OPENCHANNELFLOW

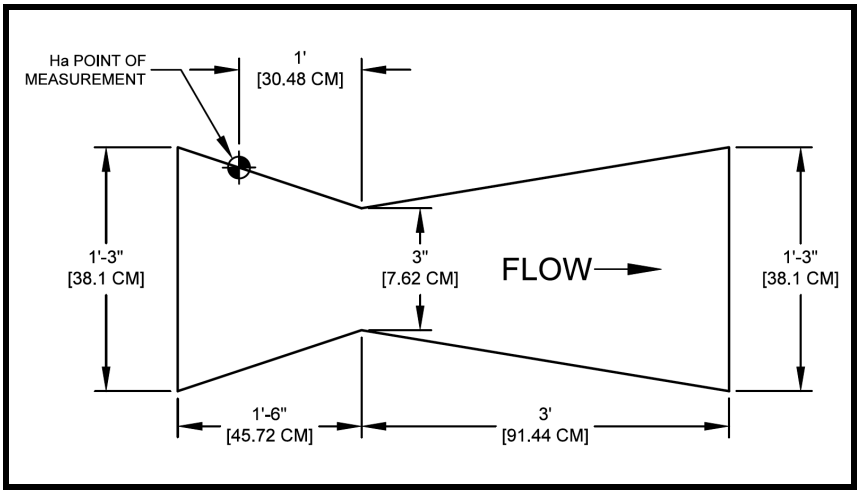
54-Inch L x 3-Inch W Cutthroat Flume Discharge Table

70% Submergence Transition ±3% Accuracy

Formulas (H in feet): CFS = 0.96 $H_{ft.}^{1.72}$ GPM = 430.8 $H_{ft.}^{1.72}$ MGD = 0.6204 $H_{ft.}^{1.72}$

Formulas (H in meters): L/S = 209.7 $H_{m}^{1.72}$ M3/HR = 755.0 $H_{m}^{1.72}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.01	0.12	0.0030	Excessive error due to fluid-flow properties and boundary conditions				
0.02	0.24	0.0061					
0.03	0.36	0.0091					
0.04	0.48	0.0122					
0.05	0.60	0.0152					
0.06	0.72	0.0183					
0.07	0.84	0.0213					
0.08	0.96	0.0244					
0.09	1.08	0.0274					
0.10	1.20	0.0305	0.0183	8.210	0.0118	0.5180	1.864
0.11	1.32	0.0335	0.0216	9.672	0.0139	0.6103	2.196
0.12	1.44	0.0366	0.0250	11.23	0.0162	0.7089	2.551
0.13	1.56	0.0396	0.0287	12.89	0.0186	0.8135	2.927
0.14	1.68	0.0427	0.0326	14.64	0.0211	0.9241	3.325
0.15	1.80	0.0457	0.0367	16.49	0.0237	1.040	3.744
0.16	1.92	0.0488	0.0411	18.43	0.0265	1.163	4.183
0.17	2.04	0.0518	0.0456	20.45	0.0294	1.290	4.643
0.18	2.16	0.0549	0.0503	22.56	0.0325	1.424	5.123
0.19	2.28	0.0579	0.0552	24.76	0.0357	1.563	5.622
0.20	2.40	0.0610	0.0603	27.05	0.0389	1.707	6.141
0.21	2.52	0.0640	0.0655	29.41	0.0424	1.856	6.678
0.22	2.64	0.0671	0.0710	31.86	0.0459	2.011	7.235
0.23	2.76	0.0701	0.0766	34.40	0.0495	2.170	7.809
0.24	2.88	0.0732	0.0825	37.01	0.0533	2.335	8.403
0.25	3.00	0.0762	0.0885	39.70	0.0572	2.505	9.014
0.26	3.12	0.0792	0.0946	42.47	0.0612	2.680	9.643
0.27	3.24	0.0823	0.1010	45.32	0.0653	2.860	10.29
0.28	3.36	0.0853	0.1075	48.24	0.0695	3.044	10.95
0.29	3.48	0.0884	0.1142	51.24	0.0738	3.234	11.64
0.30	3.60	0.0914	0.1210	54.32	0.0782	3.428	12.33



Note: Discharge is calculated to top of flume

Sources: Cutthroat Flume Discharge Relations, Water Management Technical Paper No. 16, Colorado State University, AER71-72RSB6, March 1972

