

CASE STUDY

Improved pilot fatigue compliance for major bulk material port

SOLO

Type
Marine Pilot Scheduling

Module
Strategic

The Customer

One of Australia's major bulk material ports receives over 5,000 vessels annually, contributes billions of dollars to the Australian economy and supports thousands of businesses and jobs.

The Problem

Specialised marine pilots are required to bring trade ships safely in and out of port. Creating rosters that minimise fatigue whilst adhering to planning rules to ensure safe operations is a complex and time consuming process. The client wanted to ensure that pilot availability would not become a key constraint in their operations and ensure that fatigue levels are systematically controlled.

The Solution

Polymathian deployed SOLO, an online decision support tool based on exact mathematical optimisation techniques. The tool can produce optimal pilot rosters that simultaneously adhere to all rostering rules and minimise fatigue at the touch of a button. The results include:

- Increased conformance to planning rules
- Encoding of business rules to minimise key-man risk
- A reduction in the overall fatigue of the pilot cohort
- A reduction in impractical pilot-movement allocations
- Increased understanding of the impact of planning rules on patterns in rosters

The Challenges

Multiple complex rostering rules and constraints such as limits to night work, activity within shifts and rest periods

Pilot licenses impacting shift lengths and vessel movement capability

High volume of vessel movements each day

Large pilot cohort with complex fatigue management strategies

The Value



Flexible

Fast, flexible and feasible pilot allocation



Safety

Improved pilot fatigue compliance



Robust

'Defensive planning' to reserve pilots for shifts



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