

Table 1. Historical landings (t) of cod from NAFO Divisions 2J3KL for the period 1959-98.

Year	2J				3K				3L				2J3KL			TAC
	Offshore mobile gear		Fixed gear		Offshore mobile gear		Fixed gear		Offshore mobile gear		Fixed gear		Total Canada	Total Other	Total	
	Canada	Other	Canada	Total	Canada	Other	Canada	Total	Canada	Other	Canada	Total				
1959	0	46372	17533	63905	0	97678	56264	153942	4515	51515	85695	141725	164007	195565	359572	
1960	1	164123	15418	179542	53	74999	47676	122728	7355	63985	94192	165532	164695	303107	467802	
1961	1	243144	17545	260690	0	64023	31159	95182	4675	73899	70659	149233	124039	381066	505105	
1962	0	226841	23424	250265	0	47015	42816	89831	4383	90276	72271	166930	142894	364132	507026	
1963	1	197868	23767	221636	0	79331	47486	126817	4446	83015	73295	160756	148995	360214	509209	
1964	13	197359	14787	212159	0	121423	40735	162158	10158	142370	75806	228334	141499	461152	602651	
1965	0	246650	25117	271767	21	50097	26467	76585	7353	130387	58943	196683	117901	427134	545035	
1966	39	226244	22645	248928	13	58907	32208	91128	8253	120206	55990	184449	119148	405357	524505	
1967	28	217255	27721	245004	114	78687	24905	103706	13478	200343	49233	263054	115479	496285	611764	
1968	4650	355108	12937	372695	1849	119778	40768	162395	15784	211808	47332	274924	123320	686694	810014	
1969	30	405231	4328	409589	56	80949	24923	105928	18255	151945	67973	238173	115565	638125	753690	
1970	0	212961	1963	214924	92	78274	21512	99878	14471	137840	53113	205424	91151	429075	520226	
1971	0	154700	3313	158013	31	61506	21111	82648	11976	148766	38115	198857	74546	364972	439518	
1972	0	149435	1725	151160	7	133369	14054	147430	4380	109052	46273	159705	66439	391856	458295	
1973	1123	52985	3619	57727	108	159653	13190	172951	1258	97734	24839	123831	44137	310372	354509	666000
1974	0	119463	1804	121267	19	149189	10747	159955	880	67918	22630	91428	36080	336570	372650	657000
1975	410	78578	3000	81988	189	112678	15518	128385	670	53770	22695	77135	42482	245026	287508	554000
1976	94	30691	3851	34636	771	79540	20879	101190	2187	40998	35209	78394	62991	151229	214220	300000
1977	525	39584	3523	43632	1051	26776	28818	56645	5362	26799	40282	72443	79561	93159	172720	160000
1978	4682	17546	6638	28866	7027	6373	29623	43023	9213	12263	45194	66670	102377	36182	138559	135000
1979	9194	6537	8445	24176	21572	16890	27025	65487	14184	12693	50359	77236	130779	36120	166899	180000
1980	13592	7437	17210	38239	21920	6830	37015	65765	15523	13963	42298	71784	147558	28230	175788	180000
1981	22125	4760	14251	41136	23112	3847	23002	49961	21754	15070	42827	79651	147071	23677	170748	200000
1982	58384	8923	14429	81736	8881	4074	42141	55096	27181	9271	56490	92942	207506	22268	229774	230000
1983	37276	4158	10748	52182	31621	2815	40683	75119	39123	10920	55001	105044	214452	17893	232345	260000
1984	9231	2782	13150	25163	48114	11059	35143	94316	47668	15973	49351	112992	202657	29814	232471	266000
1985	1466	78	10211	11755	68880	12945	30368	112193	36863	31176	39306	107345	187094	44199	231293	266000
1986	5734	7859	12916	26509	62086	5781	28384	96251	57805	53946	32202	143953	199127	67586	266713	266000
1987	39344	3999	16022	59365	39686	6160	27442	73288	44612	25916	36743	107271	203849	36075	239924	256000
1988	41468	9	17112	58589	40260	50	33820	74130	57805	26748	51405	135958	241870	26807	268677	266000
1989	33626	1003	23304	57933	37350	1179	20711	59240	40958	36621	59238	136817	215187	38803	253990	235000
1990	17883	183	14505	32571	26920	504	27516	54940	31187	25488	75266	131941	193277	26175	219452	199262
1991	621	82	2214	2917	30112	311	13332	43755	30264	49660 ²	45416 ³	125340	121959	50053	172012	190000
1992	0	0	18	18	584	273	884	1741	13627	14610 ⁴	10960 ⁵	39197	26073	14883	40956	0
1993	0	0	13	13	0	0	541	541	2	2425 ⁶	8411 ⁷	10838	8967	2425	11392	0
1994	0	0	9	9	0	0	368	368	0	50	936	986	1313	50	1363 ⁸	0
1995	0	0	0	0	0	0	94	94	0	0	237	237	331	0	331 ⁹	0
1996	0	0	3	3	0	0	739	739	1	0	655	656	1398	0	1501 ¹⁰	0
1997	0	0	3	3	0	0	159	159	4	0	339	343	505	0	505	0
1998	0	0	16	16	0	0	1993	1993	1	0	2490	2491	4501	0	4501	4000

¹ Provisional catches.

² Includes French catch and other foreign catch as estimated by Canadian surveillance.

³ Figure is 4000 t less than Canadian statistics as this quantity is considered 3NO catch misreported as 3L.

⁴ Derived from reported catch and Canadian surveillance estimate of foreign catch.

⁵ Includes 5000 t catch from the recreational fishery after the moratorium was declared.

⁶ Canadian surveillance estimate of foreign catch.

⁷ Includes 5053 t estimated for the recreational fishery additional to that recorded by Canadian statistics

⁸ 1300 t is from the food fishery; the remainder is bycatch

⁹ Includes 163 t caught in the sentinel survey and 168 t caught as bycatch.

¹⁰ Comprised of a sentinel survey catch of 397 t, a food fishery catch of 962 t and bycatch of 142 t. However, 103 t of sentinel catch remains to be allocated by division and gear.

Table 2. Fixed gear cod landings (t) by division and gear type in NAFO Divisions 2J, 3K, and 3L in 1975 - 1998.
Landings from statistical areas other than Newfoundland are not included.

Year	2J					3K					3L					2J3KL
	Trap	GN	LL	HL	Total	TRAP	GN	LL	HL	Total	TRAP	GN	LL	HL	Total	Total
1975	642	2304	0	54	3000	4662	8645	565	1646	15518	10390	7552	1641	3112	22695	41213
1976	1022	2787	6	36	3851	7056	10666	718	2439	20879	18404	9066	2904	4835	35209	59939
1977	1285	2076	37	125	3523	11501	11611	1294	4412	28818	20988	8852	3591	6851	40282	72623
1978	2872	3376	55	335	6638	11329	11445	3647	3202	29623	23218	9023	5114	7839	45194	81455
1979	1333	5663	175	1274	8445	3532	11474	8414	3605	27025	20785	13488	7022	9064	50359	85829
1980	4679	11414	204	913	17210	12732	13549	8059	2675	37015	12871	11231	9394	8802	42298	96523
1981	3893	10105	72	181	14251	3952	10679	6360	2011	23002	10177	13579	11425	7646	42827	80080
1982	4464	9121	114	730	14429	16415	17571	6101	2054	42141	24248	20295	5704	6243	56490	113060
1983	3870	4854	842	1182	10748	10490	18305	2560	9328	40683	25690	16446	3834	9031	55001	106432
1984	5618	6116	379	1037	13150	9957	14362	2499	8325	35143	23103	14985	3824	7439	49351	97644
1985	4973	2992	252	1994	10211	13310	8082	2352	6624	30368	21594	8760	3245	5707	39306	79885
1986	4373	7804	109	630	12916	14555	7626	1555	4648	28384	15669	9865	2492	4176	32202	73502
1987	5158	9228	218	1418	16022	11278	10223	1590	4351	27442	11370	17419	3338	4616	36743	80207
1988	5907	9183	272	1750	17112	16261	11898	935	4726	33820	22148	18576	4004	6677	51405	102337
1989	6713	14846	290	1455	23304	8189	7921	700	3901	20711	23964	22231	4676	8367	59238	103253
1990	3616	9364	653	872	14505	11201	7726	3838	4751	27516	32158	28936	4545	9627	75266	117287
1991	1016	271	93	834	2214	7696	1384	1851	2401	13332	26524	11696 ²	1247	5949	45416 ²	60962
1992	0	0	2	16	18	27	103	9	745	884	1173	1131	16	8640 ³	10960 ³	11862
1993 ¹	0	0	1	12	13	3	37	9	492	541	11	93	80	8227 ³	8411 ³	8965
1994 ¹	0	0	0	9	9	0	8	0	359	367	6	38	22	870	936	1312
1995 ¹	<1	<1	0	0	0	13	52	28	2	95	12	176	33	16	237	332
1996 ¹	0	0	0	3	3	25	132	17	565	740	18	219	15	404	656	1500 ⁴
1997 ¹	0	3	0	0	3	22	101	34	1	159	33	257	29	21	339	501
1998 ¹	0	3	5	8	16	24	1081	245	644	1994	31	1377	284	798	2490	4501

¹ Provisional catches.

² Catch is 4000 (t) less than Canadian statistics as this quantity is considered 3NO gillnet catch misreported in 3L.

³ Estimate for recreational fishery has been reported as 3L Handline.

⁴ Comprised of sentinel survey catch of 294 t, a food fishery catch of 1155 t and by-catch 142 t.
An amount of 103 t must still be allocated by gear type and division from the sentinel catches.

Table 3. Cod landings (t) from commercial fisheries (by-catch and index fishery) and the food fishery by unit area, gear and month in Divisions 2J, 3K and 3L in 1998.

MONTH	2JA		2JM			2JN		
	8	9	8	9	10	7	8	9
Gillnet	0.000	0.072	0.000	0.216	0.308	0.001	0.005	
Longline	0.000	0.383	0.000	0.382	4.476	0.000	0.000	
Handline	0.503	3.334	1.084	1.015	1.776	0.000	0.001	0.000

2J TOTAL
0.602
5.241
7.713

MONTH	3Ka			3KB			3KC			3KD			3KE		
	8	9	10	8	9	10	5	8	9	8	9	10	8	9	
Otter trawl															
Gillnet		0.505	0.163		0.703	0.830	0.016		0.071			32.890	43.963	0.037	0.369
Longline		0.773	0.144									10.924	2.013	0.000	0.000
Handline	0.547	1.414	0.529	0.241	0.005			0.014	0.000	15.880	6.469	6.223	0.219	1.021	

MONTH	3Kf			3KH				3KI					
	8	9	10	6	8	9	10	5	6	7	8	9	10
Otter trawl													
Gillnet			0.349	2.000	0.951	319.146	183.262	2.964	17.947	0.013	23.856	177.165	186.549
Longline						26.454	0.770					169.046	25.180
Handline	0.054	0.001			88.489	34.374	4.100				145.669	273.560	63.819

3K TOTAL
0.000
993.749
235.304
642.626

MONTH	3La						3LB					
	5	6	7	8	9	10	5	6	7	8	9	10
Otter trawl												
Gillnet	4.087	13.282	0.085	183.821	158.473	88.675	0.013	7.225	0.085	40.538	128.290	95.104
Longline					128.850	9.489					57.591	11.472
Handline				157.704	146.607	33.822				96.731	109.451	20.801

MONTH	3Lc			3LD			3Le		3LF			
	8	9	11	8	9	11	12	12	1	8	9	10
Otter trawl			0.004				0.001	0.017				
Gillnet	10.132	0.041		0.388	0.300	0.038				10.515	118.892	78.297
Longline					0.086				0.174		31.072	6.371
Handline										63.368	48.660	14.289

MONTH	3Lg		3Lh			3Li			3Lj			
	10	11	10	11	12	5	9	10	12	8	9	10
Otter trawl		0.001		0.002	0.002				0.011			
Gillnet			0.932			0.037	0.155			20.152	69.995	83.242
Longline	0.650						0.374	0.150		14.210	7.732	
Handline			0.261	0.215							22.932	34.295

MONTH	3Lq				3LR		3LS			3LT
	7	8	9	10	11	12	9	11	12	8
Otter trawl					0.250	0.025		0.037	0.178	
Gillnet	0.091	1.834	9.614	30.889			4.793			13.840
Longline			4.872	1.193						
Handline		13.345	14.154	2.272						

3L TOTAL	2J3KL
0.566	0.566
1173.817	2168.168
274.286	514.831
778.907	1429.246

Table 4. Cod landings (t) from sentinel surveys by unit area, gear and month in Divisions 2J, 3K and 3L in 1998.

		2Jm								
month		7	8	9	10	total				
trap		0.003	0.060	0.004		0.068				
gn		0.028	0.289	1.745	0.117	2.178				
ll				0.021		0.021				
hl		0.058	0.084	0.278	0.007	0.427	2.693			
		3Ka								
month		6	7	8	9	total				
trap				0.090	0.003	0.093				
gn		0.21009	0.375	0.829	0.170	1.584				
ll										
hl							1.67729			
		3Kd								
month		6	7	8	9	10	total			
trap		0.000	0.000	0.745	1.426	0.121	2.292			
gn		0.362	4.152	3.127	2.713	0.854	11.208			
ll		0.000	0.000	0.009	0.023	0.039	0.070			
hl		0.000	0.000	0.000	0.000	0.000	0.000	13.570		
		3Kh								
month		5	6	7	8	9	10	11	12	total
trap		0.000	0.000	4.449	0.372	0.000	0.000	0.000	0.000	4.821
gn		0.409	3.348	9.365	11.165	3.783	3.164	2.872	0.508	34.614
ll		0.000	0.000	0.000	0.502	4.275	0.820	0.000	0.000	5.597
hl		0.000	0.000	0.000	0.000	0.162	0.043	0.000	0.000	0.205
45.237										
		3Ki								
month		5	6	7	8	9	10	11	12	total
trap		0.044	3.339	12.839	0.707	0.000	0.000	0.000	0.000	16.929
gn		0.383	3.698	6.418	15.561	4.935	1.214	7.052	0.502	39.763
ll		0.000	0.000	0.000	0.376	2.625	1.003	0.000	0.000	4.004
hl		0.000	0.000	0.000	0.502	0.000	0.475	0.000	0.000	0.977
24.135 87.169 9.671 1.182 61.673										
		3La								
month		5	6	7	8	9	10	11	12	total
trap		1.698	5.118	0.668	0.000	0.000	0.000	0.000	0.000	7.484
gn		1.366	8.897	18.683	5.931	0.221	0.000	0.000	0.000	35.098
ll		0.000	0.000	0.000	0.433	1.112	1.366	0.000	0.000	2.911
hl		0.000	0.000	0.000	0.000	0.590	0.000	0.000	0.000	0.590
46.082										
		3Lb								
month		5	6	7	8	9	10	11	12	total
trap		0.000	0.000	5.944	0.000	0.000	0.000	0.000	0.000	5.944
gn		0.000	4.219	10.239	14.988	7.521	4.591	0.526	0.046	42.130
ll		0.000	0.000	0.000	0.000	0.690	0.000	0.000	0.000	0.690
hl		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
48.763										
		3Lf								
month		5	6	7	8	9	10	11	12	total
trap		0.000	0.049	1.123	1.478	0.000	0.000	0.000	0.000	2.650
gn		0.000	1.604	16.008	15.405	8.273	0.000	0.000	0.000	41.291
ll		0.000	0.000	0.000	0.000	0.000	0.523	0.460	0.007	0.990
hl		0.000	0.000	0.000	0.000	0.917	0.000	0.000	0.000	0.917
45.847										
		3Lj								
month		5	6	7	8	9	10	11	12	total
trap		0.000	0.665	8.539	2.919	0.000	0.000	0.000	0.000	12.123
gn		0.000	2.098	20.251	10.576	5.462	0.650	0.043	0.000	39.080
ll		0.000	0.000	0.000	0.867	2.183	0.148	0.000	0.000	3.198
hl		0.000	0.098	6.289	7.903	2.500	0.819	0.000	0.000	17.609
72.010										
		3Lq								
month		5	6	7	8	9	10	11	12	total
trap		0.000	0.276	2.613	0.000	0.000	0.000	0.000	0.000	2.889
gn		0.000	2.319	21.105	11.671	7.414	3.556	0.000	0.000	46.065
ll		0.000	0.000	0.000	0.000	0.648	0.715	0.455	0.000	1.818
hl		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
31.090 203.663 9.607 19.116 50.772 388.326										

Table 5. Sampling used to estimate cod catch at age for Divisions 2J, 3K and 3L in 1998.

