OPENCHANNELFLOW

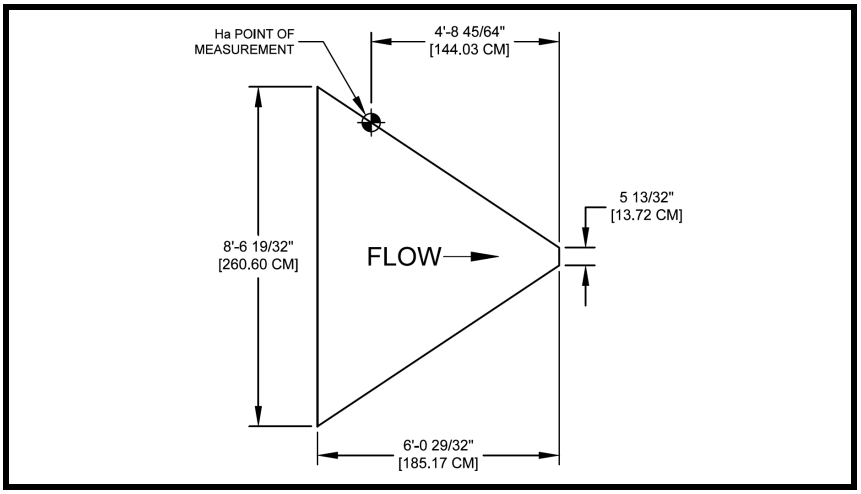
4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

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	0.0031	1.391	0.0020	0.0878	0.3159
0.03	0.36	0.0091	0.0066	2.962	0.0043	0.1869	0.6725
0.04	0.48	0.0122	0.0106	4.757	0.0069	0.3002	1.080
0.05	0.60	0.0152	0.0154	6.912	0.0100	0.4361	1.569
0.06	0.72	0.0183	0.0208	9.335	0.0134	0.5891	2.120
0.07	0.84	0.0213	0.0269	12.07	0.0174	0.7618	2.741
0.08	0.96	0.0244	0.0337	15.12	0.0218	0.9544	3.434
0.09	1.08	0.0274	0.0413	18.54	0.0267	1.170	4.208
0.10	1.20	0.0305	0.0496	22.26	0.0321	1.405	5.054
0.11	1.32	0.0335	0.0578	25.94	0.0374	1.637	5.890
0.12	1.44	0.0366	0.0666	29.89	0.0430	1.886	6.787
0.13	1.56	0.0396	0.0758	34.02	0.0490	2.147	7.724
0.14	1.68	0.0427	0.0855	38.37	0.0553	2.421	8.712
0.15	1.80	0.0457	0.0959	43.04	0.0620	2.716	9.772
0.16	1.92	0.0488	0.1067	47.89	0.0690	3.022	10.87
0.17	2.04	0.0518	0.1180	52.96	0.0763	3.342	12.02
0.18	2.16	0.0549	0.1298	58.25	0.0839	3.676	13.23
0.19	2.28	0.0579	0.1420	63.73	0.0918	4.021	14.47
0.20	2.40	0.0610	0.1550	69.56	0.1002	4.390	15.79
0.21	2.52	0.0640	0.1680	75.40	0.1086	4.758	17.12
0.22	2.64	0.0671	0.1820	81.68	0.1176	5.154	18.55
0.23	2.76	0.0701	0.1960	87.96	0.1267	5.551	19.97
0.24	2.88	0.0732	0.2110	94.70	0.1364	5.976	21.50
0.25	3.00	0.0762	0.2260	101.4	0.1461	6.400	23.03
0.26	3.12	0.0792	0.2420	108.6	0.1564	6.853	24.66
0.27	3.24	0.0823	0.2590	116.2	0.1674	7.335	26.39
0.28	3.36	0.0853	0.2760	123.9	0.1784	7.816	28.12
0.29	3.48	0.0884	0.2930	131.5	0.1894	8.298	29.86
0.30	3.60	0.0914	0.3110	139.6	0.2010	8.808	31.69



