6.4.24 Sandeel in Subarea IV

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
Reduced reproductive capacity	Undefined	Undefined	Undefined	

SSB is estimated to be at B_{lim} in 2007. Fishing mortality has been decreasing since 2001 but the present level is uncertain. In the absence of an F reference point, the state of the stock cannot be evaluated with regard to sustainable harvest. Recruitment has been below average since 2002.

Management objectives

There are no explicit management objectives for this stock.

Reference points

	Type	***Value***	***Technical basis***
Precautionary approach	B_{lim}	430 000 t	The lowest observed biomass that gave recruitment about the average level
	B_{pa}	600 000 t	$\mathbf{B}_{pa}$ =1.4 * $\mathbf{B}_{lim}$.
	F_{lim}	Not defined.	
	F_{pa}	Not defined.	
Targets	F_y	Not defined.	

(unchanged since: 1999)

Single-stock exploitation boundaries

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

The management of sandeel fisheries should try to prevent depletion of local aggregations, particularly in areas where predators congregate.

Exploitation boundaries in relation to precautionary limits

Fishery should only be allowed if monitoring information is available and shows that the stock can be rebuilt to $\mathbf{B}_{pa}$ by 2009.

Short-term implications

The high natural mortality of sandeel and the few year classes in the fishery make the stock size and catch opportunities largely dependent on the size of the incoming year classes.

Management considerations

If a real-time management using an escapement strategy is applied in 2008, the escapement target should be defined so that the SSB reaches at least $\mathbf{B}_{pa}$ in 2009. The in-season management procedure should be evaluated, taking into account all sources of uncertainty in the fishery assessment and forecast. At the request of EC and Norway, ICES will undertake such an evaluation in November 2007.

A drastic change in the stock situation of sandeel in IV seems to have occurred from 2003 and onwards. The change in 2003 came from a historic low recruitment in 2002. The increase in stock size from 2006 to 2007 is due to a decrease in fishing mortality in 2006, as recruitment has been below average since 2002.

The stock structure of sandeel remains uncertain. At present sandeel in the North Sea is managed as one stock. Sandeel is sedentary once it has settled to the bottom and confines itself to specific grounds where the bottom conditions are favorable. The exchange of sandeel between different grounds takes place mainly in early life stages. In the Norwegian economical zone, the fishery is known to cause local depletion of sandeel. There are indications that some areas where depletion of local populations was previously observed are now being repopulated. The present knowledge on defining subpopulations is too limited to recommend specific management measures for 2008 which can take the population structure into account. Work is proceeding on defining local sub-populations so that management at the local scale can be made operational for a North Sea-wide implementation.

Local depletion of sandeel aggregations at a distance less than 100 km from seabird colonies may affect some species of birds, especially black-legged kittiwake and sandwich tern, whereas the more opportunistic feeding marine mammals and fish may be less vulnerable to local sandeel depletion. In the light of studies linking low sandeel availability to poor breeding success of kittiwake, all commercial fishing in the Firth of Forth area has been prohibited since 2000, except for a maximum of 10 boat days in each of May and June for stock monitoring purposes. The closure was maintained for three years and was extended until 2006, with an increase in the effort of the monitoring fishery to 20 days, after which the effect of the closure will be evaluated. Stock monitoring from this area shows a large increase in sandeel biomass since the closure.

Ecosystem considerations

The recruitment of sandeel seems to be linked more to environmental factors than to the size of the spawning stock biomass.

Sandeel are important prey species for many marine predators. It is a major prey for all predator fish species such as cod, whiting, and many others. Sandeel availability has also been linked to breeding success in both kittiwakes and sandwich terns. Breeding success of black-legged kittiwake *Rissa tridactyla* in the Firth of Forth area off the Scottish east coast is related to abundance of both the 1+ group, the age class targeted by the fishery, and 0-group sandeel. The same relationship was not found for six other sandeel-dependent seabird species. Furthermore, in the seabird colony on the Isle of May periods of unregulated fishery significantly depressed the breeding productivity of one surface-feeding seabird species (black-legged kittiwake), but not for four diving species. The mechanism by which the fishery affects the seabird remains, however, unclear as the fishery is not always in direct competition with the birds. The strong impact on surface-feeding species, with no effects documented for diving species, could result from its inherently high sensitivity to reduced prey availability, from changes in the vertical distribution of sand lance at lower densities, or from sand lance showing avoidance behavior to fishery vessels.

No management objectives have been set for this stock. Sandeel is an important forage species and efforts should be made to keep adequate levels of biomass available as prey. The management objectives should ensure that the stock remains high enough to provide food for a variety of predator species and prevent depletion of local aggregations, particularly in areas where predators congregate.

Factors affecting the fisheries and the stock

Regulations and their effects

There was a 50% decline in the number of Danish vessels (from 200 to 98 vessels) fishing sandeel from 2004 to 2005. In 2006 and 2007 the Danish fleet increased to 124 and 116 vessels participating in the sandeel fishery. Danish industrial vessels were in 2007 given individual tradable quotas (ITQ) on sandeel. The introduction of ITQ will accelerate the change towards fewer and larger vessels. A drastic decline in the number of vessels fishing sandeel has also been observed for the Norwegian fleet in recent years, with a marked increase again in 2007 when the vessels were given individual quotas.

