

Design of fisheries oceanographic research vessel for the Instituto Nacional de Pesca de Ecuador – INP.

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ABSTRACT

The technological forefront in the fisheries and oceanographic research sector worldwide is very aggressive and challenging. The INP - Ecuador today is very far from being on par with other countries in this sector, which is of utmost importance to the fishing industry.

For the past 10 years, the INP has been searching for a vessel with the necessary provisions to carry out research cruises in territorial waters. This is because its only vessel designed for this type of operations, B/I Tohalli, has been out of service since then.

Therefore, the purpose of this project is to propose the design of a vessel for fisheries and oceanographic research for the INP, equipped with state-of-the-art technology and special equipment for research, a vessel that meets the requirements of the classification society, specially adapted for the comfort of researchers and crew. Thus, avoiding high costs in subcontracting boats, research and delivery of unsatisfactory data for the fishing population, compromising the health and well-being of researchers by limiting their work and capacity.

The 42.0-meter long vessel is designed for a 30-day range at a cruising speed of 10 to 11 knots and a maximum speed of 12 knots, with the capacity to accommodate 14 researchers and 12 crew. It has 2 decks in which the propulsion equipment (machines), scientists (laboratories) and navigation (command bridge) are distributed. For fisheries and oceanographic research, there are four laboratories and a capture technology area, equipped with high-tech instruments and equipment: Hydroacoustic, Marine and Fisheries Biology, a multipurpose wet laboratory and a Computer center.

It also has an 80 cubic meter cold cellar, dining room, social areas, gym, offices, etc.

Considering a construction budget in Ecuador with Ecuadorian labor, there is an initial reference cost of USD \$17'451,919.44 plus taxes. Finally, the vessel may be operating in national waters, after 13 months of construction, thus fulfilling the shipowner's requirement and the needs of the fishing industry.



OFRV-V002	
General	
Hull material	ASTM 131 Naval Steel
Superstructure material	5086 H111 Naval Aluminum
Classification	American Bureau of Shipping (ABS)
Dimensions	
Overall Length	42.00 m
Breadth	9.60 m
Depth	4.20 m
Draft	3.00 m
Work Deck Area	158.4 m ²
Cargo Deck Capacity	160.0 ton
Crew	10 crew + 2 people
Passengers	14 scientists
Capacities	
Fuel Oil	105.0 ton
Lubrication Oil	6.5 ton
Sludge	0.79 ton
Fresh water	27.8 ton
Gray water	2.4 ton
Sewage	2.3 ton
Performance	
Cruise speed	11 knots
Maximum speed	12 knots
Propulsion system	
Engine	2 x Cummins QSK38 1000 HP @ 1800 rpm
Gear	2 x Twin Disc MGX-5321DC ratio 4.96:1
Arrangement	Conventional
Propeller	2 x Wageningen Serie B (Fixed pitch)
Electric equipment	
Generator	2 x Cummins 6C-CP 170 kWe @ 60 Hz
Fish art	
Palangre	5000 m
Arrastre	Middel water

