

York River Yacht Club

01 April 2015

# Time-on-Time Scoring

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# 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) =**

$$\text{Elapsed Time (seconds)} - \{\text{Distance (NM)} \times \text{Handicap (secs/NM)}\}$$

## ■ Time-on-Time

- **Corrected Time (seconds) =**

$$\text{Elapsed Time (seconds)} \times \text{TCF}$$

- where  $\text{TCF} = 650 / (550 + \text{PHRF rating})$

# 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
<b>550</b>	<b>Average conditions (avg spd 1st finisher &gt;5 and &lt;=6 knots)</b>
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 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					

<b>Yellow Fleet</b>	<b>18:20:00</b>		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	#####		

<b>Blue Fleet</b>	<b>18:25:00</b>		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
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

$$TCF^* = \frac{'A' Factor}{'B' Factor + Rating}$$

\*Time Correction Factor

# Questions?

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

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

'A' factor = 'B' + (MinRtg – MaxRtg)/2

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