

Drake Passage - RCM cal mooring -faired buoyancy

Nominal depth off bottom (m)	item	qty	length h (ea.) (m)	buoy. in seawater B (ea.) (lbs)	weight in SW W (ea.) (lbs)	area A each (m²)	drag coeff C _D	qty * buoyancy (lbs)	qty * weight in water (lbs)	sum ABOVE B-W (lbs)	current speed (m/s)	qty * drag @ spd (lbs)	sum ABOVE drag (lbs)	angle (deg)	TOP sum length H off bottom (m)	draw-down = L*(1- cos(ang)) (m)	tension T (lbs)
D-170	top-float = 3 glass balls + R/F on strongback	1	2	175	25	0.60	1.3	175	25	0	0.7	44	0	0	166.0	14.9	44
	3/8" chain 5m	1	5	0	23.75	0.12	1.3	0	24	150	0.7	9	44	16	164.0	14.7	150
	Open Seas SUBS	2	1	112	4	0.16	0.6	224	8	126	0.7	11	53	23	159.0	14.6	127
	3/8" chain 2m	1	2	0	9.5	0.05	1.3	0	10	342	0.7	4	63	10	157.0	14.5	342
	Open Seas SUBS	2	1	112	4	0.16	0.6	224	8	333	0.7	11	67	11	155.0	14.5	333
	3/8" chain 2m	1	2	0	9.5	0.05	1.3	0	10	549	0.7	4	78	8	153.0	14.5	549
	Open Seas SUBS	2	1	112	4	0.16	0.6	224	8	539	0.7	11	81	9	151.0	14.5	539
	10m 3/16" jacketed wire rope	1	10	0	1.67	0.08	1.2	0	2	755	0.7	6	92	7	149.0	14.4	755
D-145	Aanderaa RCM11(no tilt_cor) + NO chain below (interferes w/ compass)	1	1.5	0	40	0.12	1.3	0	40	754	0.7	9	98	7	139.0	14.4	754
	5m 3/16" jacketed wire rope	1	5	0	0.835	0.04	1.2	0	1	714	0.7	3	107	8	137.5	14.3	714
D-135	VMCM	1	2	0	40	0.38	1.3	0	40	713	0.7	28	109	9	132.5	14.3	713
	5m 3/16" jacketed wire rope	1	5	0	0.835	0.04	1.2	0	1	673	0.7	3	137	12	130.5	14.2	673
D-130	Aanderaa SeaGuard (yes,tilt_cor) + NO chain below	1	1.5	0	40	0.12	1.3	0	40	672	0.7	9	140	12	125.5	14.2	672
	5m 3/16" jacketed wire rope	1	5	0	0.835	0.04	1.2	0	1	632	0.7	3	149	13	124.0	14.0	632
	0 glass balls on 4m chain	0	4	224	19	0.68	1.2	0	0	631	0.7	0	151	13	119.0	14.0	631
	0 shots chain 4m	0	4	0	19	0.10	1.3	0	0	631	0.7	0	151	13	119.0	14.0	631
D-125	Aanderaa RCM11 (yes, tilt_cor) + NO chain below	1	1.5	0	40	0.12	1.3	0	40	631	0.7	9	151	13	119.0	14.0	631
	5m 3/16" jacketed wire rope	1	5	0	0.835	0.04	1.2	0	1	591	0.7	3	160	15	117.5	13.8	591
D-115	Aanderaa SeaGuard (no tilt_cor) + NO chain below	1	1.5	0	40	0.12	1.3	0	40	590	0.7	9	163	15	112.5	13.7	590
	5m 3/16" jacketed wire rope	1	5	0	0.835	0.04	1.2	0	1	550	0.7	3	172	17	111.0	13.5	550
D-110	VMCM	1	2	0	40	0.38	1.3	0	40	549	0.7	28	175	18	106.0	13.4	550
	5m 3/16" jacketed wire rope	1	5	0	0.835	0.04	1.2	0	1	509	0.7	3	202	22	104.0	13.0	509
D-105	Nortek Aquadop	1	1	0	25	0.12	1.3	0	25	509	0.7	9	205	22	99.0	12.9	509
	65m 3/16" jacketed wire rope	1	65	0	10.855	0.54	1.2	0	11	484	0.7	37	214	24	98.0	6.4	485
	dual-BACS release + trawl chain	1	2.5	0	80	0.42	1.3	0	80	473	0.7	31	250	28	33.0	6.1	474
	3/8" chain 5m	1	5	0	23.75	0.12	1.3	0	24	393	0.7	9	281	36	30.5	5.1	393
	20m 3/4" nylon	1	20	0	0	0.40	1.2	0	0	369	0.7	45	290	38	25.5	0.3	372
	3/8" chain 5m	1	5	0	23.75	0.12	1.3	0	24	369	0.7	9	335	42	5.5	0.0	369
D-0	anchor- 2000 lb cast iron	1	0.5	0	1750	0.50	1.2	0	1750	345	0.7	0	344	0	0.5	0.0	345
										-1405	0.7		344				
	SUMS					5.85		847	2252	-1405	0.7	344	?? ==>	anchor won't drag	1	wire won't part, T<2000	755
	backup if it lost the top balls?							224	398	1				has backup buoyancy:	1		266 is >0 ??

Randy Watts:
Check that sum(B-W) is
at least 2x sum(D)

Randy Watts:
2000 lb working strength
of 3/16"WR
vs T

**WHOI
TO DO:**

is.GT.

MIN(B-
W) >0
??

S. Worrilow	provide & prep 2 BACS-releases (WHOI-owned)	yes		
	provide & prep 0 VACM; including process the data file into best basic cleaned time series.	no	\$0	
	provide 2 RCM11s; AA will prep iRCMs & process data	yes	\$0	
	provide & prep 1 Aquadopp; at recov download data	YES		
Scott tot			\$8,859	
	provide & prep 2 VMCM, including process the data file into best basic cleaned time series.		\$3,800	email quote
R. Weller Weller tot			\$7,600	
R. Trask	provide 3/16" jacketed wire-rope shots			2 X 70m 1 spare 7 X 5m 2 spare 2X 2000 lb 1 spare
	loan extra anchor			
	mount WHOI glass balls in SUBS			6 X 2 balls in SUBS
	provide mooring hardware, (shackel/pearlink/shackel), chain			
Trask TOT			\$13,084	
WHOI tot			\$29,543	
Aanderaa TO DO	prep 2 RCM11s from WHOI, 1 tilt=N, 1 tilt=Y; process data into best basic cleaned time series	gratis	\$0	telecon
	prep 2 SeaGuards from AA, 1 tilt=N, 1 tilt=Y; process data into best basic cleaned time series	gratis	\$0	telecon
URI TO DO:	prep 1 Radio/Flasher ball		\$180	
	assemble onto a top-float = strong-back plus 3 glass balls, new zincs &hdwr		\$180	
	logistics/ shipping to PA		\$175	
	purchase 6 SUB housings	5	\$12,250	
	analyze & writeup results	2450	\$6,000	
URI TOT			\$18,785	
TOTAL			\$48,328	