HOW WOULD AMERICAP WIND-ADAPTIVE SCORING AFFECT MY HANDICAP ?

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In PHRF, a yacht's rating consists of a single number, R, usually taken as a time-on-distance, while in AMERICAP it consists of 2 numbers, A and B. Both systems serve to convert Elapsed Time, ET, of a yacht to Corrected Time, CT using the following simple formulas.

PHRF: CT = ET – R x Distance
AMERICAP: CT = A x ET – B x Distance

the only formal difference being the multiplication of ET by the Americap A factor (and of course, a different *value* of B, not equal to R).

PHRF ratings are usually quite accurate at a nominal wind speed of say 10-12 knots. But we know that some boats are relatively faster in heavy winds, and some in light winds and in principal, they should have different time allowances in light or heavy winds. By appropriate choice of the rating constants, A and B, based on the AMERICAP VPP speed predictions for various wind strengths, AMERICAP ratings are able to accurately handicap a wide range of different yacht types over a range of different wind strengths.

The attached spreadsheet shows how this works out for a test fleet of 71 popular standard classes. Columns 1-7 give the yacht type and a number of distinguishing characteristics useful to identify variants within a class. Columns 6 and 7 are the Americap A (TOT) and B (TOD) coefficients for the Closed Course All Purpose (CCAP) a random leg course roughly equivalent to PHRF's RLC. Both assume some amount of beating, reaching and running. Columns 8,9,10 give the AMERICAP predicted elapsed times, sec/mi, derived from the A and B numbers, for assumed winds of 6,11, and 20 knots. PHRF ratings are supposed to be most accurate at about 11 knots, and it can be confirmed that the *relative* handicaps at 11 knots agree quite well between PHRF and AMERICAP. (Relative here means comparing boat comparing each boat to the fleet average at 11 knots wind, 587.1 sec/mi as given at the bottom of column 9.)

Under PHRF the time allowance is the same in all conditions. But AMERICAP knows how to recognize and quantify the "heavy weatherliness" of a yacht and adjusts her effective time allowance accordingly. Columns 11 and 12 show the differences between the effective time-allowance (relative to the average yacht) at 6 and at 20 knots relative to that at the 11 knot nominal condition. For example, consider the first yacht in the list, the Alberg 35. This is an older design, relatively heavy, and short rigged, and would be recognized as a heavy weather boat. Accordingly her AMERICAP effective time allowance at 20 knots is 21 seconds *less* favorable (-21) at 20 knots than under nominal conditions. At 6 seconds per mile, the difference is even more dramatic. According to AMERICAP, the Alberg35 is 70 seconds per mile *slower* (+70) at 6 knots and receives a 70 second more favorable effective time allowance than at 11 knots. Relative here means compared to the fleet average yacht defined by the fleet averages given at the bottom of columns 8, 9, and 10 at 6,11, and 20 knots wind.

The Alberg 35 happens to be the most relatively heavy-weather-favored boat in this fleet. On the opposite extreme the J-125 is very fast in light airs. Her nominal, 11 knot time allowance *decreases* by 52 sec/mi (-52 sec/mi, yacht is faster relative to the average) at 6 knots and *increases* (yacht is slower relative to the average) by 15 sec/mi at 20 knots. Notice that handicapping the Alberg35 against the J125 with a single number system would, be in error by as much as (70+51=) 121 sec/mi at 6 knots, far eclipsing any conceivable error in handicap assignment under nominal conditions.

It is important to understand that these differences of AMERICAP handicapping of different boats in different winds do not require any kind of pre-race prediction or post-race estimation of wind velocity by the race committee, but are inherent in the AMERICAP two-number scoring system, by the A constant multiplying elapsed time.

