

AN ADAPTIVE LARGE NEIGHBORHOOD SEARCH HEURISTIC FOR THE BERTH ALLOCATION PROBLEM

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ABSTRACT

The Berth Allocation Problem (BAP) consists of assigning ships to berthing areas along a quay in a port. The choice of “where” and “when” the ships shall moor is the main decision to be made in this problem. In this paper, the ships are represented as rectangles to be placed into a space x time area avoiding overlaps and satisfying time window constraints. To solve the BAP, an Adaptive Large Neighborhood Search heuristic (ALNS) is proposed for the discrete and continuous cases which provides good solutions, outperforming recent methods found in the literature.

Keywords: Port Operations; Metaheuristics; Combinatorial Optimization.