Division	Gear	Month	No. measured	Quarter	No. aged	
2J	TRAP	7	84	QT3	14	
		8	5			
		9	6	QT4	5	
	GN	7	34	QT3	46	
		8	413			
		9	2173	QT4	213	
		10	96			
	LL	9	24	QT4	16	
	HL	7	99	QT3	117	
		8	427			
		9	378	QT4	57	
		10	10			
	Total			3749		468
	3K	Trap	5	23	QT2	20
			6	1503	QT3	396
7			10153			
8			1764			
Trap		9	1302	QT4	39	
		10	123			
GN		5	372	QT2	14	
		6	3420	QT3	555	
GN		7	9369			
		8	15390			
		9	7343	QT4	796	
		10	2268			
GN		11	4761			
LL		8	647	QT3	26	
		9	4987	QT4	409	
		10	1721			
HL		8	2160	QT3	267	
		9	522	QT4	200	
		10	57			
		11	268			
Total			68153		2722	
3L	Trap	6	1656	QT3	364	
		7	13983			
		8	2579			
	GN	6	4812	QT3	795	
		7	34690			
		8	32693			
		9	16305	QT4	890	
		10	4080			
		11	255			
	LL	8	658	QT3	59	
		9	3789	QT4	147	
		10	903			
		11	1448			
	HL	6	61	QT3	663	
		7	2803			
		8	7609			
		9	6515	QT4	240	
		10	431			
	Total			135270		3158
	Total 2J3KL			207172		6348

Table 6. Estimated average weight (kg), length (cm), number, standard error and coefficient of variation for the 1998 catch at age by gear and by all gears combined for cod in Divisions 2J+3KL.

ALL GEARS COMBINED						
AGE	AVERAGE		NUMBER (000'S)	CATCH		CV
	WEIGHT (kg.)	LENGTH (cm.)		STD ERR.		
1	0.00	0.00				0.00
2	0.29	32.36	2.89	0.68		0.24
3	0.63	41.45	96.06	3.94		0.04
4	0.94	47.23	229.28	7.52		0.03
5	1.51	55.01	395.40	10.87		0.03
6	2.14	61.85	688.95	13.19		0.02
7	2.48	64.93	383.51	10.52		0.03
8	3.02	68.92	236.54	8.02		0.03
9	3.35	71.09	74.05	4.64		0.06
10	4.18	75.50	9.65	1.13		0.12
11	4.01	74.86	5.46	0.98		0.18
12	3.87	71.40	1.86	0.45		0.24
13	6.42	88.84	0.88	0.10		0.12

GILLNET						
AGE	AVERAGE		NUMBER (000'S)	CATCH		CV
	WEIGHT (kg.)	LENGTH (cm.)		STD ERR.		
1	0.00	0.00				0.00
2	0.39	35.76	0.45	0.26		0.58
3	0.58	40.55	33.26	1.33		0.04
4	0.93	46.76	22.47	1.81		0.08
5	1.81	58.68	135.19	7.03		0.05
6	2.23	62.82	419.38	10.75		0.03
7	2.50	65.15	238.52	8.94		0.04
8	2.85	67.76	136.60	6.86		0.05
9	3.27	70.62	46.07	4.08		0.09
10	4.54	78.78	2.75	0.45		0.16
11	4.34	77.92	2.36	0.63		0.27
12	5.27	83.11	0.05	0.02		0.42
13	6.42	88.84	0.87	0.10		0.12

HANDLINE						
AGE	AVERAGE		NUMBER (000'S)	CATCH		CV
	WEIGHT (kg.)	LENGTH (cm.)		STD ERR.		
1	0.00	0.00				0.00
2	0.28	32.23	0.73	0.28		0.39
3	0.69	42.82	24.04	2.80		0.12
4	0.95	47.51	132.07	6.47		0.05
5	1.36	53.22	182.41	7.46		0.04
6	2.01	60.38	195.56	6.87		0.04
7	2.44	64.50	113.30	4.99		0.04
8	3.31	70.94	68.03	3.47		0.05
9	3.59	72.31	16.79	1.54		0.09
10	4.10	74.50	5.13	0.88		0.17
11	3.56	70.82	2.50	0.69		0.27
12	2.74	63.37	1.24	0.39		0.31
13	0.00	0.00	0.00	0.00		

Table 6. (cont'd).

LINETRAWL			CATCH		
AGE	AVERAGE		NUMBER (000'S)	STD ERR.	CV
	WEIGHT (kg.)	LENGTH (cm.)			
1	0.00	0.00			0.00
2	0.26	31.52	1.70	0.56	0.33
3	0.63	41.43	36.89	2.41	0.07
4	0.92	47.01	69.83	3.30	0.05
5	1.35	53.06	69.82	3.52	0.05
6	2.05	60.81	62.90	3.13	0.05
7	2.58	65.64	25.25	2.24	0.09
8	3.15	69.93	27.85	2.22	0.08
9	3.26	70.84	9.94	1.55	0.16
10	3.78	72.92	1.69	0.55	0.33
11	4.76	80.60	0.46	0.29	0.63
12	6.25	88.05	0.56	0.23	0.41
13	0.00	0.00	0.00	0.00	

TRAP			CATCH		
AGE	AVERAGE		NUMBER (000'S)	STD ERR.	CV
	WEIGHT (kg.)	LENGTH (cm.)			
1	0.00	0.00	0.00		
2	0.00	0.00	0.00		
3	0.55	39.84	1.66	0.16	0.10
4	0.78	44.54	4.40	0.43	0.10
5	1.14	50.25	7.10	0.51	0.07
6	1.65	56.63	9.56	0.68	0.07
7	2.09	61.21	5.58	0.49	0.09
8	2.80	67.12	3.52	0.27	0.08
9	3.85	74.58	1.08	0.13	0.12
10	5.72	85.01	0.05	0.02	0.37
11	4.23	77.07	0.13	0.06	0.43
12	12.04	109.00	0.00		
13	0.00	0.00	0.00	0.00	

Table 7. Catch numbers at age (thousands) for cod caught in the commercial fishery in NAFO Divisions 2J+3KL for the period 1962-98.

Age	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
2	301	1446	2872	85	819	790	288	59	6819	33	236	0	473
3	8666	5746	19338	5177	14057	15262	6142	4330	18104	12876	6737	3963	3231
4	26194	27577	27603	28709	65992	77873	94291	39626	60102	71557	79809	40785	13201
5	64337	60234	57757	46800	93687	100339	205805	100858	82357	95384	116562	94844	34927
6	58163	118112	60681	66946	62812	96759	150541	163228	101249	98111	76196	59503	74403
7	47314	58996	100147	64360	59312	54996	83808	107509	85696	57865	55984	35464	60539
8	27521	29349	50865	68176	30423	38691	39443	52661	29218	25055	29553	27351	35687
9	20142	15520	20892	33819	23844	17146	23171	19651	10857	11732	11750	14153	18854
10	18036	11612	12264	14913	8762	16084	10984	12370	3825	4470	6393	7566	10492
11	10444	8248	8698	6945	4528	5949	5591	6389	2000	2223	2987	3815	5818
12	9468	4204	6352	3729	2280	3367	5249	4479	1200	1287	1660	2153	2934
13	7778	3942	4989	3948	1825	2108	1939	3004	507	1140	1388	1173	1078
14	5785	2933	4036	3730	1186	1529	1334	1557	224	720	725	450	652
15	4669	2928	2703	2722	967	685	818	622	214	355	748	278	249
16	3888	1737	1456	1859	806	424	610	567	244	474	606	309	338
17	3955	1263	1918	575	416	193	127	319	124	124	452	85	162
18	2161	1352	1154	971	279	107	89	100	32	128	136	27	113
19	232	328	501	183	486	72	83	46	10	148	195	38	45
20	403	182	312	226	178	211	26	99	34	78	36	8	20
Total	319457	355709	384538	353873	372659	432585	630339	517474	402816	383760	392153	291965	263216
Age	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
2	420	15	108	0	0	92	0	0	18	3	0	1	42
3	3968	13767	7128	1323	1152	2554	2185	1702	2585	782	650	831	2329
4	14101	33727	65510	17556	12361	12025	7172	31286	13616	14871	14824	15219	9217
5	25370	28049	40462	39206	37493	28814	13191	19003	42602	31760	36614	44168	32340
6	34426	20898	12107	20319	29202	30016	24800	14397	19028	38624	33922	45869	49061
7	39105	16811	5397	7711	10982	18017	22014	25435	12044	12503	28006	26025	28469
8	36485	16022	3396	3078	3460	4830	11848	16930	14701	7246	7050	14722	19505
9	13421	10931	2730	1530	1300	1217	3175	11936	8934	8910	3836	3104	5818
10	7514	4637	1381	1083	757	520	779	1923	6341	4227	5162	2000	1346
11	2315	1462	532	437	560	232	309	338	1018	2536	2905	1977	676
12	1179	631	296	219	183	229	195	156	248	451	1681	1101	873
13	808	292	149	105	116	56	125	90	90	146	254	574	391
14	372	251	75	62	51	65	48	153	41	48	107	116	200
15	165	100	42	40	43	37	14	40	29	41	39	29	37
16	82	50	21	21	38	13	28	12	11	30	20	18	22
17	5	40	20	7	7	10	20	13	9	7	17	11	3
18	8	64	14	8	7	14	5	4	6	7	1	9	1
19	22	30	2	2	4	4	5	0	2	4	3	2	4
20	1	20	6	7	9	10	5	0	3	3	5	2	0
Total	179767	147797	139376	92714	97725	98755	85918	123418	121326	122199	135096	155778	150334
Age	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998		
2	25	8	58	35	0	0	0	0	1	0	3		
3	2779	1696	7693	3111	430	940	105	7	40	8	96		
4	14651	17639	40557	31654	3860	4993	379	30	237	23	229		
5	20184	21150	36410	53805	14535	3343	575	71	297	54	395		
6	47917	25212	22695	29553	12211	1940	177	55	341	56	689		
7	45725	38708	16390	9064	4526	700	74	20	129	84	384		
8	18608	28499	17940	6164	1372	147	22	11	23	21	237		
9	9026	8696	9156	4745	376	21	2	3	5	3	74		
10	4337	3640	2865	1696	199	0	0	0	3	2	10		
11	774	1695	1084	641	104	0	0	0	0	0	5		
12	422	572	478	250	18	0	0	0	0	0	2		
13	366	244	103	88	9	0	0	0	0	0	1		
14	223	180	98	39	4	0	0	0	0	0	0		
15	100	94	36	21	0	0	0	0	0	0	0		
16	32	43	25	9	0	0	0	0	0	0	0		
17	5	4	8	3	0	0	0	0	0	0	0		
18	10	9	7	2	0	0	0	0	0	0	0		
19	5	0	1	2	0	0	0	0	0	0	0		
20	5	1	0	0	0	0	0	0	0	0	0		
Total	165194	148090	155604	140882	37644	12084	1334	197	1076	252	2125		

Table 9. Catch biomass (tons) at age for cod caught in the commercial fishery in NAFO Divisions 2J+3KL for the period 1962-1998.

Age	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974
2	42	202	402	12	115	111	40	8	955	5	33	0	52
3	2946	1954	6575	1760	4779	5189	2088	1472	6155	4378	2964	1268	1131
4	14407	15167	15182	15790	36296	42830	51860	21794	33056	39356	42299	19169	8977
5	56617	53006	50826	41184	82445	88298	181108	88755	72474	83938	74600	67339	31784
6	71540	145278	74638	82344	77259	119014	185165	200770	124536	120677	82292	57123	82587
7	78541	97933	166244	106838	98458	91293	139121	178465	142255	96056	85096	46103	76885
8	58345	62220	107834	144533	64497	82025	83619	111641	61942	53117	62948	49232	55672
9	53175	40973	55155	89282	62948	45265	61171	51879	28662	30972	33605	31137	38651
10	57354	36926	39000	47423	27863	51147	34929	39337	12164	14215	21033	21336	28853
11	39269	31012	32704	26113	17025	22368	21022	24023	7520	8358	11799	12170	18210
12	39292	17447	26361	15475	9462	13973	21783	18588	4980	5341	6839	8160	10005
13	47135	23889	30233	23925	11060	12774	11750	18204	3072	6908	6940	5314	5304
14	32049	16249	22359	20664	6570	8471	7390	8626	1241	3989	6757	3119	2869
15	28528	17890	16515	16631	5908	4185	4998	3800	1308	2169	7031	2007	1576
16	22667	10127	8488	10838	4699	2472	3556	3306	1423	2763	4175	2178	1859
17	25470	8134	12352	3703	2679	1243	818	2054	799	799	6631	803	1226
18	13117	8207	7005	5894	1694	649	540	607	194	777	1637	301	1251
19	1534	2168	3312	1210	3212	476	549	304	66	978	1486	290	343
20	2898	1309	2243	1625	1280	1517	187	712	244	561	629	140	349
total	644926	590090	677428	655244	518248	593302	811698	774346	503047	475357	458793	327188	367583
Age	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
2	109	4	10	0	0	38	0	0	6	1	0	0	13
3	1786	6195	3208	529	530	1354	1202	902	1603	461	312	424	1001
4	8884	20573	39306	12640	9147	9259	5594	26280	11846	13086	10822	10958	6083
5	24355	26086	39248	40774	42367	33424	15433	22804	56235	38112	40275	45935	33310
6	40623	27585	20098	32104	48767	51327	40672	25483	33299	69137	48508	70638	64761
7	54356	29419	12575	18969	27016	42880	49091	53414	27460	28507	57692	48146	53237
8	63484	33166	9577	10034	12352	17195	33885	45034	38370	19637	18753	34597	37645
9	29660	24485	9446	6197	5733	6097	12097	36882	28410	26374	12390	9126	16290
10	19612	13865	5358	4830	3974	2855	4144	8038	22194	15429	17138	6940	4724
11	7732	5366	2543	2194	3248	1559	1944	2082	4876	10854	11794	7513	3245
12	4315	2877	1814	1472	1286	1802	1377	1122	1924	2792	7649	4999	4051
13	3862	1805	1089	851	1039	469	915	720	816	1225	1786	3065	2244
14	1934	2056	630	460	436	652	480	1279	375	492	1035	826	1226
15	858	977	370	328	407	418	126	314	308	469	443	341	316
16	448	562	247	236	407	180	323	95	116	348	225	202	297
17	43	498	213	81	92	107	210	125	118	122	216	156	27
18	74	714	172	71	94	225	56	52	96	91	12	145	22
19	168	229	15	21	62	48	49	0	19	61	43	25	71
20	17	349	105	112	133	114	63	0	48	38	97	31	0
total	262319	196809	146023	131904	157091	170005	167661	224625	228118	227236	229191	244066	228564
Age	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998		
2	7	2	17	6	0	0	0	0	0	0	1		
3	1362	814	3231	1120	125	536	42	3	29	4	60		
4	10695	13053	27984	19309	2239	3545	258	24	234	19	214		
5	21799	21785	38595	52191	11773	3243	564	107	385	81	596		
6	66125	36305	34043	41670	14531	2425	250	107	647	112	1477		
7	76361	70836	31797	17040	7830	1113	137	45	306	205	952		
8	41124	58993	39827	13992	2813	1235	45	27	63	61	714		
9	22655	22957	22341	12479	1000	194	6	8	18	11	248		
10	13184	10993	8767	5325	446	0	0	0	11	8	40		
11	3382	6712	3881	2436	279	0	0	0	1	2	22		
12	2317	3095	2237	1240	89	0	0	0	0	1	7		
13	2397	1830	642	483	48	0	0	0	0	0	6		
14	1918	1663	834	297	28	0	0	0	0	0	0		
15	976	945	352	243	0	0	0	0	0	0	0		
16	311	402	315	99	0	0	0	0	0	0	0		
17	63	63	124	38	0	0	0	0	0	0	0		
18	160	168	95	26	0	0	0	0	0	0	0		
19	83	0	17	26	0	0	0	0	0	0	0		
20	55	18	0	0	0	0	0	0	0	0	0		
total	264975	250632	215096	168021	41200	12290	1301	321	1694	504	4338		

