

### A small-scale tuna longliner for Kiribati

**Mike Savins**

*Managing Director, Kiricraft Central Pacific (michaelsavins@hotmail.com)*

***For Pacific Islanders to engage in commercial tuna longline ventures, affordability of an appropriate vessel is of paramount importance. Producing a vessel allowing short offshore trips at a reasonable cost could mean economic security for an island family or community. The appropriate vessel must provide a safe fishing platform capable of extended fishing and have sufficient capacity to hold high-value tuna in a superior condition.***

Oyvind Gulbrandsen, a reputable naval architect, shares a vision of developing appropriate designs to fill the gap between the large vessels of industrialised international fishing fleets and the very small boats used by small-scale fishers in most islands. In Kiribati, as in most other Pacific Islands, the high value tuna resource is accessible to local fishers, provided they are equipped with the right fishing tools, including boats of a suitable size.

Two prototype small-scale multihull tuna longline vessels were designed by Oyvind Gulbrandsen and tested in Kiribati from 1998 to 2005. Both of these designs were trialled with the assistance of master fishermen from the Secretariat of the Pacific Community (SPC): William Sokimi tested the first design and Steve Beverly tested the second design, which employed new concepts based on the experience gained with the first. In both trials the designs were proven suitable for tuna longlining and economical in operation. The trials also allowed identification of

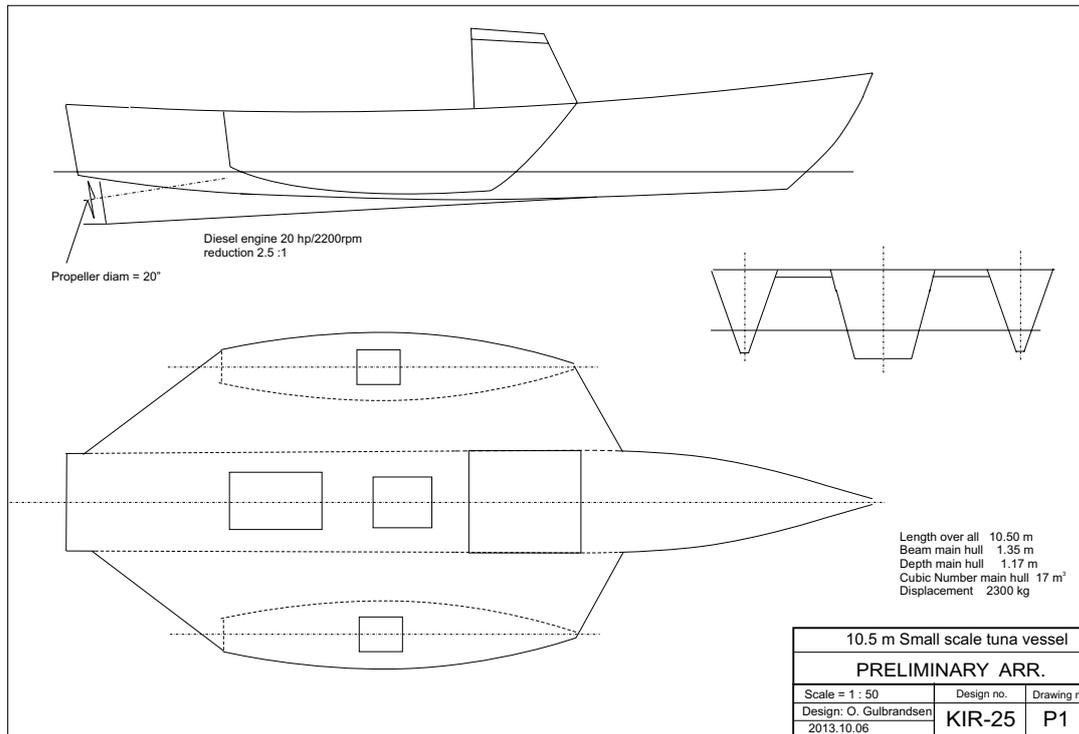
areas in which some improvements could be made, such as the ice hold capacity, which should be increased, or the mechanical fit out, which should be reorganised. However, the major constraint related to the logistics of operating in Kiribati at that time.

A project to produce two new small-scale domestic tuna longliners, using new designs benefiting from the experience of the first two boats built, was initiated in 2013 by the management team of the recently-established joint venture Kiribati Fish Ltd.<sup>1</sup> The first boat, the KIR-24, is an 11.9 m catamaran. It is fitted with two 24 hp inboard marine diesel engines, two inboard ice holds of 2.5 tonnes (t) capacity — one in each hull — and one 1.5-t icebox on deck. The catamaran is also fitted with a Lingred-Pitman 28 x 36 inch longline drum, with a capacity of 32 km of 3 mm monofilament mainline, which has its own hydraulic pack powered by a 10 hp diesel motor.



*The KIR-24 on launching day with final fit out underway (image: Mike Savins).*

<sup>1</sup> See the article by Michel Blanc on page 25 of this issue of SPC Fisheries Newsletter.



*The KIR-25, designed by Oyvind Gulbrandsen.*

For longline fishing, the large deck space on a catamaran gives it an advantage compared with a monohull of the same length. The hull of the KIR-24 is basically shaped like a canoe hull below the waterline, with a flat aft bottom to prevent the stern from being sucked down under power. This shape gives a good speed with little power.

The choice of engine and engine power is of crucial importance for economical operation, more so than the choice of material for the hull. With the present high fuel

costs it is very important to avoid overpowering, which was common in earlier days with low fuel cost. The twin 24 hp engines are economical when operated at 70% of maximum power and have the added safety advantage that if one engine fails, the boat can still be operated and brought back to safe waters using the second engine.

The prototypes have been constructed of Fiji Marine plywood on a dakua timber (Fijian kauri) frame, epoxy glued with silicon bronze fastenings. The outside is sheathed with Dynel and epoxy to reduce maintenance costs. For one-off designs, plywood construction is a practical and low cost solution. Once the KIR-24 concept is proven, making a mould to build in fibreglass will be considered.

The final cost of the 11.9 m catamaran KIR-24, made of plywood and fully equipped for fishing, is around USD 160,000.

A second design of smaller size, the KIR 25, is currently being built. It is a 10.5 m trimaran, which will be fitted with a 20 hp inboard marine diesel engine and equipped with a hydraulic-powered rope hauler to fish with 15 km of 4 mm Kuralon mainline. The mainline will be stored in holds made in the two outriggers. Fully equipped for fishing, it is expected that the boat will cost around USD 67,000.



*Building the KIR-25's central hull (image: Mike Savins).*