Hello Gary,

I hope this is not an inconvenience me asking you a couple of questions on behalf of a prospective customer I have for a Fusion 40.

His question is, what increase in sailing angle going to windward will the daggerboards make, as people are saying that to sell a cat in Ozz people want windward ability and therefore the resale value or popularity to sell the cat will be higher if fitted with dagger baords??
Answer: Exact angles I wouldn't know but the differences would not be so great as for instance a set of poorly cut sails would make. I designed the fixed keel with a draft penalty (still shoal draft when compared to similar size mono's) that when combined with all the various centres (I have to say that appear to be mostly ignored by multi hull designers) would offer windward performance to match a proper well balanced modern mono cruising yacht. There may be some small gain over this configuration with dagger boards but as I mention this would be quickly negated with sail trim, loading or worse, permanently, with poorly cut sails. I see this all the time, wasted effort with a badly prepared keel or fin or vice versa sails that are only that by name. I guess what I'm saying is that the fixed keel with correctly cut and trimmed sails will not be found wanting.

I have explained that the majority of Fusions built to date have been with mini keels as the boats are being purchased with cruising in mind and that the Fusion 40 performs well to windward with the mini keels.
There is also the fact that the mini keels protect the sail drive leg to a degree in case of collision under the hull and also allow beaching. There is also the saving of space inside the boat where the dagger board cases go through the hull.

Answer: As I mention above there is greater permanent draft with the 40 than a lot of opposition designs but this is for good reason, performance and the added bonus, protection of rudders and drives, quite high priority items!

I noticed on your drawings of the 53 footer that you have a mini-keel with a dagger board that drops down through the mini-keel. It also looks as though the Dagger board does not go right through to deck level as conventoional boards do.
Answer: Only the rams project to the deck, this was not as designed as the whole unit should be no higher than bench height. As an example of fixed keel functionality this design is a good example. The fixed keel section is the same as the fins that projects through, although of greater chord and percentage thickness. With these fins fully retracted this boat will still sail short tacking and high to windward under main alone, not many multihulls will do this. It makes a mockery of just what constitutes a required appendage on this sort of vessel, that is a fast cruising yacht no more no less. Two laminar flow fixed keels of relatively higher aspect ratio (that is than the so called multi mini/beaching/lump keel) when positioned correctly to all else relevant will perform very well relative to the actual boats intended purpose, cruising but with the satisfaction that with effort and knowledge it will actually sail correctly.

Can you explain the operation of these and if they are an option that could be fitted to a Fusion 40?
Answer: As above and yes we could design that option for the 40 if it was desired. This boat grounded on the JumpinPin bar in quite extreme conditions, they managed to sail back out and save the boat. There was no damage to structure only wave swept items on deck. If this had been a dagger board boat the rudders would have been lost along with the drive units with eventual loss of the boat. While this was an act of poor seamanship to attempt to cross this entrance, in this boat, at any time, these fin keels were designed to withstand grounding and this was born out in full reality.

I look forward to hearing your opinions and advice.

Best regards Phil Bender