Both EU and Norway accepted a TAC of 170 000 t for 2007 as a result of the in-year monitoring (22nd of May, EU DG III – Fisheries: NOTE TO DELEGATIONS 225/07). As there is no agreement between EU and Norway on how to share the sandeel stock, the TAC was overfished by 36 000 t. EU landed 155 000 t and Norway 51 000 t, which corresponds to 91% and 30%, respectively, of the TAC of 170 000 t.

The environment

It is presently not possible to determine the mechanisms driving recruitment in sandeel or the link between changes in the environment and sandeel population dynamics.

Other factors

Sandeel is taken by trawlers using small-mesh gear. The fishery is seasonal, taking place mostly in the spring and summer. A targeted 0-group fishery is carried out in autumn (3rd quarter). Most of the catch consists of *Ammodytes marinus*, but other sandeel species are caught as well. There is a low percentage bycatch of other species, including species for which a TAC has been set.

Sandeel are largely stationary after settlement and the North Sea sandeel must be considered as a complex of local populations. Recruitment to local areas may not only be related to the local stock, as interchange between areas seems to take place during the early phases of life before settlement. The Shetland sandeel stock is assessed as a separate unit.

Concurrent with the increase in the stock size some areas with recent low abundance have been repopulated in 2006, especially in the northern North Sea.

Scientific basis

Data and methods

The assessment of sandeel is carried out without fisheries-independent indices of abundance. Different sampling approaches have been tried during scientific surveys, but at present no scientific survey time-series exist that can be used for the assessment.

The assessment method used is Seasonal XSA (SXSA), which allows the use of semi-annual data. There was no biological sampling of the small fishery in the second half year of 2006 (representing 21 000 tonnes or 9% of the landings in the first half year). As more than 95% of the 21 000 tonnes were taken in July the mean weight in the stock from June 2006 was also used for the second half year of 2006. As in previous assessments, effort data from the commercial fishery in the northern and southern North Sea are treated as two independent tuning fleets, separated into half-years.

Uncertainties in assessment and forecast

The major elements of recent recruitment and stock development are being captured in the assessment, but details in recent years are uncertain due to:

- the assumption about stock structure used in the assessment;
- lack of fisheries-independent tuning data;
- large changes in fishing pattern in recent years; and
- possible large changes in catch efficiency in recent years.

Recruitment time-series estimates from surveys are not yet available, but the time-series are being developed. Recruitment estimates are now based exclusively on commercial catch-at-age data.

Comparison with previous assessment and advice

The recruitment of year classes 2004 and 2005 has been revised downwards by 13% and 14% respectively. The estimate of fishing mortality for 2005 is unchanged from the previous assessment. The SSB in 2006 was revised downward by 15%.

The advice is similar to last year’s advice.

Source of information

ICES. 2007. Annex to the Report of the Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak, September 2007 (ICES CM 2007/ACFM:18).

The ecosystem effects of industrial fisheries are discussed in the Report of the ICES Advisory Committee on Ecosystems, June 2003, Section 11 (*ICES Cooperative Research Report No. 262*).

Year	ICES Advice	Catch corresponding to advice	TAC [3]	ACFM Catch
1987	No advice[1]; No advice[2]			825
1988	No advice[1]; No advice[2]			893
1989	No advice[1]; No advice[2]			1039
1990	No advice[1]; No advice[2]			591
1991	No advice[1]; No advice[2]			843
1992	No advice[1]; No advice[2]			855
1993	No advice[1]; No advice[2]			579
1994	No advice[1]; No advice[2]			786
1995	Can sustain current F[1]; No advice[2]			918
1996	Can sustain current F			777
1997	Can sustain current F			1138
1998	Can sustain current F		1000	1004
1999	Can sustain current F		1000	735
2000	Can sustain current F		1020	699
2001	Can sustain current F		1020	862
2002	Can sustain current F		1020	811
2003	No increase in F		918	326
2004	Exploitation to be kept below level of 2003. Adjustment to be made conditional on the abundance of the 2003 year class		826	362
2005	Exploitation to be kept below level of 2003. Adjustment to be made conditional on the abundance of the 2004 year class		661	172
2006	The fishery should remain closed until information is available which assures that the stock can be rebuilt to $\mathbf{B}_{pa}$ by 2007.		300	288
2007	The fishery should remain closed until information is available which assures that the stock can be rebuilt to $\mathbf{B}_{pa}$ by 2008.		173 [4]	
2008	The fishery should only be allowed if monitoring information is available and shows that the stock can be rebuilt to $\mathbf{B}_{pa}$ by 2009.			

Weights in '000 t.
[1] Southern stock component.
[2] Northern stock component.
[3] Set for zone IIIa, EC waters of IIa and IV.
[4] EU and Norway, set at 30th June 2007.

