

Forum

The Provision and Requirement for Aids to Navigation

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1. INTRODUCTION. Regulation 14 of the IMO Safety of Life at Sea (SOLAS) Treaty reads as follows:

The Contracting Governments undertake to arrange for the establishment and maintenance of such aids to navigation, including radio beacons and electronic aids as, in their opinion, the volume of traffic justifies and the degree of risk requires, and to arrange for information relating to these aids to be made available to all concerned.

When this Regulation was drafted, it generally reflected the way in which navigation was conducted at the time and the standard of aids to navigation then available. With the passage of time and subsequent developments in equipment, it is now somewhat out of date. However, it would appear to be partly responsible for the present situation, whereby aids to navigation remote from ports and port approaches tend to be provided rather haphazardly in relation to traffic volume and the capabilities of the local organization. The actual requirement has tended to take second place and a proper statement concerning classes of ship and minimum weather conditions in which the local aids mix may be safely used is practically never produced. There is a case for review of the basis upon which aids are provided.

2. BACKGROUND. In the past, and indeed almost up to the time that Regulation 14 was drafted, navigation could never be described as truly safe. It was not an exact science and a certain amount of art was involved in safe navigation between ports. The shipping casualty figures up to about 50 years ago reveal a large proportion of strandings, and in many cases these were due rather more to bad luck than to negligence.

With the invention of radar and the echo sounder and the provision of the various means of radio navigation, this situation has entirely changed. With the systems now available, it is quite possible to ensure safe navigation anywhere in the world and the art of navigation is more concerned with the efficient prosecution of the voyage rather than with basic safety.

3. PRESENT SITUATION. These developments have been given some consideration and there have been some modifications to previous practice, but the real situation is rarely investigated or appreciated.

Given a certain geographical feature such as a port or a section of coastline, it is quite possible to establish that a certain class of ship may navigate or approach the port in safety in minimum stated weather conditions. In arriving at this conclusion, the volume of traffic will be only one of several considerations, which will mainly involve the provision of aids to navigation, the ship's equipment and the standard of the hydrographic survey.

Since it is possible to state the conditions for safe navigation, anything less may be considered unsafe. IMO has defined accuracy requirements based on the distance from danger in Resolution A529(13). Taking this into consideration, together with the

prevailing weather conditions and the class of ship involved, it is quite possible to make an absolute statement regarding navigational safety. In fact, in territorial waters, so long as this information has been generally promulgated, it should be possible to prosecute an offending ship contravening the declared safety standards, even if no accident has occurred. This may be thought to be an unacceptable interference in freedom of navigation, but governments have a duty to protect the shoreline. Additionally, an obligation to define local conditions of safety would increase the burden of responsibility on them to provide adequate aids to navigation.

At present, there is a general recognition that comprehensive vessel traffic services are a useful addition to safety. However, it would appear that rather too much seems to be expected of traffic control officers. They are well able to act as regulators but, since their information is necessarily secondhand, their ability to give navigational advice is limited.

The navigation situation needs to be regarded as a whole, with due consideration being given to prevailing conditions. This should then be subject to a detailed analysis and the results included in the relevant sailing directions.

At present, partly due to the general acceptance of the principle of freedom of navigation, little attempt is made to define the true requirements and establish safe areas and routes for the various classes of vessels according to the aids to navigation available. When changes to navigation marks or radionavigation systems are anticipated, an investigation is generally carried out among all the local users to establish their usefulness. This should be unnecessary, as light stations and other facilities, including radionavigation systems, should be part of an overall plan, their utility documented and well known and not, therefore, the subject of debate.

4. CONCLUSION. A more positive approach needs to be taken to navigational safety. The needs and requirements should be first established and should then be fulfilled according to the facilities and funds available. Very often new systems are developed without being subject to a defined and accepted requirement and justification is sought thereafter.

When the SOLAS Treaty is next revised, it may be helpful if Regulation 14 is revised somewhat along the following lines:

The Contracting Governments undertake to arrange for the establishment and maintenance of such aids to navigation, including radio and electronic aids, as will serve to ensure safe navigation as and where they shall decide it is necessary and to arrange for information regarding these aids and the safety of navigation within their territorial and surrounding waters to be made available to all concerned.

Note: Since preparation of the above, an article has been published in the Forum section of the *May Journal*, which advocates very much this general approach for the provision of short range aids to navigation¹ and there would seem no reason why it should not be applied to all aids, including radio aids. There is still the necessity of accepting some percentage of availability; this cannot be ignored and the area of cover of the concerned aid to navigation has to be considered unsafe for the duration of non-availability and other navigational means provided or the area avoided by the concerned craft.

REFERENCE

¹ Gallagher, J. (1992). Landfall and coastal lighthouses: a Canadian perspective. This *Journal*, 45, 298.

KEY WORDS

1. Lights and buoyage.
2. Safety.