Mooring Ship Scheduling Simulation Using Sequential Searching Algorithms to Achieve 'Zero Waiting Time' in North Jamrud Berth

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ABSTRACT

Sea transportation is one of the main transportation in Indonesia. The flow of the ships and goods is increasing from year to year. If those increase is not supported by proper infrastructure and facilities and also good services, those would cause traffic problems on the voyage that resulted in queue problems in the port. The uneffective and unefficient of arrival and service pattern for berthing vessels make the queue problems becomes more difficult to be solved.Ship berthing services system on North Jamrud berth is still done manually by helding meeting every day to determine the berthing position. Designing a scheduling management system of ship berthing by simulating the ship schedule will help the service process for port management and agent.Sequential searching algorithm is used to search and collect the ship arrival data by minimizing the total service time of the ships. The simulation showed that the berthing process of ships can be done quickly by ensuring that the service time of the ships is in accordance with the standard operation procedure. The first scenario optimization results is 70.69% for ship that have a smallest GRT and 72.76% for the biggest GRT. The second scenario optimization results is 70.69% for the smallest ship and 68.47% for the biggest ship.