Curve fitted equation accurate to within 1.5%

Notes: Discharge is calculated to top of flume

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972

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4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	0.330	148.1	0.2133	9.346	33.63
0.32	3.84	0.0975	0.349	156.6	0.2256	9.884	35.56
0.33	3.96	0.1006	0.368	165.2	0.2378	10.42	37.50
0.34	4.08	0.1036	0.388	174.1	0.2508	10.99	39.54
0.35	4.20	0.1067	0.409	183.6	0.2643	11.58	41.68
0.36	4.32	0.1097	0.430	193.0	0.2779	12.18	43.82
0.37	4.44	0.1128	0.452	202.9	0.2921	12.80	46.06
0.38	4.56	0.1158	0.474	212.7	0.3063	13.42	48.30
0.39	4.68	0.1189	0.497	223.1	0.3212	14.08	50.64
0.40	4.80	0.1219	0.520	233.4	0.3361	14.73	52.99
0.41	4.92	0.1250	0.544	244.1	0.3516	15.41	55.43
0.42	5.04	0.1280	0.569	255.4	0.3677	16.11	57.98
0.43	5.16	0.1311	0.594	266.6	0.3839	16.82	60.53
0.44	5.28	0.1341	0.620	278.3	0.4007	17.56	63.18
0.45	5.40	0.1372	0.646	289.9	0.4175	18.29	65.83
0.46	5.52	0.1402	0.673	302.0	0.4350	19.06	68.58
0.47	5.64	0.1433	0.700	314.2	0.4524	19.82	71.33
0.48	5.76	0.1463	0.728	326.7	0.4705	20.62	74.18
0.49	5.88	0.1494	0.756	339.3	0.4886	21.41	77.04
0.50	6.00	0.1524	0.785	352.3	0.5073	22.23	79.99
0.51	6.12	0.1554	0.815	365.8	0.5267	23.08	83.05
0.52	6.24	0.1585	0.845	379.2	0.5461	23.93	86.11
0.53	6.36	0.1615	0.876	393.1	0.5662	24.81	89.26
0.54	6.48	0.1646	0.907	407.1	0.5862	25.69	92.42
0.55	6.60	0.1676	0.939	421.4	0.6069	26.59	95.68
0.56	6.72	0.1707	0.972	436.2	0.6282	27.53	99.05
0.57	6.84	0.1737	1.005	451.0	0.6495	28.46	102.4
0.58	6.96	0.1768	1.039	466.3	0.6715	29.42	105.9
0.59	7.08	0.1798	1.073	481.6	0.6935	30.39	109.3
0.60	7.20	0.1829	1.110	498.2	0.7174	31.44	113.1
0.61	7.32	0.1859	1.140	511.6	0.7368	32.28	116.2
0.62	7.44	0.1890	1.180	529.6	0.7626	33.42	120.2
0.63	7.56	0.1920	1.120	502.7	0.7239	31.72	114.1
0.64	7.68	0.1951	1.250	561.0	0.8079	35.40	127.4
0.65	7.80	0.1981	1.290	579.0	0.8337	36.53	131.5
0.66	7.92	0.2012	1.330	596.9	0.8596	37.67	135.5
0.67	8.04	0.2042	1.380	619.3	0.8919	39.08	140.6
0.68	8.16	0.2073	1.410	632.8	0.9113	39.93	143.7
0.69	8.28	0.2103	1.450	650.8	0.9371	41.06	147.8
0.70	8.40	0.2134	1.490	668.7	0.9630	42.20	151.8
0.71	8.52	0.2164	1.530	686.7	0.9888	43.33	155.9
0.72	8.64	0.2195	1.580	709.1	1.021	44.75	161.0
0.73	8.76	0.2225	1.620	727.1	1.047	45.88	165.1
0.74	8.88	0.2256	1.660	745.0	1.073	47.01	169.2
0.75	9.00	0.2286	1.710	767.4	1.105	48.43	174.2
0.76	9.12	0.2316	1.750	785.4	1.131	49.56	178.3
0.77	9.24	0.2347	1.800	807.8	1.163	50.98	183.4
0.78	9.36	0.2377	1.840	825.8	1.189	52.11	187.5
0.79	9.48	0.2408	1.890	848.2	1.222	53.52	192.6
0.80	9.60	0.2438	1.940	870.7	1.254	54.94	197.7

