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A COMPARISON OF THREE DIFFERENT WATER AREAS AND ITS INFLUENCE FOR DEVELOPMENT OF RULES REGULATION

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Abstract

A comparative study of different ocean environment has been conducted. Three different ocean and waterways area were chosen, there are North Atlantic Ocean, Australian waterways and Indonesian waterways. The meto-ocean data was provided by using ECMWF hind-cast data.

Meto-ocean data for area with different distances from the shoreline (20 nautical miles, 50 nautical miles and 200 nautical miles) of each ocean and waterways area were compared and examined. It was found that the maximum significance wave height (H_w) occurred in Indonesian waterways is lower than in Australian waterways as well as North Atlantic Ocean. The ratio of Indonesian waterways compared to Australian waterways and North Atlantic Ocean are about 0.75 and 0.5. Thus, it could be assumed that the design of ship and floating offshore structures with service area only in Indonesian waterways is non-conservative design, and it may give an over design.

In this study, the definition of Indonesian waterways was proposed based on meto-ocean characteristic and its zones. The possibilities of rules developments are also shown.

Keywords: Ocean environmental, operating area, Indonesian waterways, North Atlantic Ocean, Australian waterways

1. INTRODUCTION

Indonesian Classification Society, (Biro Klasifikasi Indonesia in Indonesian language, BKI), is a classification society owned by Indonesian Government, which one of his activity is to guarantee the safety of ships and offshore structures, under Indonesian flag or others, that has operating area in worldwide or domestic voyage (Indonesian waterways voyage). In order to certify the ship and offshore structure, Surveyor BKI should survey the whole ships area and ensure that it fullfills all requirements of BKI Rules and Regulation.

BKI Rules and Regulation have been developed from a variety of sources both International and national regulations and standards, results of scientific studies and research, and from the common engineering practices. Nearly 90% of these Rules and Regulation governing for the ship and offshore structures with unlimite service area, and these guarante that these structures can be operated in all around the world and the construction still can withstand against all the environmental loads in all conditions without exception. In the development of these Rules and Regulations, refer to [1] and [2], the reference environmental condition is the North Atlantic Ocean.

Considering the development of national ship industry, especially for ships and offshore structures operating only in the Indonesian waterways, will require special rules and regulation, whereby if using the rules and regulations referred to in the paragraph above will cause the ship has a redundant design.

In order to accomodate and to support the development of rules and regulations that intended for the territorial water of Indonesia, then in this paper will be presented the analysis of the wave height conditions in three different waters area. Wave data used for this study taken from the ECMWF.