Table 10. Cod abundance (thousands) for NAFO Division 2J 1983-1992 in Campelen equivalent units.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	Gadus 86-88 1983	Gadus 101-102 1984	Gadus 116-118 1985	Gadus 131-132 1986	Gadus 145-146 1987	Gadus 159-160 1988	Gadus 174-176 1989	Gadus 190-191 1990	Gadus 208-209 1991	Gadus 224-226 1992
	Mean survey date		05-Nov-83	05-Nov-84	30-Oct-85	11-Nov-86	06-Nov-87	14-Nov-88	10-Nov-89	12-Nov-90	14-Nov-91	05-Nov-92
101-200	201	1427	87811	52543	82806	99720	25126	319	0	0	0	0
	205	1823	122517	182501	48964	44029	34532	38745	502	1223	0	0
	206	2582	55637	142654	68017	134937	17607	83620	48332	2874	3197	3339
	207	2246	145830	101693	171902	37826	38648	45550	9825	15492	0	1545
201-300	202	440	5387	8111	4086	31746	7838	1025	0	0	0	0
	209	1608	108766	14599	39668	142610	48249	47602	140710	8590	9006	2522
	210	774	389901	16929	772	97706	479	10221	43414	34603	24230	2783
	213	1725	62645	33648	67470	102247	36569	43632	183006	89430	25390	1948
	214	1171	18102	112678	78314	157299	128223	115524	70582	18267	2942	897
	215	1270	25616	42569	26380	293011	27603	90521	1689	9434	2271	2114
	228	1428	22525	8643	2582	61157	4153	6679	14364	15813	154727	1964
234	508	50198	16841	11926	22187	6825	2690	0	0	0	256	
301-400	203	480	990	1552	638	5745	3962	5910	0	0	66	110
	208	448	5947	760	4622	9768	12572	1849	53462	8012	986	2465
	211	330	4698	908	2361	4880	4835	6945	35386	23197	67475	8058
	216	384	18	740	396	317	9720	1347	2562	872	687	106
	222	441	0	20	698	61	849	182	33214	4853	1597	364
	229	567	6357	208	3536	1872	338	1222	6214	5577	11518	1508
401-500	204	354	1704	5235	0	1802	1242	5405	268	146	0	162
	217	268	0	38	0	0	184	0	0	0	74	0
	227	686	47	0	0	157	236	252	3350	18150	6810	582
	235	420	9620	404	144	0	780	462	664	3178	12537	212
total strata fished <= 500 meters			1124316	743236	615282	1249077	410570	508714	647594	260268	323637	30960
1 STD strata fished <= 500 meters			320612	112688	88262	261581	66519	74633	112157	45978	165231	5287
501-750	212	664	0	91	23	761	365	548	206	3562	41423	274
	218	420	0	nf	0	0	0	0	0	0	0	0
	224	270	0	0	0	0	0	0	0	0	130	0
	230	237	0	0	0	0	0	98	0	978	0	0
501-750	1591	0	91 ¹	23	761	365	646	206	4540	41553	274	
751-1000	219	213	0	nf	0	0	0	0	0	0	0	0
	231	182	0	0	0	0	0	0	nf ^T	0	0	325
	236	122	0	0	0	34	0	0	nf ^T	0	0	0
751-1000	517	0	0	0	34	0	0	0 ^T	0	0	325	
total strata fished > 500 meters			0	91	23	795	365	646	206	4540	41553	599
total all strata fished			1,124,317	743,328	615,304	1,249,871	410,936	509,360	647,797	264,807	365,191	31,560
1 STD all strata fished			320612	112687	88263	261582	66519	74635	112159	46014	170124	5304
mean number per tow			345.328	237.344	188.987	383.891	126.217	159.411	201.556	81.334	112.166	9.693

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 500 meter depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 11 . Cod biomass (t) for NAFO Division 2J 1983 -1992 in Campelen equivalent units.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	Gadus 86-88 1983	Gadus 101-102 1984	Gadus 116-118 1985	Gadus 131-132 1986	Gadus 145-146 1987	Gadus 159-160 1988	Gadus 174-176 1989	Gadus 190-191 1990	Gadus 208-209 1991	Gadus 224-226 1992
	Mean survey date		05-Nov-83	05-Nov-84	30-Oct-85	11-Nov-86	06-Nov-87	14-Nov-88	10-Nov-89	12-Nov-90	14-Nov-91	05-Nov-92
101-200	201	1427	61842	41743	58556	88676	27395	208	0	0	0	0
	205	1823	53701	95026	30679	38754	31421	61555	691	182	0	0
	206	2582	33286	121643	49111	123683	16999	92563	38555	661	1333	1489
	207	2246	46134	55054	107180	25989	36773	18803	2352	6370	0	649
201-300	202	440	8365	7647	3064	32711	11398	1874	0	0	0	0
	209	1608	127333	17017	35398	119210	56901	28242	52339	1670	3966	990
	210	774	241006	21752	1521	87332	737	10667	36642	12536	13406	1116
	213	1725	50086	27703	55229	98497	41997	53146	120476	34360	11859	587
	214	1171	19316	104048	77051	189715	170212	137161	56924	13766	1018	399
	215	1270	30986	31690	30602	379256	36553	146322	315	8508	1073	760
	228	1428	8049	7695	1244	52833	4800	10296	12552	8973	65772	672
	234	508	16910	11930	9173	22705	7342	5157	0	0	0	68
301-400	203	480	2250	3445	582	7875	6300	9640	0	0	45	77
	208	448	7465	1115	4301	8575	16641	3653	22845	3699	455	1091
	211	330	6334	1570	3287	4661	7667	7283	56896	10465	35048	3629
	216	384	52	1592	429	435	13557	2201	3178	255	287	25
	222	441	0	32	784	59	1192	247	9028	2559	579	175
	229	567	2354	263	3823	2399	340	1889	6166	4265	4906	595
401-500	204	354	2458	5863	0	2174	1732	8318	36	37	0	48
	217	268	0	60	0	0	211	0	0	0	45	0
	223	180	0	0	0	0	0	57	23	212	107	13
	227	686	217	0	0	224	341	353	5407	17904	4643	311
	235	420	4348	332	133	0	1090	717	962	1930	5594	101
total strata fished <= 500 meters			722492	557160	472147	1285763	491599	598478	425387	128352	150136	12795
1 STD strata fished <= 500 meters			177183	83218	65293	325107	31381	97959	218324	25701	72612	2315
501-750	212	664	0	nf	0	0	0	0	0	2196	20693	159
	218	420	0	0	0	0	0	0	0	0	62	0
	224	270	0	0	0	0	0	193	0	0	0	0
	230	237	0	0	0	0	0	0	0	1395	0	0
501-750	1591	0	0 ¹	0	0	0	193	0	3591	20755	159	
751-1000	219	213	0	nf	0	0	0	0	0	0	0	0
	231	182	0	0	0	0	0	0	nf	0	0	144
	236	122	0	0	0	62	0	0	nf	0	0	0
751-1000	517	0	0	0	62	0	0	0 ¹	0	0	144	
total strata fished > 500 meters			0	0	0	62	0	193	0	3591	20755	303
total all strata fished			722491	557302	472214	1287042	492144	599436	425874	131943	170892	13096
1 STD all strata fished			177183	83218	65293	325108	84935	97963	85921	25746	74135	2326

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 500 meter depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 12. Abundance and biomass estimates for NAFO Division 2J for the revised stratification scheme in Campelen equivalent units for 1993 and 1994 and actual Campelen units for 1995-1998.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	GADUS 236-238 1993	GADUS 250-252 1994	TELEOST 20-23 1995-6	TELEOST 39 1996	TELEOST 54-54 1997	TELEOST 72-73 1998	GADUS 236-238 1993	GADUS 250-252 1994	TELEOST 20-23 1995-6	TELEOST 39 1996	TELEOST 54-55 1997	TELEOST 72-73 1998
Mean survey date			07-Nov-93	17-Nov-94	28-Dec-95	30-Oct-96	27-Oct-97	27-Oct-98	07-Nov-93	17-Nov-94	28-Dec-95	30-Oct-96	27-Oct-97	27-Oct-98
			ABUNDANCE (000'S)						BIOMASS TONS					
101-200	201	633	0	0	nf	0	0	44	0	0	nf	0	0	30
	205	1594	63	219	nf	110	110	32	63	151	nf	16	42	5
	206	1870	547	0	0	184	257	294	155	0	0	62	125	186
	207	2246	2128	2699	350	588	138	751	452	507	44	57	110	406
	237	733	151	0	273	134	0	34	83	0	13	8	0	2
	238	778	nf	0	nf	107	36	0	nf	0	nf	21	27	0
201-300	202	621	0	0	49	0	0	0	0	0	9	0	0	0
	209	680	374	514	327	249	62	243	100	67	52	20	44	162
	210	1035	5731	854	1424	320	214	178	1158	139	108	26	112	98
	213	1583	871	0	2504	835	1085	871	346	0	336	214	586	639
	214	1341	1771	338	323	959	406	418	700	174	39	273	186	289
	215	1302	1719	358	90	2373	1381	498	443	210	21	773	586	404
	228	2196	436	0	949	2068	1347	2001	294	0	263	665	747	1258
	234	530	0	0	nf	73	142	36	0	0	nf	22	83	3
301-400	203	487	0	301	0	335	234	67	0	220	0	136	157	67
	208	588	0	162	768	566	0	40	0	41	123	200	0	4
	211	251	414	322	708	483	0	192	241	110	141	81	0	139
	216	360	0	173	927	715	99	74	0	96	234	194	54	73
	222	450	279	846	495	543	1021	272	146	276	124	290	495	194
	229	536	590	295	627	946	205	74	109	124	184	305	138	54
401-500	204	288	0	0	16	20	0	0	0	0	1	8	0	0
	217	241	66	55	561	63	0	166	67	19	135	26	0	177
	223	158	0	0	880	91	54	19	0	0	135	32	35	25
	227	598	795	0	370	1207	41	247	441	0	109	748	33	197
	235	414	1044	1006	541	101	85	85	318	559	175	84	30	71
	240	133	9	0	123	9	18	0	13	0	68	2	19	0
total strata fished <= 500 meters			16989	8145	12305	13081	6936	6636	5129	2693	2312	4261	3609	4483
1 STD strata fished <= 500 meters			4595	2584	1822	1968	1000	919	883	514	272	796	463	693
501-750	212	557	77	128	69	136	77	0	93	15	15	22	49	0
	218	362	0	50	1660	75	0	0	0	519	519	12	0	0
	224	228	0	0	596	0	0	0	0	205	205	0	0	0
	230	185	0	34	13	0	0	0	0	14	14	0	0	0
	239	120	17	17	0	8	7	0	17	0	0	2	3	0
751-1000	219	283	0	0	0	0	0	0	0	0	0	0	0	0
	231	186	0	0	0	0	0	0	0	0	0	0	0	0
	236	193	0	0	12	0	0	0	0	2	2	0	0	0
1001-1250 ¹	753		nf	nf	nf	0	0	0	nf	nf	nf	0	0	0
1251-1500 ¹	768		nf	nf	nf	0	0	0	nf	nf	nf	0	0	0
total strata fished > 500 meters			94	229	2350	219	84	0	110	755	755	36	52	0
total all strata fished			17082	8373	14654	13300	7020	6636	5238	3448	3067	4298	3662	4483
1 STD all strata fished			4596	2588	2057	1973	1003	919	888	262	380	797	465	693

¹ Not all strata in the depth range have been fished . Because of the short time series with the revised stratification scheme and a switch in 1995 to a different vessel and gear no attempt has been made to use a multiplicative model to fill strata which were not fished.

Table 13. Cod abundance (thousands) for NAFO Division 3K 1983-1992 in Campelen equivalent units.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	GADUS 87-88 1983	GADUS 101-103 1984	GADUS 117-118 1985	GADUS 131-132 1986	GADUS 146-147 1987	GADUS 160-161 1988	GADUS 175-176 1989	GADUS 191-192 1990	GADUS 209-210 1991	GADUS 224-226 1992
	Mean survey date		26-Nov-83	23-Nov-84	18-Nov-85	01-Dec-86	27-Nov-87	05-Dec-88	05-Dec-89	04-Dec-90	04-Dec-91	26-Nov-92
101-200	618	1455	17028	24569	26453	64689	14954	57577	14811	13210	721	1268
	619	1588	3835	9955	1155	17476	6826	19598	63705	2578	0	218
201-300	620	2709	126888	110535	4685	135397	32793	100337	253826	11304	3780	2236
	621	2859	33593	32109	8338	27811	16059	32525	44025	14230	2517	131
	624	668	10016	9786	2550	2573	1746	3982	4901	24948	7076	735
	632	447	30765	9851	4591	4735	7410	51959	4888	22044	10336	1438
	634	1618	61564	31160	29182	323578	60702	21441	269092	4610	99321	694
	635	1274	7711	29442	4682	14225	3593	9534	5934	3505	1490	701
	636	1455	8807	17788	3828	21566	6777	12743	13850	715	1134	133
	637	1132	31704	73889	15928	46132	15805	24915	13766	6634	5320	156
301-400	623	1027	29291	51057	3697	4026	11782	23649	102872	50690	3155	5557
	625	850	4677	1988	7156	3196	11400	5554	21251	11693	1676	546
	626	919	6953	3266	2705	62324	5815	5006	12566	9260	1264	632
	628	1085	7935	4670	6617	2687	1582	18448	12575	5522	9303	4179
	629	495	2357	2557	1647	5720	938	7276	3135	6521	978	1853
	630	544	1497	2170	262	262	524	524	7009	1085	499	150
	633	2179	15312	21312	38293	96780	49404	15737	220703	243039	185926	7410
	638	2059	53867	17476	37259	36467	24472	23650	137139	360185	200000	7511
	639	1463	12449	5283	8780	15127	5980	12176	19270	52757	91771	2262
401-500	622	632	304	1434	283	1652	174	3188	21561	12476	1449	1594
	627	1194	1032	1038	372	4658	2633	1173	10505	85313	4506	3692
	631	1202	1025	33	472	207	3059	6063	42471	28964	15157	992
	640	198	194	0	9	14	0	109	2982	150	1970	17459
	645	204	0	0	9	90	112	28	4686	379	0	75
total strata fished <=500 meters			447748	451517	208952	891302	284541	457191	1307523	971810	649350	61622
1 STD strata fished <=500 meters			61132	68574	27228	321032	44267	73335	270219	184614	159892	17726
501-750 ¹		917	0	0	0	nf	107	nf	nf	92	122	263
751-1000 ¹		1340	nf	nf	0	nf	nf	nf	nf	128	56	0
total strata fished > 500 meters			0	0	0	0	107	0	0	220	178	263
total all strata fished			447748	451517	208952	891302	284648	457191	1307523	972029	649529	61886
1 STD all strata fished			61132	68574	27228	321032	44267	73335	270219	184614	159892	17726

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 500 meter depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 14. Cod biomass (t) for NAFO Division 3K 1983 -1992 in Campelen equivalent units.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	GADUS 87-88 1983	GADUS 101-103 1984	GADUS 117-118 1985	GADUS 131-132 1986	GADUS 146-147 1987	GADUS 160-161 1988	GADUS 175-176 1989	GADUS 191-192 1990	GADUS 209-210 1991	GADUS 224-226 1992
	Mean survey date		26-Nov-83	23-Nov-84	18-Nov-85	01-Dec-86	27-Nov-87	05-Dec-88	05-Dec-89	04-Dec-90	04-Dec-91	26-Nov-92
101-200	618	1455	7987	18702	24894	53641	10200	2443	1575	1514	261	450
	619	1588	1491	4801	1113	3157	2538	1212	3363	154	0	119
201-300	620	2709	67557	87523	8223	131461	27088	13232	24447	1636	1158	847
	621	2859	18041	25813	6216	19356	3294	11590	7313	1021	359	194
	624	668	3920	3082	2340	2798	802	3087	1660	8649	3809	331
	632	447	33968	10779	4106	4540	7824	51549	2030	8677	5581	663
	634	1618	56301	24843	28663	436500	80357	19008	322401	1976	77639	450
	635	1274	4940	11970	3551	16754	3329	3843	2609	998	617	319
	636	1455	11657	13899	3977	13264	5871	9229	3577	431	334	138
637	1132	36769	75369	15341	50718	15913	29982	13010	2665	2332	85	
301-400	623	1027	23690	46679	5155	4602	17254	3662	22849	12857	1130	1960
	625	850	5410	2474	7062	3405	11136	5766	12105	4049	861	291
	626	919	5565	3377	4274	41267	4852	1188	5858	718	345	218
	628	1085	8807	4909	7807	2564	1484	7998	7102	2184	4028	1345
	629	495	2506	1739	955	5557	907	1391	1550	2003	95	535
	630	544	1452	1564	435	292	743	863	9065	644	267	85
	633	2179	15440	23201	39817	115810	66782	15297	148660	169097	132091	4366
	638	2059	56662	12773	35965	37822	31829	18946	184194	353107	150413	3564
639	1463	17739	5242	8657	14185	6332	7526	7803	24244	74514	941	
401-500	622	632	541	1487	215	1307	163	847	8794	2974	498	564
	627	1194	970	772	360	5307	1150	1208	4805	13523	1248	765
	631	1202	2700	138	493	273	3049	6448	31211	11300	8691	732
	640	198	385	0	16	22	0	299	2436	204	1231	16334
	645	204	0	0	50	255	139	122	1628	368	0	48
total strata fished <=500 meters			374634	370356	209686	964600	303038	216734	830045	624993	467505	35346
1 STD strata fished <=500 meters			51399	58138	26560	428297	61366	50225	289567	207590	128742	16146
501-750 ¹			917	0	0	nf	174	nf	nf	72	133	258
751-1000 ¹			1340	nf	0	nf	nf	nf	nf	70	39	0
total strata fished > 500 meters			0	0	0	0	174	0	0	142	172	258
total all strata fished			374634	370356	209686	964600	303212	216734	830045	645136	649529	35604
1 STD all strata fished			51399	58138	26560	428297	61366	50225	289567	198748	159892	16146

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 500 meter depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 15. Abundance and biomass estimates for the revised stratification scheme in NAFO Division 3K in Campelen equivalent units for 1993 and 1994 and actual Campelen units for 1995-98.