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Formulas (H in meters): L/S = 209.7 $H_{m}^{1.72}$ M3/HR = 755.0 $H_{m}^{1.72}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	0.1281	57.47	0.0828	3.627	13.05
0.32	3.84	0.0975	0.1352	60.70	0.0874	3.830	13.78
0.33	3.96	0.1006	0.1426	64.00	0.0922	4.038	14.53
0.34	4.08	0.1036	0.1501	67.37	0.0970	4.251	15.30
0.35	4.20	0.1067	0.1578	70.81	0.1020	4.468	16.08
0.36	4.32	0.1097	0.1656	74.33	0.1070	4.690	16.88
0.37	4.44	0.1128	0.1736	77.92	0.1122	4.917	17.69
0.38	4.56	0.1158	0.1818	81.57	0.1175	5.147	18.52
0.39	4.68	0.1189	0.1901	85.30	0.1228	5.383	19.37
0.40	4.80	0.1219	0.1985	89.10	0.1283	5.622	20.23
0.41	4.92	0.1250	0.2071	92.96	0.1339	5.866	21.11
0.42	5.04	0.1280	0.2159	96.90	0.1395	6.114	22.00
0.43	5.16	0.1311	0.2248	100.9	0.1453	6.367	22.91
0.44	5.28	0.1341	0.2339	105.0	0.1512	6.624	23.83
0.45	5.40	0.1372	0.2431	109.1	0.1571	6.885	24.77
0.46	5.52	0.1402	0.2525	113.3	0.1632	7.150	25.73
0.47	5.64	0.1433	0.2620	117.6	0.1693	7.419	26.70
0.48	5.76	0.1463	0.2716	121.9	0.1756	7.693	27.68
0.49	5.88	0.1494	0.2815	126.3	0.1819	7.971	28.68
0.50	6.00	0.1524	0.2914	130.8	0.1883	8.253	29.69
0.51	6.12	0.1554	0.3015	135.3	0.1949	8.539	30.72
0.52	6.24	0.1585	0.3117	139.9	0.2015	8.829	31.77
0.53	6.36	0.1615	0.3221	144.6	0.2082	9.123	32.82
0.54	6.48	0.1646	0.3327	149.3	0.2150	9.421	33.90
0.55	6.60	0.1676	0.3433	154.1	0.2219	9.723	34.98
0.56	6.72	0.1707	0.3541	158.9	0.2289	10.03	36.09
0.57	6.84	0.1737	0.3651	163.8	0.2359	10.34	37.20
0.58	6.96	0.1768	0.3762	168.8	0.2431	10.65	38.33
0.59	7.08	0.1798	0.3874	173.9	0.2504	10.97	39.47
0.60	7.20	0.1829	0.3987	179.0	0.2577	11.29	40.63
0.61	7.32	0.1859	0.4102	184.1	0.2651	11.62	41.80
0.62	7.44	0.1890	0.4219	189.3	0.2727	11.95	42.99
0.63	7.56	0.1920	0.4336	194.6	0.2803	12.28	44.19
0.64	7.68	0.1951	0.4456	200.0	0.2880	12.62	45.40
0.65	7.80	0.1981	0.4576	205.4	0.2957	12.96	46.63
0.66	7.92	0.2012	0.4698	210.8	0.3036	13.30	47.87
0.67	8.04	0.2042	0.4821	216.4	0.3116	13.65	49.12
0.68	8.16	0.2073	0.4945	221.9	0.3196	14.00	50.39
0.69	8.28	0.2103	0.5071	227.6	0.3277	14.36	51.67
0.70	8.40	0.2134	0.5198	233.3	0.3359	14.72	52.97
0.71	8.52	0.2164	0.5326	239.0	0.3442	15.08	54.28
0.72	8.64	0.2195	0.5456	244.9	0.3526	15.45	55.60
0.73	8.76	0.2225	0.5587	250.7	0.3611	15.82	56.93
0.74	8.88	0.2256	0.5719	256.7	0.3696	16.20	58.28
0.75	9.00	0.2286	0.5853	262.7	0.3783	16.58	59.64
0.76	9.12	0.2316	0.5988	268.7	0.3870	16.96	61.02
0.77	9.24	0.2347	0.6124	274.8	0.3958	17.34	62.40
0.78	9.36	0.2377	0.6261	281.0	0.4047	17.73	63.80
0.79	9.48	0.2408	0.6400	287.2	0.4136	18.13	65.22
0.80	9.60	0.2438	0.6540	293.5	0.4227	18.52	66.64