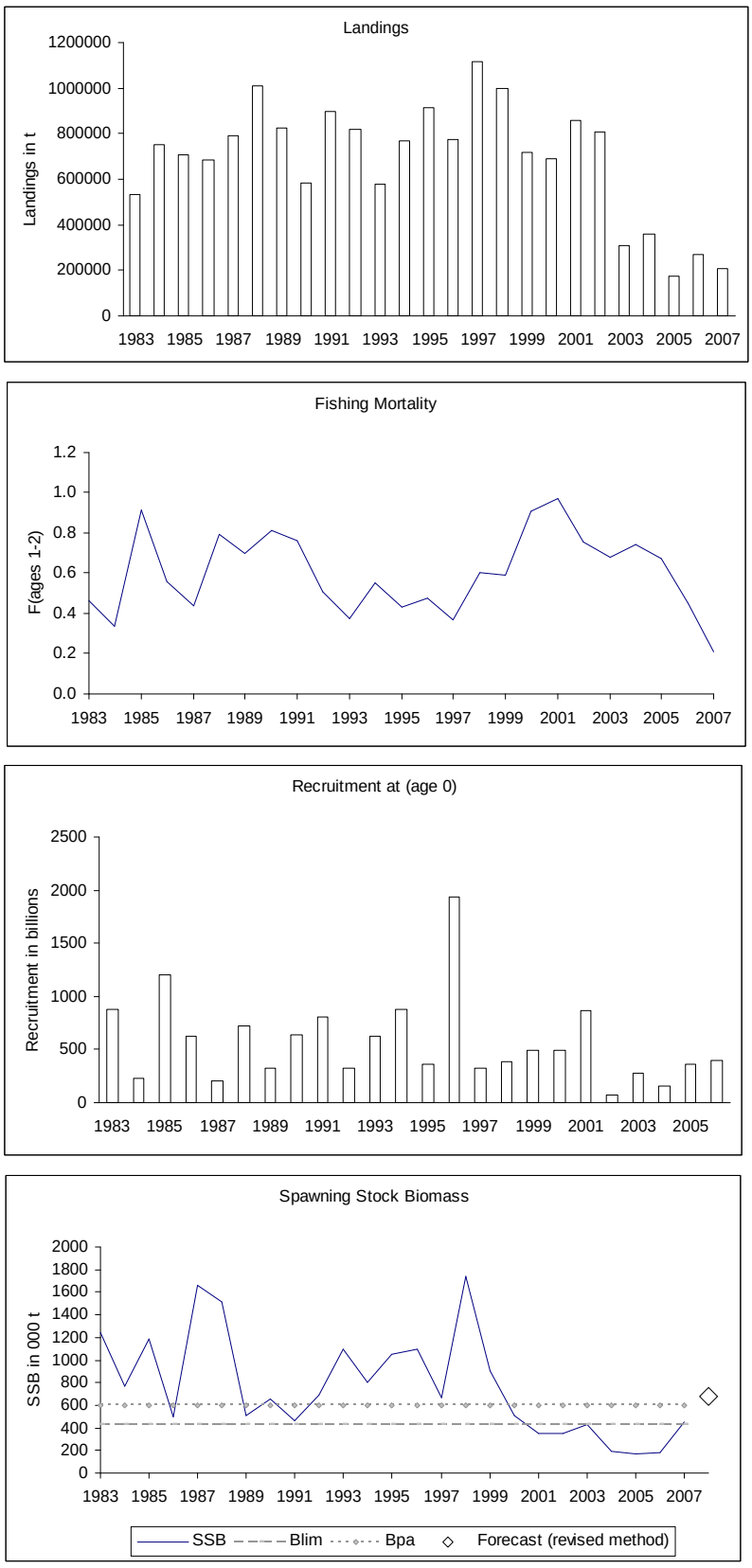
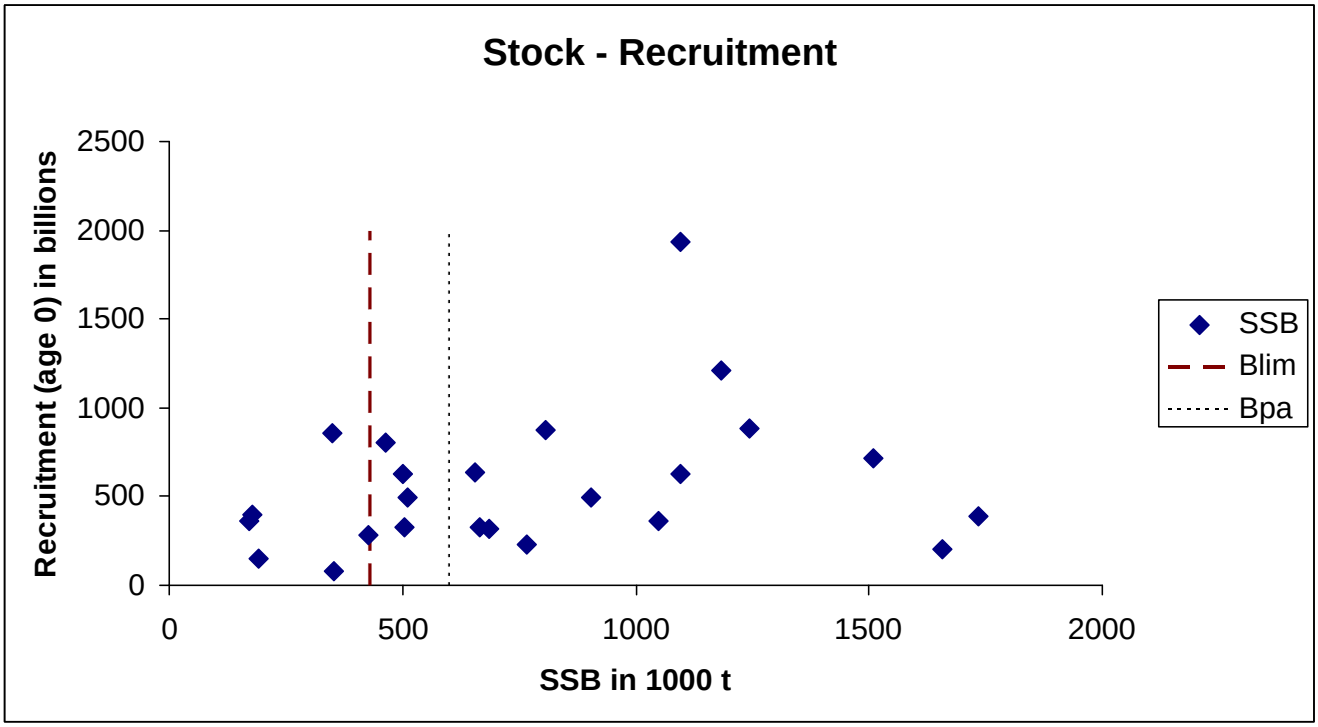