Depth range meters	Stratum number	Stratum area sq. mi.	GADUS		WT 176-81	WT 196-199	WT 217	TELEOST		GADUS		WT 176-181	WT 196-199	WT 217	TELEOST
			236-238	250-252	TELEOST	TELEOST	TELEOST	TELEOST		236-238	250-252	TELEOST	TELEOST	TELEOST	TELEOST
	Mean survey date		1993	1994	1995-6	1996	1997	1998		1993	1994	1995-6	1996	1997	1998
			23-Nov-93	07-Dec-94	26-Dec-95	14-Nov-96	18-Nov-97	14-Nov-98		23-Nov-93	07-Dec-94	26-Dec-95	14-Nov-96	18-Nov-97	14-Nov-98
			abundance (000'S)							biomass (tons)					
101-200	618	1347	2409	159	1170	1887	1174	1065		721	40	87	221	291	170
	619	1753	965	0	655	218	448	2411		708	0	32	42	36	158
201-300	620	2545	3268	350	1465	947	764	1814		614	118	238	230	203	471
	621	2736	0	251	2393	303	44	494		0	267	302	77	202	207
	624	1105	391	152	813	2432	395	973		177	85	251	714	207	752
	634	1555	468	642	214	1246	31	672		189	417	97	391	7	300
	635	1274	467	0	88	386	243	491		189	0	10	94	208	322
	636	1455	734	200	286	133	267	367		334	141	92	39	234	303
	637	1132	4983	389	242	810	125	529		2039	74	74	358	38	321
301-400	617	593	1876	184	693	109	1006	160		383	74	97	14	359	95
	623	494	1138	0	578	510	136	217		213	0	32	144	37	70
	625	888	285	0	342	131	305	329		229	0	99	66	139	166
	626	1113	714	204	2709	1415	31	1868		468	89	289	340	6	1034
	628	1085	1443	299	1556	826	358	1151		736	80	353	409	274	647
	629	495	908	375	545	68	69	102		343	20	70	12	45	54
	630	332	0	0	41	0	69	23		0	0	11	0	53	14
	633	2067	1153	2218	851	1381	885	695		502	1067	420	535	516	624
	638	2059	8780	1187	1252	2155	472	661		3913	401	635	723	232	593
	639	1463	1489	1711	712	1025	537	503		622	761	290	415	260	494
401-500	622	691	1141	57	542	230	63	507		299	32	68	55	19	143
	627	1255	2992	604	4924	1918	514	414		891	226	702	466	211	150
	631	1321	0	182	501	273	84	0		0	208	99	45	90	0
	640	69	228	16	218	25	43	47		131	11	90	13	30	71
	645	216	79	119	134	30	15	43		84	87	48	14	11	44
	650	134	995	65	276	92	350	74		441	43	112	40	292	76
total strata fished <= 500 meters			36907	9361	23200	18550	8428	15612		14227	4241	4578	5457	3978	7280
1 STD strata fished <= 500 meters			5817	2408	1734	2115	1130	1967		1925	1062	427	608	492	1022
501-750	641	230	11	21	63	47	0	16		16	18	83	101	0	13
	646	325	75	0	0	0	22	0		51	0	0	0	42	0
	651	359	16	123	691	25	0	198		25	116	317	30	0	133
751-1000	642	418	115	0	0	0	0	0		72	0	0	0	0	0
	647	360	0	0	0	0	0	0		0	0	0	0	0	0
	652	516	142	106	0	0	0	71		208	62	0	0	0	96
1001-1250 ³		1264	nf	nf	0	0				nf	nf	0	0	0	0
1251-1500 ³		1165	nf	nf	0	0		0		nf	nf	0	0	0	0
total strata fished > 500 meters			359	250	754	72	22	285		372	196	400	131	42	242
total all strata fished			37265	9612	23954	18621	8450	15896		14598	4437	4978	5588	4020	7522
1 STD all strata fished			5819	2412	1790	2116	2586	1969		1927	1066	475	608	741	1027

¹ Not all strata in the depth range have been fished. Because of the short time series with the revised stratification scheme and a switch in 1995 to a different vessel and gear no attempt has been made to use a multiplicative model to fill strata which were not fished.

Table 16. Cod abundance (thousands) for NAFO Division 3L from fall surveys in 1983-1998 in depths <= 200 fathoms. The 1983 -94 data are in Campelen equivalent units and 1995-98 in actual Campelen units.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	Tel 41 Tel 55-57															
			WT 7-9 1983	WT 16-18 1984	WT 37-39 1985	AN 72 1986	WT 65 1987	WT 78 1988	WT 87 1989	WT 101 1990	WT 114-115 1991	WT 129-130 1992	WT 145-146 1993	WT 160-162 1994	WT 176-181 1995	WT 196-198 1996	WT 213-217 1997	WT 230-233 1998
Mean survey date			27-Oct-83	15-Aug-84	27-Oct-85	21-Nov-86	24-Oct-87	03-Nov-88	20-Oct-89	05-Nov-90	21-Nov-91	16-Nov-92	23-Nov-93	22-Nov-94	27-Nov-95	02-Nov-96	27-Nov-97	15-Nov-98
31-50	350	2071	26886	62391	66442	43614	15131	13276	10854	5911	5359	1140	1804	122	1045	285	570	773
	363	1780	38933	73152	143316	6156	21384	23286	43993	52247	3702	13036	408	367	365	82	1306	481
	371	1121	20972	36304	5199	565	3547	4472	193	7556	411	1079	103	0	31	0	0	0
	372	2460	157018	160636	65709	16318	57710	16269	32627	141824	3774	2919	299	0	353	414	42	1114
	384	1120	29119	73645	1560	801	34383	1489	966	41791	1061	146	154	0	0	0	0	0
51-100	328	1519	6868	1985	1802	37264	2507	8806	1224	2090	279	1114	488	139	0	334	376	334
	341	1574	14723	8401	4949	6124	337	1245	298	1985	505	217	1516	0	36	289	54	223
	342	585	2837	4466	912	885	1073	429	80	2052	161	54	0	80	40	121	40	80
	343	525	915	14408	1517	1974	337	650	24	1372	481	722	72	96	36	0	68	0
	348	2120	8934	34810	6978	6008	3143	3995	6189	6389	1896	3208	nf	219	250	393	167	194
	349	2114	9306	62170	15645	8724	2472	7302	1745	4736	3722	58	1939	208	122	166	344	162
	364	2817	25576	97381	20064	3720	4789	10048	1656	13595	291	388	1421	323	43	116	525	0
	365	1041	7074	102281	4242	8821	1456	1690	573	895	1575	286	95	95	215	207	191	0
	370	1320	5811	52295	2865	2905	1059	623	121	1888	121	484	666	0	73	0	91	0
	385	2356	5445	20391	756	4497	972	25	29	1713	389	648	0	0	0	36	0	41
	390	1481	815	33751	553	5229	23276	3107	2183	1290	0	136	0	0	34	0	0	0
101-150	344	1494	5823	15722	10733	8250	5600	4874	4580	9454	3186	5446	2363	771	530	2950	914	715
	347	983	5995	11719	3056	3651	2502	10628	4571	30560	609	676	439	34	199	391	541	406
	366	1394	11314	56011	51115	59062	25367	66130	17888	9812	19359	44544	2972	115	230	236	652	443
	369	961	9628	14919	5222	53011	11336	12241	1005	2809	12559	1884	227	0	78	0	220	39
	386	983	10318	8587	4327	14705	7167	4895	6464	7099	135	766	135	0	45	0	0	0
	389	821	10950	3614	4518	4179	49636	13270	10023	2936	10842	0	0	0	38	0	38	0
	391	282	16778	291	6440	485	2289	427	1028	1629	233	129	116	0	0	0	19	0
151-200	345	1432	6821	7936	14730	12410	8963	11285	5881	11977	4432	985	1510	542	2780	433	302	653
	346	865	17634	9023	9567	14120	30253	27058	9073	14517	37387	33292	1417	136	754	379	1269	297
	368	334	21257	2688	6524	12497	3101	5008	1861	11555	27437	30338	15627	88	299	128	459	368
	387	718	12466	19062	3704	22519	4708	1753	1350	3325	2963	2864	2601	779	66	44	1514	132
	388	361	5572	4817	1341	3629	844	1813	5761	1962	1556	579	414	177	99	0	135	0
	392	145	150	1107	339	110	10	289	40	598	259	20	27	0	19	18	20	0
total strata fished <= 200 fathoms			428505	993964	464125	358606	325352	256383	172299	395569	144684	147159	36813	4292	7732	7066	9859	6454
ADJUSTED			495838	993963	464125	362233	325352	256383	172300	395567	144684	147158	36813	4291	7735	7067	9859	6454
1 STD strata fished <= 200 fathoms			47712	106973	88489	50292	50645	26946	30742	58945	17534	33948	12486	951	1993	1939	1862	1010

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 200 fathom depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 17. Cod biomass (t) for NAFO Division 3L from fall surveys in 1983 - 1998 in depths <= 200 fathoms. The 1983-1994 data are in Campelen equivalent units and the 1995-1998 are in actual Campelen units.

Stratum depth (meters)	Stratum number	Area sq. nautical miles	WT															Teleost 41		Tel 55-57	
			7-9 1983	16-18 1984	37-39 1985	AN 1986	WT 1987	WT 1988	WT 1989	WT 1990	WT 114-115 1991	WT 129-130 1992	WT 145-146 1993	WT 160-162 1994	WT 176-181 1995	WT 196-199 1996	WT 213-217 1997	WT 230-233 1998			
Mean survey date			27-Oct-83	15-Aug-84	27-Oct-85	21-Nov-86	24-Oct-87	03-Nov-88	20-Oct-89	05-Nov-90	21-Nov-91	16-Nov-92	23-Nov-93	22-Nov-94	27-Nov-95	02-Nov-96	27-Nov-97	15-Nov-98			
31-50	350	2071	18204	42081	35227	46248	14242	16885	10769	6602	6434	1877	1522	179	1276	362	1355	997			
	363	1780	36935	50726	103274	9116	22124	30177	33959	35121	4266	7504	344	211	506	224	2895	152			
	371	1121	13316	24055	3285	366	4935	7746	457	9110	481	893	91	0	10	0	0	0			
	372	2460	100388	74560	62776	22328	68454	19194	29816	177108	3164	1896	287	0	54	557	29	431			
	384	1120	15999	57404	1314	163	27226	1681	223	61815	674	127	67	0	0	0	0	0			
51-100	328	1519	2634	832	1378	11971	603	3397	1101	415	185	1748	166	248	0	537	1014	144			
	341	1574	4517	5043	2694	4218	473	1273	198	1237	920	253	289	0	2	248	16	290			
	342	585	752	1733	554	588	451	583	114	1029	383	123	0	36	22	184	66	5			
	343	525	1341	6036	518	1930	404	661	90	653	132	459	79	34	18	0	45	0			
	348	2120	6763	24084	4851	5686	3229	3906	4158	2995	1666	1504	nf	322	181	326	144	191			
	349	2114	5245	23149	9512	7711	2203	8207	2690	3630	5454	66	1755	54	88	117	327	357			
	364	2817	5306	21027	4966	2813	3463	7216	1681	6851	915	526	873	302	1	95	353	0			
	365	1041	2101	20303	2383	4292	2116	1961	797	509	2814	347	54	114	129	147	72	0			
	370	1320	2403	21444	1579	579	1605	1128	224	1159	189	673	171	0	72	0	41	0			
	385	2356	1719	5657	316	2583	1624	303	110	1620	300	735	0	0	0	11	0	57			
390	1481	1366	6250	108	561	1850	516	294	283	0	81	0	0	13	0	0	0				
101-150	344	1494	3698	12067	9056	7635	4726	2746	2435	5079	809	3003	988	382	233	2214	221	409			
	347	983	6183	10733	2265	3960	1906	9386	5239	18473	369	181	351	20	99	324	259	407			
	366	1394	15941	18725	54100	70142	28721	76378	18189	8194	15225	40824	2426	116	121	87	264	223			
	369	961	9321	8962	8086	65455	19792	12361	3266	3223	13072	937	180	0	174	0	170	4			
	386	983	8056	5281	6595	23005	5487	6410	7472	10209	124	366	194	0	0	20	0	0			
	389	821	5277	4726	5017	3420	9036	2951	5134	3838	0	0	0	12	0	35	0	0			
391	282	1418	157	1522	711	400	76	158	577	74	18	53	0	0	0	21	0				
151-200	345	1432	10540	7499	15729	16629	9962	14557	7883	7575	1775	736	957	245	1441	370	76	512			
	346	865	14781	6034	10546	15984	36414	33516	14619	13512	27945	29383	702	91	459	243	466	287			
	368	334	23841	2557	10438	21732	7227	7539	4904	13883	26629	29646	10776	80	129	48	181	240			
	387	718	13000	14254	7063	37565	5152	2623	1146	9129	3515	2018	1984	321	25	19	851	99			
	388	361	5572	1730	3116	3629	389	1067	3506	1564	740	390	268	119	35	0	78	0			
392	145	172	245	251	43	15	110	55	276	117	9	19	0	15	7	10	0				
total strata fished <= 200 fathoms			278412	477355	368514	387438	284230	274553	160688	405668	121761	126323	24594	2873	5114	6140	8991	4804			
ADJUSTED			336789	477354	368519	391063	284229	274554	160687	405669	121759	126323	24596	2874	5115	6140	8991	4804			
1 STD strata fished <= 200 fathoms			35321	40504	58214	62019	31955	30073	21690	81110	15570	33260	8723	502	1187	1587	2212	1028			

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 200 fathom depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 18. Cod abundance (thousands) and biomass (t) for NAFO Division 3L in 1983-1998 in depths > 200 fathoms. The 1983-1994 data are in Campelen equivalent units and the 1995-1998 data are in actual Campelen units.

