**S80 Association of Victoria Performance Rating**

The Association **Performance Rating**, a continuous ongoing rating, based on elapsed times in all State Championship heats. Every boat (not the owner, current or past) is rated on its last performance at the State Titles against the Champion Boat of that year.

A boat's rating alters after every State Championship, but only for those who took part; those that did not, hold their old rating. No appearance at the State Titles means no change in rating, however the relative position of the boat on the ladder may change due to the other boats moving.

New boats or boats from interstate that have never had a rating will be allocated a rating by the measurer based on the boat's current and former performance. Once allotted, the rating is never altered, except by the performance method above: Competing at a State Championship.

This rating has been successfully used for many years to determine the "Most Improved" yacht during each State Championship.

The method in which the rating is used is as follows:
1. The elapsed time for a boat in each heat is multiplied by the rating, giving the corrected time for the boat
2. This corrected time is used to determine heat winners based on the rating

The method for calculating a new rating is as follows:
1. For each boat in each heat of the state championships, calculate the rating needed to match the winning boat in the heat (Backwards Calculated Rating – BCR):
$$BCR = \frac{\text{Heat Winner Elaped time}}{\text{Elapsed time of each boat}}$$
2. For each boat determine the Average BCR across all heats of the championships. Ignore DNS, DNC, DNF, DSQ etc as well as Abandoned races.
3. Calculate a BCR multiplier as follows:
$$BCR\,Multiplier = \frac{1}{\text{Average BCR of New State Champion}}$$
The use of this multiplier in calculating the new rating will ensure that the New State Champion's rating is 1.000 and all other competing boat's new rating's are relative to the New State Champion.
4. Multiply the average BCR of each boat with the BCR multiplier to get the new rating for the boat:
$$New\,Rating = (\text{Average BCR of boat}) \times (\text{BCR multiplier})$$

When determining a rating for a new boat that has never had a rating. Start at the median (not average) of current ratings in the fleet and adjust (up or down) based on what is known about the performance of the boat. This analysis includes both its current performance in Victoria, but also past interstate performance: A current/former NSW or WA state champion boat will get a rating close to the top.