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Vessel Size Categories Used by the NAFO Scientific Council

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### Abstract

A comparison of the Gross Registered Tonnage (GRT) and Gross Tonnage (GT) of fishing vessels demonstrates that the GT is significantly greater than the GRT. The implications of this on the collection of STATLANT data on catch and effort by vessel size categories is discussed.

### Introduction

The STATLANT 21B questionnaire used for many years by the NAFO Scientific Council in the assessment of fishery resources requires the contracting parties to submit the data on catch and fishing effort for segments of the fishing fleet. The size category of the fishing vessels is one of the parameters used to identify a segment of the fleet and the size is currently defined as the Gross Registered Tonnage (GRT) of the vessels with the vessels being divided into the following size classes:

0 – 49.9 GRT  
50 – 149.9 GRT  
150 – 499.9 GRT  
500 – 999.9 GRT  
1000 – 1999.9 GRT  
2000 – 99999.9 GRT  
tonnage not known

Within each size class, the average GRT is requested.

The Gross Registered Tonnage is a volumetric measure that approximates to weight and was defined by the internationally recognised Oslo Convention (1947) as the capacity of the hull in cubic feet/100 (that is, 100 cubic feet – or 2.83 cubic metres- is equal to 1 GRT). It appears that judicious use of the calculation of the vessel capacity led to vessels being able to reduce their GRT and hence pay lower harbour dues, etc. This led to the London Convention on Tonnage (1969) that has apparently resolved the physical measurement issue. It has resulted in the GRT being replaced by the Gross Tonnage (GT) with the GT being defined as  $K \times V$  where V is the volume of the vessel and K is a coefficient determined in an annex to the Convention.

The London Convention was agreed in 1969 but did not enter into force until 1982 and gave exemptions for vessels to use their previously measured GRT until 1994. From 1982 new vessels were supposed to have their tonnage recorded as GT as were vessels under-going structural changes. Owners could also request that their vessels be re-measured. However it is apparent that, even at the end of the 1990's, the GRT was still in use as a tonnage measure for fishing vessels. A possible reason for this is that the Convention only applies to vessels of 24 meters in length

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<sup>1)</sup> The views expressed in this paper are those of the author and do not necessarily represent those of EUROSTAT or the European Commission.

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and above and to vessels undertaking international voyages (that is, involving visits to foreign ports). Many fishing vessels are below 24 meters in length and only operate from ports in their own country.

As a result many national registers of fishing vessels include vessels for which tonnage is recorded in GRT, GT or both. Unless, as intended by the Convention, the values of GRT and GT are very similar the use of tonnage in studies of the fishing fleet has to be approached very cautiously.

### Materials.

The Norwegian Directorate for Fisheries provided EUROSTAT with copy of its file of fishing vessels as of 31 December 1999. This file contained records for each vessel in the Norwegian fishing fleet and in each record there was the possibility of recording the gross registered tonnage, the gross tonnage and the year of construction.

### Results.

The Norwegian file of the fishing fleet contained 13196 records. For 4738 records there was no tonnage information. For 7991 records there was only information on the GRT of the vessel, for 165 records there was information on both the GRT and GT of the vessel and for 302 there was information on only the GT of the vessel.

Using the 165 records for which both GRT and GT were recorded a scatter plot was drawn and the trend line calculated (see Fig. 1).