Stratum depth (fathoms)	Stratum number	Area sq. nautical miles	WT														Teleost 41		Tel 55-57	
			7-9 1983	16-18 1984	37-39 1985	AN 1986	WT 1987	WT 1988	WT 1989	WT 1990	WT 1991	WT 1992	WT 1993	WT 1994	WT 1995	WT 1996	WT 1997	WT 1998		
Mean survey date			27-Oct-83	15-Aug-84	27-Oct-85	21-Nov-86	24-Oct-87	03-Nov-88	20-Oct-89	05-Nov-90	21-Nov-91	16-Nov-92	23-Nov-93	22-Nov-94	27-Nov-95	02-Nov-96	27-Nov-97	18-Nov-98		
ABUNDANCE																				
201-300	729	186	nf	320	0	0	nf	nf	nf	38	0	13	213	0	0	0	13	0		
	731	216	nf	15	30	nf	nf	nf	nf	15	30	168	277	21	13	nf	178	0		
	733	468	nf	1481	43	nf	nf	nf	nf	386	21	494	1223	107	32	0	193	61		
	735	272	nf	25	94	0	nf	nf	nf	nf	923	886	9155	180	187	0	449	112		
301-400	730	170	nf	0	0	nf	nf	nf	nf	nf	0	0	0	8	0	0	0	0		
	732	231	nf	0	0	nf	nf	nf	nf	0	0	0	0	0	0	0	0	0		
	734	228	nf	0	0	nf	nf	nf	nf	0	0	0	31	42	0	0	167	0		
	736	175	0	nf	0	0	nf	nf	nf	0	24	0	96	28	32	0	144	0		
401-500	957	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	16	0	0	0		
501-600	945	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	0	0	0		
601-700	1745	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	0	0		
701-800	773	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	0	0		
total strata fished > 200 fathoms			0	1841	167	0	0	0	0	439	998	1561	10995	386	280	0	1144	173		
total all strata fished offshore			428505	995804	464291	358606	325352	256383	172299	396008	145682	148719	47809	4678	8013	7066	11003	6628		
1 STD all strata fished offshore			47712	106981	88490	50292	50645	26946	30742	58946	17559	33959	13351	954	2002	1939	3654	1010		
BIOMASS																				
201-300	729	186	nf	206	0	0	nf	nf	nf	107	0	45	208	0	0	0	19	0		
	731	216	nf	92	248	nf	nf	nf	nf	19	49	131	177	23	5	nf	178	0		
	733	468	nf	1678	461	nf	nf	nf	nf	937	28	316	837	85	14	0	161	68		
	735	272	nf	276	466	0	nf	nf	nf	nf	1214	1233	4809	91	109	0	369	167		
301-400	730	170	nf	0	0	nf	nf	nf	nf	nf	0	0	0	8	0	0	0	0		
	732	231	nf	0	0	nf	nf	nf	nf	0	0	0	0	0	0	0	0	0		
	734	228	nf	0	0	nf	nf	nf	nf	0	0	0	18	42	0	0	313	0		
	736	175	0	nf	0	0	nf	nf	nf	0	56	0	51	28	15	0	169	0		
401-500	957	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	17	0	0	0		
501-600	945	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	0	0	0		
601-700	1745	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	0	0	0		
701-800	773	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	0	0	0		
total strata fished > 200 fathoms			0	2252	1175	0	0	0	0	1063	1347	1725	6100	277	160	0	1209	235		
total all strata fished offshore			278412	479606	369689	387438	284230	274553	160688	406730	123108	128048	30694	3149	5275	6140	10200	5039		
1 STD all strata fished offshore			35321	40525	58217	62019	31955	30073	21690	81110	15618	33279	9033	506	1193	1587	3922	1019		

nf Not all strata in the depth range have been fished. Strata not fished in the greater than 200 fathom depth range have not been filled using a multiplicative model.

Table 19. Abundance (thousands) and biomass (t) estimated for inshore strata in Divisions 3K and 3L in autumn 1996-1998. Also shown are totals for offshore strata and for all strata fished.

3K								
Stratum depth (meters)	Stratum number	Area sq. nautical miles	WT 196-199	WT 217	WT 233	WT 196-199	WT 217	WT 233
			TELEOST	TELEOST		TELEOST	TELEOST	
			40-42	55-57		40-42	55-57	
			1996	1997	1998	1996	1997	1998
Mean survey date			14-Nov-96	18-Nov-97	02-Dec-98	14-Nov-96	18-Nov-97	02-Dec-98
			abundance			biomass		
101-200	608	798	915	1061	1647	201	142	113
	612	445	510	92	367	111	3	18
	616	250	103	52	206	4	0	5
201-300	609	342	436	329	155	108	64	30
	611 ³	600	122	578	169	25	129	9
301-400	615	251	0	17	104	0	0	61
	610	256	31	405	493	3	117	50
	614	263	16	0	18	2	0	33
401-500	613	30	0	0	12	0	0	1
total inshore strata			2133	2534	3171	454	455	320
total offshore			18622	8450	15896	5588	4020	7521
total all strata fished			20756	10984	19067	6039	4475	7843
STD all strata fished			2209	1380	2040	491	525	1030
3L								
Stratum depth (fathoms)	Stratum number	Area sq. nautical miles	Teleost 41	WT 213-217	WT 233	Teleost 41	WT 213-217	WT 233
			WT	TELEOST		WT	TELEOST	
			196-198	57-58		196-198	57-58	
			1996	1997	1998	1996	1997	1998
Mean survey date			02-Nov-96	27-Nov-97	28-Nov-98	02-Nov-96	27-Nov-97	28-Nov-98
			abundance			biomass		
16-30	784	268	1161	977	203	80	40	3
31-50	785	465	3998	1279	352	6627	1786	109
51-100	786	84	12	97	532	2	36	54
	787	613	42	84	4005	135	61	105
	788 ¹	252	2409	323	144	177	232	92
	790	89	55	444	61	56	222	24
	793	72	599	119	64	155	56	24
	794	216	609	97	104	84	122	31
	797	98	20	27	101	11	13	24
	799	72	857	30	39	410	19	9
101-150	795	164	11	64	163	5	50	58
	791 ²	227		200	94		154	53
101-200	789 ¹	81	0	0	0	0	0	0
	791 ²	308	191			114		
	798	100	14	0	34	47	0	11
151-200	796	175	0	23	12	0	8	2
	800 ²	81		6	49		2	60
201-300	792	50	0	0	3	0	0	3
total inshore strata			9978	3770	5960	7903	2801	662
total offshore			7066	11004	6628	6140	10200	5039
total all strata fished			17044	14774	12588	14044	13000	5701
STD all strata fished			3932	2113	5126	6198	2778	-195

changes below were made before 1997 fall survey

¹ Area of strata 788 was increased by 9 sq. n. mi and the area of strata 789 was decreased by 9 sq.n. mi.

² Strata 791 in the 100-200 depth range was divided into two separate strata 791 101-150 with area =227 sq. n. mi. and strata 800 151-200 area = 81 sq. n.mi.

³ Strata 611 area was decreased by 27 sq. n. mi.

Table 20. Summary of autumn survey abundance (thousands) and biomass (t) for all strata fished; 1983-1994 in Campelen equivalent units and 1995-98 in actual Campelen units.

DIVISION	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total abundance all strata fished																
2J	1,124,317	743,328	615,304	1,249,871	410,936	509,360	647,797	264,807	365,191	31,560	17082	8373	14654	13300	7020	6636
3K	447748	451517	208952	891302	284648	457191	1307523	972029	649529	61886	37265	9612	23954	20756	10984	19067
3L	428505	995804	464291	358606	325352	256383	172299	396008	145682	148719	47809	4678	8013	17044	14774	12588
2J3KL	2,000,570	2,190,649	1,288,547	2,499,779	1,020,936	1,222,934	2,127,619	1,632,844	1,160,402	242,165	102,156	22,663	46,621	51,100	32,778	38,291
Total biomass all strata fished																
2J	722491	557302	472214	1287042	492144	599436	425874	131943	170892	13096	5238	2877	3067	4298	3662	4483
3K	374634	370356	209686	964600	303212	216734	830045	645136	649529	35604	14598	4437	4978	6039	4475	7842
3L	278412	479606	369689	387438	284230	274553	160688	406730	123108	128048	30694	3149	5275	14044	13000	5701
2J3KL	1375537	1407264	1051589	2639080	1079586	1090723	1416607	1183809	943529	176748	50530	10463	13320	24381	21137	18026
Percent abundance																
2J	56	34	48	50	40	42	30	16	31	13	17	37	31	26	21	17
3K	22	21	16	36	28	37	61	60	56	26	36	42	51	41	34	50
3L	21	45	36	14	32	21	8	24	13	61	47	21	17	33	45	33
Percent biomass																
2J	53	40	45	49	46	55	30	11	18	7	10	27	23	18	17	25
3K	27	26	20	37	28	20	59	54	69	20	29	42	37	25	21	44
3L	20	34	35	15	26	25	11	34	13	72	61	30	40	58	62	32

Table 21. Cod abundance and biomass for Divisions 2J, 3K and 3L separately and combined in 1995-1998. Strata are aggregated into index strata, those strata deeper than the index strata and seaward of them, and those strata inshore of the index strata. There are no inshore strata in Division 2J.

		Abundance (thousands)				Biomass (t)			
		1995	1996	1997	1998	1995	1996	1997	1998
2J	index	12305	13081	6936	6636	2312	4261	3609	4483
	offshore deep	2350	219	84	0	755	36	52	0
	total	14654	13300	7020	6636	3067	4298	3662	4483
3K	index	23200	18550	8428	15612	4578	5457	3978	7280
	offshore deep	754	72	22	285	400	131	42	242
	inshore		2133	2534	3171		454	455	320
	total	23954	20755	10984	19068	4978	6042	4475	7842
3L	index	7735	7067	9859	6454	5115	6140	8991	4804
	offshore deep	280	0	1144	173	160	0	1209	235
	inshore		9978	3770	5960		7903	2801	662
	total	8015	17045	14773	12587	5275	14043	13001	5701
2J3KL	index	43240	38698	25223	28702	12005	15858	16578	16567
	offshore deep	3384	291	1250	458	1315	167	1303	477
	inshore		12111	6304	9131	0	8357	3256	982
	total	46624	51100	32777	38291	13320	24382	21137	18026

TABLE 22. Autumn research vessel mean number per tow at age in index strata adjusted for missing strata. The 2J3KL total is the mean of the Divisional means, weighted by the Divisional survey areas.

2J

Age	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	46.58	7.57	1.71	0.65	1.46	20.52	4.86	2.75	0.37	0.00	0.00	0.18	2.46	0.52	0.00	0.10
2	147.86	41.01	14.01	18.71	3.03	17.69	108.44	13.80	11.17	0.68	3.22	1.21	1.24	2.10	0.43	0.19
3	61.64	86.28	48.03	39.16	8.12	10.83	33.77	46.34	19.04	4.45	1.03	0.83	0.80	1.21	1.47	0.74
4	61.08	38.75	74.50	97.79	12.11	12.14	16.27	12.48	60.31	1.70	1.05	0.34	0.31	0.49	0.40	0.92
5	25.59	53.27	28.44	153.27	50.67	16.35	10.85	4.79	14.89	3.29	0.32	0.15	0.08	0.13	0.12	0.30
6	10.44	14.98	27.11	68.45	43.15	41.46	12.35	2.39	1.73	0.31	0.27	0.01	0.03	0.02	0.00	0.04
7	4.87	2.87	9.75	29.99	9.98	42.71	17.99	1.44	0.70	0.01	0.02	0.02	0.00	0.02	0.00	0.01
8	12.46	1.83	1.35	10.84	6.58	6.93	11.13	2.35	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	5.05	3.46	0.83	0.70	2.64	4.27	1.45	1.08	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	2.87	1.49	1.14	0.64	0.41	2.06	0.77	0.23	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.58	0.54	0.39	0.55	0.04	0.28	0.35	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.04	0.12	0.17	0.29	0.16	0.11	0.12	0.05	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.03	0.02	0.03	0.07	0.06	0.08	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.02	0.00	0.00	0.02	0.04	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	379.11	252.19	207.46	421.13	138.45	175.48	218.36	87.76	109.11	10.44	5.91	2.74	4.92	4.49	2.42	2.30

3K

Age	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.15
1	22.84	8.27	0.28	7.91	7.35	37.54	36.91	22.21	0.59	0.65	0.28	0.20	2.78	0.70	0.07	1.13
2	32.49	32.45	5.07	18.35	6.63	29.28	111.95	32.45	15.74	2.85	4.67	0.39	1.56	2.28	0.92	0.80
3	27.87	24.34	13.32	21.13	8.34	18.49	58.16	83.98	23.97	4.12	2.24	1.16	0.97	1.20	0.85	0.92
4	15.09	22.21	12.39	65.26	10.01	8.40	44.92	48.74	70.05	2.33	1.27	0.38	0.34	0.34	0.20	0.59
5	17.24	11.98	10.93	56.87	17.27	6.92	25.69	23.11	37.29	4.01	0.30	0.14	0.10	0.10	0.09	0.20
6	4.39	8.97	4.13	29.01	11.21	7.54	17.17	12.35	9.09	1.16	0.34	0.02	0.02	0.00	0.00	0.06
7	2.58	3.12	3.23	13.32	4.17	3.70	14.93	7.74	2.80	0.16	0.09	0.03	0.00	0.01	0.00	0.05
8	4.26	1.41	0.86	6.66	2.67	1.00	7.06	7.62	1.03	0.03	0.01	0.02	0.00	0.00	0.00	0.01
9	2.98	2.12	0.65	2.41	1.21	0.44	2.54	2.35	0.56	0.00	0.00	0.00	0.01	0.00	0.00	0.00
10	0.91	1.06	0.55	0.64	0.52	0.22	1.41	0.68	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.22	0.34	0.40	0.79	0.21	0.04	0.65	0.22	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.12	0.11	0.09	0.58	0.08	0.04	0.16	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	0.02	0.05	0.01	0.09	0.06	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.01	0.02	0.00	0.07	0.02	0.02	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	131.02	116.45	51.91	223.09	69.75	113.64	321.74	241.51	161.39	15.31	9.20	2.34	5.78	4.63	2.21	3.91

(cont'd)

TABLE 22 (cont'd). Autumn research vessel mean number per tow at age in index strata adjusted for missing strata. The 2J3KL total is the mean of the Divisional means, weighted by the Divisional survey areas.

3L																
Age	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32
1	17.62	7.68	0.15	1.03	3.87	1.26	0.54	0.82	1.06	0.08	0.00	0.00	0.11	0.04	0.07	0.16
2	27.24	75.48	11.11	9.71	22.54	12.57	5.36	6.54	5.27	3.25	1.66	0.19	0.34	0.21	0.64	0.17
3	40.89	56.42	32.05	9.02	7.70	13.43	12.73	22.12	5.02	8.14	2.44	0.28	0.52	0.36	0.61	0.30
4	9.53	35.05	24.62	22.23	6.96	4.08	7.03	24.38	7.89	7.96	2.46	0.23	0.27	0.43	0.27	0.16
5	9.21	6.44	13.18	13.13	10.93	5.57	2.17	11.06	5.59	5.64	0.79	0.09	0.15	0.19	0.15	0.04
6	1.50	10.12	5.23	10.20	6.81	5.91	2.30	5.29	2.66	3.07	0.32	0.04	0.11	0.09	0.04	0.04
7	1.45	1.48	3.04	2.97	2.86	4.19	2.20	3.21	0.44	0.79	0.05	0.02	0.03	0.05	0.07	0.01
8	2.36	1.02	0.57	2.09	1.10	1.86	0.81	2.38	0.22	0.06	0.01	0.00	0.01	0.01	0.09	0.06
9	1.26	0.88	0.69	0.80	0.85	0.90	0.56	1.31	0.23	0.04	0.00	0.00	0.00	0.01	0.01	0.00
10	0.44	0.94	0.35	0.32	0.09	0.46	0.17	0.51	0.09	0.03	0.00	0.00	0.00	0.00	0.00	0.00
11	0.13	0.38	0.25	0.41	0.12	0.12	0.06	0.24	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.06	0.22	0.11	0.22	0.19	0.10	0.03	0.15	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00
13	0.02	0.04	0.04	0.09	0.10	0.12	0.03	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.05	0.03	0.01	0.03	0.03	0.07	0.04	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.03	0.01	0.03	0.01	0.03	0.01	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.01	0.03	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.02	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	111.87	196.27	91.42	72.30	64.19	50.68	34.04	78.19	28.59	29.08	7.73	0.85	1.54	1.39	1.95	1.26

2J3KL																
Age	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.18
1	26.49	7.85	0.58	3.23	4.44	18.12	13.75	8.44	0.73	0.25	0.09	0.11	1.58	0.38	0.05	0.47
2	58.68	52.62	9.81	14.81	12.42	19.41	66.33	16.98	10.22	2.48	3.05	0.51	0.97	1.37	0.68	0.39
3	41.65	53.05	29.73	20.48	8.02	14.48	33.08	48.74	14.80	5.89	2.03	0.71	0.74	0.85	0.90	0.62
4	24.08	31.67	32.81	55.20	9.25	7.51	21.96	29.59	41.55	4.54	1.72	0.31	0.30	0.41	0.28	0.49
5	15.93	19.82	16.18	62.23	22.83	8.67	12.16	13.54	18.47	4.52	0.51	0.12	0.12	0.15	0.12	0.16
6	4.67	10.93	10.25	30.82	17.22	15.21	9.74	6.93	4.58	1.75	0.31	0.03	0.06	0.04	0.02	0.05
7	2.67	2.37	4.76	13.08	5.05	13.51	10.34	4.29	1.29	0.39	0.06	0.02	0.01	0.03	0.03	0.02
8	5.48	1.35	0.86	5.77	2.97	2.82	5.44	4.12	0.54	0.04	0.01	0.01	0.00	0.00	0.04	0.03
9	2.77	1.93	0.71	1.31	1.41	1.58	1.44	1.60	0.35	0.02	0.00	0.00	0.00	0.00	0.00	0.00
10	1.20	1.12	0.61	0.51	0.31	0.77	0.73	0.50	0.15	0.01	0.00	0.00	0.00	0.00	0.00	0.00
11	0.27	0.41	0.33	0.57	0.13	0.13	0.33	0.19	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.07	0.16	0.12	0.36	0.15	0.08	0.10	0.10	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
13	0.02	0.04	0.03	0.09	0.08	0.07	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.03	0.02	0.00	0.04	0.03	0.04	0.04	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	184.04	183.38	106.79	208.52	84.33	102.43	175.50	135.09	92.76	19.89	7.77	1.81	3.79	3.24	2.13	2.22

Table 23. Average length (cm) at age of cod caught during autumn bottom-trawl surveys in Division 2J3KL in 1978-1998. Mean lengths at age were calculated by adjusting to the length-frequency of the population. Boxed entries are based on sample sizes < 5.