AMERICAP EFFECTIVE TIME ALLOWANCES IN DIFFERENT WINDS

1	2	3	4	5	6	7	8	9	10	11	12
Class	YearBuilt	Mast Hght	LPG(%)	DISPL.	Americap CCAP		AMERICAP ELAPSED TIMES			AMCAP TA Diffs Rel to TA11	
							6kt	11kt	20 kt	TA6	TA20
		ft	%	(Lbs.)	A	B	sec/mi	s/mi	s/mi	s/mi	s/mi
Alberg 35	1965	40.94	155	14461	0.7364	45.7	1056.8	693.4	586.1	70	-21
Alberg 37		44.94	148	16321	0.8311	74.8	971.4	649.4	554.3	29	-8
Beneteau 35S5	1988	42.21	157	11793	0.8438	43.1	919.2	602.1	508.4	24	-7
Beneteau 42S7	1997	51.47	152	21540	0.9527	50.5	821.9	541.0	458.1	-13	4
Beneteau 456 (Tall Mast)		60.36	156	26264	0.9314	40.9	830.3	543.0	458.2	-6	2
C&C 29		39.93	156	9325	0.8323	84.6	981.7	660.2	565.3	28	-8
C&C 34	1979	44.62	156	11189	0.8993	106.8	933.3	635.8	547.9	4	-1
C&C 35	1971	44.56	156	11044	0.8884	77.8	912.1	610.9	521.9	8	-2
C&C 35 MK I	1973	44.37	151	11663	0.8748	68.5	915.6	609.7	519.4	12	-4
C&C 353		46.09	114	12892	0.8808	76.2	918.2	614.4	524.7	10	-3
C&C 353	1984	46.77	114	12258	0.8781	74.8	919.4	614.7	524.7	11	-3
C&C 37		51.27	108	15728	0.9324	95.3	887.8	600.9	516.1	-6	2
C&C 372 Deep Keel	1988	54.47	156	17132	0.9536	59.3	830.3	549.7	466.8	-13	4
C&C 38	1976	49.93	154	14987	0.9383	98.7	885.9	600.7	516.5	-8	2
C&C 41	1984	56.68	156	18720	0.9711	78.6	835.2	559.7	478.3	-18	5
C&C 44	1986	59.79	156	23828	0.9551	54.9	824.4	544.2	461.5	-13	4
Cal 29		37.99	157	8555	0.7994	76.1	1011.5	676.8	577.9	41	-12
Cal 36	1966	42.66	155	12625	0.8060	50.7	971.7	639.8	541.7	39	-11
Cal 40	1968	46.75	157	15736	0.8294	35.9	926.5	603.9	508.6	29	-9
Capri 30	1983	42.13	157	5840	0.9829	131.9	879.5	607.3	526.8	-21	6
Catalina 27		34.79	155	6351	0.8348	111.9	1011.5	691.0	596.3	27	-8
Catalina 30		44.25	156	11233	0.8736	111.6	966.1	659.9	569.4	13	-4
Catalina 34 (Tall Mast)		47.29	156	13607	0.8747	84.0	933.4	627.5	537.2	12	-4
Catalina 38	1994	50.90	156	16813	0.8814	69.4	909.8	606.3	516.6	10	-3
Centurion 42	1985	57.83	157	25004	0.9274	58.5	852.9	564.4	479.2	-5	1
Choate 48	1981	63.97	156	27121	1.0032	61.4	791.4	524.7	445.9	-27	8
Columbia 50	1967	54.60	150	35557	0.8353	39.4	924.0	603.7	509.1	27	-8
Ericson 33	1982	39.86	150	11561	0.9037	96.7	917.5	621.4	534.0	3	-1
Ericson 34	1979	45.36	157	11633	0.9457	122.6	904.1	621.2	537.6	-10	3
Ericson 35 MK II	1970	43.40	154	11531	0.8416	85.5	971.9	654.0	560.1	25	-7

