9.4.4 Blue whiting combined stock (Subareas I–IX, XII, and XIV)

State of the stock

Spawning biomass in relation to precautionary limits	Fishing mortality in relation to precautionary limits	Fishing mortality in relation to highest yield	Fishing mortality in relation to agreed target	Comment
full reproductive capacity	harvested unsustainably	Overexploited	Above target	

Based on the most recent estimates of fishing mortality and SSB, ICES classifies the stock as having full reproductive capacity, but being harvested unsustainably. SSB increased to a historical high in 2003 but has decreased since 2004. Although the estimates of SSB and fishing mortality are uncertain, the estimate of SSB appears to be well above $\mathbf{B}_{pa}$. The estimated fishing mortality is well above $\mathbf{F}_{pa}$, and is estimated to have reached $\mathbf{F}_{lim}$ in 2004. Recruitment in the last decade appears to be at a much higher level than earlier, but indices from surveys indicate that the 2005 year class is at the pre-1996 level.

Management objectives

In December 2005, the coastal states (EU, Norway, Iceland, and Faroe Islands) agreed on a sharing arrangement for the blue whiting stock. This arrangement provides for catches in 2006 of 2 million tonnes, allocated as follows: EU 30.5%, Faroe Islands 26.125%, Norway 25.745%, and Iceland 17.63%. Russia will be accommodated by transfers from some of the coastal states and additional catches in the NEAFC regulatory area. Details of the arrangement are specified in Annex I and Annex II below:

ANNEX I. MANAGEMENT OF THE BLUE WHITING STOCK IN THE NORTHEAST ATLANTIC

1. *A Delegation of the European Community, the Faroe Islands, Iceland and Norway met in Oslo on 15 and 16 December 2005 to consult on the management of the Blue Whiting stock in the North-East Atlantic.*
2. *The Delegations agreed to recommend to their respective authorities the arrangement for the regulation of the fisheries of Blue Whiting in 2006 and subsequent years set out in Annex I to this Agreed Record. They also agreed to recommend to their respective authorities the multi-annual management arrangement set out in Annex II.*
3. *The Delegations agreed to recommend that, in 2006, ICES be requested to evaluate, as soon as possible, whether the multi-annual management arrangement as set out in Annex II is in accordance with the precautionary approach and to make the results of this evaluation available to the Parties. The Delegations agreed to review the multi-annual management arrangement on the basis of evaluation by ICES.*
4. *This Agreed Record, including bilateral arrangements related to the implementation thereof, shall be applied provisionally from 1 January 2006 and enter into force when all Parties have notified each other of the completion of their necessary procedures.*
5. *For subsequent years, Delegations agreed to allocate allowable catches in the proportions that are set out in paragraph 1 of Annex I.*
6. *Unless one or more of the Parties notifies its withdrawal not later than by the end of June, the Agreed Record shall be renewed annually, including Annexes, in which years, maximum catch limit and quotas are updated.*
7. *The Delegations agreed to inform the NEAFC Secretariat about the regulatory measures they intend to take on the basis of this Agreed Record, for the fisheries of Blue Whiting in 2006 and in subsequent years.*

ANNEX II. ARRANGEMENT FOR THE MULTI-ANNUAL MANAGEMENT OF THE BLUE WHITING STOCK

1. *The Parties agree to implement a multi-annual management arrangement for the fisheries on the Blue Whiting stock which is consistent with the precautionary approach, aiming at constraining harvest within safe biological limits, protecting juveniles, and designed to provide for sustainable fisheries and a greater potential yield, in accordance with advice from ICES.*
2. *The management targets are to maintain the Spawning Stock Biomass (SSB) of the Blue Whiting stock at levels above 1.5 million tonnes (Blim) and the fishing mortality rates at levels of no more than 0.32 (Fpa) for appropriate age groups as defined by ICES.*
3. *For 2006, the Parties agree to limit their fisheries of Blue Whiting to a total allowable catch of no more than 2 million tonnes.*
4. *The Parties recognise that a total outtake by the Parties of 2 million tonnes in 2006 will result in a fishing mortality rate above the target level as defined in paragraph 2. Until the fishing mortality has reached a level*

of no more than 0.32, the Parties agree to reduce their total allowable catch of Blue Whiting by at least 100,000 tonnes annually.

5. *When the target fishing mortality rate has been reached, the Parties shall limit their allowable catches to levels consistent with a fishing mortality rate of no more than 0.32 for appropriate age groups as defined by ICES.*
6. *Should the SSB fall below a reference point of 2.25 million tonnes (Bpa), either the fishing mortality rate referred to in paragraph 5 or the tonnage referred to in paragraph 4 shall be adapted in the light of scientific estimates of the conditions then prevailing. Such adaptation shall ensure a safe and rapid recovery of the SSB to a level in excess of 2.25 million tonnes.*
7. *This multi-annual management arrangement shall be reviewed by the Parties on the basis of ICES advice.*

ICES welcomes the development of an agreed management plan for blue whiting. ICES evaluated through simulations the current formulation of the harvest rule inferred by the management plan and a description of the results is provided in the answer to the Special Request (see Section 9.3.2.4). ICES concludes that the management plan is not precautionary in its current form. In Section 9.3.2.4 some guidelines are provided on how it could be improved. ICES encourages the Parties to continue their efforts in developing and refining a management plan consistent with the precautionary approach.

Reference points

(established in 1998)

	ICES considers that:	**ICES proposed that:**
Limit reference points	$\mathbf{B}_{lim}$ is 1.5 million t.	$\mathbf{B}_{pa}$ be set at 2.25 million t.
	$\mathbf{F}_{lim}$ is 0.51.	$\mathbf{F}_{pa}$ be set at 0.32.
Target reference points		$\mathbf{F}_{y}$ is not identified.