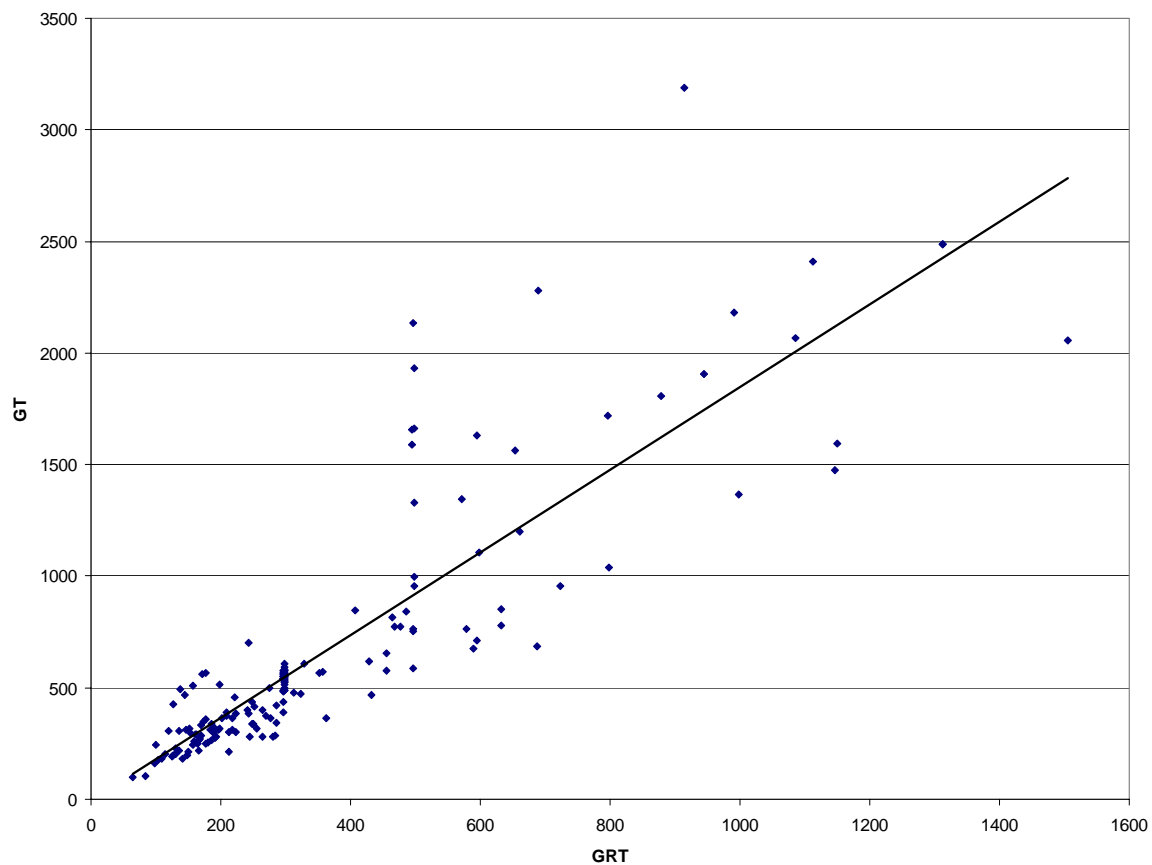


Fig. 1. Scatter plot for 1999 Norwegian fleet file of vessels for which both GRT and GT are recorded.

The equation of the line is:

$$GT = 1.85 GRT - 4.1$$

With a correlation coefficient of 0.87 with the range of GT/GRT for individual vessels being 1.00 to 4.31, the mean 1.78 and the median 1.61 (see Fig. 2).

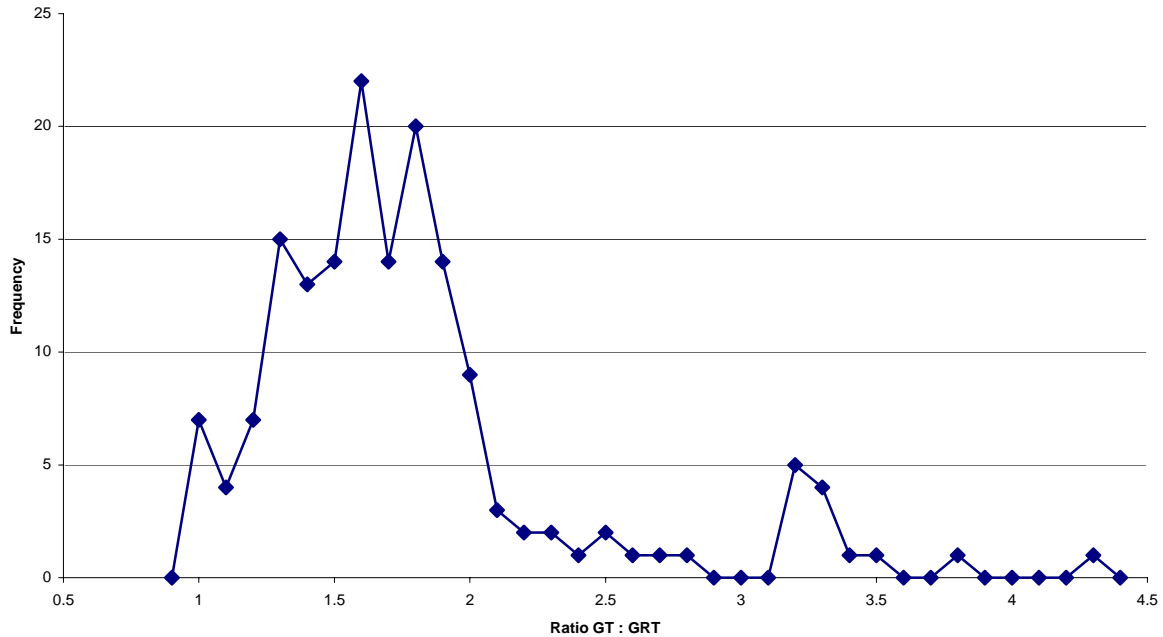


Fig. 2. Ratio GT : GRT for 165 vessels with records for both measures.

### Discussion

The intention of the 1969 London Convention was to resolve the problems associated with the physical measurement of tonnage under the earlier Oslo Convention. The tonnage was to be calculated using the formula  $GT = V \times K$  where  $V$  is the volume of all enclosed spaces and  $K$  is a coefficient the value of which is contained in an annex to the Convention for a range of values of  $V$ .

The basic difference in the calculation of GRT and GT is that in the calculation of the GRT under the Oslo rules certain rooms or part of rooms are not measured while for the calculation of the GT all enclosed spaces are measured (see Fig. 3).

