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ADDENDUM

TO THE REPORT OF THE MACKEREL WORKING GROUP

Western stock, revised assessment

(reported by the chairman of the working group, Erling Bakken).

The report of the mackerel working group (C.M.1976/H:3) presents the stock assessments made at the meeting of the group in Charlottenlund 8-12 March 1976. The assessments and consequently the recommended TAC's were to a large extent based on VPA requiring data on catches of mackerel in 1975. Such data were collected by the group from national research institutes and from preliminary catch reports received by ICES giving provisional estimates of the total catch in the North Sea, Skagerrak and Kattegat (Divisions IVa, b, c and IIIa) and in the Western area (Sub-areas VI and VII).

At the meeting of NEAFC in July 1976 revised catch figures for 1975 from some countries were available. In the Western area the total mackerel catch amounted to 446 000 tons as compared to the provisional estimate of 295 000 tons used by the working group.

Due to this discrepancy the fishing mortality in the Western stock had been underestimated by the working group, and a new assessment was required to establish realistic TAC's for 1977.

Revised versions of the data tables relating to the Western stock are presented here, numbered as in the report of the mackerel working group.

The basic data used in calculating the TAC for 1977 were the 1975 estimate of stock size given in Table 4.5.4 and the estimated F given in Table 4.4.3 derived from VPA. From these the stock in number at

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1 January 1976 was estimated. With the assumptions previously used by the group, the recruitment of 1-year-olds in 1976 and 1977 was set to $1\ 335 \times 10^6$ and the catch in 1976 to 420 000 tons in Sub-areas VI and VII plus 53 000 tons in Sub-area IV (Shetland area). The total F on the Western stock in 1976 would therefore be 0.32. The resulting stock size in 1977 is shown together with that of 1976 in the text table below.

Age	1	2	3	4	5	6	6
Number $\times 10^6$ at 1 Jan 76	1 335	168	1 336	248	735	502	2 165
Number $\times 10^6$ at 1 Jan 77	1 335	1 042	131	794	147	437	1 586
Mean weight-at-age, grams, in catch	153	185	217	299	408	408	478

On the basis of this, and with an F of 0.2, the recommended TAC for the Western stock for 1977 is 217 000 tons. The catch that will be taken from this stock in 1977 in Sub-area IV (Shetland) is estimated to 35 000 tons.

Consequently, the revised recommended TAC's for 1977 by areas are:

182 000 tons for the Western area (Sub-areas VI and VII)

155 000 tons for the North Sea, Skagerrak and Kattegat
(Sub-area IV and Division IIIa)

Reference

ANON. 1976. Report of the Mackerel Working Group. Coun. Meet. int.
Coun. Explor. Sea, 1976 (H:3): 1-37.

Table 2.2.1. Total catch of mackerel¹ by countries, 1965-1975, in the Western area
(V, VI, VII, VIII). Metric tons. Revised.

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975 ¹⁾
Belgium	3	5	7	2	11	8	2	-	3	-	17
Faroe Islands	-	-	-	-	-	-	-	-	2 063	8 659	1 748
France	14 651	38 309	28 655	29 751	27 290	35 593	24 538	29 904	36 501	34 186	22 774
Germany, Dem.Rep.	-	-	-	-	-	-	-	-	-	2 885	9 693
Germany, Fed.Rep.	1 959	302	333	613	428	783	258	98	559	993	1 121
Iceland	-	-	-	-	-	90	86	74	52	-	-
Ireland	1 860	1 507	2 245	2 164	1 615	1 055	3 107	4 592	8 314	8 526	13 341
Netherlands	1 411	2 831	3 859	2 597	4 441	3 828	3 837	6 166	7 807	7 262	13 263
Norway	-	-	-	-	-	-	1 611	-	-	32 598	1 800
Poland	212	3	520	1 518	2 149	6 054	10 832	13 129	10 536	22 406	21 573
U.K. (England and Wales)	1 583	1 884	2 634	2 585	2 692	3 374	4 791	6 923	13 124	21 126	31 546
U.K. (N.Ireland)	111	97	158	151	279	243	315	57	93	75	30
U.K. (Scotland)	426	670	490	537	402	803	805	1 412	5 168	8 466	16 174
U.S.S.R.	54	-	-	-	6 147	13 555	36 390	71 247	86 000	101 730	297 079
Total	22 270	45 608	38 901	39 918	45 454	65 386	86 572	133 602	170 220	248 912	430 159 ²⁾

1) Modified figures as reported by ICES statistician to the meeting of NEAFC, July 1976

2) In addition: Bulgaria 14 356 t, Romania 2 166 t

Table 2.2.2 Catch of mackerel in number ($\times 10^6$) by age.
Western area (VIa, VIb and VII a-k.) Revised.

Age \ Year	0	1	2	3	4	5	6	> 6	Total
1975	-	8.0	63.5	88.1	255.5	159.9	108.2	520.6	1 203.8
1974	-	51.0	8.1	98.7	72.9	80.8	93.1	319.1	723.7
1973	-	22.4	22.1	54.2	106.0	103.2	43.1	189.7	540.7
1972	-	1.0	0.1	6.7	18.5	16.5	39.8	204.2	286.8

Table 4.2.1. Western stock. Catch of mackerel in number ($\times 10^6$) by yearclass. Revised.

Yearclass \ Year	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	Total
1975				642.4	135.6	180.5	264.2	89.0	63.5	8.0		1383.2
1974			448.1	135.1	193.1	72.9	98.7	8.1	51.0			1007.0
1973		346.7	67.3	164.5	106.0	54.2	22.1	22.4				783.2
1972	266.6	61.6	36.4	18.5	6.7	0.1	1.0					390.9

Table 4.4.3. Fishing mortalities from VPA and weighted mean values of the Western stock. Revised.

Season Age	1972	1973	1974	1975
0	-	-	-	-
1	0.0005	0.040	0.027	0.042
2	0.0001	0.013	0.018	0.042
3	0.005	0.045	0.073	0.280
4	0.009	0.095	0.078	0.280
5	0.036	0.104	0.252	0.280
6	0.014	0.085	0.122	0.280
\bar{F} age \geq 3 yr	0.014	0.085	0.122	0.280

Table 4.5.4 Western stock. Calculated stock size in number ($\times 10^6$) by age and year at 1 January. ($M = 0.2$). Revised.

Year Age	1972	1973	1974	1975
0				
1	2358	633	2135	214
2	1672	1930	498	1702
3	1580	1369	1560	400
4	2175	1287	1072	1188
5	1152	1764	958	812
6	4888	910	1295	610
>6	(1153)	(4688)	(4296)	(2889)
Total adult (3-6 yr) stock	9795 +(21153)	5330 +(4688)	4885 +(4296)	3010 +(2889)