

THE PAC PERFORMANCE HANDICAP SYSTEM - 2022

In a fleet as diverse as Pittwater Sailors, a handicap system is needed in order to:

1. Give everyone who sails regularly an equal chance of winning,
2. Provide close finishes to races and to the season point scores, and
3. Provide a system which is simple to understand and fair to sailors

Since 2009 Pittwater Sailors have used a computer-based **performance handicap system** from Top Yacht Software in Melbourne. The program is flexible and is used by more than 150 clubs world-wide. The software calculates new handicaps from boat's performances, but manual adjustments of handicaps can be made if needed. The system has distributed prizes across the fleet and race results are regularly close. But the composite system used to date is unnecessarily complex

A **Place Penalty System**, unique to PAC, has been used in conjunction with the Topyacht Performance system, to ensure 1st, 2nd and 3rd boats move out *at least* 3, 2 and 1 minutes respectively, in order to share winners around. Many sailors have been confused about how this works and results shows that the penalties generally have no effect on the winners of following races. The greatest control is who sails a good race and weather on the day.

The **Place Penalty System** has been dropped for 2020 and replaced by a simple **Performance Based Handicaps**. Extensive testing of the New System with 2019 elapsed times has produced the same placegetters and close finishes for almost all races and similar Pointscores to the old system

Because it does not require manual checking for insertion of Place Penalties, it is quicker for the operator and removes a potential human error.

THE NEW SYSTEM IN A NUTSHELL

*After each race **Back Calculated Handicaps (BCH)** are calculated from the Elapsed Sailing Times of each boat, such that all boats would have theoretically finished at the same time as the boat which finished in the **middle** of the fleet. **Calculated Handicaps (CHC)** are then derived for the next race by adding or subtracting **1/2** of the difference between the **BCH** and the **Allocated Handicap (AHC)** for the race just sailed.*

*The **BCH** is "Clamped" at +/- 6 minutes, above or below the **AHC**, which means that handicap adjustments will be limited to a maximum of 3 minutes, unless discretionary manual adjustments are needed. The **CHC** will be the **AHC** for the next race. Start Times will be the same as the Handicaps.*

DISCUSSION

Ideally, all boats sailing to their handicaps will finish together. To win, a boat must perform above its norm. Handicaps should be determined from boat's actual performances.

The Pittwater Sailors fleet is particularly diverse. Some boats only perform in strong winds, some in light, and some only when the wind is 'nice'. Many races are won by these less consistent boats.

A Simpler System

Before 2013 PAC handicaps were calculated by averaging BCH's over three races. This can be confusing to follow, because handicap movements may not reflect the immediately preceding race. Topyacht developed a simpler system based on single races. Testing showed that results varied little from those of the earlier averaging systems. PAC has used a modified version of this system since 2013

This system is simple to understand :- If a boat does well, its handicap goes up; badly, it goes down. If it finishes near the middle of the fleet, it will not move.

Place Penalty Handicaps

This is an antiquated system, because it could be easily calculated manually in days before computers. Very few clubs, if any still use it. Why should a boat who wins by only a few seconds be penalised, probably for making a good move just before the finish.

It can be particularly inequitable with few starters; a problem becoming increasingly likely with our diminishing fleets. Imagine the case of only three starters; everybody else stays home out of the rain. The 2nd boat is the middle boat; he stays the same on Performance, but is penalised 2 mins. The 1st boat finishes 10 secs ahead in a nail-biting finish, and is penalised 3 mins. The 3rd boat finishes 6 mins behind, so should move back 2 mins, but is penalised 1 min (3 mins above his performance handicap). All the boats who stay home gain.

Skippers are frequently confused about their handicaps with our dual system. There is little or no correlation apparent between the Penalties and results of subsequent races.

Running a full "Series" with the new System defined above, using the actual 2019 elapsed times, produced almost identical results to the actual 2019 Series.

Clamps?

Analysis of 2019 race results shows that 70% BCH's of boats falls within a narrow range of +/- 6 minutes of their AHC. BCH's outside this range represent exceptional circumstances. This replicates numerous analyses by Topyacht. Topyacht dampens these exceptional results with **Clamped Back Calculated Handicaps (CBHC)**.

For our new system, if a boat finishes with a BHC within 6 minutes of its AHC, then the actual BHC will be used to calculate its new handicap. If its BHC is more than +/- 6 minutes from the AHC, the CBHC will be used for calculation. The CBH Difference is divided by a factor of 2, because 1/3 would only produce a maximum movement of 2 mins.

A test using old Clamps of +/- 9 mins and factor of 1/3 did not replicate 2019 results adequately.

Negative Start Times?

Negative start Times will no longer be used. This will completely automate the production of Start and Result Sheets from Topyacht, save significant manual effort, and reduce scope for error. Fleet handicaps may be adjusted periodically to accommodate boats starting at zero.

Start of Season?

Having correct handicaps at the start of a season is critical, but difficult to achieve. Boats' performances and weather patterns commonly change between seasons. Discrepancies can take several races to correct, allowing boats to attain an unattainable pointscore lead early in the season. Discretionary adjustments may be made to individual boats if a significant performance anomaly becomes apparent

New Boat?

New boats are given an initial arbitrary handicap based on the best information available to the handicapper.

It is undesirable that a new boat should immediately win races easily, at the expense of long-standing regular sailors. New boats will initially be given a conservative (high) handicap, until their performance can be assessed over a couple of races. If the initial handicap proves reasonable, normal adjustments may be applied immediately. If the initial handicap is clearly wrong, manual adjustments may be applied until valid handicaps are achieved.

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10 January, 2020