Abstract: Safety of navigation in a narrow channel is always a top concern of maritime administration. There are many risk assessment models for navigation in a restricted area which were studied and applied worldwide, including IWRAP, PAWSA of the IALA, ES model of Kinzo Inoue. However, these models are not suitable to be applied in Vietnam. In this paper, we analyzed the safety assessment getting from the opinions of captains, pilots and navigators in Ganh Rai Bay. The results showed that the highest risk is caused by unsafety fishing ships and the most unsafe situation is generated by the directional cutter ship. Further more, the captains and pilots pointed out that the high risk areas are from buoy №0 to buoy №3 and from buoy №7 to buoy №9 in Vung Tau – Thi Vai Channel, which was caused by the wind and currents. Based on the statistical and analytical results, we have developed a fuzzy logic program to evaluate the vulnerability of traffic in Vung Tau – Thi Vai Channel.

Keywords: Safety of navigation, fuzzy logic, risk assessment, Vung Tau – Thi Vai Channel
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