Kelsall Formulas

Kelsall Catamarans has devised three very useful formulae. They are simple to apply and will give an accurate comparison between different craft and will evaluate changes you may wish to make.

Kelsall Sailing Performance Number

$$= 0.5 \cdot \sqrt{\frac{LWL\ in\ ft \cdot Sail\ Area\ in\ sq.ft.}{Displacement\ in\ lbs}}$$

This formula is used as the basis of most of the multihull rating rules. A cat with a number 0.6 is likely to sail 6kts in 10kts wind, when a cat with a number of 0.7 is likely to sail at 7kts in 10kts wind.

Speed under Power

$$= \sqrt{\frac{LWL\ in\ metres \cdot h.p.}{Displacement\ in\ Tons}}$$

Stability

$$= 15.8 \cdot \sqrt{\frac{Displacement\ in\ lbs \cdot dist\ in\ ft\ from\ CL\ to\ centre\ line\ lee\ hull}{Sail\ Area\ in\ sq.ft. \cdot ht.centre\ effort\ above\ WL}}$$

Wind speed in miles per hour at which the cat is likely to capsize. Many other factors affect the actual situation and hence we suggest that these figures are used for comparison of similar types only.