INTERNATIONAL MARITIME ORGANIZATION

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SUB-COMMITTEE ON STABILITY AND LOAD LINES AND ON FISHING VESSELS SAFETY
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Agenda item 12

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TONNAGE MEASUREMENT OF OPEN-TOP CONTAINERSHIPS

Analysis of application of a maritime real estate tonnage measure to world fleet

Submitted by Australia

SUMMARY

Executive summary:	A background analysis is presented in relation to the effect of the proposals in the Australian document submitted under this item.
Action to be taken:	Paragraph 13
Related documents:	SLF 48/12

Methodology

1 The analysis presented in this document has been undertaken to gauge the effect on gross tonnage-based fees of the implementation of a "register tonnage" measure of "maritime real estate" as proposed in document SLF 48/12. In that paper, it is proposed that the International Convention on Tonnage Measurement of Ships, 1969 (1969 TM Convention) should be amended by insertion of such a "register tonnage" value alongside the existing gross and net tonnage values.

2 For the purpose of the study, the "register tonnage" value was directly proportional to the volume of the cuboid described by the dimensions length overall, moulded breadth and moulded draught and this value was compared with the ship's gross tonnage. All of the requisite data was obtained from 42,680 individual ships' entries in an internationally recognised database of the world fleet.

3 To compare fees based on "register tonnage" with those determined on a gross tonnage basis for each ship, the totals of "register tonnage" **volume** and gross tonnage were tallied across the entire fleet. A scaling factor for "register tonnage" was then determined so that the total "register tonnage" was equal to the total gross tonnage. This scaling factor was then applied to the "register tonnage" volume for each ship to produce its "register tonnage" value. This value may be compared with the ship's 1969 TM Convention gross tonnage.

4 Under this methodology, the total revenue of a fee levied according to "register tonnage" on all ships in the sample population would equal the total revenue from a similar fee based on gross tonnage.

5 Noting that very few ships will have exactly the same fees under "register tonnage" as under their existing gross tonnage, the effect of the introduction of "register tonnage" is shown in figure 1, as in all of the other figures in this document, in bands of 10% variation.

6 The data from figure 1 is represented in figure 2 for the main cargo ship types.

Discussion of results

7 On first viewing, figure 1 appears to have a lop-sided distribution and therefore be in error. The first factor giving rise to this impression is that the "register tonnage" system does what it is intended to do, namely remove the tonnage penalty of ships having relatively high freeboards and large superstructures and deck-houses. On the other hand, it will be seen that the "register tonnage" system would result in relatively low-freeboard ships such as bulk carriers and oil tankers being subjected to a moderate increase in fees.

8 The second factor giving rise to this impression is that, despite the absence of a "K" factor as used in the 1969 TM Convention to reduce the tonnages of larger ships, such larger ships fare relatively well under the "register tonnage" system. The small number of ships represented on the left-hand side of figure 1 are large and therefore have a proportionally large effect on the scaling factor determined as above, while the ships represented on the right-hand side are generally larger in number.

Effect of proposals on charges for ships calling at individual ports

9 Further analysis of the trends identified above has been carried out by applying the above methodology to the population of ships calling at several Australian ports. For each port, the sample of ships covers all port visits over a 12-month period, including multiple visits by individual ships. As before, the total "register tonnage" of the sample has been made to equal the total gross tonnage. Consequently, the scaling factor values applying to the "register tonnage" values for the purpose of this part of the study are different from that derived above for the world fleet. Should the concept be implemented the scaling factor values would **not** change but any difference would be taken into account by the charging regime applicable to the port.

10 In port A, shown in figure 3, about two-thirds of the ships are dry bulk carriers, with oil tankers having the next highest number at about 13%, which is about double the next largest category. The large number of ships having increased fees of 10% to 20%, mostly small bulk carriers. A further counter-balancing factor is a small number of large LNG carriers for which fees would reduce substantially.

11 Figure 4 shows callers at another port (B) that is used by a much broader mixture of ship types, with no particular type predominating and ships being generally in the small to medium size range. In this case, as could be anticipated, the ships receiving greatest advantage from the change (fees reducing in excess of 30%) are generally car carriers, ro-ro ships and passenger ships. These ships of course need to be counter-balanced by ships that are disadvantaged by use of "register tonnage". It is interesting, though, that the peak of those disadvantaged also occurs in the 10% to 20% disadvantage range.

12 Another port (C) is represented by figure 5. The main difference from port B in the ship types using this port is that it is used by a much lower proportion of ro-ro ships and car carriers, hence the statistical distribution is much more normal and the peak number of disadvantaged ships moves to the 0% to 10% disadvantage range.

