

York River Yacht Club

01 April 2015

Time-on-Time Scoring

Why Time-on-Time?

- Reduces “spread” of finish times
 - Especially effective where wind/ratings vary widely
 - Times stay closer so all have a fair chance at winning
 - Makes it more fun/competitive
- Growing in Popularity
 - Many PHRF Fleets in USA now adopting it
 - Being promoted by US Sailing

ToD vs. ToT

- Time-on-Distance (ToD)
 - Used for over 100 years
 - Works quite well in “average” conditions
 - most boats over a narrow band of wind strength around 10 knots
 - narrow bands of rating over a wider range of wind strengths
 - Does not work well for a wide range of boats or wind speeds
 - Rating allowances may be either exaggerated or insufficient
 - Light air: boats travel slowly; time separation becomes greater
 - **Fast boats win slow races**
 - Heavy air: boats travel faster; time separation becomes compressed
 - **Slow boats win fast races**

ToD vs. ToT

- Time-on-Time (ToT)
 - Not “new” - been in use for many years in Europe
 - Uses a time correction factor (TCF)
 - function of the PHRF rating
 - depends on time it takes for the race to be sailed
 - Distance of the race is not used in the calculation
 - The slower the race, the larger the corrections will be
 - The faster the race, the smaller the corrections will be

Do the Math

■ Time-on-Distance

- **Corrected Time (seconds) =**
Elapsed Time (seconds) - {Distance (NM) x Handicap (secs/NM)}

■ Time-on-Time

- **Corrected Time (seconds) =**
Elapsed Time (seconds) x TCF
 - where $TCF = 650 / (550 + \text{PHRF rating})$

YRYC's TCF

- PHRF of the Chesapeake uses “standard” TCF
- YRYC to go one step further, in accordance with US Sailing
- Further tailors TCF to widely varying wind conditions on the York River

YRYC TCF Calculation

$$\text{TCF} = \frac{A}{B + \text{PHRF}}$$

The denominator $B + \text{PHRF}$ is the number of seconds it takes to sail a nautical mile in the expected conditions

| 'B' Factor | Selection Criteria | | |
|------------|---|--|--|
| 480 | Heavy Air (avg spd 1st finisher >6 knots) or all off the wind | | |
| 550 | Average conditions (avg spd 1st finisher >5 and <=6 knots) | | |
| 600 | Light air (avg spd 1st finisher <=5 knots) or all windward work | | |

YRYC TCF Calculation

$$\text{TCF} = \frac{A}{B + \text{PHRF}}$$

The numerator A is simply a factor that makes a “nice” looking TCF. It is selected so that the TCF for the middle of the fleet is about 1.0. The A factor has absolutely no effect on the corrected finish order. PHRF-CB always uses $A = 100$.

For YRYC:

$$\text{'A' factor} = \text{'B'} + (\text{MinRtg} + \text{MaxRtg})/2$$

Min/Max Ratings are per fleet. Makes the $\text{TCF} = 1.0$ for mid-fleet

2015 YRYC Score Page

| York River Yacht Club | Wednesday Night Races | Spring Series 2015 | Time-on-Time Scoring | Date | | | | | |
|--------------------------|---|-----------------------|-------------------------|--------|---------------------------------|--------------------------------|--------------------|------------|--------|
| | | | | Race | | | | | |
| Yellow Fleet | 18:20:00 | | course: | | Avg Spd 1st Finisher: | 0.00 | Mid Rating: | 138 | |
| | | | length: | | Selected 'B' Factor: | 600 | | | |
| | | | | | Yellow Fleet 'A' Factor: | 738 | | | |
| Boat Name | Type | Sail No. | Skipper | Rating | Finish Time | TCF | Corrected Time | place | points |
| Solstice | J/40 | 52539 | Jim Bordeaux | 96 | | 1.0603 | ##### | | |
| Hornet | J/30 | 22 | Brian Gregory | 150 | | 0.9840 | ##### | | |
| Animal Kingdom | Beneteau FC8 | 63271 | Dan Fox | 156 | | 0.9762 | ##### | | |
| Dream On | S2 7.9 | 211 | Steve Bowen | 171 | | 0.9572 | ##### | | |
| Unknown | S2 7.9 | -- | John Haracivet | 171 | | 0.9572 | ##### | | |
| Three S2ges | S2 7.9 | 73362 | Dave Schuster | 171 | | 0.9572 | ##### | | |
| Papahu | Santana 23D | 73426 | Andrew Norris | 180 | | 0.9462 | ##### | | |
| Blue Fleet | 18:25:00 | | course: | | Avg Spd 1st Finisher: | 0.00 | Mid Rating: | 164 | |
| | | | length: | | Selected 'B' Factor: | 600 | | | |
| | | | | | Blue Fleet 'A' Factor: | 764 | | | |
| Boat Name | Type | Sail No. | Skipper | Rating | Finish Time | TCF | Corrected Time | place | points |
| Steadfast | Tartan 38 | 112204 | Phil Horbert | 129 | | 1.0473 | ##### | | |
| Camden | Tartan 37 | 193 | Larry Davis | 150 | | 1.0180 | ##### | | |
| Victory II | Hunter 34 | 1781 | SSS 1781 | 156 | | 1.0099 | ##### | | |
| Dauntless | Pearson 34 | -- | Rick Hillyer | 168 | | 0.9941 | ##### | | |
| Nutmeg | Tartan 34 | -- | Michael Soberick | 180 | | 0.9788 | ##### | | |
| Elixir | Alberg 37 | 234 | Joran Gendell | 189 | | 0.9677 | ##### | | |
| 4 Degrees | Cal 29-2 | 83282 | Anne Racel | 192 | | 0.9640 | ##### | | |
| Celebrate | Hunter 33 | 3337 | Barry Campbell | 198 | | 0.9568 | ##### | | |
| 'B' Factor | Selection Criteria | | | | TCF* = | 'A' Factor | | | |
| 480 | Heavy Air (avg spd 1st finisher >6 knots) or all off the wind | | | | | 'B' Factor + Rating | | | |
| 550 | Average conditions (avg spd 1st finisher >5 and <=6 knots) | | | | | | | | |
| 600 | Light air (avg spd 1st finisher <=5 knots) or all windward work | | | | | *Time Correction Factor | | | |

Questions?

$$CT \text{ (seconds)} = ET \text{ (seconds)} \times TCF$$

$$\text{where } TCF = \frac{A}{B + PHRF}$$

$$\text{'A' factor} = \text{'B' factor} + (\text{MinRtg} + \text{MaxRtg})/2$$

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