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## **Safety of Navigation in the Straits of Malacca**

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Well-recognized as a critical waterway in the world, the Straits of Malacca has seen a tremendous increase in traffic movements as ship operators seek the shortest route to destinations between Europe and the Far East. In 2009 alone there were over 76,000 ship movements in the Straits not including the 30,000 crisscrossing between the littoral states. These huge numbers require constant monitoring and management as any incident would have tremendous impact not only on international traffic and its economic implications to shipper states, but also to the lifelines of the communities straddling this key waterway.

Collisions between vessels, groundings, fires, and sinkings over the last 10 years (32 incidents), could have had the potential of becoming more serious than they actually were had it not been for the strong monitoring and rapid action taken by the littoral states' authorities. As such this level of readiness and quick-response ability remains crucial in this important international waterway.

Safety of navigation in the Straits hinges on a combination of elements especially the human factor, level of navigational technology available, navigational rules and regulations, traffic density, and environmental conditions. The human factor relates to the level of experience of shipboard crew and those manning the land-based tracking systems. Level of technology refers to the efficiency and effectiveness of various facilities used to manage traffic along the waterway such as the Vessel Traffic System (VTS), Differential Global Position System (DGPS), Electronic Navigational Charts (ENC), etc. Navigational rules and regulations cover the various regional and international requirements under the International Maritime Organization (IMO) that are obligatory or voluntarily observed by ship masters or managers of the waterway. Traffic density or occupancy refers to the number of vessel movement and finally, environmental conditions are the external influences such as weather conditions, waves, visibility, and geo-spatial characteristics of the Straits which affect vessel movements.

In referring to the safety of navigation of a waterway some basic issues the above factors have to be taken into consideration. The five pillars of safety of navigation are inter-related. However, environmental conditions are beyond human control, and, although the other four elements could be managed, this is often not enough to guarantee complete safety of navigation in the straits.

Vessel traffic density is particularly important in the busy Straits of Malacca especially at the point where the Straits of Malacca converges with the Singapore Straits at Tanjung Piai owing to the funnel shaped topography of the waterway. Although the Straits width, length, and depth has remained fairly constant, the different vessel types, sizes, speeds, and operational methods have improved considerably over the years and better safety systems need to be continually emplaced. Accordingly, regulatory aspects need to be revised and updated to keep pace with developments of vessel operational systems and technology.

Various national and international shipping conventions, codes, regulations, resolutions and policies exist aimed at enhancing navigational safety levels. Among them are the safe distance and safe separation rules for vessels conventionally ranging between 1 - 0.8 nm distance-wise and a separation of 1 – 2 nm. These arrangements are recommended by the VTS system although the actual practice depends totally upon the skills and experience of the ship's master. Safety considerations, however, dictate a more comprehensive approach as any incidents will adversely affect the waterway's environment and certainly the smooth flow of traffic.

There are currently no rules governing such safe-domain considerations despite the different dimensions and types of vessels using the Straits. Current practices do not discriminate on the type of vessels: tankers maintain the same distance factor as general cargo vessels, although the difference in their average overall lengths could be almost 100 metres. This also extends to safety considerations in the vessel-beam aspect when defining safe distance. Identifying these parameters for certain classes of vessels like tankers, bulk carriers and containers would enhance safety as these large vessels predominate in the Straits of Malacca. Thus, although increased

traffic density can be achieved by altering the safe distance and safe separation factors, they should be explicitly defined and enforced.

Presently with the joint efforts of littoral and user states, the safety of navigation in the Straits of Malacca is maintained through different vessel tracking and monitoring systems mechanisms on board and on land such as the Traffic Separation Scheme, Automatic Identification system and etc. Also recently new initiatives like Maritime Electronic highway (MEH) and Long Range Identification and Tracking System (LRIT) have been implemented. Greater international usage of the Straits would also require improvements to communication systems through education and training processes and the commitment of relevant nations towards achieving greater safety at this waterway should be sought towards this end. As traffic density is expected to continue its upward trend, there is still plenty of scope for safety and incident mitigation measures.

The full support of littoral states and other Straits-user members is critical to attain a common stand on all relevant regulations under the IMO umbrella. These higher standards and measures could be achieved by shaping new policy and operational guidelines over vessels using the Straits among others through reviewing the status of different code and regulations within the ambit of Port State Control (PSC), International Safety Management code, and the Standard of Training, Certification and Watchkeeping (STCW) conventions.