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SOUTH PACIFIC COMMISSION

ICLARM-SPC SMALL BOAT WORKSHOP  
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THE ICLARM SMALL CRAFT DESIGN

by

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1. During the past decade in fisheries development a wide variety of boat designs have been introduced in the Pacific Basin with varied success. Perhaps the design that has gained the most widespread exposure is the "Oregon dory", used in American Samoa, the Gilbert and Ellice Islands, and Ponape dory projects. Each of these designs has been introduced as the general panacea for the development of outer reef fisheries, yet for one reason or another, they have not lived up to initial expectations. In the past, design problems have tended to vary from island group to island group. Boats that could be easily afforded in one territory (e.g. American Samoa) were beyond the financial capabilities of the rest of the Pacific. Other designs required too much horsepower (with concomitantly high fuel costs) to reach required cruising speeds, were so poorly constructed that their life expectancy was so short they could not be amortized within a reasonable period of time, or were built originally for the coastal conditions of the Northwest U. S. or New Zealand and were not suitable for use in a developing fishery in the South Pacific.
2. There is a general consensus among the members of the ICLARM Design Group that there is no one perfect small craft design adaptable for use throughout the entire South Pacific. Boat designs must be adapted to both local sea and fishing conditions as well as the financial capabilities of the indigenous population. In addition, there are three distinct fisheries for which different designs are applicable: the large atoll-lagoon fishery, the reef and near off-shore fishery, and the larger off-shore pelagic fishery.
3. Because of the present high cost of fuel that shows no indication of being reduced in the near future, the greatest constraint on small craft design is fuel consumption. In order to keep fuel consumption and the accompanying operating costs at a minimal level engine horsepower must be reduced from what is currently being used in present artisanal fishing craft (e.g. the American Samoa dory utilizes a 135 h.p i/o Volvo-Penta engine; the Ponape dory, a 155 h.p Ford engine).

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4. This reduction in horsepower will necessitate some radical changes in boat design. The dory is a wide, hard-chine, flat bottom design. It is heavy and requires high horsepower to achieve a planing position.

5. The essential criterion for the ICLARM design is that the hull be easily driven and able to achieve required trolling speeds with a minimum of horsepower output. Up to ten m.p.h. can be required for lagoon and reef bottom-handlining, for quick passage while up to 13-14 m.p.h. can be required for trolling.

6. The present ICLARM boat has been designed with both the lagoon and outer-reef artisanal fisheries in mind. The hull is 20' in length and has a 7' beam amidships. The power source is optional. The recommended motor is a diesel or gasoline engine with the latter being easily converted to kerosene. The hull should achieve planing speeds of 12-14 m.p.h. by utilising one of these two engine types in the 30 h.p. range. The boat has been designed with sponsons to keep the interior dry when operating in the short, choppy sea conditions found throughout the South Pacific. The keel is flat towards the stern thus allowing the hull to be easily beached. An added advantage in the reduced draught is easy entry and egress through reef areas. The propeller shaft is protected. The boat has been designed so that it will be possible to have it constructed at a central point and then trans-shipped to other island groups by nesting one hull inside the other. With motor, estimated total cost is approximately US \$2,500.

7. The Briggs and Stratton Motor Corporation has donated a 16 h.p air-cooled gasoline engine to the project. A prototype will be constructed in Hawaii this summer, tested, and the results presented at the Small Boat Workshop in Noumea in October. It will be tested under field conditions with close enough supervision to allow for a detailed analysis of its operational efficiency to be made.

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