Yield and spawning biomass per Recruit
F-reference points:

	Fish Mort Ages 3-7	Yield/R	SSB/R
Average last 3 years	0.48	0.06	0.15
F0.1	0.20	0.05	0.27
Fmed	0.41	0.05	0.17

Fmax is not well-defined

Technical basis:

$\mathbf{B}_{lim}$: $\mathbf{B}_{loss}$	$\mathbf{B}_{pa}$: $\mathbf{B}_{lim}$ exp(1.645*σ), with σ = 0.25.
$\mathbf{F}_{lim}$: $\mathbf{F}_{loss}$	$\mathbf{F}_{pa}$: $\mathbf{F}_{med}$ (1998).
	$\mathbf{F}_{y}$:

Single-stock exploitation boundaries

Exploitation boundaries in relation to existing management plans

The maximum catch in 2007 corresponding to the existing management plan is 1.9 million tonnes, which is expected to leave the spawning stock biomass at 2.86 million t, i.e. above $\mathbf{B}_{pa}$ in 2008, but will lead to an F above $\mathbf{F}_{lim}$ in 2007.

Exploitation boundaries in relation to high long-term yield, low risk of depletion of production potential and considering ecosystem effects

The current fishing mortality, estimated at 0.48, is above the fishing mortalities that are expected to lead to high long-term yields and low risk of depletion of production potential ($\mathbf{F}_{0.1}$ = 0.20). This indicates that long-term yield is expected to increase at fishing mortalities well below the historic values. Fishing at such a lower mortality is expected to lead to higher SSB and would therefore lower the risk of the stock being outside precautionary limits.

Exploitation boundaries in relation to precautionary limits

Fishing at $\mathbf{F}_{pa}$ implies catches of less than 980 thousand t in 2007. This will result in a spawning stock biomass in 2008 well above $\mathbf{B}_{pa}$.

Conclusion on exploitation boundaries

The proposed management plan is not considered in accordance with the precautionary approach. ICES concludes that the exploitation boundaries for this stock should be based on the precautionary limits.

Short-term implications

Outlook for 2007

Basis: Catch(2006) = 2.10 Mt (Catch constraint, best estimate); F(2006) = 0.61; SSB(2006) = 4.8 Mt.

Rationale	Catch (2007)[1]	Basis	F (2007)	SSB (2007)	SSB (2008)	%SSB change
Zero catch	0	F=0	0	3.7	4.6	24
Status quo	1.67	$\mathbf{F}_{sq}$	0.61	3.7	3.1	-16
Management Plan	1.90	100 000 t reduction from TAC for 2006	0.73	3.7	2.9	-22
Management Plan	2.00	100 000 t reduction from TAC for 2006 and Russian catches of 100 000t	0.77	3.7	2.8	-24
Precautionary limits	0.10	$\mathbf{F}_{pa}$ * 0.1	0.03	3.7	4.5	18
	0.26	$\mathbf{F}_{pa}$ * 0.25	0.08	3.7	4.4	14
	0.52	$\mathbf{F}_{pa}$ * 0.50	0.16	3.7	4.2	10
	0.77	$\mathbf{F}_{pa}$ * 0.75	0.24	3.7	3.9	5
	0.90	$\mathbf{F}_{pa}$ * 0.90	0.29	3.7	3.8	3
	0.98	$\mathbf{F}_{pa}$	0.32	3.7	3.7	0
	1.06	$\mathbf{F}_{pa}$ * 1.1	0.35	3.7	3.6	-3
	1.18	$\mathbf{F}_{pa}$ * 1.25	0.4	3.7	3.5	-5

[1] Weights in million tonnes.
Shaded scenarios are not considered consistent with the precautionary approach.
The fishing mortality applied according to the agreed management plan (F(management plan)) is 0.32, which is $\mathbf{F}_{pa}$.

Management considerations

The evaluation of the management plan by ICES indicates that TACs set at 100 000 tonnes below the TAC of the previous year (as implied by the management plan) have a high probability of SSB falling below $\mathbf{B}_{pa}$ in the short term when smaller year classes come in. The management plan does not include the additional quota set for the NEAFC regulatory areas.

Total landings in 2005 were 2.0 million t. Recent large landings are supported by the current high recruitments, and are much higher than in earlier years. Most of the catches are taken in the spawning and post-spawning areas along the continental edge, and in the Norwegian Sea. In the latter, the share of the total catch has increased from 5% in the mid-nineties to about 40% in 2003 and 2004. A larger proportion of the catch there consists of young fish. In 2005, the fishery in the Norwegian Sea was reduced to about half of the 2004 fishery (Figure 9.4.4.3).

The fishing effort is much above what the stock can sustain. At present, only a few year classes support the fishery and the spawning biomass, which makes the stock vulnerable to overexploitation. In this respect, there is an urgent need for a reduction in fishing mortality. The spawning biomass is decreasing and is expected to decrease further under the existing management plan.

Factors affecting the fisheries and the stock

In 2002 to 2005, and in the absence of agreements on TACs and their allocation, the EU, Faroe Islands, Iceland, Norway, and the Russian Federation implemented unilateral measures to limit blue whiting catches. In December 2005 the EU, Faroe Islands, Iceland, Norway agreed to a management plan and sharing arrangement, and total catches of 2 million tonnes for 2006. Russia will be accommodated by transfers from some of the other countries and additional catches in the NEAFC area.

Changes in fishing technology and fishing patterns

As stated above, the fishery has moved further north in 2003 and 2004 and this has resulted in an increase of the proportion of the juveniles in the catch.