Figure 6.4.24.1 Sandeel in IV. Stock summary.



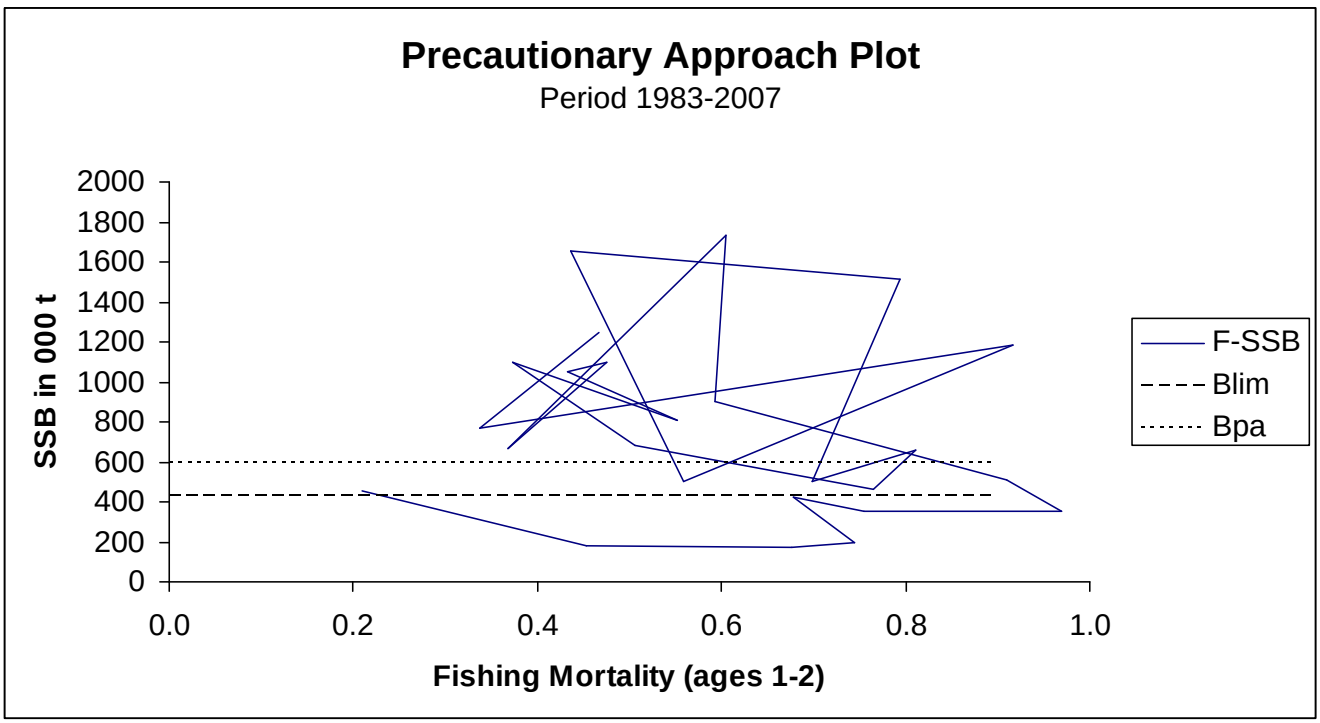


Figure 6.4.24.2 Sandeel in IV. Stock–recruitment plot and precautionary approach plot..

