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Analysis of the cod stock in NAFO Division 2GH

by

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## ABSTRACT

The nominal catches from this stock have ranged from 94,000 t in 1966 to 300 t in 1973. The nominal catch in 1985 was about 780 t with most of this taken in Div. 2H. A TAC of 20,000 t was introduced in 1974 and has remained at this level with catches being considerably less in this time period. The 1979 year-class was dominant in the commercial catch in 1985. Previous assessments have estimated the MSY catch to be 40,000 t for this stock.

## RESUME

Les prises nominales dans le stock considéré ont varié de 94 000 t en 1966 à 300 t en 1973. La prise nominale de 1985 était d'environ 780 t, la plus grande partie provenant de la division 2H. Un TPA de 20 000 t a été institué en 1974 et est resté en vigueur, bien que les prises aient été depuis bien inférieures à ce chiffre. La classe d'âge de 1979 était prédominante dans les prises commerciales de 1985. Des évaluations antérieures établissaient le RMS à 40 000 t pour ce stock.

## INTRODUCTION

Total annual catches for Div. 2GH since 1953 are shown in Fig. 1. The catches ranged between 94,000 t in 1966 and 300 t in 1973. TAC's were introduced in 1974 and have been maintained at 20,000 t since their inception. Except for 1982, catches have been less than half this level, as indicated below:

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
TAC (000't)	20	20	20	20	20	20	20	20	20	20
Nominal catch	4	5	2	3	4	14	2	2 <sup>a</sup>	1 <sup>a</sup>	

<sup>a</sup>preliminary.

## THE COMMERCIAL FISHERY

An estimate of the commercial catch for 1985 by country and month as obtained from the Department of Fisheries and Oceans, Canada and NAFO Circular Letters, is presented in Table 1. All reported catches were taken in quarters 3 and 4, with only 25 t taken from Div. 2G. Sampling coverage is indicated in Table 2. The 1985 catch at age, average length at age, and average weight at age estimated using these data are shown in Table 3. The percentage discrepancy between calculated and reported catch was about 6%. The 1979 year-class was the most abundant while the 1973 year-class at age 12 is still evident (Table 3).

The catch at age for the years 1962-71 was presented in a previous assessment (Wells, 1973) and used in a virtual population analysis. No age distribution of the catch is available for the 1972-77 period because of low sampling levels. Since 1978, catch levels remained low, apart from 1982, but sampling was sufficient to calculate catch at age (Table 4).

Catch rates, given in Table 5, were obtained by Canadian observers on foreign vessels. These were generally obtained from small catches and have showed considerable fluctuation.

## DISCUSSION

Estimates of population abundance and biomass were not obtained because of problems with estimates of catch at age listed above and the lack of a suitable catch rate series for calibration.

There has been very little fishing activity in this area in recent years and in 1985 only 4% of the TAC was taken. Previous assessments of this stock have indicated that fishing mortalities were below  $F_{0.1}$  from a stock which has a MSY catch of 40,000 t.

## REFERENCE

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

Table 1. Nominal catches (t) of cod in NAFO Divisions 2GH during 1985.

Month	Can(N)		Can(M)	Norway	Poland	Den(F)	GDR	Total
	Offshore	Inshore						
Jan.								
Feb.								
Mar.								
Apr.								
May								
June								
July	71		23 <sup>b</sup>			46		140
Aug.	1	48 <sup>a</sup>	1			56		106
Sept.	26	67	4					97
Oct.		1						1
Nov.			8	149	5	162		324
Dec.			10	78			25	113
Total	100	114	46	227	5	264	25	781

<sup>a</sup>2 t from Division 2G.

<sup>b</sup>from Division 2G.

Table 2. Sampling of the commercial catch of cod in NAFO Division 2GH during 1985.

Gear	Quarter	Country	No. aged	Month	No. meas.	Landings (t)	
						Country/month	Total
LL	3	Den(F)	428 <sup>a</sup>	June	785	46	46
				July	759	56	56
							<u>102</u>
OT	4	GDR	428 <sup>a</sup>	Dec.	259	25	25
LL		Nor.	428 <sup>a</sup>	Nov.	8145	149	227
							<u>252</u>
Other							<u>427</u>
Total	1-4	All	<u>428</u>		<u>9948</u>		<u>781</u>

<sup>a</sup>Combined A/L key from Qtr. 3 (56) and Qtr. 4 (372).

Table 3. Estimate of catch numbers (000's), average weight (kg) and average length at age (cm) from the commercial fishery in NAFO Divisions 2GH in 1985.

AGE	AVERAGE		CATCH		
	WEIGHT	LENGTH	MEAN	STD. ERR.	C. V.
3	0.524	39.207	1	0.23	0.33
4	0.756	44.178	13	1.60	0.12
5	1.189	51.286	49	5.31	0.11
6	1.476	54.906	161	7.02	0.04
7	1.796	58.471	44	5.12	0.12
8	2.478	64.593	11	2.47	0.22
9	3.046	69.528	5	1.26	0.24
10	3.079	69.748	34	2.86	0.09
11	3.685	73.780	14	2.00	0.14
12	4.151	76.598	34	2.55	0.08
13	4.783	80.637	2	0.53	0.33
14	6.898	91.000		0.08	0.79

Table 4. Catch at age for cod in Divisions 2GH from 1979-85.

