Liaison Note to Project EfficienSea

Draft proposal for AIS coverage definitions

# Introduction

In the liaison note from EfficienSea on Operational definitions of AIS coverage (e-Nav8/9/23) IALA was invited to comment on the proposed definitions of AIS coverage - whether such definitions could support declaration of service areas, and whether proposed definitions are relevant.

The work by EfficienSea is commended, and will be beneficial in the definition of coverage area for provision of services. The following suggestions are provided:

1. It is recommended that coverage areas be separated to define areas as received by shore stations from vessels (‘talk-in’ or ‘AIS receive’) and coverage area as transmitted from shore stations (‘talk-out’ or ‘AIS transmit’).
2. Another definition of coverage area may be needed to describe limitations to ship-to-ship AIS coverage in high VDL load conditions, sometimes referred to as the ‘Aloha effect’ or shrinking cell effect.
3. Administrations should determine what services will be provided and then determine what level of AIS service is recommended for the provision of those services. The creation of a matrix, such as that begun by EfficienSea, matching service levels to the services provided is recommended.
4. It is recommended that the table defining the coverage areas be expanded to include translation of the QAIS percentage to other metrics, such as likelihood of receipt of a message from a vessel in a given time period, distance covered, and time between reports.
5. Coverage may be measured using a variety of criteria, including:
   1. AIS receive:
      1. AIS report rate, i.e. the frequency of receipt of reports from vessels by a base station
      2. distance travelled between reports, i.e. the distance travelled by a vessel between receipt of AIS reports;
      3. percentage of receipt, i.e. AIS reports received by a shore station vs. number of reports expected to be received from vessels based on their speed, rate of turn, etc.
   2. AIS transmit:
      1. probability of receipt of a message transmitted by a base station by a vessel within a defined distance from the base station;
      2. basic coverage area should be determined using calculation of the expected RF coverage area, given a defined power level.

# Action requested

Project EfficienSea is requested to note the information provided.