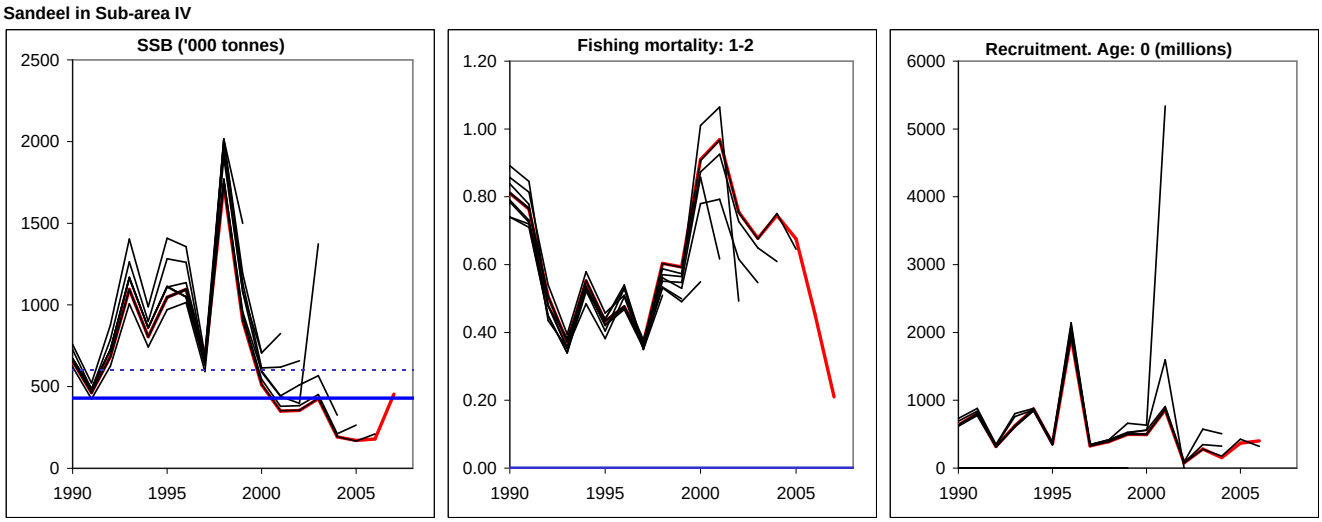


Figure 6.4.24.3 Sandeel in IV. Comparison of historical performance of assessments.