Age	1978	1979	1980	1981	1982	1983	1984	1985
2			17					
3	7		24	1	62	3	3	1
4	123	72	38	5	103	55	50	13
5	2254	207	249	23	131	47	262	49
6	1257	615	332	360	227	29	103	161
7	201	79	516	423	1207	18	13	44
8	108	7	21	906	973	158	11	11
9	117	1	2	74	2058	108	65	5
10	108	1		7	128	196	60	34
11	52	1		4	5	7	98	14
12	21	1		2	4	1	9	34
13				1	2			2
14				1	2			

Table 5. Catch rates (t/hr) in the directed cod fishery in Division 2H obtained by Canadian observers on foreign vessels. Number in brackets represent the amount of directed catch involved.

Country	Gear	1979	1980	1981	1982	1983	1984	1985
Poland	OT-7	0.58 (1067)	0.15 (31)	5.03 (463)	0.78 (35)	0.39 (38)		
Portugal	OT-6/7	0.51 (106)	1.09 (100)		1.33 (224)		0.69 (41)	
FRG	OT-7		1.72 (415)		2.97 (3238)		0.68 (50)	
GDR	OT-5					0.24 (51)		0.96 (25)
GDR	OT-7		1.55 (362)	1.39 (212)	1.23 (245)			
Den-F <sup>a</sup>	LL-4			0.32 (1448)	0.30 (1864)	0.35 (880)	0.26 (333)	0.27 (72)
Nor <sup>a</sup>	LL-4					0.34 (413)	0.27 (181)	0.25 (220)

<sup>a</sup>CPUE = c/1000 hooks.

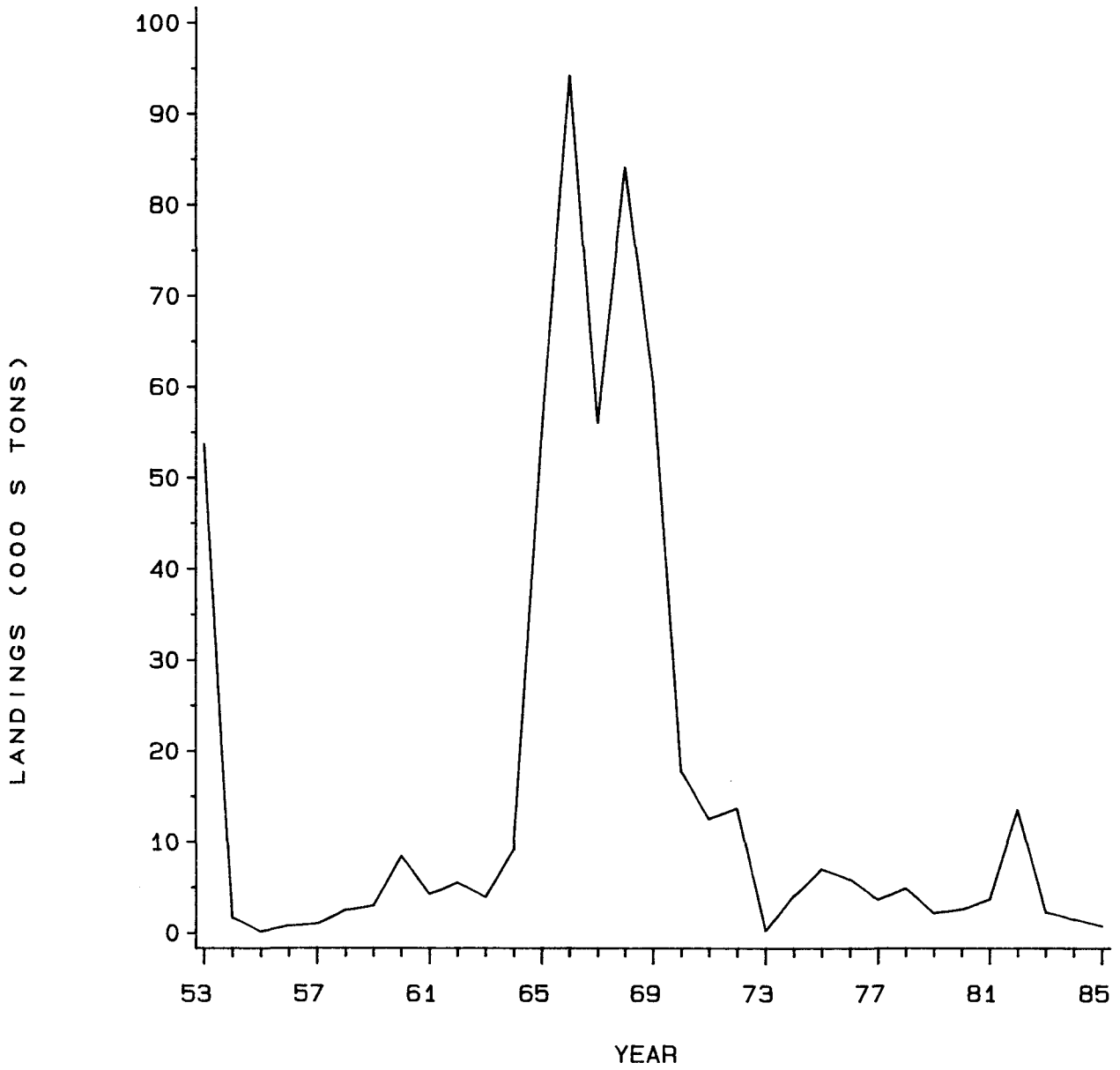


FIG. 1. LANDINGS OF COD IN NAFO DIVISIONS 26H IN THE YEARS 1953-85.