Division 2J

Age	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1																		19.9	19.8		22.9
2	29.3	30.1	30.6	29.9	30.0	26.6	27.4	27.0	28.2	29.4	30.3	28.1	26.5	28.1	26.5	26.2	25.8				
3	38.0	41.3	39.4	38.7	37.9	38.8	34.3	33.6	35.5	36.5	37.3	36.9	33.8	32.9	33.8	32.6	36.8	33.1	34.5	30.7	23.9
4	45.6	47.3	49.6	47.0	47.0	46.1	44.4	40.1	41.1	43.4	44.2	43.7	41.9	38.7	38.8	40.1	42.3	42.1	41.8	43.2	44.4
5	54.0	55.3	54.5	54.4	53.4	53.9	50.9	48.5	47.6	48.9	48.5	50.1	46.9	43.9	41.8	43.9	46.6	46.7	49.3	48.0	47.7
6	59.7	60.9	60.7	58.2	59.3	60.0	56.6	53.2	52.7	52.4	53.6	53.8	53.4	51.1	47.0	47.5	56.8	55.4	52.6		52.5
7	66.4	67.9	64.3	62.8	61.3	62.9	63.4	57.5	56.7	57.3	55.8	57.0	56.6	56.9	56.8	47.0	56.2		61.1		51.0
8	69.7	73.9	69.5	66.9	64.5	64.7	65.8	64.3	59.5	58.9	59.8	59.6	59.4	58.3							
9	79.3	69.2	82.0	73.6	68.9	68.6	66.9	67.2	67.6	61.7	63.8	62.7	61.1	63.8							
10	80.4	76.9	83.3	84.2	77.0	73.5	71.6	70.2	68.2	67.8	66.2	64.7	63.1	65.5							
11	87.7	87.6	86.5	90.1	85.5	75.0	78.4	72.8	72.2	77.5	73.9	69.8	73.6	72.7							
12	91.6	85.9	87.9	88.6	94.6	95.0	83.0	75.9	76.2	75.5	80.5	67.8	73.5	68.5							

Division 3K

Age	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1																		18.6	19.2	21.6	19.2
2	27.9	30.9	30.7	31.3	29.3	28.5	26.5	28.7	29.5	29.7	25.9	27.3	28.1	29.2	28.5	28.5	29.3	25.6	28.7	29.5	25.3
3	37.6	42.1	39.9	42.2	40.3	40.5	36.8	36.0	36.5	38.1	36.5	37.2	36.2	36.6	36.4	37.5	36.5	34.2	34.9	39.2	39.0
4	47.0	49.5	47.2	50.4	50.1	47.9	47.0	43.9	43.8	44.6	44.2	45.0	44.0	42.7	42.4	43.6	42.2	41.8	43.3	47.9	45.4
5	54.8	55.4	54.7	56.1	54.0	56.2	54.3	51.8	49.9	50.9	51.5	51.5	49.7	47.9	47.0	50.0	51.1	46.8	50.0	56.2	51.4
6	62.4	62.8	61.8	60.3	60.5	62.3	61.6	57.3	56.1	54.3	56.0	56.3	56.1	54.9	51.8	51.4	53.5	54.7	58.5		58.6
7	69.5	69.9	69.7	65.2	64.3	66.8	64.4	62.5	58.8	60.1	58.6	59.9	58.4	59.7	57.9	53.0	58.1		69.0		62.4
8	74.4	76.8	76.3	69.2	69.0	67.7	68.8	69.6	64.1	62.9	66.3	63.1	61.2	62.7	65.2	64.0	61.7			68.0	83.0
9	76.6	83.3	86.0	81.7	74.8	72.5	72.9	67.3	69.7	73.1	68.1	63.6	65.6	64.0				68.0			80.0
10	81.9	78.3	87.6	90.5	79.8	76.4	78.1	73.1	76.8	74.5	78.7	74.0	64.7	69.1							
11	88.4	86.0	103.4	91.6	89.6	84.9	84.9	79.2	75.9	80.8	82.4	75.7	69.3	80.7							
12	92.1	78.9	94.2	92.1	97.0	85.1	90.2	87.1	73.7	86.6	88.5	82.2	71.1	68.4							

Division 3L

Age	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	
1															16.8	17.7	19.7	18.4	
2		28.5	28.7	30.1		26.8	27.9	27.5	28.7	28.7	27.0	29.7	27.9	30.1	28.1	27.8	30.0	30.3	31.5
3		40.0	38.2	39.4		36.1	35.4	34.7	37.4	37.6	35.3	36.7	38.5	38.3	34.8	36.9	38.3	38.6	39.9
4		44.8	50.2	48.0		43.7	43.7	44.2	44.9	44.2	44.9	44.4	44.5	45.2	45.7	41.7	44.2	45.9	46.5
5		52.6	56.4	56.8		52.2	50.3	52.3	53.1	52.3	52.7	51.1	50.4	51.5	51.8	49.6	49.3	54.9	54.5
6		60.6	63.5	62.4		58.0	58.2	58.9	58.6	59.0	59.2	56.5	54.9	55.8	57.9	58.6	58.9	62.3	58.4
7		66.7	69.7	64.7		65.4	62.6	65.1	62.4	63.9	66.4	61.1	56.8	61.9	66.7	66.7	66.7	68.6	78.0
8		73.1	73.8	69.5		73.3	69.9	69.0	66.7	68.7	70.9	68.0	66.0	61.4	67.0	74.0	70.0	72.6	74.3
9		82.2	83.0	73.6		72.8	73.1	75.2	69.6	74.4	75.3	71.5	77.3			66.0	72.0		
10		91.2	93.1	76.3		82.6	77.7	80.8	74.3	83.7	76.2	73.2	70.4	87.0					
11		103.7	94.1	90.0		86.5	81.5	87.9	88.9	88.1	82.5	74.5	77.1						
12		119.2	110.5	87.5		97.8	86.8	85.4	96.7	94.1	86.9	81.1	94.5						

Table 24. Average weight (kg) at age of cod caught during autumn bottom-trawl surveys in Division 2J3KL in 1978-1998. Actual weights at age and length were adjusted to the length-frequency of the population. Boxed entries are based on sample sizes < 5.

Division 2J

Age	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1																		0.064	0.064		0.100
2	0.223	0.263	0.240	0.228	0.215	0.176	0.153	0.200	0.254	0.266	0.253	0.204	0.158	0.187	0.139	0.153	0.155	0.162	0.193	0.258	0.121
3	0.487	0.682	0.528	0.548	0.501	0.587	0.384	0.363	0.350	0.545	0.553	0.488	0.355	0.307	0.318	0.300	0.433	0.319	0.371	0.480	0.544
4	0.947	1.023	1.046	1.077	0.955	0.956	0.829	0.622	0.645	0.913	0.819	0.810	0.697	0.518	0.482	0.575	0.646	0.671	0.670	0.733	0.796
5	1.580	1.593	1.363	1.663	1.601	1.554	1.303	1.138	1.054	1.355	1.145	1.263	0.987	0.743	0.620	0.751	0.909	0.898	1.160	1.052	1.006
6	2.199	2.379	2.055	1.982	2.004	1.853	1.782	1.486	1.660	1.483	1.653	1.567	1.462	1.139	0.844	0.923	1.664	1.540	1.427		1.416
7	2.515	2.748	2.548	2.519	2.392	2.252	2.388	1.880	1.914	2.067	1.690	1.907	1.784	1.540	1.478	0.860	1.700		2.150		1.190
8	3.862	2.753	3.090	3.197	2.686	2.773	2.562	2.497	2.292	2.409	2.379	2.259	2.108	1.692							
9	4.365	6.193	5.986	3.944	3.872	3.346	3.023	2.652	3.810	1.818	2.717	2.616	2.299	2.367							
10	5.771	5.428	7.628	6.586	6.507	4.022	3.459	3.223	4.513	4.648	2.880	3.143	2.539	2.721							
11	6.358	7.191	6.546	6.906	7.660	4.165	5.669	4.178	4.638	4.550	3.868	3.771	4.397	3.963							
12	9.736	6.206	7.723	10.797	10.055	8.946	6.539	4.014	6.161	4.649	6.732	3.206	4.340	3.391							

Division 3K

Age	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1																		0.054	0.057	0.085	0.060
2	0.171	0.207	0.238	0.275	0.234	0.227	0.146	0.209	0.192	0.204	0.177	0.193	0.190	0.213	0.205	0.205	0.217	0.153	0.206	0.230	0.150
3	0.410	0.577	0.578	0.720	0.738	0.540	0.404	0.466	0.454	0.493	0.476	0.491	0.414	0.423	0.398	0.473	0.434	0.362	0.380	0.543	0.547
4	0.876	1.190	0.950	1.222	1.218	1.120	0.867	0.891	0.817	0.904	0.838	0.874	0.761	0.705	0.665	0.735	0.688	0.649	0.721	0.979	0.868
5	1.478	1.644	1.410	1.730	1.555	1.670	1.412	1.219	1.154	1.350	1.411	1.325	1.100	1.006	0.947	1.119	1.188	0.649	0.721	1.619	1.299
6	2.393	2.259	2.011	2.051	1.966	2.114	2.041	1.818	1.993	1.409	1.734	1.821	1.630	1.517	1.301	1.296	1.442	1.527	1.898		1.874
7	2.938	3.161	3.462	2.620	2.445	2.804	2.343	2.590	2.421	2.580	2.264	2.190	1.908	1.923	1.828	1.461	1.978		3.240		2.550
8	5.830	4.281	3.179	5.051	3.151	3.440		3.396	3.739	2.784	3.012	2.566	2.203	2.274	2.561	2.290	2.326			2.610	6.320
9	4.671	4.861	6.003	7.332	4.375	3.736	3.693	4.149	3.247	3.398	4.257	3.229	2.441	2.626	2.190			3.280			5.310
10	6.499	4.608	7.532	6.321	6.192	4.862	4.667	4.890	4.920	5.354	4.888	4.204	2.711	3.107							
11	5.243	8.365	13.000	9.326	6.515	7.512	6.300	6.520	5.847	10.631	5.408	4.604	3.251	4.933							
12	9.492	10.190	7.097	8.103	9.555	6.047	6.089	6.329	6.465	7.017	7.628	5.593	3.665	3.222							

Division 3L

Age	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
1																		0.110	0.047	0.068	0.0548
2				0.224	0.169	0.236		0.167	0.223	0.179	0.224	0.186	0.173	0.248	0.198	0.240	0.198	0.235	0.256	0.255	0.2744
3				0.564	0.380	0.539		0.436	0.468	0.353	0.459	0.443	0.395	0.456	0.581	0.505	0.402	0.459	0.501	0.533	0.5871
4				0.820	0.480	1.142		0.801	0.796	0.735	0.764	0.789	0.810	0.836	0.883	0.849	0.880	0.668	0.785	0.896	0.9367
5				1.245		1.477		1.382	1.227	1.313	1.372	1.556	1.330	1.280	1.303	1.274	1.319	1.134	1.122	1.629	1.589
6				1.980		1.984		2.049	1.807	1.796	1.879	1.937	1.902	1.748	1.700	1.764	1.893	2.055	2.084	2.633	1.814
7				2.638		2.278		2.247	2.703	2.351	2.103	2.567	2.767	2.191	1.862	2.327	2.986	3.253	3.229	3.386	4.250
8				5.077		5.440		3.521	2.579	2.818	3.043	3.653	3.481	3.089	2.781	2.550	3.160	4.200	3.440	4.473	4.601
9				5.804		6.647		4.111	4.197	3.801	3.015	3.666	4.274	3.678	4.926				3.200		
10				11.762		8.339		6.132	5.476	7.540	3.483	6.830	4.557	3.949	3.349	6.440					
11				11.560		7.486		5.312	4.460	7.402	7.471	7.461	5.847	4.471	4.946						
12				18.553		10.653		12.081	10.511	5.525	9.410	11.395	6.642	5.307	8.652						

Table 25. Observed proportion mature at age of female Atlantic cod (*Gadus morhua*) in NAFO Div. 2J3KL (1982-1999). A50=median age at maturity (years); L95% and U95%=lower and upper 95% confidence intervals. Parameter estimates of the logit model are shown: Int=intercept, SE=standard error, n=number of fish examined, dot=no fish sampled. Years are spawning years.

AGE	1982	1983	1984	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0.01	0	0	0.01	0	0	0	0.02	0.05	0.07	0.02	0.01	0.10	0.13
5	0.01	0.05	0.05	0.03	0.02	0.08	0.08	0.11	0.13	0.29	0.30	0.55	0.59	0.39	0.31	0.50	0.47
6	0.44	0.45	0.49	0.42	0.47	0.39	0.67	0.70	0.43	0.63	0.84	0.90	1	0.7	0.49	0.94	0.75
7	0.88	0.93	0.84	0.85	0.88	0.90	0.90	0.91	0.88	0.83	0.84	0.98	1	0.86	1	.	0.78
8	0.96	0.99	0.93	1	0.97	0.96	0.97	0.99	0.97	0.98	1	1	1	1	1	1	0.75
9	1	1	1	1	0.98	1	1	1	1	1	1	1	1	.	1	1	1
10	1	1	1	1	1	1	1	1	1	1	1	1	.	.	1	1	1
11	1	1	1	1	1	1	1	1	0.84	1	1	1	.	.	.	.	.
12	1	1	1	1	1	1	1	1	1	1	1	.	.	.	.	.	.
13	1	1	1	1	1	1	1	1	1	1	.	.	.	.	.	.	.
A50	6.27	6.07	6.13	6.20	6.18	6.16	5.91	5.81	6.19	5.72	5.44	5.01	4.86	5.44	5.66	4.95	5.25
L 95%	6.12	5.96	6.01	6.10	6.06	6.05	5.78	5.70	6.06	5.60	5.32	4.89	4.68	5.22	5.44	4.78	5.04
U 95%	6.41	6.20	6.26	6.29	6.30	6.28	6.03	5.93	6.33	5.84	5.56	5.13	5.04	5.75	5.95	5.18	5.51
Slope	2.30	2.70	2.22	2.48	2.25	2.21	2.17	2.48	1.59	1.61	2.00	2.52	3.38	2.11	2.16	2.51	1.45
SE	0.18	0.23	0.19	0.17	0.17	0.17	0.14	0.18	0.09	0.11	0.15	0.24	0.65	0.28	0.27	0.31	0.17
Int	-14.45	-16.43	-13.59	-15.37	-13.91	-13.65	-12.81	-14.39	-9.84	-9.19	-10.90	-12.64	-16.46	-11.48	-12.22	-12.43	-7.59
SE	1.17	1.34	1.15	1.05	1.08	1.05	0.86	1.04	0.55	0.61	0.82	1.22	3.22	1.41	1.38	1.42	0.85
n	1028	1354	1202	1260	1037	1146	1386	1422	1361	1045	697	489	139	389	501	339	351

Table 26. Observed proportion mature at age of male Atlantic cod (*Gadus morhua*) in NAFO Div. 2J3KL (1982-1999). A50=median age at maturity (years); L95% and U95%=lower and upper 95% confidence intervals. Parameter estimates of the logit model are shown: Int=intercept, SE=standard error, n=number of fish examined, dot=no fish sampled. Years are spawning years.

