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A Review of Time-on-Time Handicapping

The purpose of this report is to consider and evaluate an alternate formulation for Time-on-Time (TOT) handicapping. In 1994, Off Soundings and a number of other clubs in ECSA began using time-on-time handicaps in place of Time-on-Distance (TOD) handicaps, using the time correction factor $TCF = A / (B + PHRF)$ such that $TCF \times$ elapsed time = corrected time.

The constant "A" does not affect the relative time allowances; it merely establishes the position of $TCF = 1.000$. This position could be in the middle of a class or at the top of a class. The constant "B" establishes the amount of time allowance growth with race elapsed time. The formula for TCF used by Off Soundings, ECSA and others is $600 / (480 + PHRF)$, and that used by Niantic Bay YC, Narragansett Bay and others is $650 / (550 + PHRF)$. The 600 / 480 formula was adopted by Off Soundings in part because it appeared to be more commonly used at that time. Predicted average boat speeds (ie, the concept of an average speed race) are quite high for "B" = 480, and more reasonable for "B" = 550. Also, "B" = 550 correlates better with IMS handicapping.

Example:

Increasing the "B" constant from 480 to 550 reduces time allowances by the ratio of $(480 + PHRF) / (550 + PHRF)$ or about 10% at a PHRF of 120, throughout the range of race types, slow or fast. The example shown is for two boats, PHRF_{fast} with PHRF = 120 and PHRF_{slow} with PHRF = 150.

Assumed Elapsed Time	Speed for 20 miles Dist	TOD Allowance	TOT Allowance		TOT / TOD Factor	
			B=480	B=550	B=480	B=550
180 min	6.7 kts	10 min	9.0 min	8.06 min	0.9	0.8
240	5.0	10	12.0	10.75	1.2	1.1
300	4.0	10	15.0	13.43	1.5	1.3
360	3.3	10	18.0	16.12	1.8	1.6
420	2.8	10	21.0	18.81	2.1	1.9

The reduction in time allowance for slow races appears to be desirable, based on my observations and discussions with others, but the amount of reduction for fast races was not (should have been) expected, and may not be desired.

Conclusion:

Retain the formula $600 / 480$ for the present. Boats at the top of classes do adequately well and boats at the bottom of a class can win.

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Measurer's Report

1. I am scheduled to arrive in Key West at 10:15am on this date.
2. Participated in the review of the composition of the non-spinnaker classes and racing classes and issued the report of the committee findings and recommendations to the Secretary for distribution.
3. Developed a reply regarding the formula constants of time-on-time handicapping for the Race Secretary.
4. The ECSA handicappers council has become more active, with regular monthly meetings. We are beginning an ECSA mandated review of the top three finishers for all classes from the year 2000 racing season. Please bring to my attention any handicaps that you may believe deserve a review.

Respectfully submitted,

Norm Rabe