ABSTRACT

As archipelagic country, Indonesia have a lot of sea’s potency. But, the fact in this time indicate that exploiting of this potency, is done by illegal foreign fishing boats. This matter because them have more sophisticated technology from Indonesia fishing boats. Also, there are a lot of case of illegal logging, smuggling of fuel, smuggling of drugs through the sea, and pirate ships which always fret ships in territorial sea of Indonesia. One of the especial effort to overcome this problems is by adding fast patrol boat with high speed. At present, there are a lot of fast patrol boats with the mono-hull shape operating at the Indonesian sea. The problem of these kinds of boats as compared to other kinds of ships, with similar sizes, which use simpler hull shapes, such as, the catamaran shape, is that they have larger resistance. The advantages of catamaran is: (i) have smaller ship resistance, so that with same machine energy can yield speed of larger ones, (ii) better ship stability, (iii) location of weapons and shooting target easier, and (iv) capacities load bigger.

In this research, the design of a fast patrol boat with the catamaran hull shape has been carried out. With decide the variables, parameters and constraints to matching with East Indonesian sea. And then optimization process is done to decide the optimal principal dimension, and mininalyze total cost of ship development is the objective function. From this process, the main principal is Lpp = 29.7249 m, Bmoulded = 9.6596 m, Hmoulded = 3.35 m, T = 1.8 m, dan Vmaks = 30 knots, with development total cost equal to Rp 9.142.568.288,19. And then, the lines plan and general arrangement of this ship design is also presented and analysed.

Keyword: catamaran, fast patrol boat, mono-hull, optimization.