Scientific basis

Data and methods

Five assessment models were used to explore the data for blue whiting. All models utilized catch-at-age data from commercial catches from 1981 onwards. Several survey time-series were available (1990–2005), but only one of the surveys cover almost the entire distribution area of the stock. Observations from two survey fleets are used in the assessment, namely the Norwegian acoustic survey on the spawning grounds 1991–2006 and the Norwegian Sea International ecosystem survey 2000–2006.

The final assessment was done using a stochastic multi-species model (SMS). It showed the most consistency in retrospective pattern and compared to the other models regarding the results from last year.

Uncertainties in assessment and forecast

The various models applied gave similar trends but a large divergence in the estimation of SSB and fishing mortality for the most recent years. Various model formulations could lead to estimates of SSB in 2005 varying from approximately 4 to 7 million tonnes.

Limited information was available on discarding. However, discarding is considered to be minor and is not included in the assessment.

Comparison with previous assessment and advice

The assessments show marked upward revisions in SSB each year and downward revisions of fishing mortality. (Figure 9.4.4.4). The new assessment model used for this stock is expected to be less sensitive to retrospective bias because the assessment is largely consistent with exploratory assessments that were carried out last year with that same methodology.

Last year the advice was to limit catches to 1.5 million tonnes in order to achieve a fishing mortality of less than $\mathbf{F}_{pa}$ = 0.32. This year the advice is on a similar basis and corresponds to predicted landings of 980 thousand tonnes. The decrease in predicted landings is due to a small year class entering the fishery, high fishing mortality, and a declining the stock biomass.

Source of information

Report of the Northern Pelagic and Blue Whiting Fisheries Working Group, 24–30 August 2006 (ICES CM 2006/ACFM:34).

Year	ICES Advice	Predicted catch corresp. to advice	Agreed TAC	ACFM catch
1987	TAC for northern areas; no advice for southern areas	950	-	665
1988	TAC for northern areas; no advice for southern areas	832	-	558
1989	TAC for northern areas; no advice for southern areas	630	-	627
1990	TAC for northern areas; no advice for southern areas	600	-	562
1991	TAC for northern areas; no advice for southern areas	670	-	370
1992	No advice	-	-	475
1993	Catch at *status quo* F (northern areas); no assessment for southern areas	490	-	481
1994	Precautionary TAC (northern areas); no assessment for southern areas	485	650[1]	459
1995	Precautionary TAC for combined stock	518	650[1]	579
1996	Precautionary TAC for combined stock	500	650[1]	646
1997	Precautionary TAC for combined stock	540		672
1998	Precautionary TAC for combined stock	650		1125
1999	Catches above 650 000 t may not be sustainable in the long run	650		1256
2000	F should not exceed the proposed $\mathbf{F}_{pa}$	800		1412
2001	F should not exceed the proposed $\mathbf{F}_{pa}$	628		1780
2002	Rebuilding plan	0		1556
2003	F should be less than the proposed $\mathbf{F}_{pa}$	600		2321
2004	Achieve 50% probability that F will be less than $\mathbf{F}_{pa}$	925		2378
2005	Achieve 50% probability that F will be less than $\mathbf{F}_{pa}$	1075		2027
2006	F old management plan	1500	2100[2]	
2007	F should be less than the proposed $\mathbf{F}_{pa}$	980		

Weights in '000 t.
[1]NEAFC proposal for NEAFC regions 1 and 2.
[2] Agreed TAC from four coastal coastal states of 2 million tonnes, and an additional allocation to Russia in the international zone of 100 000 t.

