

2019 CRF MkII Formulae		Refinements for 2019 highlighted in red	
7/10/19			
R1 = Base Rating	$R1 = 0.06 * (L * S) / (.75 * DSPS / 64)^{.33} + 0.3 * L + 0.20 * S + DC + LBRC + StabC$		
Rated Length	If Age < 1990, L = L1 If Age => 1990, L = L1 + Dell If LWL >= 0.65 * LOA, L1 = 1.02 * (LOA + 4 * LWL) / 5 If LWL < 0.65 * LOA, L1 = 1.02 * (LOA + 4 * 0.65 * LOA) / 5 If Age < 1990, Dell = 0 If Age => 1990 & Bm10 / Bmax <= 0.75: Dell = 0 If Age => 1990 & Bm10 / Bmax > 0.75: Dell = L1 * [15 * ((Bm10 / Bmax) - 0.75) ^ 2.1]		
Rated S	$S = (\text{Rig Factor} * (\text{RSAup} + \text{RSAdn}) / 2) ^ {0.5}$		
RSAup; Rated SA, Upwind;	RSAup = Jib + Main + Mizzen + Foresail		
	RSAup = RSAF + RSAM + RSAY + RSAG		
Rated Foretriangel Area, if LP% >= 1;	If J * LP% >= J: RSAF = 0.55 * IG * J * {1 + 1.5 * ((LP% * J) - J) / (LP% * J)}		
Rated Foretriangel Area, if LP% < 1;	If J * LP% < J: RSAF = 0.55 * IG * J		
Rated Mainsail Area, for Jib Headed Main;	If P > 0: RSAM = .45 * P * E		
Rated Mainsail Area for Gaff Headed Main;	If PG > 0: RSAM = 0.55 * PG * E		
Rated Mizzen Area;	If PY > 0: RSAY = 0.5 * PY * EY		
Rated Foresail Area, Schooner's;	If B1 > 0: RSAG = 0.4 * (P1 + P3) / 2 * B1		
RSAdn; Rated SA, downwind;	RSAdn = Spin + Main + Mizzen + Foresail		
	RSAdn = SPIN + RSAM + RSAY + RSAG		
	If S-SPIN > A-SPIN: SPIN = S-SPIN		
	If S-SPIN <= A-SPIN: SPIN = A-SPIN		
	S-SPIN = 0.95 * (ISP^2 + J^2) ^ 0.5 * 1.8 * SPL * 0.8 * 1.0		
	A-SPIN = 0.95 * (ISP^2 + TSPJ^2) ^ 0.5 * 1.75 * TSP * 0.75 * 0.95		
	(For non-spinnaker, RSAdn = RSAup)		
Displacement	DSPS	Boat weight as raced, without crew, in pounds	
Draft Correction	If RD > BD: DC = 0.2 * L1 * ((RD/BD) ^ 1.75 - 1) If RD <= BD: DC = 0.2 * L1 * ((RD/BD) ^ 2.5 - 1) Base Draft: BD = 0.15 * L1 + 1.5		
Rated Draft:	If fixed draft: (No centerboard): RD = DM If Brd down draft (DMcb) > fixed draft: RD = DM + 0.60 * (DMcb - DM)		
Length/Beam Correction	LBRC = 0.25 * L1 * (((L1 / Bmax) / (Base LBRC)) ^ 0.30 - 1.0) Base LBRC: 0.037 * L1 + 1.66		
Stability Correction (new for 2019)	If RmTot > RmBase; StabC = 0.10 * L1 * ((RmTot/RmBase) ^ 1.60 - 1) If RmTot <= RmBase; StabC = 0.10 * L1 * ((RmTot/RmBase) ^ 0.20 - 1) RmBase = 13.6 * (Bmax * L1 ^ 0.25) ^ 2 - 137 * (Bmax * L1 ^ 0.25) + 352 RmTot = RmHull + RmCrew RmHull = 0.0090 * Disp * (Bmax - Dh) * Spar Factor ^ 3 * Rig Factor ^ 1.5 Dh = (Disp / 64 - Bal / 690) / (LWL * Bmax * 9 * Prisc * WPC) Bal; Ballast weight, for 2019, assumed to be = 0.4 * Disp Prisc; Canoe body Prismatic Coeff, assumed to be 0.55 WPC; Water Plane Coeff, assumed to be 0.65 RmCrew = (Crew Number - 2) * 185 * 0.4 * Bmax Crew Number = Crew Wgt / 185 Crew Wgt = (((Disp / 2240) / ((0.01 * LWL) ^ 3)) / 254) ^ 0.375 * (RmHull / (Disp * Bmax) / 0.006) ^ 0.4 * LWL ^ 1.5 * 7.6		
2019 Rating	Rating = R6 = R1 * Prop * DLF * SaDF * Keel * Spar * MAF		
Prop Factor	Prop = assigned prop factor		
Disp/Length Factor	If Base DLF > 1.015; DLF = Base DLF + (1 + Base DLF - 1.015) ^ 2.5 - 1 If Base DLF <= 1.015; DLF = Base DLF		
Base DLF	Base DLF = ((350 - 2.9 * L) / ((Disp / 2240) / (0.01 * L) ^ 3)) ^ 0.020		
Sail Area/Disp Factor	If Base SaDF > 1.015; SaDF = Base SaDF + (1 + Base SaDF - 1.015) ^ 3.0 - 1 If Base SaDF <= 1.015; SaDF = Base SaDF		
Base SA/Disp ratio	Base SaDF = (S ^ 2 / (Disp / 64) ^ 0.67 / (0.25 * L + 17.0)) ^ 0.040		
Keel Factor	Keel = Assigned Keel Factor		
Spar Factor	Spar = Assigned Spar Factor		
Trim Tab	MAF = Moveable Appendage Factor (Trim Tab)		