

ANALISIS *LOAD FACTOR* DAN PENYUSUNAN SKENARIO OPERASIONAL KAPAL RO-RO UNTUK OPTIMALISASI LAYANAN PENYEBERANGAN DI LINTASAN SUNGAI SELARI-AIR PUTIH

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Abstrak

Penelitian ini bertujuan untuk mengevaluasi dan mengoptimalkan kinerja operasional kapal Ro-Ro pada Lintasan Sungai Selari-Air Putih dengan pendekatan skenario pelayanan berdasarkan kapasitas angkut dan pola permintaan kendaraan. Metode yang digunakan meliputi survei lapangan, perhitungan kapasitas maksimum kapal dalam satuan Ekuivalen Mobil Penumpang (EMP), dan simulasi tiga skenario operasional (penambahan trip, penambahan kapal, dan kombinasi keduanya). Analisis dilakukan terhadap variabel seperti *Load factor*, jumlah kendaraan terangkut, dan sisa antrean harian. Hasil menunjukkan bahwa Skenario C (penambahan trip dan kapal) merupakan alternatif terbaik karena mampu meminimalkan antrean dan mendekatkan nilai *Load factor* ke kapasitas optimal. Penelitian ini diharapkan menjadi masukan strategis bagi pengelola pelabuhan dalam pengambilan kebijakan pelayanan kapal Ro-Ro yang lebih efisien dan adaptif terhadap dinamika permintaan.

Kata kunci: Antrean, EMP, Kapal Ro-Ro, Kapasitas Angkut, *Load factor*, Skenario Operasional

***LOAD FACTOR ANALYSIS AND PREPARATION OF RO-RO
SHIP OPERATIONAL SCENARIOS FOR OPTIMIZING
CROSSING SERVICES ON
THE A SUNGAI SELARI-AIR PUTIH ROUTE***

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Abstract

This study aims to evaluate and optimize the operational performance of Ro-Ro vessels on the Air Putih - Sungai Selari route with a service scenario approach based on transport capacity and vehicle demand patterns. The methods used include field surveys, calculation of the maximum capacity of the ship in units of Equivalent Passenger Cars (EMP), and simulation of three operational scenarios (additional trips, additional ships, and a combination of both). Variables such as Load factor, number of vehicles transported, and remaining daily queues were analyzed. The results show that Scenario C (additional trips and vessels) is the best alternative because it is able to minimize queues and bring the Load factor value closer to the optimal capacity. This research is expected to be a strategic input for port managers in making Ro-Ro ship service policies that are more efficient and adaptive to demand dynamics.

Keywords: *Queues, EMP, Ro-Ro Ships, Carrying Capacity, Load factor, Operational Scenarios*