AGE	1982	1983	1984	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0.02	0	0.05	0	0.06	0	0.06	0.11	0.16	0
4	0.14	0.24	0.15	0.05	0.21	0.05	0.08	0.25	0.25	0.48	0.48	0.40	0.70	0.37	0.50	0.71	0.70
5	0.58	0.56	0.72	0.59	0.47	0.61	0.66	0.66	0.57	0.88	0.83	0.94	0.95	0.73	0.76	0.82	0.95
6	0.96	0.85	0.95	0.86	0.86	0.86	0.95	0.95	0.72	0.93	1	1	0.96	1	1.00	1	1
7	0.99	1	1	0.97	0.93	0.97	0.98	0.99	0.98	0.98	1	1	1	1	1	1	1
8	0.99	1	1	1	0.99	1	0.99	1	1	1	1	1	1	1	1	1	1
9	1	0.99	1	1	1	1	1	1	1	1	1	1	1	.	.	1	1
10	1	1	0.98	1	1	1	1	1	1	1	1	.	.	1	.	.	.
11	1	1	1	0.97	1	1	1	0.99	1	1	1	.	.	.	.	.	.
12	1	1	1	1	1	1	1	1	1	1	1	.	.	.	.	.	.
13	1	1	1	1	1	1	1	1	1	1	1	.	.	.	.	.	.
A50	4.83	4.86	4.72	5.02	5.04	5.03	4.85	4.64	4.91	4.13	4.12	4.11	3.73	4.34	4.10	3.70	3.84
L 95%	4.70	4.75	4.61	4.91	4.89	4.90	4.74	4.52	4.79	4.00	4.01	3.99	3.38	4.18	3.97	3.56	3.72
U 95%	4.97	4.98	4.84	5.12	5.19	5.15	4.96	4.75	5.04	4.25	4.24	4.22	3.94	4.52	4.26	3.84	3.94
Slope	2.29	1.80	2.26	1.96	1.66	2.15	2.60	1.96	1.50	1.94	2.45	2.84	2.44	2.04	1.86	1.98	3.70
SE	0.19	0.12	0.16	0.13	0.12	0.16	0.20	0.13	0.10	0.14	0.24	0.31	0.53	0.22	0.17	0.23	0.52
Int	-11.05	-8.74	-10.69	-9.86	-8.37	-10.82	-12.62	-9.10	-7.40	-8.01	-10.11	-11.68	-9.10	-8.86	-7.63	-7.35	-14.21
SE	0.90	0.56	0.76	0.66	0.64	0.80	0.94	0.60	0.47	0.63	1.02	1.28	2.15	0.89	0.66	0.88	2.07
n	923	1359	1119	1187	954	1095	1205	1235	1165	843	599	375	141	410	512	351	334

Table 27. Cod abundance (000's) for NAFO Division 3L in spring 1985 -1998 in depths <= 200 fathoms. The 1985-1995 data are in Campelen equivalent units and the 1996-98 data are in actual Campelen units.

Depth range (fath)	Stratum number	Stratum area sq mi.	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT	WT
			28-30 1985	48 1986	59-60 1987	70-71 1988	83 1989	96 1990	106-107 1991	119-122 1992	137-138 1993	152-154 1994	168-170 1995	189-191 1996	207-208 1997	223-224 1998
Mean Date			07-May-85	16-May-86	23-May-87	15-May-88	18-May-89	26-May-90	20-May-91	24-May-92	31-May-93	01-Jun-94	06-Jun-95	14-Jun-96	15-Jun-97	19-Jun-98
31-50	350	2071	52111	14685	17275	90559	24682	8018	748	414	32	0	0	412	122	47
	363	1780	25710	24878	27778	46453	21738	3918	1504	789	306	0	0	111	0	0
	371	1121	29035	2262	3503	3115	4086	3315	32260	123	93	0	0	0	0	0
	372	2460	83387	37973	21684	37778	17675	2852	541	34	62	0	0	217	0	42
	384	1120	591	4442	5238	1078	1566	193	270	0	31	0	0	102	0	0
51-100	328	1519	5642	2113	2866	522	0	3194	1846	0	453	0	0	90	35	125
	341	1574	17899	5678	14651	20425	7984	2436	469	0	0	736	0	340	1728	172
	342	585	3702	1127	1328	402	5445	523	0	1314	322	188	0	0	121	80
	343	525	9076	4496	1300	2744	8065	891	2239	1565	614	361	361	36	0	217
	348	2120	38479	16258	21435	19062	12022	6575	73	227	109	365	510	151	65	328
	349	2114	32383	21146	12795	14649	25115	10986	1066	711	905	0	0	424	145	73
	364	2817	38614	10691	21365	13718	24050	4456	1902	0	97	0	0	234	49	106
	365	1041	22237	6272	15466	15931	8306	2076	322	36	0	0	0	58	0	0
	370	1320	57062	2973	16783	8861	18226	1219	34833	0	91	0	0	61	0	0
	385	2356	22038	997	1886	5736	25360	7808	17055	97	383	0	0	30	0	0
	390	1481	2513	484	320	0	891	41	122	34	102	0	0	59	0	0
101-150	344	1494	10481	21142	3288	4110	31503	4864	986	1165	514	0	822	565	300	355
	347	983	7221	14225	7077	11981	6694	913	1690	34	304	0	0	0	34	203
	366	1394	207996	63401	41749	8885	33414	15053	12651	415	384	0	0	245	447	141
	369	961	58351	33952	16392	28158	13021	6134	3701	198	0	0	0	30	33	66
	386	983	46544	12395	14766	26504	37547	32048	32544	68	54	0	0	0	30	34
	389	821	70767	10458	8150	11181	13214	5788	9524	75	0	0	56	0	33	33
	391	282	5916	4442	2812	1494	2819	45154	6750	0	0	0	0	0	0	0
151-200	345	1432	16153	41480	60278	19723	29548	14232	3217	492	525	2167	197	773	972	460
	346	865	10650	63279	18991	11602	9965	145882	10812	1577	833	278	476	487	579	71
	368	334	10154	10912	14289	414	4150	51551	4992	10866	1355	184	23	402	158	46
	387	718	131461	22816	691	2272	16336	241169	93995	23145	6288	0	560	142	1037	1635
	388	361	2955	11496	25	1738	1606	36947	10809	4618	2235	0	174	84	0	72
392	145	6642	1855	20	2094	645	22130	4618	40	479	0	110	111	0	80	
total strata fished <= 200 fath			1025769	468328	374201	411190	405673	680365	263087	48038	16569	4278	3289	5166	5888	4386
ADJUSTED			1025770	468328	374201	411189	405673	680366	291539	48037	16571	4279	3289	5166	5888	4386
1 STD strata fished <= 200 fath			143389	39174	51595	50874	34169	176063	56184	13459	3989	1279	1043	522	1897	1345

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 200 fathom depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 28. Cod biomass (t) for NAFO Division 3L in spring 1985 -1998 in depths <= 200 fathoms. The 1985-1995 data are in Campelen equivalent units and the 1996-98 data are in actual Campelen units.

Depth range (fath)	Stratum number	Stratum area sq mi.	WT 28-30 1985	WT 48 1986	WT 59-60 1987	WT 70-71 1988	WT 83 1989	WT 96 1990	WT 106-107 1991	WT 119-122 1992	WT 137-138 1993	WT 152-154 1994	WT 168-170 1995	WT 189-191 1996	WT 207-208 1997	WT 223-224 1998
Mean Date			07-May	16-May	23-May	15-May	18-May	26-May	20-May	24-May	31-May	01-Jun	06-Jun	14-Jun	15-Jun	19-Jun-98
31-50	350	2071	61578	29203	32147	116896	41232	14057	1636	315	35	0	0	359	135	6
	363	1780	29020	26035	38567	49356	30897	12388	2289	526	111	0	0	61	0	0
	371	1121	29516	5426	7039	6714	7089	5149	44086	36	37	0	0	0	0	0
	372	2460	87371	39729	37570	52582	31350	12849	1553	112	96	0	0	83	0	0
	384	1120	557	7038	7416	1515	1308	1029	653	0	71	0	0	65	0	0
51-100	328	1519	568	1708	3573	879	0	5670	180	0	243	0	0	6	5	115
	341	1574	11711	12988	20564	32613	9121	5854	376	0	0	65	0	127	4497	9
	342	585	1445	2669	1041	600	1400	1035	0	66	64	33	0	0	346	8
	343	525	2833	3087	1981	2878	3927	255	207	70	52	46	42	9	0	36
	348	2120	17699	22373	52505	40777	18921	6772	273	37	43	47	87	53	13	536
	349	2114	31189	44296	22988	34821	50689	3835	836	125	158	0	0	303	419	101
	364	2817	21165	17309	34942	26822	34642	15553	1228	0	124	0	0	20	11	225
	365	1041	5934	6427	19818	18776	10427	2210	154	81	0	0	0	5	0	0
	370	1320	21097	6523	16440	12422	15405	1288	29422	0	74	0	0	6	0	0
	385	2356	6499	894	2131	4572	10414	2269	13797	95	256	0	0	4	0	0
	390	1481	874	764	891	0	520	129	604	58	83	0	0	31	0	0
101-150	344	1494	1926	16730	1768	2949	15613	696	103	167	83	0	95	111	115	124
	347	983	6837	19615	8729	17943	5283	669	199	35	83	0	0	0	8	150
	366	1394	111212	62264	42788	15741	32354	12386	6899	111	121	0	0	104	173	61
	369	961	36262	27273	23039	37815	18342	7693	3547	78	0	0	0	16	3	20
	386	983	13632	5635	10490	10110	19985	59202	17066	154	66	0	0	0	16	183
	389	821	21457	3540	2864	3284	3509	1529	1654	114	0	0	36	0	9	25
	391	282	1380	1944	797	316	513	6018	1220	0	0	0	0	0	0	0
151-200	345	1432	6738	39168	63833	24326	40145	5601	466	332	120	437	108	149	294	159
	346	865	1650	48302	18827	13037	10501	136822	4834	613	302	86	91	178	238	32
	368	334	4237	13403	16324	1286	5297	41814	3318	4684	590	120	22	148	96	8
	387	718	60424	16437	508	1609	8453	101468	37550	18465	2329	0	227	84	303	1199
	388	361	1143	5814	27	695	676	35162	4031	1078	1431	0	60	12	0	27
392	145	5177	1121	11	573	251	6418	1107	22	63	0	37	18	0	23	
total strata fished <= 200 fathoms			601128	487714	489618	531905	428264	505819	164236	27374	6633	834	805	1951	6667	3048
ADJUSTED			601131	487715	489618	531907	428264	505820	179288	27374	6635	834	805	1952	6667	3048
1 STD strata fished <= 200 fathoms			78100	37492	58340	63543	30961	106059	50106	10276	1896	201	197	256	4264	960

¹ Not all strata in the depth range have been fished. Strata not fished in the <= 200 fathom depth range have been filled using a multiplicative model using data to 1992. Std are for strata fished in the depth range.

Table 29. Cod abundance (000's) and biomass (t) for NAFO Division 3L in spring 1985 -1998 in depths > 200 fathoms. The 1985-1995 data are in Campelen equivalent units and the 1996-98 data are in actual Campelen units.

Depth range (fath)	Stratum number	Stratum area nautical miles	WT 28-30 1985	WT 48 1986	WT 59-60 1987	WT 70-71 1988	WT 83 1989	WT 96 1990	WT 106-107 1991	WT 119-122 1992	WT 137-138 1993	WT 152-154 1994	WT 168-170 1995	WT 189-191 1996	WT 207-208 1997	WT 223-224 1998
Mean Date			07-May	16-May	23-May	15-May	18-May	26-May	20-May	24-May	31-May	01-Jun	06-Jun	14-Jun	15-Jun	19-Jun-98
abundance																
201-300	729	186	102	nf	nf	nf	nf	nf	141	3876	192	77	0	13	0	13
	731	216	30	nf	nf	nf	nf	nf	3046	267	416	9701	0	152	0	13
	733	468	1674	nf	nf	nf	nf	nf	7339	2672	880	1513	483	41	89	0
	735	272	94	nf	nf	nf	nf	nf	nf	92905	0	6080	673	5512	524	3480
301-400	730	170	0	nf	nf	nf	nf	nf	0	0	0	0	0	0	0	0
	732	231	0	nf	nf	nf	nf	nf	0	0	0	0	0	0	0	0
	734	228	0	nf	nf	nf	nf	nf	267	0	0	0	0	0	0	0
	736	175	0	nf	nf	nf	nf	nf	nf	60	0	0	0	0	0	0
401-500	737	227	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
	741	223	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
	745	348	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
	748	159	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
Total >200 fathoms			1900	0	0	0	0	0	10793	99780	1488	17371	1156	5718	613	3506
Total all strata fished			1027668	468328	374201	411190	405673	680365	273879	147819	18056	21649	4445	10884	6501	7892
1 STD all strata fished			143399	39174	51595	50874	34189	176063	56567	93188	4007	9990	1275	2473	1933	3694
biomass																
201-300	729	186	78	nf	nf	nf	nf	nf	320	1683	78	29	0	2	0	31
	731	216	78	nf	nf	nf	nf	nf	1967	389	248	5913	0	69	0	15
	733	468	755	nf	nf	nf	nf	nf	6351	1959	345	556	219	28	74	0
	735	272	894	nf	nf	nf	nf	nf	nf	50199	0	3238	386	3823	352	2646
301-400	730	170	0	nf	nf	nf	nf	nf	0	0	0	0	0	0	0	0
	732	231	0	nf	nf	nf	nf	nf	0	0	0	0	0	0	0	0
	734	228	0	nf	nf	nf	nf	nf	437	0	0	0	0	0	0	0
	736	175	0	nf	nf	nf	nf	nf	nf	69	0	0	0	0	0	0
401-500	737	227	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
	741	223	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
	745	348	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
	748	159	nf	nf	nf	nf	nf	nf	nf	nf	nf	0	nf	nf	nf	nf
Total >200 fathoms			1805	0	0	0	0	0	9075	54299	671	9736	605	3922	426	2692
Total all strata fished			602932	487714	489618	531905	428264	505819	173311	81673	7304	10570	1410	5874	7093	5740
1 STD all strata fished			78105	37492	58340	63543	30961	106059	50374	50990	1899	5960	440	6255	4271	2804

nf Not all strata in the depth range were fished. Strata not fished in the greater than 200 fathom depth range have not been filled using a multiplicative model.

Table 30. Summary of acoustic biomass estimates for portions of Trinity Bay and Bonavista Bay in 1995-1999.

Year	Area	Location	Stratum	Date Surveyed	Biomass (t)
1995 ¹	Trinity Bay	Smith Sound	38	3-4 May	12,700
1996 ²	Trinity Bay	Smith Sound	38	15-24 April	154
1997 ³	Trinity Bay	Smith Sound	38	21-24 April	20,968
		Northwest Arm	40	25 April	46
		Southwest Arm	41	26 April	749
		Deer Harbour	42	27 April	1
		Bull Arm	43	28 April	20
		Subtotal			
	Bonavista Bay	Newman Sound	31	24-25 June	88
		Goose Bay	32	29 June	627
		Clode Sound	33	30 June	676
		Sweet Bay	34	28 June	
		Western Head	34	29 June	
		Southern Bay	34	30 June	125
		Subtotal			
Total for 1997					23,300
1998 ⁴	Trinity Bay	Smith Sound		June	14,400
1999 ⁴	Trinity Bay	Smith Sound		January	14,600

¹ G. Rose, Memorial University of Newfoundland, St. John's (pers. comm.), revised from Rose MS 1996

² Bratley and Porter MS 1997

³ Porter et al. MS 1998

⁴ G. Rose, Memorial University of Newfoundland, St. John's (pers. comm.)

Table 31. Year-to-year comparison of sentinel survey catch rates, for each Division and gear.

NAFO Div. 2J – Gillnet

	1995	1996	1997	1998
1995	---	<u>1 (1)</u> 5	<u>2 (2)</u> 6	<u>2 (2)</u> 6
1996		---	<u>1 (1)</u> 6	<u>1 (1)</u> 6
1997			---	<u>1 (1)</u> 7
1998				---

NAFO Div. 2J – Linetrawl

	1995	1996	1997	1998
1995	---	<u>0 (0)</u> 0	<u>0 (0)</u> 0	<u>0 (0)</u> 0
1996		---	<u>1 (0)</u> 2	<u>1 (0)</u> 1
1997			---	<u>0 (0)</u> 1
1998				---

Cell Entries have form a (b) / c.

c – Total number of sentinel sites reporting catch for the two years being compared.

a – Number of sentinel sites which have a significantly different sentinel CPUE for the two years being compared

b – Number of sentinel sites at which the significant change represents an *increase* in catch rates

Table 31 (cont'd). Year-to-year comparison of sentinel survey catch rates, for each Division and gear.