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Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	1.990	893.1	1.286	56.36	202.8
0.82	9.84	0.2499	2.040	915.6	1.318	57.77	207.9
0.83	9.96	0.2530	2.090	938.0	1.351	59.19	213.0
0.84	10.08	0.2560	2.140	960.4	1.383	60.60	218.1
0.85	10.20	0.2591	2.190	982.9	1.415	62.02	223.2
0.86	10.32	0.2621	2.240	1005	1.448	63.44	228.3
0.87	10.44	0.2652	2.290	1028	1.480	64.85	233.4
0.88	10.56	0.2682	2.350	1055	1.519	66.55	239.5
0.89	10.68	0.2713	2.400	1077	1.551	67.97	244.6
0.90	10.80	0.2743	2.450	1100	1.583	69.38	249.7
0.91	10.92	0.2774	2.510	1126	1.622	71.08	255.8
0.92	11.04	0.2804	2.560	1149	1.655	72.50	260.9
0.93	11.16	0.2835	2.620	1176	1.693	74.20	267.0
0.94	11.28	0.2865	2.680	1203	1.732	75.90	273.1
0.95	11.40	0.2896	2.740	1230	1.771	77.60	279.2
0.96	11.52	0.2926	2.790	1252	1.803	79.01	284.3
0.97	11.64	0.2957	2.850	1279	1.842	80.71	290.4
0.98	11.76	0.2987	2.910	1306	1.881	82.41	296.5
0.99	11.88	0.3018	2.980	1337	1.926	84.39	303.7
1.00	12.00	0.3048	3.040	1364	1.965	86.09	309.8
1.01	12.12	0.3078	3.100	1391	2.004	87.79	315.9
1.02	12.24	0.3109	3.160	1418	2.042	89.49	322.0
1.03	12.36	0.3139	3.220	1445	2.081	91.19	328.1
1.04	12.48	0.3170	3.290	1477	2.126	93.17	335.3
1.05	12.60	0.3200	3.350	1503	2.165	94.87	341.4
1.06	12.72	0.3231	3.420	1535	2.210	96.85	348.5
1.07	12.84	0.3261	3.490	1566	2.256	98.84	355.6
1.08	12.96	0.3292	3.550	1593	2.294	100.5	361.7
1.09	13.08	0.3322	3.620	1625	2.340	102.5	368.9
1.10	13.20	0.3353	3.690	1656	2.385	104.5	376.0
1.11	13.32	0.3383	3.760	1687	2.430	106.5	383.1
1.12	13.44	0.3414	3.830	1719	2.475	108.5	390.3
1.13	13.56	0.3444	3.900	1750	2.521	110.4	397.4
1.14	13.68	0.3475	3.970	1782	2.566	112.4	404.5
1.15	13.80	0.3505	4.040	1813	2.611	114.4	411.7
1.16	13.92	0.3536	4.120	1849	2.663	116.7	419.8
1.17	14.04	0.3566	4.190	1880	2.708	118.7	427.0
1.18	14.16	0.3597	4.270	1916	2.760	120.9	435.1
1.19	14.28	0.3627	4.340	1948	2.805	122.9	442.2
1.20	14.40	0.3658	4.420	1984	2.857	125.2	450.4
1.21	14.52	0.3688	4.500	2020	2.908	127.4	458.6
1.22	14.64	0.3719	4.580	2056	2.960	129.7	466.7
1.23	14.76	0.3749	4.650	2087	3.005	131.7	473.8
1.24	14.88	0.3780	4.730	2123	3.057	134.0	482.0
1.25	15.00	0.3810	4.810	2159	3.109	136.2	490.1
1.26	15.12	0.3840	4.890	2195	3.160	138.5	498.3
1.27	15.24	0.3871	4.980	2235	3.219	141.0	507.5
1.28	15.36	0.3901	5.060	2271	3.270	143.3	515.6
1.29	15.48	0.3932	5.140	2307	3.322	145.6	523.8
1.30	15.60	0.3962	5.220	2343	3.374	147.8	531.9