Action requested of the Sub-Committee

13 The Sub-Committee is invited to take the information presented into account when considering long-term aspects of tonnage measurement matters as raised in document SLF 48/12.

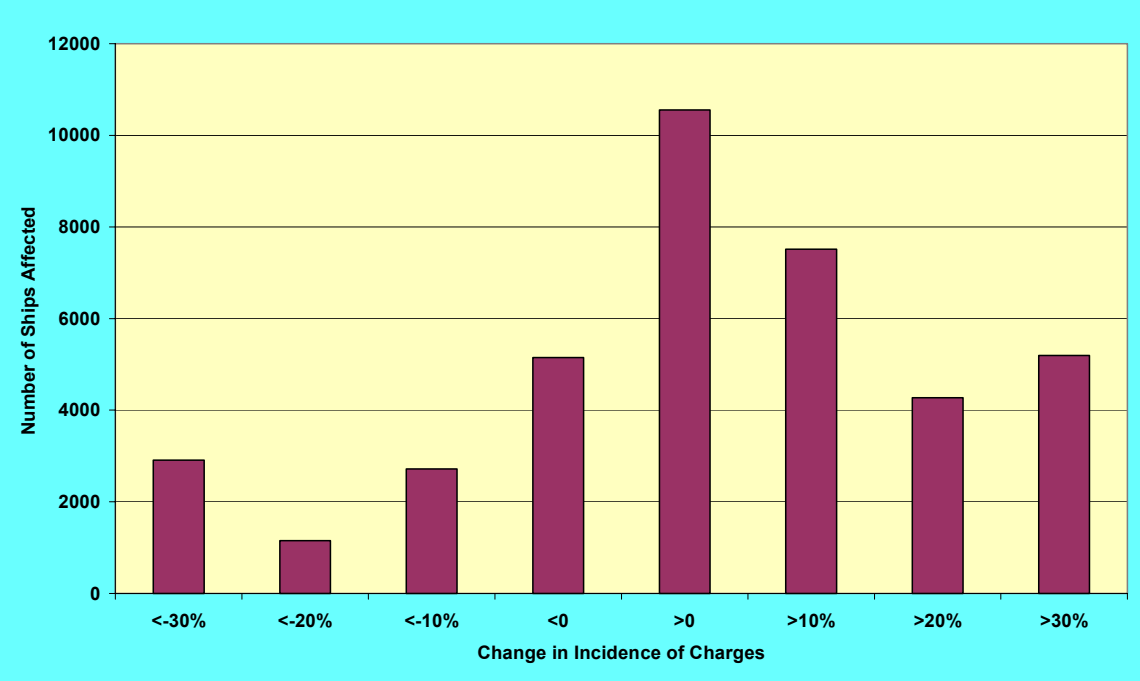

Figure 1 –Change from gross tonnage to "register tonnage" on world fleet

