General Assembly
Dayboat/Launch

Length - 7.076m
Beam - 1.977m
Disp - 1000kg
Power - 10hp (Short Shaft)

DESIGNER

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LICENCE

The purchase of this plan entitles the purchaser to build one boat only. The rights to build an additional boat are by the paying of a further license fee (amount to be negotiated with the designer).

It is usual for plans to be non-returnable and non-refundable as it is too easy for them to be copied, then returned. If you want to ask, do so, but I will usually refuse.

The purchaser must decide whether the craft will fit their purposes. I have offered a description of the craft and its building which is offered in good faith.

As there is no control over quality of materials or construction it is impossible to guarantee performance in any way.

Remember it is the skipper that decides the use of the boat on a given day. Use the boat in conditions you are comfortable with and gradually, as you get to know her, push that envelope.

Of course, wear appropriate clothing, carry the appropriate safety gear and be clear on its correct use.

Comments on Changes

The original boat was for commercial hire to the public which necessitated the skeg with ballast – this was to accommodate the survey requirement that the boat be stable with all six of the hire crew standing on the edge of the boat. It is probably overdoing it for normal use and sensible people.

Some builders have replaced the skeg with a similar bottom runner to the skids on either side (45 x 45mm) for shallower draft and some saving in materials.

If changing the interior substantially simply make up some temporary bulkheads out of chipboard (approx 20mm thick) to go in the positions of the seat webs or other structure that you want to eliminate. After the hull is together you can measure out the actual size of the parts you wish to add.

In general there are three rules with this little boat.
1/ You cannot add weight up high. So if adding cabin sides it is recommended that you do it in 6mm plywood.
2/ You should be careful about adding weight to the back of the boat including seating too far back – otherwise the stern will start to drag and the performance and fuel economy will suffer.
3/ The simplicity of construction is largely possible because the hull sides and bottom are supported by the furniture. There needs to be furniture effectively glued to the inside of both side panels as well as the bottom panel (the original function was carried out by the seats and seat webs). It is particularly good if the furniture extends far enough in from the hull sides to meet the location of the bottom skids under the boat.

The most obvious change that people have made is to extend the canopy forward so it overhangs the foredeck and then to add a windscreen (see pic on plan cover and in drawings)

DAYBOAT LAUNCH MATERIALS

Comments on Methods

Please read the appendices before starting the building process. They contain important information that will save you time and money.

Comments on Materials

The DAYBOAT/Launch is best built of Gaboon (Okoume) Marine Plywood. Gaboon is about 2/3 the weight of the usual marine ply and finishes to a rich, mid brown colour. It will significantly reduce the trailer weight of the boat and improve performance under power. However the boat can be built quite successfully of higher density ply such as Hoop Pine or Pacific Maple

The boat should be glued with a high solids epoxy system such as Bote Cote, WEST, System 3, or other quality marine resin system. To minimise maintenance it is recommended that the plywood be epoxy coated. This will reduce maintenance severalfold so that the boat is similar or less maintenance to a fibreglass boat.

PLYWOOD

Part	Thickness	Sheets
Foredeck (2 lams)	4mm 3ply	2
Bottom	6mm 5ply	11 (two layers for total of 12mm)
Canopy	6mm 5ply	2
Seats	6mm 5ply	2
Side Panels	9mm	6
Aft deck	9mm	1
Outboard well	9mm	1
Bulkheads	9mm	5
If Fitted		
Cabin Sides	6mm	2

TIMBER

Materials list - all dimensions are finished sizes and are in mm unless stated otherwise.

WRC - Western Red Cedar (Australia) or other light, stable, straight grained timber with good gluing properties. No loose or large knots. Alternative – Hoop pine

Oregon - Douglas Fir, select dry stock. Fine grain, no knots.

Hardwood - Straight grained hardwood of medium density with good machining properties. For example Brazilian Cedar, Pacific Ash, Tassie Oak.

Oregon or WRC - may be any easily glued timber of medium density.= alternative Hoop Pine

TIMBER

Part	Size	Length	Number	Species
Fairing batten	15 x 15	5000+	1	Oregon
Chine logs	37 x 37	7200	2	Oregon
Sheer Strake	37 x 37	7200	2	Oregon
Deck Clamps (front)	37 x 37	4500	2	Oregon or WRC
Deck clamps (rear)	37 x 19	3600	4	WRC
Bottom Runners	45 x 37	7200	2	Oregon
Skeg*	45 x 45	15000	/	Oregon
Skeg (grounding layer)*	45 x 45	3300	1	Hardwood
Canopy Posts	45 x 80	2000	6	Oregon
(80mm dimension fore and aft to allow easy fitting of roll down side curtains)				
Canopy Beams	45 x 10	2500	12	Oregon or WRC
Canopy Rails	45 x 19	3000	2	Oregon
Floors **	45 x 100	2000	1	Oregon or WRC
	45 x 150	2000	2	Oregon or WRC
Bhd edge clamps	45 x 30	18000	/	WRC
Transom edge clamps	45 x 30	2800	/	Oregon
Engine well clamps	45 x 30	7000	/	Oregon
Seat clamps	19 x 19	30000	/	Oregon
Hatch Runners	200 x 19	2000	1	Hardwood
Coamings	200 x 19	1600	2	Oregon or HW
Engine Board	45 x 145	700	1	Oregon
Stem	45 x 65	1200	1	Oregon