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Formulas (H in meters): L/S = 209.7 $H_{m}^{1.72}$ M3/HR = 755.0 $H_{m}^{1.72}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	0.6681	299.9	0.4318	18.92	68.08
0.82	9.84	0.2499	0.6824	306.3	0.4410	19.33	69.54
0.83	9.96	0.2530	0.6968	312.7	0.4503	19.73	71.00
0.84	10.08	0.2560	0.7113	319.2	0.4597	20.14	72.48
0.85	10.20	0.2591	0.7259	325.8	0.4691	20.56	73.97
0.86	10.32	0.2621	0.7406	332.4	0.4787	20.97	75.47
0.87	10.44	0.2652	0.7555	339.1	0.4883	21.40	76.99
0.88	10.56	0.2682	0.7705	345.8	0.4980	21.82	78.52
0.89	10.68	0.2713	0.7856	352.6	0.5078	22.25	80.06
0.90	10.80	0.2743	0.8009	359.4	0.5176	22.68	81.61
0.91	10.92	0.2774	0.8162	366.3	0.5275	23.12	83.18
0.92	11.04	0.2804	0.8317	373.3	0.5376	23.55	84.75
0.93	11.16	0.2835	0.8473	380.3	0.5476	24.00	86.34
0.94	11.28	0.2865	0.8631	387.4	0.5578	24.44	87.95
0.95	11.40	0.2896	0.8789	394.5	0.5681	24.89	89.56
0.96	11.52	0.2926	0.8949	401.6	0.5784	25.34	91.19
0.97	11.64	0.2957	0.9110	408.9	0.5888	25.80	92.83
0.98	11.76	0.2987	0.9272	416.1	0.5993	26.26	94.48
0.99	11.88	0.3018	0.9435	423.5	0.6098	26.72	96.15
1.00	12.00	0.3048	0.9600	430.8	0.6204	27.19	97.82
1.01	12.12	0.3078	0.9766	438.3	0.6312	27.66	99.51
1.02	12.24	0.3109	0.9933	445.8	0.6419	28.13	101.2
1.03	12.36	0.3139	1.010	453.3	0.6528	28.61	102.9
1.04	12.48	0.3170	1.027	460.9	0.6637	29.08	104.7
1.05	12.60	0.3200	1.044	468.6	0.6748	29.57	106.4
1.06	12.72	0.3231	1.061	476.3	0.6859	30.05	108.1
1.07	12.84	0.3261	1.078	484.0	0.6970	30.54	109.9
1.08	12.96	0.3292	1.096	491.8	0.7083	31.04	111.7
1.09	13.08	0.3322	1.113	499.7	0.7196	31.53	113.5
1.10	13.20	0.3353	1.131	507.6	0.7310	32.03	115.2
1.11	13.32	0.3383	1.149	515.6	0.7424	32.53	117.1
1.12	13.44	0.3414	1.167	523.6	0.7540	33.04	118.9
1.13	13.56	0.3444	1.185	531.6	0.7656	33.55	120.7
1.14	13.68	0.3475	1.203	539.8	0.7773	34.06	122.6
1.15	13.80	0.3505	1.221	547.9	0.7891	34.58	124.4
1.16	13.92	0.3536	1.239	556.1	0.8009	35.09	126.3
1.17	14.04	0.3566	1.258	564.4	0.8128	35.62	128.2
1.18	14.16	0.3597	1.276	572.7	0.8248	36.14	130.0
1.19	14.28	0.3627	1.295	581.1	0.8368	36.67	131.9
1.20	14.40	0.3658	1.314	589.5	0.8490	37.20	133.9
1.21	14.52	0.3688	1.332	598.0	0.8612	37.74	135.8
1.22	14.64	0.3719	1.351	606.5	0.8735	38.27	137.7
1.23	14.76	0.3749	1.371	615.1	0.8858	38.82	139.7
1.24	14.88	0.3780	1.390	623.7	0.8982	39.36	141.6
1.25	15.00	0.3810	1.409	632.4	0.9107	39.91	143.6
1.26	15.12	0.3840	1.429	641.2	0.9233	40.46	145.6
1.27	15.24	0.3871	1.448	649.9	0.9359	41.01	147.6
1.28	15.36	0.3901	1.468	658.8	0.9487	41.57	149.6
1.29	15.48	0.3932	1.488	667.6	0.9614	42.13	151.6
1.30	15.60	0.3962	1.507	676.6	0.9743	42.69	153.6

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.31	15.72	0.3993	1.527	685.5	0.9872	43.26	155.7
1.32	15.84	0.4023	1.548	694.6	1.000	43.83	157.7
1.33	15.96	0.4054	1.568	703.6	1.013	44.40	159.8
1.34	16.08	0.4084	1.588	712.8	1.026	44.98	161.8
1.35	16.20	0.4115	1.609	721.9	1.040	45.56	163.9
1.36	16.32	0.4145	1.629	731.2	1.053	46.14	166.0
1.37	16.44	0.4176	1.650	740.4	1.066	46.72	168.1
1.38	16.56	0.4206	1.671	749.7	1.080	47.31	170.2
1.39	16.68	0.4237	1.691	759.1	1.093	47.90	172.4
1.40	16.80	0.4267	1.712	768.5	1.107	48.50	174.5
1.41	16.92	0.4298	1.734	778.0	1.120	49.09	176.6
1.42	17.04	0.4328	1.755	787.5	1.134	49.69	178.8
1.43	17.16	0.4359	1.776	797.1	1.148	50.30	181.0
1.44	17.28	0.4389	1.797	806.7	1.162	50.90	183.2
1.45	17.40	0.4420	1.819	816.4	1.176	51.51	185.4
1.46	17.52	0.4450	1.841	826.1	1.190	52.13	187.6
1.47	17.64	0.4481	1.862	835.8	1.204	52.74	189.8
1.48	17.76	0.4511	1.884	845.6	1.218	53.36	192.0
1.49	17.88	0.4542	1.906	855.5	1.232	53.98	194.2
1.50	18.00	0.4572	1.928	865.4	1.246	54.61	196.5

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