As was noted above, the London Convention is mandatory for vessels over 24m and for vessels on international voyages. However it is evident that it was expected this Convention would be applied to smaller vessels because the annex to the Convention quotes coefficients that would result in gross tonnages of 2 GT.

In the case of the Norwegian fishing fleet file it appears that, even in 1999, over 50% of the fleet were still only recorded in terms of the GRT. (This should not be taken to imply that the vessels have not been re-measured but it may be due to the file in the Norwegian Fisheries Directorate not having been up-dated.)

The result of the Convention is that over time (and yet to be completed?) the tonnage measure of fishing vessels is changing from Gross Registered Tonnage to Gross Tonnage. Furthermore it is highly likely that this process be taking place at varying rates in different national administrations.

The present study has shown that the GT is significantly greater than the GRT. This casts considerable doubt on the comparability over time of the STATLANT catch and effort data by tonnage classes of fishing vessel. Once the re-measurement of fishing vessels is complete (and recorded on the administrative files) comparability should be restored but, until such time, great care should be taken in analysing data compiled by vessel tonnage categories.

It is relevant to point out that, in part due to the above-mentioned problems with the tonnage measurement, the tonnage is no longer the main parameter used by FAO in collecting fishing vessel data from national administrations. The overall length has now been adopted as the main parameter with the following classes being selected:

0 – 6 m  
6 – 12 m  
12 – 18 m  
18 – 24 m  
24 – 30 m  
30 – 36 m  
36 – 45 m  
45 – 60 m  
over 60 m

The NAFO Scientific Council may well wish to consider adopting the length as the vessel class parameter in collecting STATLANT data. Such a change would have little effect of data already held in the NAFO databases because this paper has already expressed doubts as to the comparability of the data and, even when the GT is the universally used tonnage parameter, the new data series will not be comparable with the old.

#### **Acknowledgements.**

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#### **References**

International Convention on Tonnage Measurements of Ships, 1969. *Inter-Governmental Maritime Consultative Organization*. <http://www.admiraltylawguide/conven/tonnage1969.html>

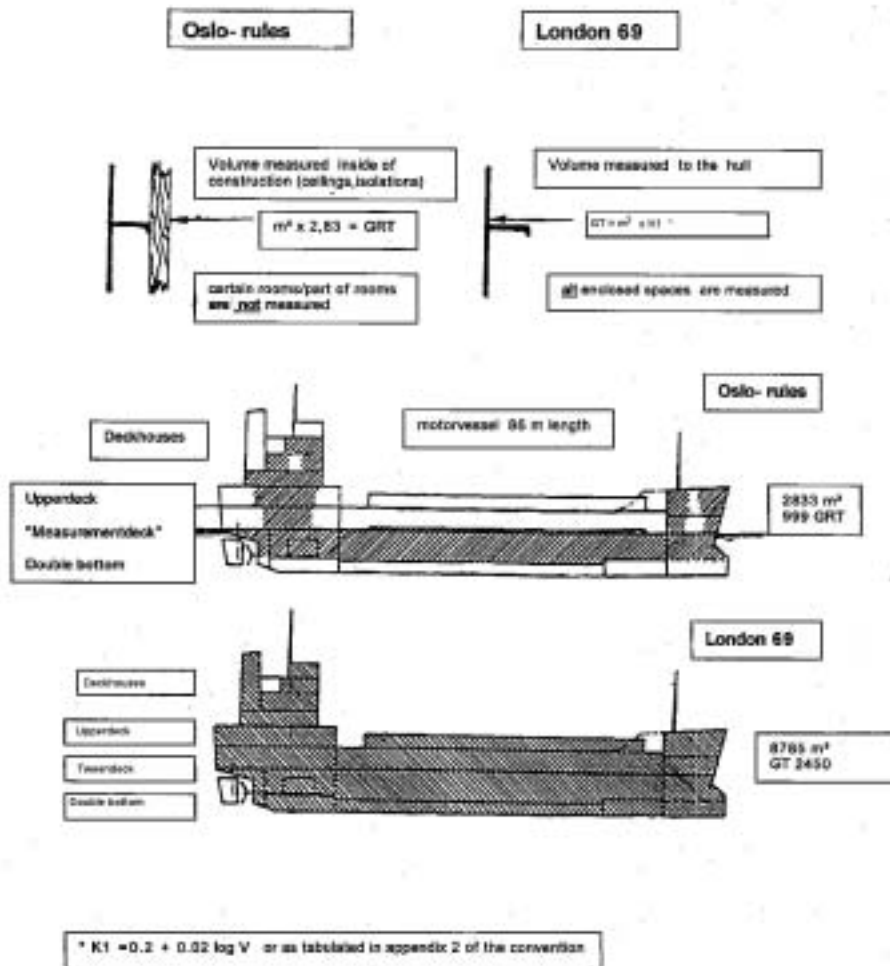


Fig. 3. Comparison of the measurement of a vessel according to the Oslo Convention (1947) and the London Convention (1969).