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		ft	%	(Lbs.)	A	B	sec/mi	s/mi	s/mi	s/mi	s/mi
Ericson 37	1973	47.42	156	16483	0.8583	72.5	937.9	626.2	534.1	18	-5
Ericson 39	1977	52.80	156	19810	0.9157	97.4	906.3	614.1	527.8	-1	0
Express 37	1986	48.90	155	11161	0.9398	65.0	848.6	563.9	479.8	-9	3
Farr 38	1982	43.10	150	10622	0.9129	34.8	840.5	547.4	460.8	0	0
Farr 39	1995	50.40	157	10204	1.0703	70.7	750.4	500.4	426.6	-43	13
Frers 38	1990	52.75	157	14239	0.9696	74.9	832.7	556.8	475.3	-17	5
Hobie 33	1982	34.38	156	4534	0.9210	56.4	856.5	566.0	480.2	-3	1
Hunter 34	1983	47.46	157	12918	0.8519	66.0	937.2	623.2	530.4	21	-6
J 105		43.66	101	8472	0.9739	83.6	838.0	563.2	482.1	-19	6
J 120	1994	51.31	156	14165	1.0209	76.9	792.8	530.7	453.3	-31	9
J 130	1994	56.90	152	17527	1.0711	83.8	762.1	512.3	438.5	-44	13
J 24	1978	27.01	151	2870	0.7833	44.3	991.7	650.1	549.2	48	-14
J 30	1979	34.56	157	7056	0.8651	68.5	925.8	616.5	525.2	16	-5
J 33		44.61	157	7834	0.9240	63.1	861.0	571.4	485.9	-4	1
J 35		47.01	156	10470	0.9294	65.8	858.9	571.0	486.0	-6	2
J 35 Cruiser		46.71	156	11704	0.8967	54.9	878.1	579.7	491.6	5	-1
J 36		44.54	150	12340	0.9289	65.8	859.4	571.4	486.3	-5	2
J 37 (Wing Keel)	1989	51.78	155	14865	0.9512	70.1	843.8	562.5	479.4	-12	4
J 40	1986	50.79	130	17691	0.8714	37.4	883.4	576.4	485.7	14	-4
J 44	1989	60.58	152	22325	0.9681	32.5	790.2	513.8	432.1	-17	5
J-125	1998	49.32	153	9408	1.1071	57.8	713.9	472.2	400.8	-52	15
Mumm 30		11.62	157	4479	1.0660	95.7	776.9	525.9	451.8	-42	13
Mumm 36	1994	13.32	157	7955	0.9782	57.2	807.3	533.8	453.0	-20	6
Nelson Marek 41	1982	54.45	156	15911	0.9951	85.9	822.4	553.5	474.1	-25	7
Nelson Marek 43	1995	56.21	129	15981	1.0368	67.9	772.0	513.9	437.7	-35	10
New York 36	1981	42.77	152	11560	0.9833	115.3	862.2	590.1	509.7	-21	6
Nordic 44	1983	58.66	135	24607	0.8490	35.7	904.8	589.7	496.6	22	-6
North American 40	1978	54.55	156	18060	0.9796	107.5	857.5	584.4	503.7	-20	6
Olson 30	1983	36.51	156	4111	0.8853	50.7	884.7	582.5	493.2	9	-3
Olson 34	1988	44.68	154	10593	0.8783	59.6	901.8	597.2	507.2	11	-3
Ranger 29		37.27	155	8186	0.8214	88.7	999.7	674.0	577.7	32	-10
S2 9.1	1985	41.28	156	8071	0.8847	83.0	921.8	619.4	530.0	9	-3
Santa Cruz 27		35.00	153	3442	0.8564	73.9	941.6	629.2	536.9	19	-6
Santana 35	1980	39.17	157	9277	0.8623	47.1	904.0	593.7	502.1	17	-5
Schock 35	1991	48.59	157	9866	0.9648	75.7	837.7	560.3	478.4	-16	5
Swan 431		59.63	156	28386	0.9033	62.4	880.0	583.8	496.3	3	-1
Swan 44	1975	58.23	149	30721	0.9035	54.5	871.0	574.9	487.4	3	-1
Swan 46		60.72	153	36001	0.8821	27.7	861.8	558.5	468.9	10	-3
Tartan 10	1974	35.37	155	7005	0.8860	60.2	894.7	592.7	503.5	9	-3
Thomas 35		48.13	156	10779	1.0023	95.0	825.6	558.6	479.8	-26	8
Tripp 40	1991	52.18	156	13099	1.0009	72.7	804.5	537.2	458.2	-26	8
Tripp 40 (Fractional Sloop)	1991	47.77	157	12745	1.0215	85.4	800.7	538.8	461.4	-31	9
71						Average	881.4	587.7	500.9	0	0