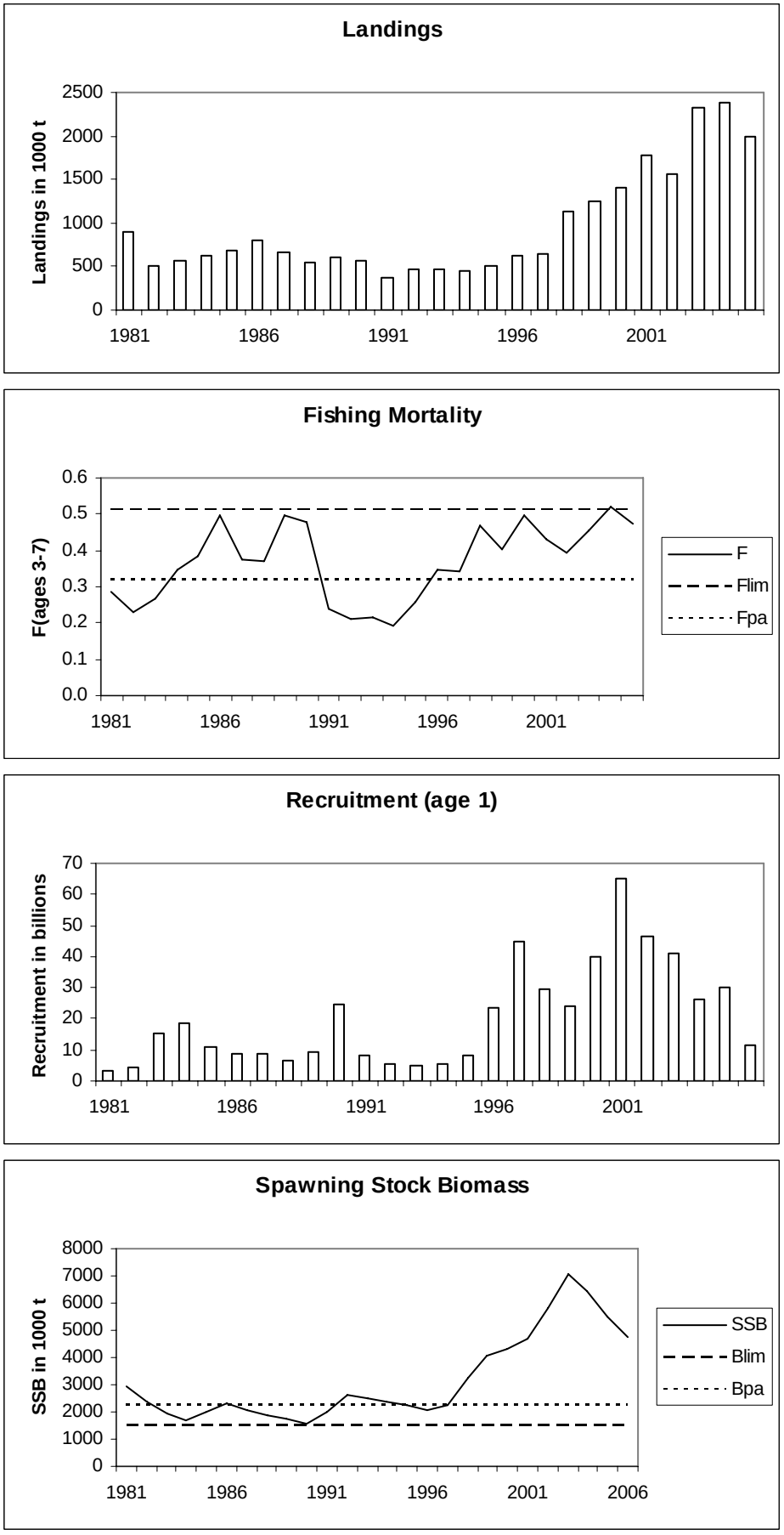
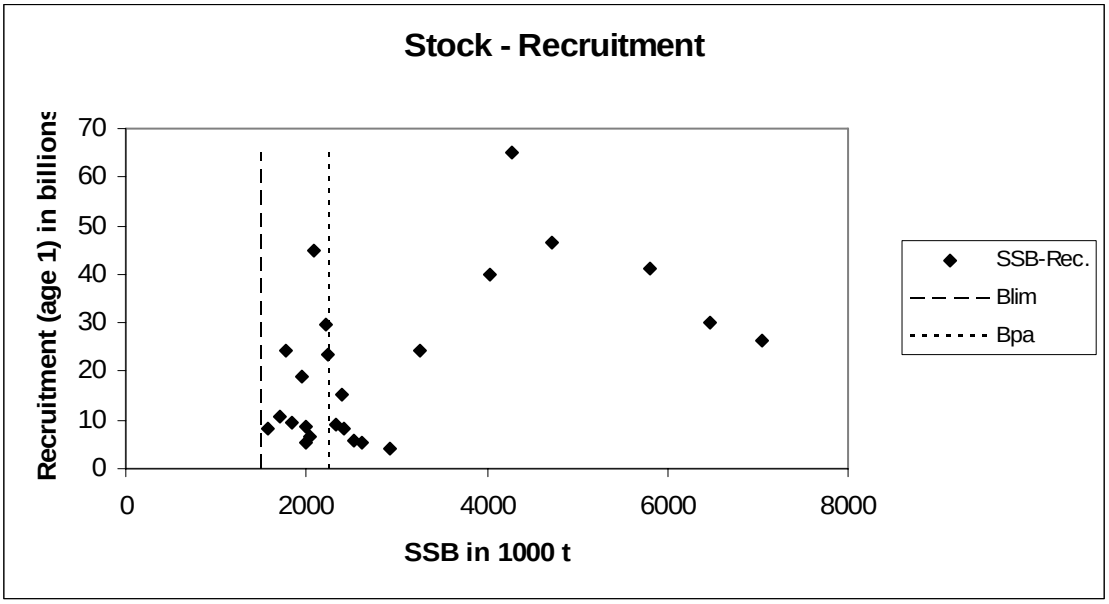
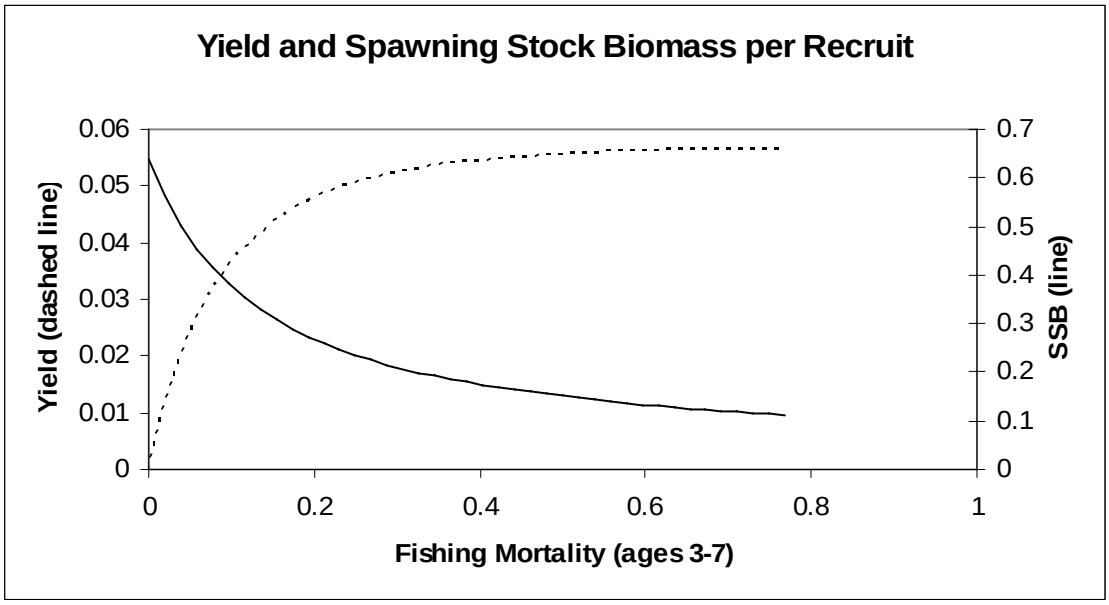

