THE RYA PORTSMOUTH YARDSTICK SCHEME 2007

Average Lap Racing

AVERAGE LAP RACING (ALR)

OBJECTIVE
The objective of average lap racing (ALR) is to give fairer racing, particularly when boats from a wide range of PNs are racing together, by requiring all boats to sail for about the same time period, and so experience generally the same wind and current conditions.

Based on the number of laps of the course each boat sails during the period, their elapsed times are factored to represent the times they would have taken to sail the same number of laps as the fastest boat. These factored times are then corrected in the normal way using the appropriate *Portsmouth Numbers.*

BENEFITS
The range of classes competing can include catamarans, International 14s, Mirrors and Optimists, which is almost impossible in conventional fixed length PY races.

ALR allows more races to be planned for a given period and gives good event time management. If there are a large number of entrants, they can be divided and have separate consecutive starts whilst still competing in the same race.

The small courses needed allow clubs with limited water area to put on racing for a wide range of classes.

DISADVANTAGES
With boats spread out and completing more than usual laps, the race officers have to keep constant vigilance to ensure correct lap counting. It is difficult to assess relative positions during a race.

DIFFERENCES FROM CONVENTIONAL PY RACES
The course should be small enough so that, under the expected conditions, the slowest boats would do 3 laps.

Every lap will be the same, starting and finishing at the start line which must be passed through at the end of every lap. Because the finish line is the same as the starting line it must not be moved during the race. The starting line has to be shorter than a normal start line to make a good finish line.

If the event has an entry which would normally require a long start, it can be split into two or more flights, starting in quick succession.

There are more line crossings than in a conventional race and every time a boat does cross through the line it must be recorded. No attempt need be made to keep track of who-has-sailed-how-many-laps; that is done after the finish. It is not necessary to record the times of every line crossing, but to be able to plan the 'About-to-Finish' (ATF) signal, the Race Officer may want to know the lap time of the slow boats.

Before the end of the planned race duration, the ATF signal is made. If possible it should be before the first of the slow boats completes a lap (preferably its third) and in a gap in the flow of boats so that no one who has just transited can be confused. Make a note of the time of this signal.

After the ATF signal is made, all boats finish the next time they cross the line (regardless of lap) and both sail numbers and times are recorded.

The time limit is calculated to allow those who had crossed the line just before the ATF signal sufficient time to complete the lap they have just started.

Each finisher's actual time is divided by the number of laps she sailed and multiplied by the number of laps sailed by the fastest boat. These adjusted times are used as Elapsed Times to calculate race results in the normal way. The calculations may be done in one step as below.

Note that when the fleet has a split start, a second flight finisher will have an Elapsed Time before factoring of three minutes less than a "same clock-time" first flight finisher (assuming three minute interval between starts).

When boats with the same PN complete different numbers of laps, those sailing fewer laps may have average times less than those sailing more laps. In such a case the 'Same PN Adjustment' shown below should be applied. The adjustment increases proportionally the times of those boats sailing fewer laps.

CALCULATIONS
The time limit for each boat is calculated:

Time Limit = Planned Race Duration x $(1 + ($ Factor $\div$ Laps$))$

where:

Laps = the number of laps completed prior to the ATF signal.

Factor is greater than 1, 1.25 is suggested.

Each boat's Corrected Time is calculated from:

$$\text{Corrected Time} = \frac{\text{Elapsed Time x Most Laps x 1000}}{\textit{Portsmouth Number} \text{ x Actual Laps}}$$

where:

Actual Laps is Actual number of laps sailed

Most Laps is number of laps sailed by the boat which sailed furthest.

The same PN Adjustment should be applied if a boat's corrected time is greater than others with the same PN which have completed fewer laps. The adjustment is applied only to the group of boats with that PN. Boats completing one lap fewer than the leading boat in the group will have their Corrected Times adjusted thus:

Modified Time = Corrected Time x Multiplier

$$\text{Multiplier} = \frac{\text{Slowest x (Fastest Laps -1)}}{\text{About-to-Finish Time x Fastest Laps}}$$

where:

Fastest Laps is Actual Laps completed by the fastest boat in the group

Slowest is the Elapsed Time of the slowest boat, in the group, to complete Fastest Laps

NOTICE OF RACE AND SAILING INSTRUCTIONS
The Notice of Race and Sailing Instructions need small modifications to cover starting (if multiple flights are planned), the course, finishing and scoring.

FURTHER GUIDANCE
A more detailed description of ALR with model Sailing Instructions, modifications and recording forms has been published by Stuart Cresswell and is available from the RYA Technical Department.