LAP RACING ON A FIXED COURSE / COURSE SPECIFIC handicaps

There are a number of Keelboat clubs that have small fleets with a wide variety of speeds within their competitors. In the case of a fleet of Multihulls this can realistically be a speed difference of up to 2 to 1.

By having the different competitors complete a different number of laps you can provide very fair racing by allow all competitors to race for approximately the same length of time, on the same piece of water under the same conditions. If the course can be configured to have the start line in the same place as the finish line AND to have each lap the same type e.g. all triangles or all windward returns, then different laps for different competitors will work well *and* provides a valid relative handicap between all competitors. See TopYacht HELP: Different Laps for Different Competitors.

BUT some clubs wish to have the start line in a different position to the finish line. A common variation is to start below the bottom mark and finish above the top mark.

Can this type of course also provide meaningful results and develop meaningful handicaps if different competitors complete different numbers of laps??

I believe the answer is "Yes" but with the caution that the handicaps so developed are only relevant to that particular course *and* a consistently used number of laps for each competitor. So if "SlowBoat" takes 60 minutes to complete a lap while the "FastBoat" takes only 30 minutes then using the same course configuration (beat length can alter) you can provide sensible results if SlowBoat does a nominal 2 laps while FastBoat does 4 laps each time they race.

How can this work?

Let us take the case of a course that is all triangles with a start just below the bottom mark and the finish just above the top mark. If reality SlowBoat will complete aprox 2 ½ laps to FastBoat's 4 ½ laps. But the half lap is not necessarily ½ the time taken to complete a full lap. This will vary depending on the boats ability to sail at various angles to the breeze. So we *cannot* just divide by 2 ½ for SlowBoat and 4 ½ for FastBoat to establish their "per lap times". Further TopYacht only allows for whole laps to be used in calculating results. So what to do??

Consider two examples.

SlowBoat takes 60 minutes per lap plus 18 minutes for the extra beat.

FastBoat takes 30 minutes per lap plus 9 minutes for the extra beat.

So for "2" Laps SlowBoat takes 2 * 60 + 18 = 138m. or 2 * (60 + 9)

For 4 Laps FastBoat takes 4 * 30 + 9 = 129m. or. 4 * (30 + 2.25)

The ratio of which is 129/138 = 0.935

Now double the beat length.

So for "2" Laps SlowBoat takes 2 * 120 + 36 = 276m. or 4 * (60 + 9)

For 4 Laps FastBoat takes 4 * 60 + 18 = 258m. or 8 * (30 + 2.25)

The ratio of which is 258/276 = 0.935

Remember that a handicap is just a ratio of the performances.

So provided SlowBoat always does "2" laps and FastBoat always does "4" laps then the ration of their performances remains constant so any handicap developed under such a lap system is valid provided it is only used when racing on this course configuration.

Under this system what are their handicaps??

Let us nominate a handicap of 1.0 for FastBoat.

Using the second example above.....

SlowBoat takes 276 minutes per a nominal "2" laps or 276/2 mimutes/ lap = 138.0 m/l.

FastBoat takes 258 minutes for a nominal "4" laps or 258/4 minutes per lap = 64.5 m/l.

So if FastBoats handicap is 1.0 then SlowBoats HC = 1.0 * 64.5/138 = 0.467.

BUT!! The handicaps so developed, while totally valid for the above situation is not a *true* reflection of their *relative* performance.

For the true relativity they must be measured around a common course but using "exact laps" e.g. if they are both timed for 2 laps that start and finish at the bottom mark. Under this circumstance the ratio of their elapsed time is 2:1 so if we nominate a handicap of 1.0 for FastBoat then SlowBoat has a handicap of 0.500.

If instead we let FastBoat do exactly 4 laps (bottom mark to bottom mark) while SlowBoat does 2 exact laps then their Elapsed Times are identical but because of the lap ratios we can again say if FastBoat has a handicap of 1.0 then SlowBoat has a handicap of 0.500.

Further Reading

Different Laps for Different Competitors