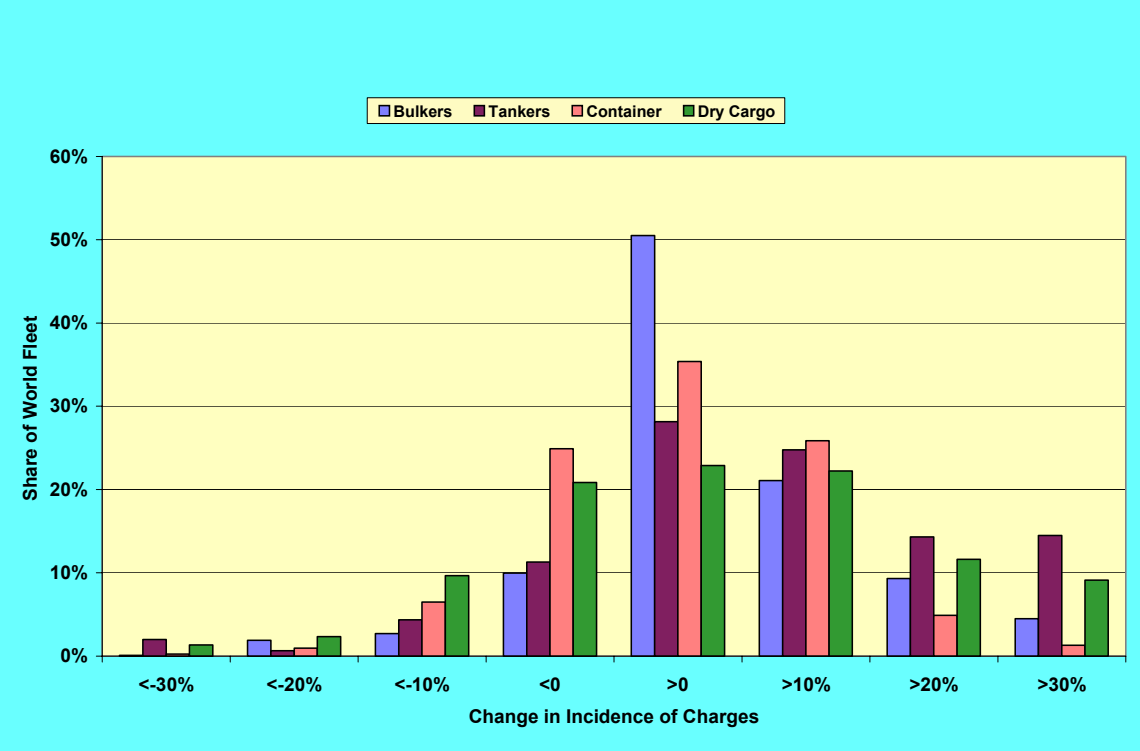

Figure 2 – Change from gross tonnage to "register tonnage" on world fleet according to ship type

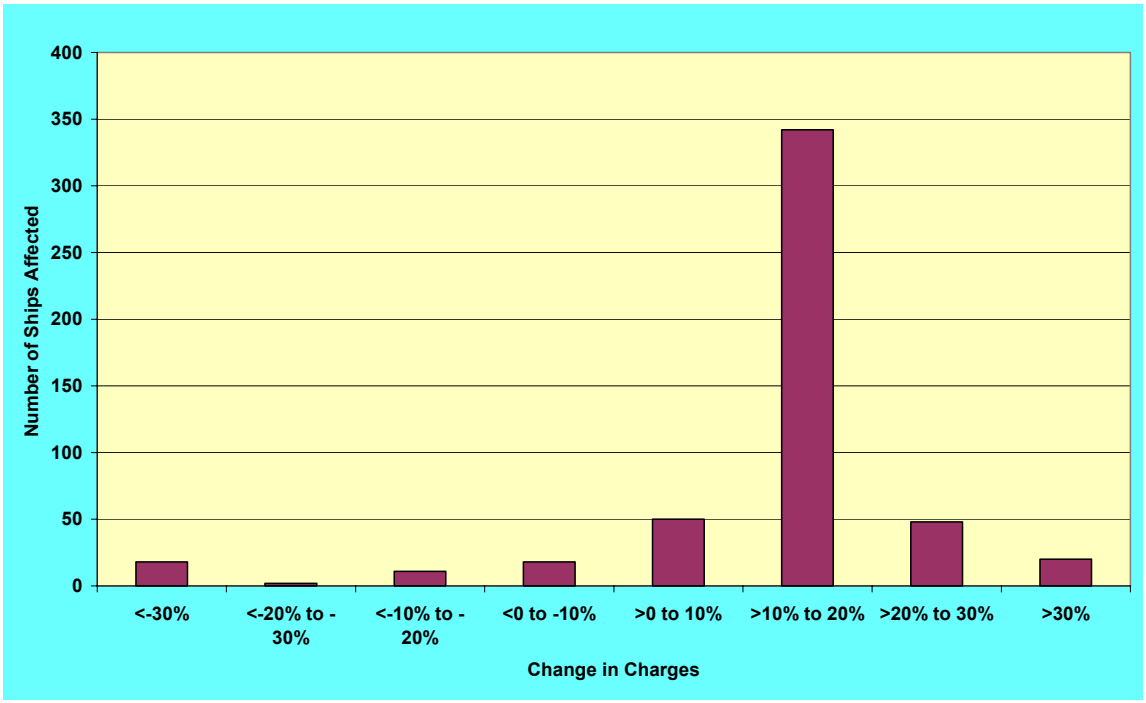

Figure 3 –Change from gross tonnage to "register tonnage" on ships visiting port A

