	23505	24816	48	1061	8	25933		
1984	1036	12102	13138	51	1168	60	14417		
1985	557	11967	12524	45	654	2	13225		
1986	484	11979	12463	64	477	1	13005		
1987	443	15880	16323	29	262	43	16657		
1988	391	10872	11263	42	435	24	11764		
1989	917	11662	12579	29	675	-	13283		
1990	1016	17829	18845	49	456	73	19423		
1991	871	12463	13334	56	527	97	14041		
1992	555	3340	3895	66	959	1	4921		
1993	261	1987	2248	42	756	1	3047		
1994	174	1900	2074	21	440	1	2536		
1995	85	2549	2634	24	431	1	3090		
1996	55	1235	1290	21	182	-	1493		
1997	38	264	302	18	94	-	414		
1998	35	354	389	16	81	-	486		
1999	37	695	732	15	111	-	858		

Year	Denmark			Norway	Sweden	Others	Landings	ICES estimate of discards	ICES estimate of catch
	Human consumption	Industrial bycatch	Total						
2000	59	777	836	17	138	1	992		
2001	61	970	1031	27	126	+	1184		
2002	164	1347	1510	23	134	1	1669	2373	4042
2003	104	641	745	20	72	2	839	1837	2676
2004	252	954	1206	17	74	1	1298	2782	4080
2005	110	853	962	13	73	0	1048	1625	2673
2006	71	410	481	11	86	0	578	1497	2075
2007	57	275	332	14	82	1	429	1524	1953
2008	54	286	340	14	52	0	407	795	1201
2009	73	172	245	10	34	0	289	778	1067
2010	49	158	207	10	30	1	248	803	1050
2011	40	44	85	8	20	0	114	937	1050
2012	30	7	37	16	10	1	63	377	440
2013	29	130	159	8	15	1	183	687	870
2014	49	346	395	5	37	2	439	649	1088
2015	75	570	645	6	56	5	712	820	1531
2016	129	334	463	13	62	5	543	1307	1850
2017	189	193	382	8	33	7	431	1185	1615
2018	175	156	332	5	34	2	372	1357*	1729*
2019	78	75	153	5	20	1	179	627*	806*

\* From 2018, discards include BMS landings.

### Summary of the assessment

**Table 8** Whiting in Division 3.a. Summary of the assessment. Combined biomass index and landings, discards, BMS landings, and total catch. All weights are in tonnes.

Year	Biomass index	Landings	Discards	Official BMS landings	Catch
1975		19690			
1976		18968			
1977		19178			
1978		49091			
1979		18083			
1980		22654			
1981		26073			
1982		41664			
1983	0.58	25933			
1984	0.70	14417			
1985	0.92	13225			
1986	1.11	13005			
1987	1.07	16657			
1988	0.95	11764			
1989	0.95	13283			
1990	1.12	19423			
1991	1.54	14041			
1992	1.62	4921			
1993	0.99	3047			
1994	0.91	2536			
1995	1.28	3090			
1996	0.98	1493			
1997	0.63	414			
1998	0.62	486			

Year	Biomass index	Landings	Discards	Official BMS landings	Catch
1999	0.86	858			
2000	1.23	992			
2001	1.48	1184			
2002	1.60	1669	2373		4042
2003	1.43	839	1837		2676
2004	1.27	1298	2782		4080
2005	1.14	1048	1625		2673
2006	1.01	578	1497		2075
2007	0.83	429	1524		1953
2008	0.74	407	795		1201
2009	0.69	289	778		1067
2010	0.62	248	803		1050
2011	0.62	114	937		1050
2012	0.61	63	377		440
2013	0.55	183	687		870
2014	0.76	439	649		1088
2015	1.12	712	820		1531
2016	1.09	543	1307		1850
2017	1.19	431	1185		1615
2018	1.2	372	1356*	2	1729
2019	0.99	179	624*	3	806

\*From 2018, discards minus BMS landings from EU fleets officially reported in logbooks.

## Sources and references

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*Recommended citation:* ICES. 2020. Whiting (*Merlangius merlangus*) in Division 3.a (Skagerrak and Kattegat). *In* Report of the ICES Advisory Committee, 2020. ICES Advice 2020, whg.27.3a. <https://doi.org/10.17895/ices.advice.6103>.