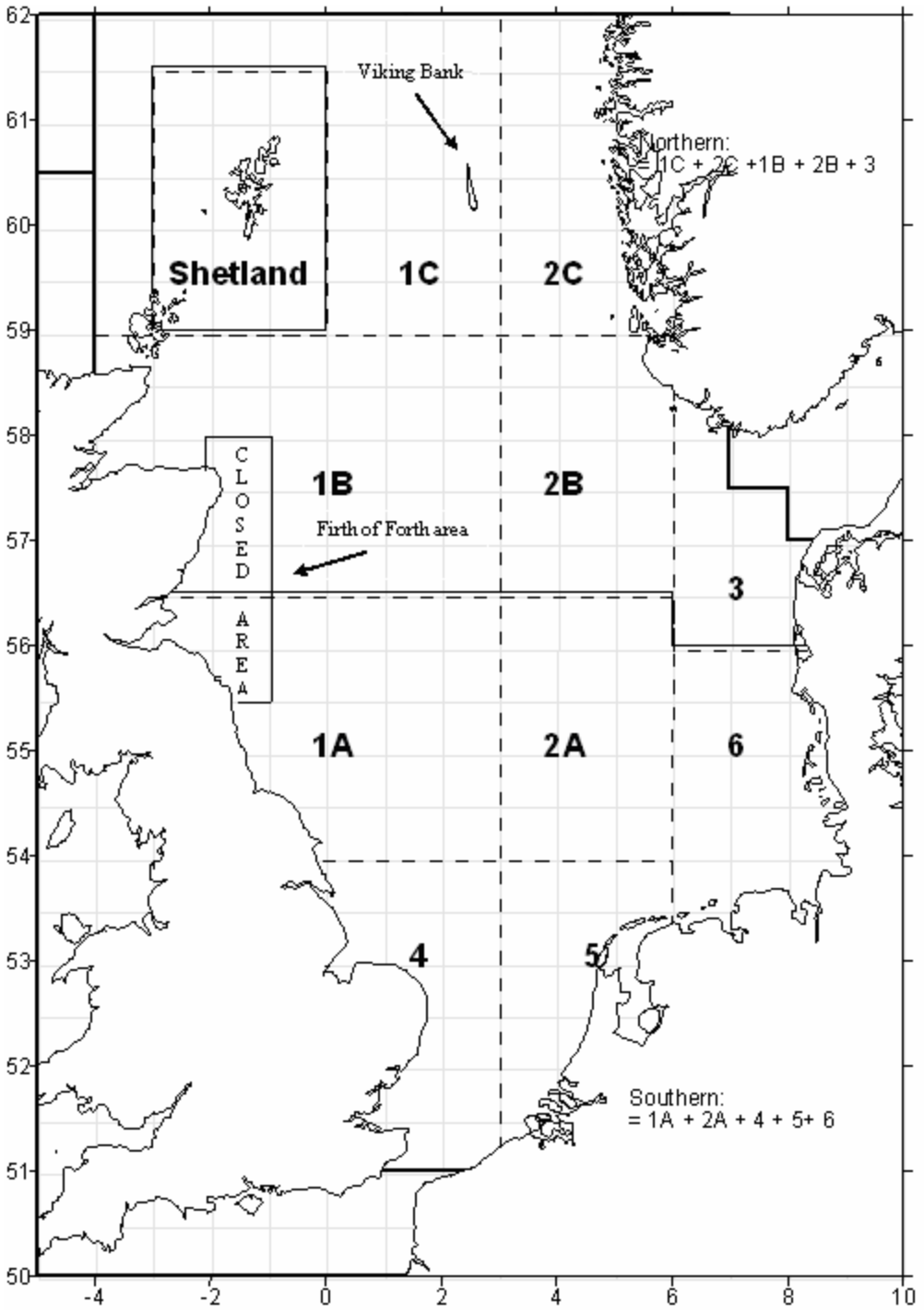


Figure 6.4.24.4 Sandeel in IV. Data sampling areas.

Table 6.4.24.1 Sandeel in IV. Official landings reported to ICES.

SANDEELS IVa

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006
Denmark	23,138	3,388	4,742	1,058	111	399	147	-	N/A
Faroe Islands	11,000	6,582	-	-	-	-	15	-	N/A
Norway	172,887	44,620	11,522	4,121	185	280	64	-	N/A
Sweden	55	495	55	-	-	73	-	-	N/A
UK (E/W/NI)	-	-	-	-	-	-	-	-	N/A
UK (Scotland)	5,742	4,195	4,781	970	543	186	-	-	N/A
Total	212,822	59,280	21,100	6,149	839	938	226	0	

*Preliminary.

SANDEELS IVb

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006
Denmark	603,491	503,572	533,905	638,657	627,097	245,096	273492	129776	N/A
Faroe Islands	-	-			16,167	5,168	3461	-	N/A
Germany	-	-	-	-	-	534	2658	-	N/A
Ireland	-	389	-	-	-	-	-	-	N/A
Norway	170,737	142,969	107,493	183,329	175,799	29,336	48464	17341	N/A
Sweden	8,465	21,920	27,867	47,080	36,842	21,444	34477	8327	N/A
UK (E/W/NI)	-	-	-	-	-	-	-	-	N/A
UK (Scotland)	18,008	7,280	5,978	-	2,442	115	29	-	N/A
Total	800,701	676,130	675,243	869,066	858,347	301,693	362,552	155,444	N/A

*Preliminary.

SANDEELS IVc

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006
Denmark	9,674	10,356	11,993	7,177	4,996	28,646	14,104	22,985	N/A
France	-	-	1	-	-	-	+	-	N/A
Netherlands	+	+	-	-	+	-	-	-	N/A
Norway	-	-	-	-	-	-	139	-	N/A
Sweden	-	-	-	-	-	160	-	-	N/A
UK (E/W/NI)	-	-	+	-	-	+	-	-	N/A
Total	9,674	10,356	11,994	7,177	4,996	28,806	14,243	22,985	N/A

*Preliminary.

Summary table official landings

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total IV tonnes	1,023,197	745,766	708,337	882,392	864,182	331,437	377,021	178,429	N/A
TAC	1,000,000	1,000,000	1,020,000	1,020,000	1,020,000	918,000	826,200	660,960	170,000

By-catch and other landings

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Area IV tonnes: official-WG	18,797	10,628	9,188	20,781	53,482	5,817	15,521	6,329	N/A

Summary table - landing data provided by Working Group members

	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total IV - tonnes	1,004,400	735,138	699,149	861,611	810,700	325,620	361,500	172,100	287,900

Table 6.4.24.2 Sandeel in IV. Landings ('000 t), 1952–2007 (Data provided by Working Group members).