*** See notes above**

**** The floors were for the original survey version. If the furniture comes out to meet the position of the bottom skids (under the boat) the floors may be eliminated if the centreline skeg is also the same depth as the bottom skids. Alternatively the Floors can all be 70mm deep and the floorboards sprung to match the curve represented by their tops.**

EPOXY STUFF

Epoxy	45 litres (approx)
Fortifier gluing powder	10 kg
Epoxy Solvent	1 litre - Brushes are sat in it overnight to use next day.
Glass fabric for bottom	330gsm - 12 sq metres
Glass for decks (opt)	200gsm - 6 sq metres
Barrier creme for hands	If you use it religiously the epoxy will come off with soap and water. DO NOT USE SOLVENTS FOR CLEANING SKIN.

Bag of disposable gloves

Disposable Brushes

Foam rollers 10 of 230mm or equivalent shorter. They have a thin layer of foam on the card board roller. If you can get a short roller cage handle (ask your epoxy supplier or included in kit) it means the rollers can be cut in three - a good economy

Note - all these materials are included in kits supplied by me or Duck Flat Wooden Boats.

SOME ODD MATERIALS

Bugle headed gyprock wall screws - about 200 of 37mm (1 1/2") - 100 of 50mm - see Appendix.

Masking tape 19mm (3/4") wide

Roll of plastic packaging tape 37mm or 50mm wide (1 1/2 or 2").

Small bag of panel pins. (small nails)

Some plastic sheeting would be useful.

A box of Glad "snap lock" plastic bags

Heaps of clean, empty tin cans

Stirring sticks made of scrap timber 200 by 20 by 6mm approx.

Three plastic inspection ports for bailing out for bailing out front and rear buoyancy tanks (about 200mm, 8" diameter), available shipchandlers.

23ft Dayboat/Launch

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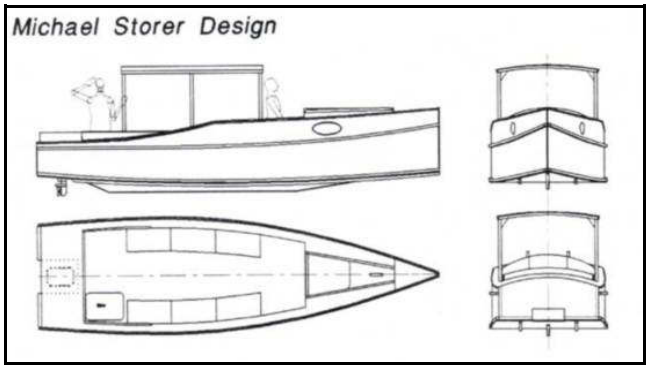
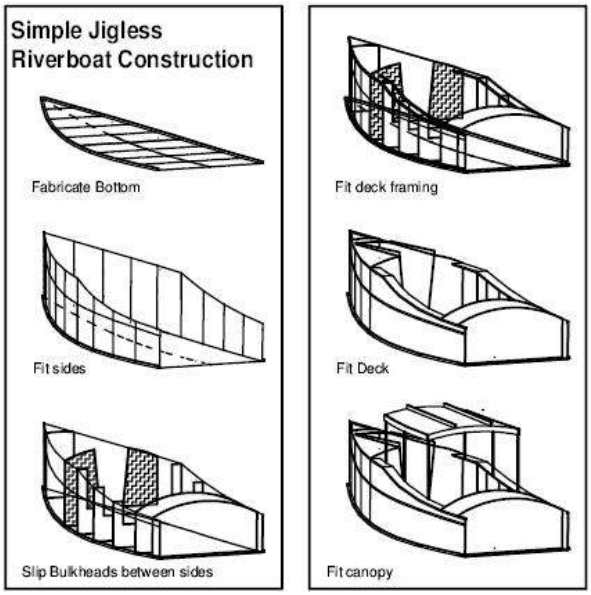
Origins:
I was originally approached by a Sydney company called Shearwater Marine to draw up a Hire-and-Drive picnic boat for Sydney Harbour. The idea was for a boat that could be built quickly in series production with a minimum of tooling. It had to look cute compared to the opposition - companies hiring out aluminium dinghies with 6hp outboards.



Later the idea was to be expanded into a fleet of around 50 boats operating out of different hire businesses up and down the east coast on the plentiful rivers, lakes and estuaries.

Shearwater Marine (Richard and Ken) would take care of the maintenance and repair by the simple expedient of having a couple of extra boats up their sleeves (so to speak) so that when routine maintenance came up for one of the boats up the coast they would simply roll up with a replacement boat on a trailer and swap them over, the other to be refurbished in their factory.