Landings
Landings in 1000 t
2500
2000
1500
1000
500
0
1981
1986
1991
1996
2001
Fishing Mortality
F(ages 3-7)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
1981
1986
1991
1996
2001
F
Flim
Fpa
Recruitment (age 1)
Recruitment in billions
70
60
50
40
30
20
10
0
1981
1986
1991
1996
2001
Spawning Stock Biomass
SSB in 1000 t
8000
7000
6000
5000
4000
3000
2000
1000
0
1981
1986
1991
1996
2001
2006
SSB
Blim
Bpa

Figure 9.4.4.1


Stock - Recruitment
Recruitment (age 1) in billions
70
60
50
40
30
20
10
0
0
2000
4000
6000
8000
SSB in 1000 t
SSB-Rec.
Blim
Bpa


Yield and Spawning Stock Biomass per Recruit
Yield (dashed line)
0.06
0.05
0.04
0.03
0.02
0.01
0
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
SSB (line)
0
0.2
0.4
0.6
0.8
1
Fishing Mortality (ages 3-7)

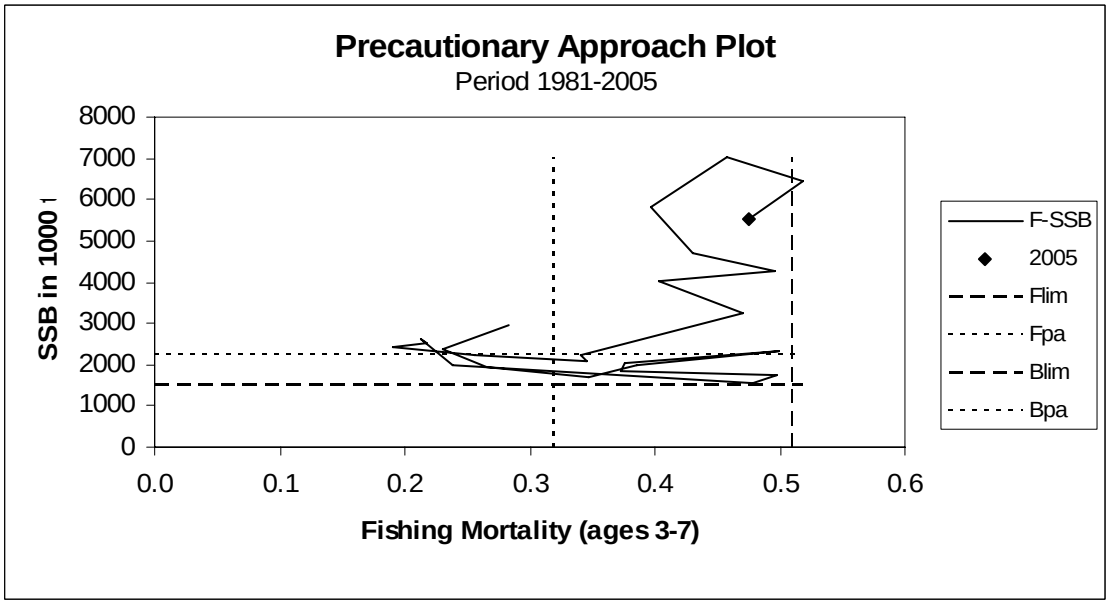

Precautionary Approach Plot
Period 1981-2005
SSB in 1000 t
8000
7000
6000
5000
4000
3000
2000
1000
0
0.0
0.1
0.2
0.3
0.4
0.5
0.6
Fishing Mortality (ages 3-7)
F-SSB
2005
Flim
Fpa
Blim
Bpa