Year	Denmark	Germany	Faroes	Ireland	Netherlands	Norway	Sweden	UK	Total
1952	1.6	-	-	-	-	-	-	-	1.6
1953	4.5	+	-	-	-	-	-	-	4.5
1954	10.8	+	-	-	-	-	-	-	10.8
1955	37.6	+	-	-	-	-	-	-	37.6
1956	81.9	5.3	-	-	+	1.5	-	-	88.7
1957	73.3	25.5	-	-	3.7	3.2	-	-	105.7
1958	74.4	20.2	-	-	1.5	4.8	-	-	100.9
1959	77.1	17.4	-	-	5.1	8.0	-	-	107.6
1960	100.8	7.7	-	-	+	12.1	-	-	120.6
1961	73.6	4.5	-	-	+	5.1	-	-	83.2
1962	97.4	1.4	-	-	-	10.5	-	-	109.3
1963	134.4	16.4	-	-	-	11.5	-	-	162.3
1964	104.7	12.9	-	-	-	10.4	-	-	128.0
1965	123.6	2.1	-	-	-	4.9	-	-	130.6
1966	138.5	4.4	-	-	-	0.2	-	-	143.1
1967	187.4	0.3	-	-	-	1.0	-	-	188.7
1968	193.6	+	-	-	-	0.1	-	-	193.7
1969	112.8	+	-	-	-	-	-	0.5	113.3
1970	187.8	+	-	-	-	+	-	3.6	191.4
1971	371.6	0.1	-	-	-	2.1	-	8.3	382.1
1972	329.0	+	-	-	-	18.6	8.8	2.1	358.5
1973	273.0	-	1.4	-	-	17.2	1.1	4.2	296.9
1974	424.1	-	6.4	-	-	78.6	0.2	15.5	524.8
1975	355.6	-	4.9	-	-	54.0	0.1	13.6	428.2
1976	424.7	-	-	-	-	44.2	-	18.7	487.6
1977	664.3	-	11.4	-	-	78.7	5.7	25.5	785.6
1978	647.5	-	12.1	-	-	93.5	1.2	32.5	786.8
1979	449.8	-	13.2	-	-	101.4	-	13.4	577.8
1980	542.2	-	7.2	-	-	144.8	-	34.3	728.5
1981	464.4	-	4.9	-	-	52.6	-	46.7	568.6
1982	506.9	-	4.9	-	-	46.5	0.4	52.2	610.9
1983	485.1	-	2.0	-	-	12.2	0.2	37.0	536.5
1984	596.3	-	11.3	-	-	28.3	-	32.6	668.5
1985	587.6	-	3.9	-	-	13.1	-	17.2	621.8
1986	752.5	-	1.2	-	-	82.1	-	12.0	847.8
1987	605.4	-	18.6	-	-	193.4	-	7.2	824.6
1988	686.4	-	15.5	-	-	185.1	-	5.8	892.8
1989	824.4	-	16.6	-	-	186.8	-	11.5	1039.1
1990	496.0	-	2.2	-	0.3	88.9	-	3.9	591.3
1991	701.4	-	11.2	-	-	128.8	-	1.2	842.6
1992	751.1	-	9.1	-	-	89.3	0.5	4.9	854.9
1993	482.2	-	-	-	-	95.5	-	1.5	579.2
1994	603.5	-	10.3	-	-	165.8	-	5.9	785.5
1995	647.8	-	-	-	-	263.4	-	6.7	917.9
1996	601.6	-	5.0	-	-	160.7	-	9.7	776.9
1997	751.9	-	11.2	-	-	350.1	-	24.6	1137.8
1998	617.8	-	11.0	-	+	343.3	8.5	23.8	1004.4
1999	500.1	-	13.2	0.4	+	187.6	22.4	11.5	735.1
2000	541.0	-	-	-	+	119.0	28.4	10.8	699.1
2001	630.8	-	-	-	-	183.0	46.5	1.3	861.6
2002	629.7	-	-	-	-	176.0	0.1	4.9	810.7
2003	274.0	-	-	-	-	29.6	21.5	0.5	325.6
2004	277.1	2.7	-	-	-	48.5	33.2	+	361.5
2005	154.8	-	-	-	-	17.3	-	-	172.1
2006	250.6	3.2	-	-	-	5.6	27.8	-	287.9
2007	144.6	1.0	2.0	-	-	51.1	6.6	1.0	206.3

2007 only include first half year.
+ = less than half unit.
- = no information or no catch.

Table 6.4.24.3 Sandeel in IV. Monthly landings (tonnes) by Denmark, Norway, and Scotland only, from each area defined in Figure 6.4.24.4. Data provided by Working Group members.

