INTER-GOVERNMENTAL MARITIME
CONSULTATIVE ORGANIZATION

IMCO

TM/CONF/C.2/WP.19/Add.2
11 June 1969
Original: ENGLISH

INTERNATIONAL CONFERENCE ON
TONNAGE MEASUREMENT, 1969

Technical Committee

PROGRESS REPORT OF THE WORKING GROUP ON GROSS AND NET TONNAGE (PART III)

13. As decided by the Technical Committee on 10 June 1969, the Working Group on Gross and Net Tonnage included in its studies, formulae for net tonnage taking the volumetric concept into account. By 11 June further computer results were available.

14. With respect to the displacement concept, exercises were carried out:

(a) for the formula referred to in paragraph 10(a)

$$NT = A(\nabla - WB)$$

but taking into account the total IMCO fleet excluding all types of passenger ships, refrigerated cargo ships and open-shelter deckers, and for two groups of ships above and below 2000 GRT and

(b) for the following logarithmic formula

$$NT = A(0.1 + 0.02 \log_{10}\nabla) \quad (\nabla - WB)$$

The results of the computer calculations for these two exercises are shown at Annex VII.

15. Computer results were also available for the following formula taking the volume of cargo spaces for grain into account:

$$NT = AV_G$$

In the exercise with the IMCO and UK fleets, all types of passenger ships, open-shelter deckers and refrigerated ships were omitted.

The computer results for this exercise are given at Annex VIII.

16. In order to provide an objective comparison of results of the exercises for formulae, taking displacement and/or volumetric concepts into account, computer calculations for

$$NT = A(0.16 + 0.032 \log \nabla)(\nabla - WB) \text{ and}$$
$$NT = 0.288\ V_G$$

were carried out for a total fleet composed as stated in paragraph 15 above and in addition subdivided into groups below and above 2000 GRT and groups of the following types of ships: (i) cargo ships (ii) quarterdeckers (iii) tankers (iv) bulk carriers (v) ore carriers. The results of these exercises are given at Annex IX.

17. The effect of various formulae proposed for net tonnage is shown in TM/CONF/C.2/WP.32 and WP.35.

ANNEX VII

Limitation	Total fleet	<2000 GRT	>2000 GRT	Total fleet
Formula	NT = A(∇ - WB)			NT = A(0.1+0.02 $\log_{10}\nabla$) x (∇ - WB)
Coefficients	A = 0.3189	A = 0.2707	A = 0.3261	A = 1.6378
Total No. of ships	302	50	252	516
No. of ships retained	284	46	233	482
Percentage of mean deviation	1.77	2.212	1.347	2.752
SD_o	13.327	15.037	11.632	16.607
SD_m	13.208	14.87	11.554	16.377
Fleet per cent change	6.373	4.466	4.269	7.187

ANNEX VIII

Limitation	Total fleet	<2000 GRT	>2000 GRT
Formula	$NT = AV_G$		
Coefficient	0.2882	0.2736	0.2912
Total No. of ships	302	50	252
No. of ships retained	286	48	240
Percentage of mean deviation	0.724	0.889	0.693
SD_o	8.524	9.530	8.345
SD_m	8.493	9.487	8.316
Fleet per cent change	2.466	2.584	1.683

Subdivision	Total fleet	<2000 GRT	>2000 GRT	(i)	(ii)	(iii)	(iv)	(v)
Total No.of ships	302	50	252	109	15	88	48	42
Formula	$NT = (0.16 + 0.032 \log \nabla)(\nabla - WB)$							
No.of ships retained	286	47	240	103	15	84	47	41
Percentage of mean deviation	8.868	3.741	9.423	9.085	8.085	1.437	16.789	17.913
SD_o	13.919	15.483	13.689	12.366	12.714	8.561	20.372	23.081
SD_m	10.716	15.015	9.917	8.341	8.376	8.438	11.270	14.277
Fleet per cent change	10.116	5.015	10.105	10.676	9.594	5.509	20.966	16.75
Formula	$NT = 0.288V_G$							
No.of ships retained	286	48	240	107	15	82	47	38
Percentage of mean deviation	0.791	-4.309	1.79	0.765	-4.122	-0.977	2.098	10.771
SD_o	8.524	10.893	8.418	6.913	7.963	6.659	8.872	18.528
SD_m	8.487	9.985	8.224	6.87	6.723	6.586	8.717	14.972
Fleet per cent change	2.533	-2.525	2.769	1.797	-2.938	1.234	3.407	10.937