Figure 9.4.4.2

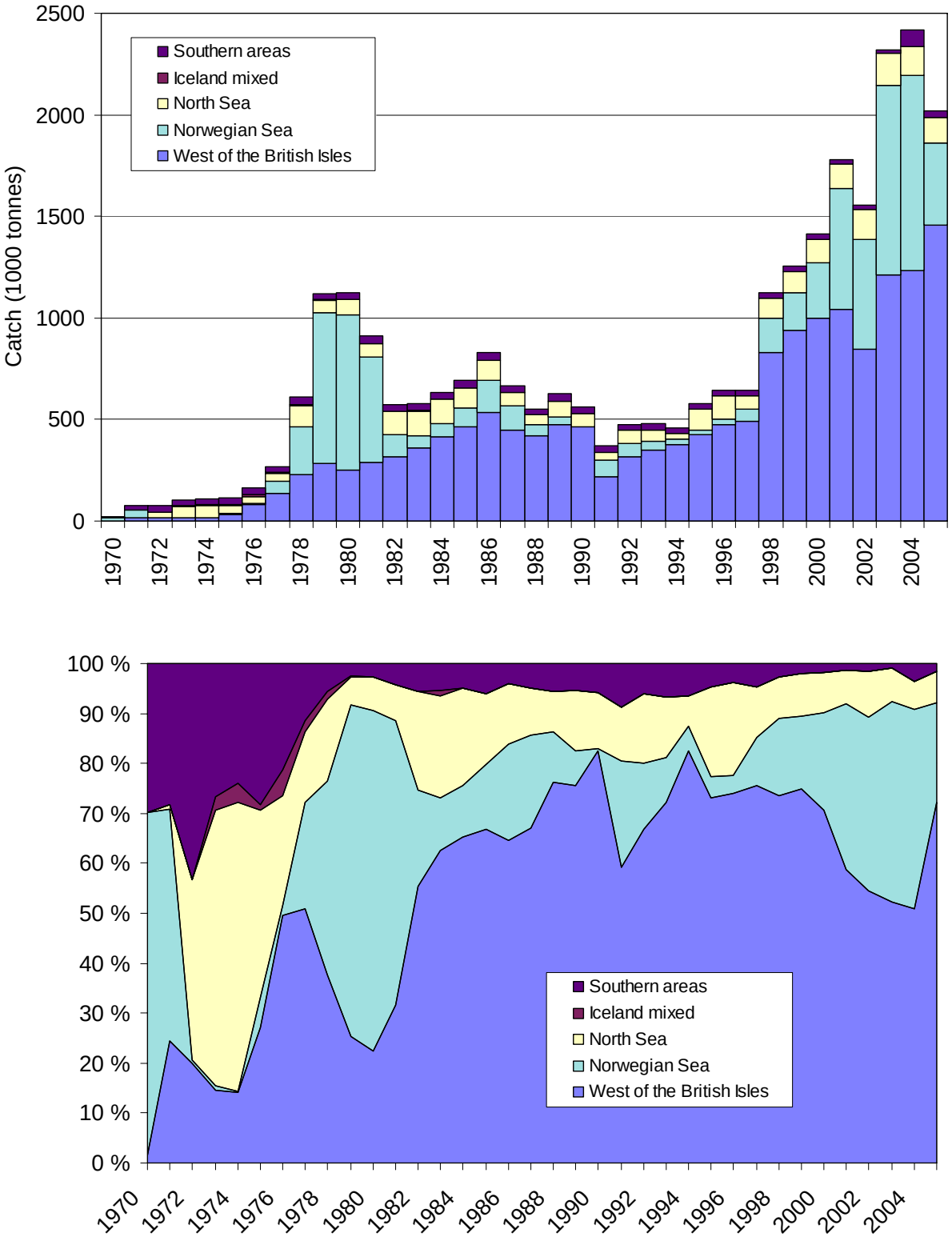


Figure 9.4.4.3. Development of blue whiting fisheries in different Subareas in terms of absolute (top) and relative catches (bottom).

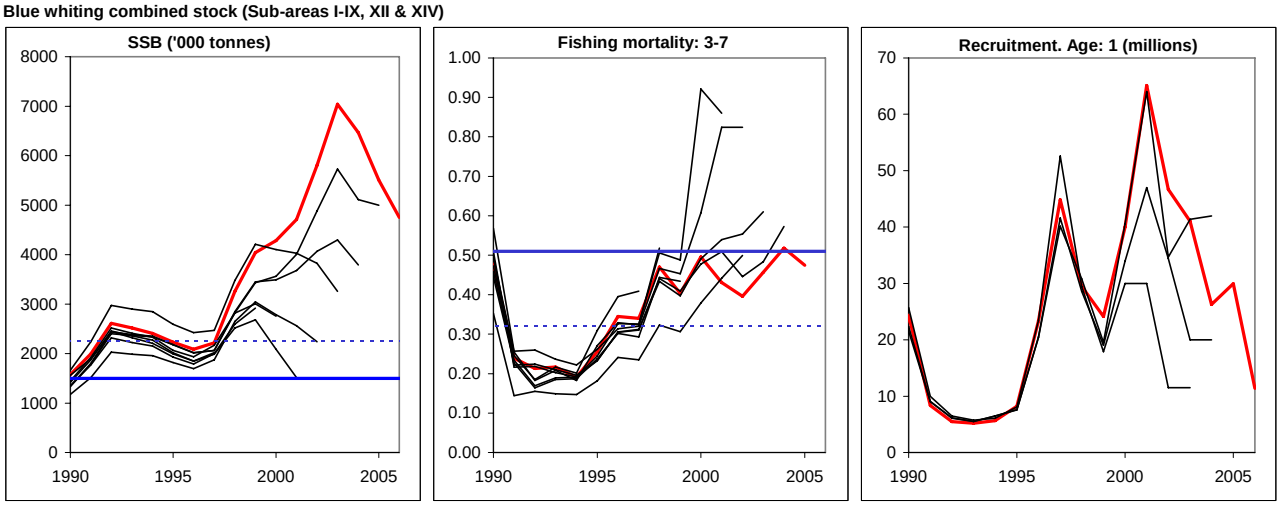


Figure 9.4.4.4 Blue whiting. Historical performance of the assessment. Note that for the recruitment plot, only the years have been included which used the same recruitment age.

Table 9.4.4.1 Landings (tonnes) of BLUE WHITING from the directed fisheries (Sub-areas I and II, Division Va, XIVa and XIVb) 1987–2005, as estimated by the Working Group.