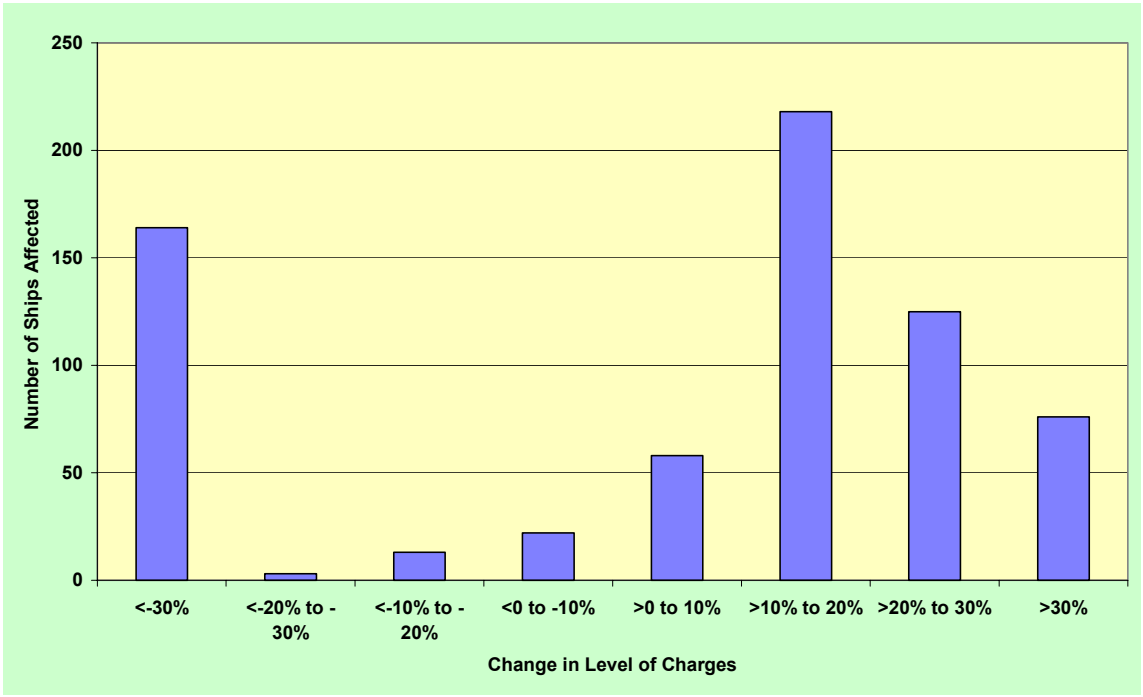

Figure 4 - Change from gross tonnage to "register tonnage" on ships visiting port B

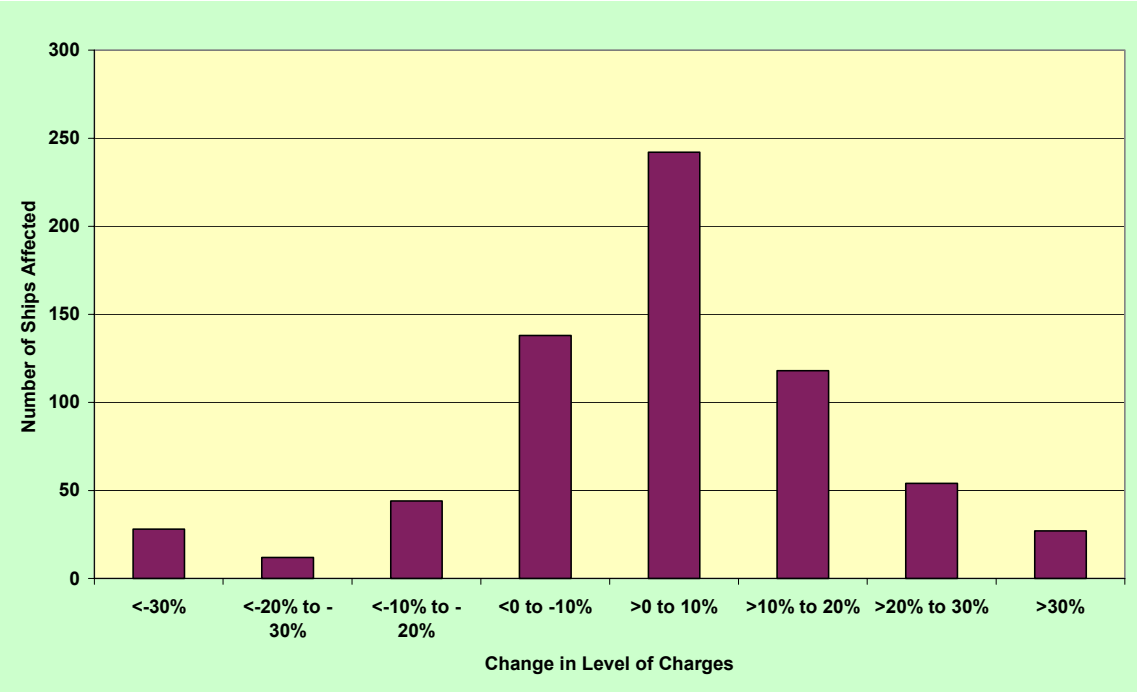

Figure 5 - Change from gross tonnage to "register tonnage" on ships visiting port C