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## Analysis of the Cod Stock in Divisions 2GH

by

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Cette série documente les bases scientifiques des conseils de gestion des pêches sur la côte atlantique du Canada. Comme telle, elle couvre les problèmes actuels selon les échéanciers voulus et les Documents de recherche qu'elle contient ne doivent pas être considérés comme des énoncés finals sur les sujets traités mais plutôt comme des rapports d'étape sur les études en cours.

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### Abstract

Catches from this stock have ranged from 94,000 t in 1966 to 300 t in 1973. Since the introduction of a TAC in 1974 (20,000 t) this level has not been exceeded. The 1973-75 year-classes were dominant in the commercial catch in 1982, as has been previously observed. Recent management advice has indicated that fishing mortalities were below the  $F_{0.1}$  level.

### Résumé

Les prises effectuées dans le stock dont il est question ici ont varié de 94 000 t en 1966 à 300 t en 1973. Depuis l'instauration de TPA (20 000 t) en 1974, ces dernières n'ont pas été dépassées. Les classes d'âge 1973-1975 dominaient dans les prises commerciales de 1982, phénomène qui avait déjà été observé précédemment. Selon les récents conseils de gestion, la mortalité due à la pêche était inférieure au niveau de  $F_{0,1}$ .

Catches from this stock have ranged from 94,000 t in 1966 to 300 t in 1973. The recommended TAC has been maintained at 20,000 t since its introduction in 1974. Except or 1982, catches have been less than half this level, as indicated below:

	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
TAC (000't)	20	20	20	20	20	20	20	20	20	20
Nom. catch	4	7	6	4	5	2	3	4	13 <sup>a</sup>	20

<sup>a</sup>Preliminary

Commercial catches, by country and month, are shown in Table 1 and the sampling coverage is indicated in Table 2 for Div. 2H. Only 3 t were reported from Div. 2G. Using this data the catch at age, average length at age, and average weight at age were estimated for 1982 (Table 3). The percentage discrepancy between calculated catch weight and reported catch weight was 4%. Ages 7-9 dominated the catch and the 1973 year-class (age 9) appears strong as it has in previous years (Table 4). The catch at age for years 1962-71 was presented by Wells (1973) and used in a virtual population assessment. The level of sampling during 1972-77 was very low, consequently, no age distribution of catch was obtained.

Catch rates, obtained through the Foreign Co-operative Research Program (Table 5), show wide fluctuations.

Recent management advice for this stock has indicated that fishing mortalities were below  $F_{0.1}$  from a stock which has a MSY catch of 40,000 t. Although fishing activity in this area increased in 1982, the TAC was not taken.

#### References

- Wells, R. 1973. Virtual population assessment of cod in ICNAF Divisions 2GH. ICNAF Res. Doc. 73/106.

Table 1. Catches (t) of cod in Divisions 2GH during 1982.

Month	Can. (N)	Can. (M)	Spain	France	GDR	Norway	Poland	FRG	USSR	Portugal	U.K.	Denmark (F)
January									1765			
February								1346				
March												
April												
May										14	22	
June	312									99		
July	340						42					245
August	1205	28								34		
September	994	161				203				220		503
October	31					152						439
November		2			95	194		106				729
December	101	73	46	51	237		36	2390				492
Total	2983	264	46	51	332	549	78	3842	1765	367	22	2408

Table 2. Sampling of the commercial catch of cod in Division 2H.

Qtr.	Gear	Country	No. aged	Month	No. measured	Landings (t)		
						Country/month	Total	
1	OT	USSR	187	Jan.	2,608	1,765	1,765	
		FRG	<u>233</u>	Feb.	4,297	1,345	<u>1,345</u>	
			<u>420</u>				<u>3,110</u>	
2	OT	Can. (N)	<u>152</u>	June	1,318	312	<u>447</u>	
3	OT	Can. (N)	325	July	734	340	382	
				Aug.	3,588	1,199	1,199	
				Sept.	402	953	953	
				Sept.	103	677	220	254
		Port. Others	<u>428</u>				<u>236</u>	<u>3,024</u>
LT	Den. (F)	314	July	4,920	245	245		
			Sept.	11,649	503	503		
		Norway	<u>119</u>	Sept.	8,373	203	<u>203</u>	
		<u>433</u>				<u>951</u>		
4	OT	France	66	Dec.	635	51	51	
		FRG	78	Dec.	5,304	2,390	2,497	
		Pol.		Dec.	295	36	36	
		GDR	144	-	-	-	-	
		Others	<u>288</u>				<u>585</u>	<u>3,169</u>
		LT	Den. (F)	466	Oct.	9,822	439	439
Norway			Nov.	2,728	729	1,222		
		<u>466</u>	Oct.	255	152	<u>345</u>	<u>2,006</u>	

Table 3. Estimates of catch, average weight, and average length at age from the commercial fishery for cod in Divisions 2GH in 1982.

Age	Weight (kg)	Length (cm)	Catch (numbers X 10 <sup>-3</sup> )	Var. (catch)	Std. error	Coef. var.
3	0.582	40.660	62	16.875	4.11	0.07
4	0.901	46.795	103	61.729	7.86	0.08
5	1.195	51.279	131	157.538	12.55	0.10
6	1.684	57.331	227	654.126	25.58	0.11
7	1.959	60.223	1207	2857.587	53.46	0.04
8	2.386	64.175	973	3292.923	57.38	0.06
9	3.057	69.458	2058	3296.560	57.42	0.03
10	3.628	73.176	128	311.233	17.64	0.14
11	5.460	83.867	5	3.204	1.79	0.33
12	6.179	87.530	4	2.918	1.71	0.47
13	7.508	93.327	2	0.170	0.41	0.27
14	6.035	86.447	2	0.871	0.93	0.38
15	7.914	93.802	1	0.135	0.37	0.43
16	12.281	108.845				

Table 4. Catch at age for cod in Divisions 2GH from 1979-82.

Age	1978	1979	1980	1981	1982
2			17		
3	7		24	1	62
4	123	72	38	5	103
5	2254	207	249	23	131
6	1257	615	332	360	227
7	201	79	516	423	1207
8	108	7	21	906	973
9	117	1	2	74	2058
10	108	1		7	128
11	52	1		4	5
12	21	1		2	4
13				1	2
14				1	2

Table 5. Catch rates for the cod directed catch, shown in brackets, obtained in Division 2H as reported by the Foreign Co-operative Research Program.

Country	Gear	1979	1980	1981	1982
Poland	OT-7	0.58 (1067)	0.15 (31)	5.03 (463)	0.78 (35)
Portugal	OT-6/7	0.51 (106)	1.09 (100)		1.33 (224)
FRG	OT-7		1.72 (415)		2.97 (3238)
GDR	OT-7		1.55 (362)	1.39 (212)	1.23 (245)
Den-F	LL-4			0.44 (1448)	0.57 (1908)