Country	1987	1988	1989 [3]	1990	1991	1992	1993	1994 [2]	1995 [3]	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Denmark	-	-	-	-	-	-	-	-	-	-	-	-	15	7,721	5,723	13,608	38,226	23,437	365
Estonia	-	-	-	-	-	-	-	-	-	377	161	904	-	-	-	-	-		
Faroes	9,290	-	1,047	-	-	-	-	-	-	345	-	44,594	11,507	17,980	64,496	82,977	115,755	109,380	64,639
Germany	1,010	3	1,341	-	-	-	-	2	3	32	-	78	-	-	3117	1,072	813	488	569
Greenland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Iceland	-	-	4,977	-	-	-	-	-	369	302	10,464	68,681 [4]	96,295	155,024	245,814	195,483	312,334	279,811	145,640
Latvia	-	-	-	-	-	-	-	422	-	-	-	-	-	-	-	-			
Netherlands	-	-	-	-	-	-	-	-	72	25	-	63	435	-	5180	906	592	1,365	
Norway [5]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	64,581	100,922	215,075	302,166	9,778
Norway [6]	-	-	-	566	100	912	240	-	-	58	1,386	12,132	5,455	-	28,812	-	-	22167	6,793
Poland	56	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Scotland																		64	
Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	850	57,206	15,794	785
USSR/ Russia [1]	112,686	55,816	35,250	1,540	78,603	61,400	43,000	22,250	23,289	22,308	50,559	51,042	65,932	103,941	173,860	145,649	191,507	166,677	177,008
Total	123,042	55,829	42,615	2,106	78,703	62,312	43,240	22,674	23,733	23,447	62,570	177,494	179,639	284,666	591,583	541,467	931,508	921,349	405,577

[1]) From 1992 only Russia

[2]) Includes Vb for Russia.

[3]) Icelandic mixed fishery in Va.

[4]) include mixed in Va and directed in Vb.

[5]) Directed fishery

[6]) By-catches of blue whiting in other fisheries.

Table 9.4.4.2 Landings (tonnes) of BLUE WHITING from directed fisheries (Division Vb,VIa,b, VIIa,b,c and Sub-area XII) 1987–2005, as estimated by the Working Group.

Country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998 [1)]	1999	2000	2001	2002	2003	2004	2005
Denmark	2.655	797	25	-	-	3.167	-	770	-	269	-	5051	19.625	11.856	18.110	2.141	17.813	44.992	24.731
Estonia	-	-	-	-	-	6.156	1.033	4.342	7754	10.605	5.517	5.416	-	-	-	-	-	[4)]	
Faroes	70.625	79.339	70.711	43.405	10.208	12.731	14.984	22.548	26.009	18.258	22.480	26.328	93.234	129.969	188.464	115.127	208.427	206.078	197.134
France	-	-	2.190	-	-	-	1.195	-	720	6.442	12.446	7.984	6.662	13.481	13.480	14.688	13.365	-	8.046
Germany	3.850	5.263	4.073	1.699	349	1.307	91	-	6.310	6.844	4.724	17.891	3.170	12.655	15.862	15.378	21.866	13.813	22.089
Iceland	-	-	-	-	-	-	-	-	-	-	-	-	64.135	105.833	119.287	91.853	189.159	99.832	119.569
Ireland	3.706	4.646	2.014	-	-	781	-	3	222	1.709	25.785	45635	35.240	25.200	29.854	17.723	22.484	62.730	73.174
Japan	-	-	-	-	-	918	1.742	2.574	-	-	-	-	-	-	-	-	-	-	
Latvia	-	-	-	-	-	10.742	10.626	2.160	-	-	-	-	-	-	-	-	-	-	
Lithauen	-	-	-	-	-	-	2.046	-	-	-	-	-	-	-	-	-	-	-	
Netherlands[2)]	5.627	800	2.078	7.280	17.359	11.034	18.436	21.076	26.703	17.644	23.676	27.884	35.408	46.128	68.415	33.365	45.239	82.520	143.470
Norway	191.012	208.416	258.386	281.036	114.866	148.733	198.916	226.235	261.272	337.434	318.531	519.622	475.004	460.274	399.932	385.495	502.320	486.843	622.981
UK (Scotland)	3.315	5.071	8.020	6.006	3.541	6.849	2.032	4.465	10.583	14.325	33.398	92.383	98.853	42.478	50.147	26.403	27.136	56.326	104.526
Sweden	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10	-	-	
USSR/ Russia [3)]	165.497	121.705	127.682	124.069	72.623	115.600	96.000	94.531	83.931	64.547	68.097	79.000	112.247	141.257	141.549	144.419	163.812	179.400	150.014
Total	446.287	426.037	475.179	463.495	218.946	318.018	347.101	378.704	423.504	478.077	514.654	827.194	943.578	989.131	1.045.100	846.602	1.211.621	1.232.534	1.465.735

[1)] Including some directed fishery also in Division IVa.

[2)] Revised for the years 1987, 1988, 1989, 1992, 1995,1996,1997

[3)] From 1992 only Russia

[4)] Reported to the EU but not to the ICES WGNPBW. (Landings of 19,467 tonnes)

Table 9.4.4.3 Landings (tonnes) of BLUE WHITING from directed fisheries and by-catches caught in other fisheries (Divisions IIIa, IV) 1987–2005, as estimated by the Working Group.

Country	1987	1988	1989	1990	1991	1992	1993 [3]	1994	1995	1996	1997	1998 [2]	1999	2000	2001	2002	2003	2004	2005
Denmark [4]	28.541	18.144	3.632	10.972	5.961	4.438	25.003	5.108	4.848	29.137	9.552	40.143	36.492	30.360	21.995				
Denmark [5]			22.973	16.080	9.577	26.751	16.050	14.578	7.591	22.695	16.718	16.329	8.521	7.749	7.505	35.530	26.896	21.071	16.354
Faroes [4] [6]	7.051	492	3.325	5.281	355	705	1.522	1.794	-	6.068	6.066	-	-	-	60	7.317	5.712	6.864	1.437
Faroes [5] [6]												296	265	42	6.741				3.589
Germany [1]	115	280	3	-	-	25	9	-	-	-	-			-	81	-	36	19	17
Iceland																			307
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4		4	9
Netherlands	-	-	-	20	-	2	46	-	-	-	793			-	-	50	0	0	0
Norway [4]	24.969	24.898	42.956	29.336	22.644	31.977	12.333	3.408	78.565	57.458	27.394	28.814	48.338	73.006	21.804	85.062	117.145	107.311	98.938
Norway [5]															58.182				
Russia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	69	-	-		5.204
Scotland																		35	3
Sweden	2.013	1.229	3.062	1.503	1.000	2.058	2.867	3.675	13.000	4.000	4.568	9.299	12.993	3.319	2.086	17.689	8.326	3.289	2.175
UK	-	100	7	-	335	18	252	-	-	1	-	-	-	-	-	-	65		
Total	62.689	45.143	75.958	63.192	39.872	65.974	58.082	28.563	104.004	119.359	65.091	94.881	106.609	114.476	118.523	145.652	158.180	138.593	128.033

[1]) Including directed fishery also in Division IVa.

