

“Are we winning?”

You're ahead, but is it enough? Mike Urwin explains how to calculate your position on the race course.

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Simplistically, each 0.001 of rating difference between two boats represents a corrected time difference of *approximately* 3.6 seconds per hour. This will however only be absolutely correct for boats rating very close to 1.000. So how can you be certain whether you are beating your rivals on the race course?

Starting with boat A rating 1.010 and boat B rating 0.995, if Boat A sails for one hour, her corrected time will be 1.010 hours which is 1:00:36 (1 hour 0 minutes 36 seconds). Boat B will beat Boat A if her corrected time is less than that. To find out what this means in terms of time, we want to find Boat B's maximum elapsed time. To do this divide Boat A's corrected time by Boat B's rating - $1:0:36 / 0.995 = 1:00:54$. In other words Boat B can sail for up to an extra 54 seconds before her corrected time is more than boat A's. An easier way of doing the same thing is to divide the rating of boat A by the rating of boat B – ie $1.010/0.995 = 1.015$ and 1.015 hours is 1:00:54.

Notably, boats A and B have a rating difference of 0.015, thus confirming ($54/15 = 3.6$) the 3.6 seconds per 0.001 noted above. But if the boats are faster or slower, while the maths remains the same, the answer starts to vary from 3.6. If boat C rates 1.110 and boat D rates 1.095 (the same rating difference of 0.015 as A and B) the time difference for an hour's racing is $1.110/1.095 = 1.0137$ which is 1:00:49 – equivalent to 3.27 seconds for each 0.001.

Similarly, boat E rates 0.910 and boat F rates 0.895 (again 0.015 less). The time difference for an hour's racing by Boat E is $0.910/0.895 = 1.0168$ which is 1:01:00 – equivalent to 4.0 seconds for each 0.001.

For a given fleet of boats, this can then be dealt with by creating a table of time allowances for the fleet

Yacht	IRC TCC	Time Differences in seconds for various race durations				
		1 hr	2 hr	10 min	20 min	30 min
Alpha	1.190	222	443	37	74	111
Beta	1.169	154	308	26	51	77
Gamma	1.158	119	238	20	40	59
Delta	1.137	51	103	9	17	26
Epsilon	1.134	42	83	7	14	21
Zeta	1.132	35	71	6	12	18
You	1.121	0	0	0	0	0
Eta	1.121	0	0	0	0	0
Theta	1.108	-42	-83	-7	-14	-21
Iota	1.108	-42	-83	-7	-14	-21
Kappa	1.105	-51	-103	-9	-17	-26
Lambda	1.103	-58	-116	-10	-19	-29
Mu	1.092	-93	-186	-16	-31	-47

The table above is the ideal way to deal with this. For occasions when you do not have this for whatever reason, another simple way of dealing with it is to divide 3.6 by your TCC. eg, $3.6/1.100 = 3.3$ seconds or $3.6/0.900 = 4.0$ seconds. The answer in each case will then be closer to the correct time allowance per 0.001 rating difference between your boat and a reasonably closely rated competitor. The answer will still be approximate, but rather better than just using 3.6!

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