For me as a designer it was another "get rich quick" scheme** - design one boat then get the royalty each time another boat was built - 50 boats times, say $200 looks quite good on paper.

Well, we succeeded on all grounds. The boat went together quickly because of the prefabrication method with all major components made up on the flat (drawing right), looked quite handsome, behaved quite well in the water, but the problem was the labour involved in painting all that surface area.

Despite the fact the boat was relatively clean and simple the labour estimates for the finishing made the whole project uneconomic - painting one boat was fine - but another 49+ could drive you nuts!!!

It is a bit of a general lesson really - if someone says that a particular boat will take only 6 hours to build, or that their construction method takes half the time of someone else's design then they are quite possibly not including the painting!

Hull Design and Seakeeping:
As is probably obvious to knowledgeable readers the hullform and building method is a derivative of sharpie building methods - in particular those developed by American genius Phil Bolger.

His "State" class rivercruisers (named Tennessee, Idaho, Wyoming etc) are very light displacement and quite narrow, with beam to length at around 1:5.

The narrowness is essential to prevent the flat bottom from pounding. One of the great experiences of my life was when the first Tennessee was launched in Adelaide I sat up on the bow watching fascinated while going into a short, sharp Murray River chop - the bow did not pitch in the slightest, cutting each wave in turn. Not a hint of pounding.

Excellent behaviour when the waves are close together, even if they are quite tall.

But in circumstances when the wavelength is longer than the boat the boat will travel up the face then launch itself into midair and land with an enormous slam when the flat bottom meets the water. But in their natural environment of rivers, lakes and estuaries the hullform works very nicely indeed.

With the Dayboat/Launch its length of 23ft (7m) would necessitate a beam of less than 5ft (1.5m) which would make the boat somewhat unstable and one of the design criteria was for a central table with seating around (Picnic Boat). The solution (which I was a bit hesitant about at first) was to effectively have the bow of a longer boat but cut it off at the stern. As you can see from the plan view above the boat is all bow.

Boats that are "all bow" often have reputations as wild steerers in a following sea. The stern has so much volume that when a wave comes up from behind it floats up suddenly which tends to thrust the bow deep into the back of the wave in front.

This is the secret of the nice rough water handling of narrow sterned boats - neither the bow nor the stern overpowers the other so the boat remains in balance in rough sea conditions.

My thought was that Sydney Harbour can get choppy at times, but the waves are generally quite closely spaced so both scenarios of either going up the faces and launching into midair or burying the bow were fairly unlikely.

Interior Arrangements:
There are many possible options. The original is shown in the drawing above, The cuddy cabin was for lockable storage and a porta potti, which is a great thing to have aboard a picnic boat! A few nice wines or beers and ...

"Pop&I", built by a father and son team some distance up the Murray River, was changed considerably, moving the outboard from a well to just in front of the transom. It has a settee/double berth in the aft end of the cabin and seating on the starboard side has been replaced with a galley (really a cupboard with a flat top a spirit stove can sit on top of and a cutout for a bucket as a sink). The canopy has been run through to the stern and up to the back of the foredeck. A windscreen has been fitted.

The do's and don'ts of the interior include
1/ You can't go up any higher
2/ The cabin has to be light.
3/ The seats, galley etc has to be bonded to the sides of the boat - the interior components support the sides of the hull.

Powering:
With the 9.9hp six knots is about top speed, though there are some pics of Pop&I whizzing along a bit faster than that when floating light just after first launch. But that is not the purpose of these boats - keep the speed down, save fuel and have a comfortable ride (the faster you go the more it will pound as the boat will lift and present more of the flat bottom to the waves.)

We would probably recommend a 4-stroke outboard because of the slower speed and greater weight. One of the high thrust models would work very well.

Survey:
For its use as a Hire and Drive vessel, the dayboat had to be put into Survey. I was quite worried that anything this unconventional would have trouble getting past the powers-that-be.

Of particular concern was the criterion that the boat not capsize with the whole six (6) of its crew standing on one edge of the boat. Once I worked out the centre of gravity of the whole shebang I fed it into the computer and quickly found the boat was just short of enough stability. So a lead shoe of 200kg was added to the drawing, which was enough to make her pass.

Richard decided that he wasn't going to fit the lead unless absolutely necessary so when the boat was finished it was whacked in the water and the Survey blokes called in. Four of them arrived on the appointed day in matching spotless white overalls. They jumped aboard and started filling out checklists and the like. Richard asked them what they thought of the stability for six. Reply was "Six, mate ... she'll handle Eight easy".

So much for my hours of working out the weight for each component of the boat so I could locate the height and longitudinal position of the centre of gravity!

There are pics of Pop & I on launching day – and I can count 12 heads aboard and clearly not worried by the weight at all. I imagine if all twelve stood on one side, she would go over – but have you ever tried to get 12 people to do the same thing in unison?

Several have been launched and their owners are quite happy with them. Not a bad machine at all (if I do say so myself).