	1A	1B	1C	2A	2B	2C	3	4	5	6 Shetland		Total
2000												
Mar	800	42	0	3257	5618	0	739	0	0	393	687	11536
Apr	30931	19012	0	15259	71384	281	33583	479	0	595	1436	172959
May	110128	6843	0	24941	42647	0	53911	6685	3089	662	1651	250558
Jun	73632	3262	26	18564	16440	0	17287	11240	2503	29205	0	172160
Jul	10610	33	4	25193	3286	11	5996	2024	2692	12201	0	62049
Aug	0	0	0	3	113	0	117	0	1	127	560	921
Sept	0	0	0	21	393	0	18	0	0	145	0	577
Oct	0	0	0	0	0	0	2	0	0	1	0	3
Total	226102	29192	30	87238	139882	292	111652	20428	8285	43329	4334	670763
2001												
Mar	3205	0	0	5235	2078	0	915	218	334	180	144	12309
Apr	60040	10891	0	19956	16609	0	1968	916	0	265	295	110940
May	96489	2014	0	71446	20668	0	15266	4829	510	3767	589	215578
Jun	72384	0	1556	15160	8103	120	8265	4790	4291	22748	0	137417
Jul	6703	90	0	67814	24065	0	8769	1664	2204	13747	0	125056
Aug	473	0	0	51965	61169	0	8679	0	0	2927	236	125449
Sep	578	0	0	24926	31178	0	4802	0	0	4840	0	66324
Oct	0	0	0	6464	14027	0	972	0	0	500	0	21963
Total	239872	13026	1556	262966	177898	120	49635	12417	7339	48974	1264	815067
2002												
Mar	3077	0	0	3911	2715	0	928	322	0	0	0	10953
Apr	104033	1745	0	66992	51007	0	15466	904	59	475	109	240790
May	176437	3341	0	78497	37385	0	37058	915	151	3272	12	337068
Jun	118879	125	0	27386	19380	10	10561	8673	2531	12498	0	200043
Jul	1128	0	0	90	48	0	193	2744	204	9869	0	14276
Aug	0	0	0	109	261	0	397	0	0	5146	422	6335
Sept	0	0	0	0	74	0	290	0	0	0	0	364
Oct	0	0	0	1	0	0	0	0	0	2	0	3
Dec	0	0	0	0	0	0	0	0	2	0	0	2
Total	403554	5211	0	176986	110870	10	64893	13558	2947	31262	543	809834
2003												
Mar	1947	52	0	97	380	7	225	325	0	0		3033
Apr	28806	5026	0	8341	6072	0	1900	81	0	662	49	50937
May	59890	1812	24	8884	9357	0	4532	10995	1020	9991	16	106521
Jun	11737	49	0	11906	398	10	2140	20891	13318	21639		82088
Jul	3604	0	0	9857	2013	0	3272	2738	1697	5790		28971
Aug	960	6	0	4381	4687	0	11293	16	175	687	121	22326
Sept	0	255	73	35	1551	0	2955	0	0	1094		5963
Oct	0	0	0	114	0	0	1589	0	0	127		1830
Nov	0	0	0	0	0	0	2070	0	0	0		2070
Dec	0	0	0	0	0	0	45	0	0	0		45
Total	106944	7200	97	43615	24458	17	30021	35046	16210	39990	186	303784
2004												
Feb	0	0	0	0	0	0	0	0	0	7		7
Mar	326	0	0	1001		0	37		260	2		1626
Apr	15893	627	0	15824	4847	0	10732	471	322	834		49550
May	46631	1044	0	21607	5495	0	22629	20484	233	8578		126701
Jun	21841	146	0	5077	1800	0	13821	13680	4789	35909		97063
Jul	1146	116		813	2272		6019	7430	1184	12923		31903
Aug	325			3963	5449		2589			3357		15683
Sept					3006		116			2		3124
Oct												
Total	86162	1933	0	48285	22869	0	55943	42065	6788	61612	0	325657
2005												
Apr	4017			71	1476		462	144		88		6258
May	34506	57		9536	7512		6507	13333	32	2410		73893
Jun	19216	21		8952	2545		8107	8224	19370	21959		88394
Jul				1668			987	922				3577
Aug				3			2					5
Sep												0
Okt										1		1
Total	57739	78	0	20230	11533	0	16065	22623	19402	24457	0	172128
2006												
Apr	10141			8733	1387		188	111		82		20642
May	96349			25020	3096		3830	201		6455		134951
Jun	59827	34		3184	47		4815	12035	5236	9506		94684
Jul	1122			94			3309	2600	1171	11745		20041
Aug				2			94			283		379
Sep				5			2			2		9
Oct					5		257					262
Nov		30										30
Total	167439	64	0	37038	4530	0	12495	14947	6407	28073	0	270998
%	62%	0%	0%	14%	2%	0%	5%	6%	2%	10%	0%	100%
Average 2000-2006												
	38%	2%	0%	20%	15%	0%	10%	5%	2%	8%	0%	100%
2007												
Apr	23545			6378	19966		7098	646		406		58039
May	65238	308	4	4990	31062		22979	3024	244	1470		129319
Jun	501	69		50	4512		4032	25	559	2966		12714
Total	89284	377	4	11418	55540	0	34109	3695	803	4842	0	200072
%	45%	0%	0%	6%	28%	0%	17%	2%	0%	2%	0%	100%

Table 6.4.24.4 Sandeel in IV. Assessment summary.

Year	Recruitment (millions) Age 0	TSB tonnes	SSB tonnes	Landings tonnes	Yield/SSB	Mean F Ages 1-2
1983	880841	1776070	1245261	530640	0.426	0.47
1984	277326	2341186	765753	750040	0.979	0.34
1985	1206501	1609778	1181794	707105	0.598	0.92
1986	624178	2733274	501663	685950	1.367	0.56
1987	199718	2952767	1657336	791050	0.477	0.44
1988	718807	1903466	1510835	1007304	0.667	0.79
1989	325614	1887230	505034	837246	1.658	0.70
1990	636356	1270074	656457	584912	0.891	0.81
1991	805763	1653630	463509	898959	1.939	0.76
1992	319095	2091203	684399	820144	1.198	0.51
1993	622823	1719839	1095543	577955	0.528	0.37
1994	872257	2441207	805977	771184	0.957	0.55
1995	358741	3839527	1047247	915043	0.874	0.43
1996	1935600	2165684	1095939	776126	0.708	0.48
1997	328464	5435685	667111	1119691	1.678	0.37
1998	389939	2466436	1735847	1004166	0.578	0.60
1999	496073	1746069	902891	719295	0.797	0.59
2000	494502	1788711	512194	694435	1.356	0.91
2001	860079	1310730	350539	859779	2.453	0.97
2002	77203	2233948	354277	807391	2.279	0.76
2003	280902	608783	426317	324174	0.760	0.68
2004	153366	853225	192214	359670	1.871	0.75
2005	366148	549532	169965	171976	1.012	0.68
2006	401011	1209074	179172	288323	1.609	0.45
2007		1750185	454648	206391	0.454	0.21
Average	567971		766477	688358	1.125	0.60