NAFO Div. 2J – Handline

	1995	1996	1997	1998
1995	---	<u>0 (0)</u> 0	<u>0 (0)</u> 0	<u>0 (0)</u> 0
1996		---	<u>1 (1)</u> 4	<u>0 (0)</u> 2
1997			---	<u>0 (0)</u> 2
1998				---

NAFO Div. 3K – Gillnet

	1995	1996	1997	1998
1995	---	<u>18 (18)</u> 18	<u>17 (17)</u> 18	<u>18 (18)</u> 18
1996		---	<u>9 (2)</u> 22	<u>5 (2)</u> 22
1997			---	<u>6 (6)</u> 22
1998				---

Cell Entries have form a (b) / c.

c – Total number of sentinel sites reporting catch for the two years being compared.

a – Number of sentinel sites which have a significantly different sentinel CPUE for the two years being compared

b – Number of sentinel sites at which the significant change represents an *increase* in catch rates

Table 31 (cont'd). Year-to-year comparison of sentinel survey catch rates, for each Division and gear.

NAFO Div. 3K – Linetrawl

	1995	1996	1997	1998
1995	---	<u>8 (8)</u> 11	<u>11 (11)</u> 11	<u>7 (7)</u> 10
1996		---	<u>7 (7)</u> 11	<u>3 (0)</u> 10
1997			---	<u>6 (0)</u> 10
1998				---

NAFO Div. 3K – Handline

	1995	1996	1997	1998
1995	---	<u>0 (0)</u> 0	<u>0 (0)</u> 1	<u>1 (1)</u> 1
1996		---	<u>1 (1)</u> 1	<u>0 (0)</u> 0
1997			---	<u>0 (0)</u> 1
1998				---

Cell Entries have form a (b) / c.

c – Total number of sentinel sites reporting catch for the two years being compared.

a – Number of sentinel sites which have a significantly different sentinel CPUE for the two years being compared

b – Number of sentinel sites at which the significant change represents an *increase* in catch rates

Table 31 (cont'd). Year-to-year comparison of sentinel survey catch rates, for each Division and gear.

NAFO Div. 3L – Gillnet

	1995	1996	1997	1998
1995	---	<u>17 (17)</u> 18	<u>19 (19)</u> 19	<u>18 (18)</u> 19
1996		---	<u>8 (3)</u> 22	<u>10 (7)</u> 23
1997			---	<u>6 (5)</u> 24
1998				---

NAFO Div. 3L – Linetrawl

	1995	1996	1997	1998
1995	---	<u>6 (6)</u> 6	<u>6 (6)</u> 6	<u>4 (4)</u> 6
1996		---	<u>2 (2)</u> 5	<u>2 (1)</u> 5
1997			---	<u>2 (0)</u> 6
1998				---

Cell Entries have form a (b) / c.

c – Total number of sentinel sites reporting catch for the two years being compared.

a – Number of sentinel sites which have a significantly different sentinel CPUE for the two years being compared

b – Number of sentinel sites at which the significant change represents an *increase* in catch rates

Table 31 (cont'd). Year-to-year comparison of sentinel survey catch rates, for each Division and gear.

NAFO Div. 3L – Handline

	1995	1996	1997	1998
1995	---	$\frac{1 (1)}{1}$	$\frac{1 (1)}{1}$	$\frac{1 (1)}{1}$
1996		---	$\frac{1 (1)}{2}$	$\frac{1 (1)}{2}$
1997			---	$\frac{0 (0)}{2}$
1998				---

Cell Entries have form a (b) / c.

c – Total number of sentinel sites reporting catch for the two years being compared.

a – Number of sentinel sites which have a significantly different sentinel CPUE for the two years being compared

b – Number of sentinel sites at which the significant change represents an *increase* in catch rates

Table 32. Standardized catch rate (number per net) for gillnets in the sentinel survey in Divisions 3KL in 1995-1998. Results of the GLM model in which year, month and trip (= sentinel enterprise) effects were fitted to the log transformed mean catch rates; i.e. $\ln(\text{sum of catch}/\text{sum of effort}) = \text{Year Month Trip}$.

General Linear Models Procedure
Class Level Information

Class	Levels	Values
YEAR	4	1995 1996 1997 1998
MONTH	5	7 8 9 10 11
TRIP	50	13 15 16 17 18 20 21 22 23 24 25 26 27 28 29 31 32 33 35 36 37 38 40 41 42 43 44 45 48 49 50 51 52 53 54 55 57 58 59 60 61 63 64 65 66 68 69 70 73 79

Number of observations in by group = 462

Dependent Variable: LN_MEAN

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	56	481.86608413	8.60475150	12.02	0.0001
Error	405	289.95844532	0.71594678		
Corrected Total	461	771.82452945			

R-Square	C.V.	Root MSE	LN_MEAN Mean
0.624321	36.06938	0.84613638	2.34585765

Source	DF	Type III SS	Mean Square	F Value	Pr > F
YEAR	3	113.33219396	37.77739799	52.77	0.0001
MONTH	4	20.14165458	5.03541365	7.03	0.0001
TRIP	49	280.54526286	5.72541353	8.00	0.0001

YEAR	LN_MEAN LSMEAN	Std Err LSMEAN	Pr > |T| H0:LSMEAN=0	Retransformed catch rate
1995	1.43612192	0.09521430	0.0001	4.20
1996	2.45671989	0.09667372	0.0001	11.67
1997	2.51824330	0.09420238	0.0001	12.41
1998	2.85287255	0.08881159	0.0001	17.34

Table 33. Standardized catch rate (number per hook) for linetrawls in the sentinel survey in Divisions 3KL in 1995-1998. Results of the GLM model in which year, month and trip (= sentinel enterprise) effects were fitted to the log transformed mean catch rates; i.e. $\ln(\text{sum of catch}/\text{sum of effort}) = \text{Year Month Trip}$. Cells with zero values were deleted.

General Linear Models Procedure
Class Level Information

Class	Levels	Values
YEAR	4	1995 1996 1997 1998
MONTH	4	8 9 10 11
TRIP	24	15 17 20 21 23 24 29 31 33 35 37 41 43 50 51 52 54 55 58 63 64 66 68 70

Number of observations in by group = 132

NOTE: Due to missing values, only 121 observations can be used in this analysis.

Dependent Variable: LN_MEAN

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	27	102.05274973	3.77973147	11.72	0.0001
Error	93	29.98078074	0.32237399		
Corrected Total	120	132.03353047			
	R-Square	C.V.	Root MSE	LN_MEAN Mean	
	0.772931	-25.46157	0.56777987	-2.22994813	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
YEAR	3	7.04465587	2.34821862	7.28	0.0002
MONTH	3	0.81328832	0.27109611	0.84	0.4748
TRIP	21	90.89619712	4.32839034	13.43	0.0001

YEAR	LN_MEAN LSMEAN	Std Err LSMEAN	Pr > |T| H0:LSMEAN=0	Retransformed catch rate (number per 1000 hooks)
1995	-2.49822601	0.10865687	0.0001	82.23
1996	-2.39708916	0.13701973	0.0001	90.98
1997	-1.89593260	0.13617444	0.0001	150.18
1998	-2.61813975	0.15070201	0.0001	72.94

Table 34. Standardized catch rate (number per hook) for linetrawls in the sentinel survey in Divisions 3KL in 1995-1998. Results of the GLM model in which year, month and trip (= sentinel enterprise) effects were fitted to the log transformed mean catch rates; i.e. $\ln(\text{sum of catch}/\text{sum of effort}) = \text{Year Month Trip}$. Zero values were replaced by a value of 1.

General Linear Models Procedure
Class Level Information

Class	Levels	Values
YEAR	4	1995 1996 1997 1998
MONTH	4	8 9 10 11
TRIP	24	15 17 20 21 23 24 29 31 33 35 37 41 43 50 51 52 54 55 58 63 64 66 68 70

Number of observations in by group = 132
zero catch replaced with 1

Dependent Variable: LN_MEAN

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	29	223.28807789	7.69958889	22.18	0.0001
Error	102	35.41413403	0.34719739		
Corrected Total	131	258.70221192			

R-Square	C.V.	Root MSE	LN_MEAN Mean
0.863108	-23.38174	0.58923458	-2.52006252

Source	DF	Type III SS	Mean Square	F Value	Pr > F
YEAR	3	7.51767451	2.50589150	7.22	0.0002
MONTH	3	1.35253354	0.45084451	1.30	0.2791
TRIP	23	191.05887479	8.30690760	23.93	0.0001

YEAR	LN_MEAN LSMEAN	Std Err LSMEAN	Pr > |T| H0:LSMEAN=0	Retransformed catch rate (number per 1000 hooks)
1995	-2.85085270	0.10199096	0.0001	57.80
1996	-2.73048177	0.13389441	0.0001	65.19
1997	-2.23236574	0.13571132	0.0001	107.27
1998	-2.94787474	0.14799675	0.0001	52.45

Table 35 . Age compositions of the sentinel survey catch by gear (linetrawl and gillnet), Division (3K and 3L) and year (1995-1998.)

	Linetrawl 3K				Gillnet 3K			
	95	96	97	98	95	96	97	98
0								
1								
2		0.63		0.34				
3	7.10	14.27	7.45	14.97		0.12	0.13	0.21
4	52.32	24.83	23.84	29.49		1.19	0.60	0.89
5	33.35	35.32	31.21	26.26	36.30	16.03	7.00	12.86
6	5.79	21.01	18.77	13.93	36.66	65.38	29.23	32.04
7	0.17	3.39	16.45	8.57	21.64	13.57	54.46	35.82
8	0.79	0.46	1.94	6.31	4.66	3.08	7.95	14.23
9	0.48	0.08	0.34	0.13	0.74	0.46	0.10	3.35
10		0.01				0.13	0.16	0.46
11						0.03	0.37	0.14
12						0.01		
13								
14								
No. in catch	3750	4646	7994	2165	2213	7923	5437	8962
No. assigned age	3715	4645	7983	2163	2106	7923	5432	8958
No. in age sample	83	328	276	208	129	670	427	458

	Linetrawl 3L				Gillnet 3L			
	95	96	97	98	95	96	97	98
0								
1								
2		2.80	0.89		0.02	0.02	0.01	
3	5.36	21.16	5.72	5.84	0.12	0.23	0.14	0.19
4	27.19	31.84	19.09	22.18	0.71	2.09	1.82	0.59
5	33.80	16.26	33.78	24.51	26.18	11.30	19.78	11.43
6	19.59	14.73	18.25	29.48	40.84	56.97	26.32	43.07
7	12.39	10.84	17.81	4.95	15.52	22.03	38.19	29.49
8	0.81	1.02	2.94	8.00	13.91	5.15	11.14	10.43
9	0.85	0.74	1.52	3.97	1.99	1.65	1.66	4.05
10		0.48		0.85	0.60	0.45	0.68	0.34
11		0.14		0.10	0.13	0.08	0.18	0.31
12				0.11		0.04	0.07	0.10
13							0.01	
14								
No. in catch	3941	2179	3058	1527	6653	17645	19467	25455
No. assigned age	3897	2159	3026	1525	6626	17643	19460	25447
No. in age sample	148	83	113	114	195	1173	1008	874

Table 36. Cod age-length key from spring research vessel surveys in NAFO Division 3L from 1996 to 1998 combined. This age-length key was used for aging cod found in seal stomachs in the first half of the year (Jan-June).

LENGTH	AGE											ALL
	1	2	3	4	5	6	7	8	9	10	11	
4	3	.	.	.	.	.	.	.	.	.	.	3
7	3	.	.	.	.	.	.	.	.	.	.	3
10	3	.	.	.	.	.	.	.	.	.	.	3
13	6	1	.	.	.	.	.	.	.	.	.	7
16	5	6	.	.	.	.	.	.	.	.	.	11
19	3	17	3	.	.	.	.	.	.	.	.	23
22	.	45	15	.	.	.	.	.	.	.	.	60
25	.	39	24	.	.	.	.	.	.	.	.	63
28	.	15	36	1	.	.	.	.	.	.	.	52
31	.	5	39	10	.	.	.	.	.	.	.	54
34	.	.	45	29	1	.	.	.	.	.	.	75
37	.	.	36	47	2	.	.	.	.	.	.	85
40	.	.	10	48	11	.	.	.	.	.	.	69
43	.	.	3	38	14	1	.	.	.	.	.	56
46	.	.	.	28	25	.	.	.	.	.	.	53
49	.	.	.	14	24	13	.	.	.	.	.	51
52	.	.	.	2	26	9	1	.	.	.	.	38
55	.	.	.	1	7	15	2	.	.	.	.	25
58	.	.	.	.	4	.	8	1	.	.	.	13
61	.	.	.	.	.	9	5	.	.	.	.	14
64	.	.	.	.	1	3	10	2	.	.	.	16
67	.	.	.	.	.	1	9	2	.	.	.	12
70	.	.	.	.	.	2	6	3	.	.	.	11
73	.	.	.	.	.	.	3	2	1	1	.	7
76	.	.	.	.	.	.	1	1	.	.	.	2
79	.	.	.	.	.	.	2	3	2	1	.	8
82	.	.	.	.	.	.	.	.	1	.	.	1
85	.	.	.	.	.	.	.	1	.	1	1	3
88	.	.	.	.	.	.	.	.	1	.	.	1
ALL	23	128	211	218	115	53	47	15	5	3	1	819

Table 37. Cod age-length key from autumn research vessel surveys in NAFO Divisions 2J3KL from 1995 to 1997 combined. This age-length key was used for aging cod found in seal stomachs in the second half of the year (July-Dec).

LENGTH	AGE								ALL
	0	1	2	3	4	5	6	7	
4	4	.	.	.	.	.	.	.	4
7	18	.	.	.	.	.	.	.	18
10	25	1	.	.	.	.	.	.	26
13	14	19	.	.	.	.	.	.	33
16	.	139	6	.	.	.	.	.	145
19	.	243	28	.	.	.	.	.	271
22	.	144	99	.	.	.	.	.	243
25	.	21	252	12	.	.	.	.	285
28	.	.	347	61	.	.	.	.	408
31	.	.	278	126	3	.	.	.	407
34	.	.	110	212	18	1	.	.	341
37	.	.	19	278	45	1	.	.	343
40	.	.	1	236	91	5	.	.	333
43	.	.	.	96	119	14	.	.	229
46	.	.	.	26	90	33	2	.	151
49	.	.	.	2	80	43	3	.	128
52	.	.	.	.	27	36	3	1	67
ALL	61	567	1140	1049	473	133	8	1	3432

Table 38. Estimates of cod consumption (000's) at age by harp seals during 1986-1995.

YEAR	AGE								ALL
	0	1	2	3	4	5	6	7	
1986	139,138	419,319	257,388	85,976	5,029	5,029	.	.	911,879
1987	351,130	789,285	321,361	75,979	2,850	.	.	.	1,540,606
1988	7,615	1,232,969	283,358	78,710	8,124	3,300	.	.	1,614,076
1989	20,993	423,128	356,747	70,437	14,905	1,382	.	.	887,592
1990	13,744	505,265	231,233	89,702	17,972	4,811	.	.	862,727
1991	68,537	456,254	226,989	59,475	19,472	13,688	.	.	844,415
1992	7,350	199,527	162,435	75,661	17,027	15,603	2,136	.	479,740
1993	48,367	78,769	116,693	81,704	26,150	14,188	1,995	.	367,868
1994	286,068	408,602	106,047	54,618	33,608	13,986	1,789	994	905,711
1995	98,892	66,508	87,418	75,043	35,079	19,047	820	.	382,807
ALL	1,041,835	4,579,625	2,149,669	747,306	180,216	91,034	6,740	994	8,797,419

Table 39. Estimates of cod consumption (tonnes) at age by harp seals during 1986-1995.

YEAR	AGE								ALL
	0	1	2	3	4	5	6	7	
1986	1065	8750	11463	7777	1659	1659	.	.	32374
1987	1379	12915	13501	6616	516	.	.	.	34928
1988	85	11014	12925	8542	2633	1759	.	.	36959
1989	191	10688	15430	7866	3669	592	.	.	38435
1990	101	8256	13846	10661	4999	2006	.	.	39869
1991	855	8932	9820	9765	6626	5375	.	.	41372
1992	24	4111	9270	13308	7671	7413	1455	.	43252
1993	186	2268	10340	13628	9525	7139	1546	.	44631
1994	889	3978	9447	12026	10942	6340	1885	1218	46725
1995	396	1756	9707	15965	11515	8276	616	.	48230
ALL	5170	72668	115748	106153	59756	40559	5502	1218	406775