[2]) Including mixed industrial fishery in the Norwegian Sea

[3]) Imprecise estimates for Sweden: reported catch of 34265 t in 1993 is replaced by the mean of 1992 and 1994, i.e. 2,867 t, and used in the assessment.

[4]) Directed fishery

[5]) By-catches of blue whiting in other fisheries.

[6]) For the periode 1987-2000 landings figures also include landings from mixed fisheries in Division Vb.

Table 9.4.4.4 Landings (tonnes) of BLUE WHITING from the Southern areas (Sub-areas VIII and IX and Divisions VIIg-k and VIId,e) 1987–2005, as estimated by the Working Group.

Country	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
France																			
Germany	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	600 [2)]	88 [2)]	973	148
Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98 [2)]	96 [2)]	12.659	305
Netherlands	-	-	-	450	10	-	-	-	-	-	-	10 [1)]	-	-	-	3208 [2)]	2471,8 [2)]	11.426	4.313
Norway	4	-	-	-	-	-	-	-	-	-	-			-	-	-	-	39197	
Portugal	9.148	5.979	3.557	2.864	2.813	4.928	1.236	1.350	2.285	3.561	2.439	1.900	2.625	2.032	1.746	1.659	2.651	3.937	5.190
Russia																		685	
Scotland																		603	10
Spain	23.644	24.847	30.108	29.490	29.180	23.794	31.020	28.118	25.379	21.538	27.683	27.490	23.777	22.622	23.218	17.506	13.825	15.612	17.643
UK	23	12	29	13	-	-	-	5	-	-	-	-	-	-	-	-	181		
France	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	784		
Total	32.819	30.838	33.695	32.817	32.003	28.722	32.256	29.473	27.664	25.099	30.122	29.400	26.402	24.654	24.964	23.071	20.097	85.093	27.608

[1)] Directed fisheries in VIIIa

[2)] Landings reported as Directed fisheries and included in the Catch-at-Age calculations of that fisheries

Table 9.4.4.5 Total landings of blue whiting by country and area for 2005 in tonnes.

Area	Denmark	Faroe Islands	France	Germany	Iceland	Ireland	Norway	Portugal	Russia	Scotland	Spain	Sweden	Netherlands	Grand Total
IIa	365	41.161		246	97.571		16.571		155.173			785		311.872
IIb		435		324	34		0		21.835					22.628
IIIa	282	0					300					1.244		1.826
IVa	16.068	5.026		17	307	9	98.638		5.204	3		916		126.187
IVb	4	0					0					16		20
IXa		0					0	5.190						5.190
Va		23.042			48.035		0							71.077
Vb	8.674	97.197		3.319	109.320	560	28.597		83.945	2.805			11.812	346.230
VIa	4.757	11.935		11.561	4.455	42.512	84.524			50.258			75.175	285.176
VIb		25.645			5.794	1.898	276.426		46.680	7.264			383	364.089
VIIb	2.334	0		90		6.489	0			2.374			212	11.499
VIIc	8.966	41.996	8.046	7.083		21.716	227.969		2.918	41.825			55.888	416.407
VIIg		0				191	0							191
VIIIa		0					0						383	383
VIIIc+IXa		0					0				17.643			17.643
VIIj		0		148		114	0			10			2.066	2.337
VIIk		0					0						1.864	1.864
XII		20.361		36			5.465		16.471					42.333
Grand Total	41.450	266.799	8.046	22.823	265.516	73.488	738.490	5.190	332.226	104.539	17.643	2.960	147.783	2.026.953

Table 9.4.4.6 Blue whiting combined stock (Subareas I–IX, XII & XIV).

Year	Recruitment Age 1 Thousands	SSB tonnes	Landings tonnes	Mean F Ages 3-7
1981	3307001	2934624	907732	0.284
1982	4165174	2387669	513203	0.230
1983	15350509	1941540	561332	0.266
1984	18855076	1708205	626592	0.347
1985	10787485	1992076	676812	0.385
1986	8649177	2317482	801786	0.499
1987	9019770	2032276	656588	0.376
1988	6776130	1847167	552020	0.372
1989	9481372	1767045	598147	0.498
1990	24343811	1575252	558788	0.478
1991	8364120	1990041	363724	0.239
1992	5461825	2612481	473789	0.213
1993	5185755	2517503	475143	0.217
1994	5653690	2404827	458028	0.191
1995	8233816	2228112	505938	0.256
1996	23351823	2086005	629286	0.345
1997	44850292	2219566	640089	0.340
1998	29478471	3258054	1123732	0.470
1999	24142508	4041300	1251463	0.403
2000	40003049	4281525	1409143	0.496
2001	65081694	4710379	1775305	0.431
2002	46670179	5803770	1556955	0.396
2003	41036186	7037433	2321407	0.457
2004	26288523	6466520	2377568	0.518
2005	29955346	5508420	1996530	0.475
2006	11400000	4751276		
Average	20226645	3170021	952444	0.367