ABSTRACT

By 2013, it was recorded that the density of ship traffic in the Madura Strait reached 43,000 ship calls. This number is considered exceeding the existing capacity of Madura Strait which is only 27,000 ships per year (Kabar Bisnis, 2014). With the plan of port development around the area, the existence and future oil and gas platform installation, subsea gas pipeline and cables around the shipping channel, it is estimated that the density of Madura Strait is even more congested. It is important, therefore, to assess the probability of maritime accidents due to the high potential hazard in the area, and one of which is the ship collision. The existing shipping line condition in Madura Strait is limited (narrow) and not proportionate to the number of ships passing, and this could lead to ship collision. The loss caused by ship collision can be in many ways, such as loss of life, loss of environmental impact caused when oil spills, physical damage and economic loss as a result of the damage to the cargo. This research utilizes the Minimum Distance method to Collision (MDTC) to get an estimate value of the probability of ships collision (Montewka, 2011) and found the probabilities of ship collision as follows: in the inner channel at 19,000 to 30,000 spots in head-on collision 2,138 accidents/year and the lowest probabilities of ship collision is overtaking in the outer channel 0.086 at 13,000-19,000 spots accidents/year. While the Traffic Based Model (Kristiansen, 2005) found that the highest probability of ship collision in the inner channel at 19,000-30,000 spots in head-on 1,151 accidents/year and the lowest probabilities of ship collision is overtaking in the outer channel at 38,000-43,000 spots 0.130 accidents/year.

Keywords : Minimum Distance to Collision, probability (MDTC), ship collision, Traffic Based Model (TBM), Surabaya West Access Channel(SWAC)