1. ESTUARY VESSELS IN THE BELGIAN COASTAL AREA

According to regulations issued in 1963 by the Belgian Shipping Inspectorate, estuary vessels are inland vessels strengthened and equipped to the extent that they can safely operate between the Belgian coastal harbours and the West Scheldt in favourable weather and wave conditions, the limits of which have been set at Beaufort 5 or a significant wave height of 1.2 m. The existing fleet built according to these regulations consists mostly of (bunkering) tankers.

At present, only 1-2% of the hinterland traffic to the harbour of Zeebrugge is carried by inland navigation, due to the insufficient capacity of inland waterways connections. Although estuary vessels could offer an alternative, the weather window is too restrictive as it implies that traffic is not possible for 60 days a year on average (Fig. 1). Accordingly, the Belgian Shipping Inspectorate, receiving requests from various ship owners to consider an extension of the limiting conditions, nowadays allows an approach based on modern probabilistic design procedures. The proposed methodology includes risk analysis with respect to criteria which take due account of the limitations inherent to the design of inland waterways vessels. The ship can then be designed and built respecting proven inland waterways arrangements, while at the same time incorporating design features and construction details derived from sea-going practice.

2. RISK ANALYSIS

In 2004 several vessels have been granted permission for estuary service up to significant wave heights between 1.60 and 1.75 m. The ship’s response to the local wave conditions must meet several criteria: slamming, shipping of water, roll, longitudinal strength, accelerations. Thanks to the Measuring Network Flemish Banks, actual and historical wave data in this area (including directional wave spectra) are available. In 2005, in the frame of measures taken by the Flemish authorities to stimulate the operation of estuary vessels as an alternative hinterland connection for container traffic, a limited risk analysis has been performed to investigate the feasibility of four types of open hatch container vessels (length 110-135 m, beam 11.4-22.8 m) for operation up to significant wave heights between 1.7 and 2.0 m.

3. NEW REGULATIONS AND MEASURES TO STIMULATE THE OPERATION OF ESTUARY VESSELS AS AN ALTERNATIVE HINTERLAND CONNECTION FOR CONTAINER TRANSPORT

Based on the experience with the recently developed estuary vessels and the results of the studies mentioned above, the Belgian federal authorities have prepared new regulations for inland vessels also operating at sea for non-international voyages. An overview of these regulations will be given, with emphasis on criteria related to the ship’s response to the local wave climate.

Measures have been proposed by the Flemish Authorities to stimulate the operation of estuary inland vessels for container transport from and to the Flemish coastal harbours. Initially the construction of estuary inland vessels will be partially subsidized. Furthermore, for a limited period in time an allowance will be granted to compensate for higher exploitation costs. In return service providers must guarantee minimal container cargo for future years. Important to note is that the proposed measures are still to be approved by the European Authorities.