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.31	15.72	0.3993	5.310	2383	3.432	150.4	541.1
1.32	15.84	0.4023	5.390	2419	3.484	152.6	549.2
1.33	15.96	0.4054	5.480	2459	3.542	155.2	558.4
1.34	16.08	0.4084	5.570	2500	3.600	157.7	567.6
1.35	16.20	0.4115	5.660	2540	3.658	160.3	576.8
1.36	16.32	0.4145	5.740	2576	3.710	162.6	584.9
1.37	16.44	0.4176	5.830	2617	3.768	165.1	594.1
1.38	16.56	0.4206	5.920	2657	3.826	167.7	603.2
1.39	16.68	0.4237	6.020	2702	3.891	170.5	613.4
1.40	16.80	0.4267	6.110	2742	3.949	173.0	622.6
1.41	16.92	0.4298	6.200	2783	4.007	175.6	631.8
1.42	17.04	0.4328	6.290	2823	4.065	178.1	641.0
1.43	17.16	0.4359	6.390	2868	4.130	181.0	651.1
1.44	17.28	0.4389	6.480	2908	4.188	183.5	660.3
1.45	17.40	0.4420	6.580	2953	4.253	186.3	670.5
1.46	17.52	0.4450	6.680	2998	4.317	189.2	680.7
1.47	17.64	0.4481	6.770	3038	4.375	191.7	689.9
1.48	17.76	0.4511	6.870	3083	4.440	194.6	700.1
1.49	17.88	0.4542	6.970	3128	4.505	197.4	710.2
1.50	18.00	0.4572	7.070	3173	4.569	200.2	720.4
1.51	18.12	0.4602	7.170	3218	4.634	203.1	730.6
1.52	18.24	0.4633	7.270	3263	4.699	205.9	740.8
1.53	18.36	0.4663	7.370	3308	4.763	208.7	751.0
1.54	18.48	0.4694	7.480	3357	4.834	211.8	762.2
1.55	18.60	0.4724	7.590	3406	4.905	214.9	773.4
1.56	18.72	0.4755	7.690	3451	4.970	217.8	783.6
1.57	18.84	0.4785	7.800	3501	5.041	220.9	794.8
1.58	18.96	0.4816	7.900	3546	5.106	223.7	805.0
1.59	19.08	0.4846	8.010	3595	5.177	226.8	816.2
1.60	19.20	0.4877	8.120	3644	5.248	230.0	827.4
1.61	19.32	0.4907	8.230	3694	5.319	233.1	838.6
1.62	19.44	0.4938	8.340	3743	5.390	236.2	849.8
1.63	19.56	0.4968	8.450	3792	5.461	239.3	861.1
1.64	19.68	0.4999	8.560	3842	5.532	242.4	872.3
1.65	19.80	0.5029	8.680	3896	5.610	245.8	884.5
1.66	19.92	0.5060	8.790	3945	5.681	248.9	895.7
1.67	20.04	0.5090	8.900	3994	5.752	252.0	906.9
1.68	20.16	0.5121	9.020	4048	5.830	255.4	919.1
1.69	20.28	0.5151	9.140	4102	5.907	258.8	931.4
1.70	20.40	0.5182	9.250	4151	5.978	262.0	942.6
1.71	20.52	0.5212	9.370	4205	6.056	265.4	954.8
1.72	20.64	0.5243	9.490	4259	6.133	268.8	967.0
1.73	20.76	0.5273	9.610	4313	6.211	272.2	979.3
1.74	20.88	0.5304	9.730	4367	6.288	275.6	991.5
1.75	21.00	0.5334	9.850	4421	6.366	279.0	1004
1.76	21.12	0.5364	9.980	4479	6.450	282.6	1017
1.77	21.24	0.5395	10.10	4533	6.528	286.0	1029
1.78	21.36	0.5425	10.22	4587	6.605	289.4	1041
1.79	21.48	0.5456	10.35	4645	6.689	293.1	1055
1.80	21.60	0.5486	10.50	4712	6.786	297.4	1070

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.81	21.72	0.5517	10.60	4757	6.851	300.2	1080
1.82	21.84	0.5547	10.70	4802	6.915	303.0	1090
1.83	21.96	0.5578	10.80	4847	6.980	305.9	1101
1.84	22.08	0.5608	11.00	4937	7.109	311.5	1121
1.85	22.20	0.5639	11.10	4982	7.174	314.4	1131
1.86	22.32	0.5669	11.20	5027	7.239	317.2	1141
1.87	22.44	0.5700	11.40	5116	7.368	322.8	1162
1.88	22.56	0.5730	11.50	5161	7.432	325.7	1172
1.89	22.68	0.5761	11.60	5206	7.497	328.5	1182
1.90	22.80	0.5791	11.80	5296	7.626	334.2	1202
1.91	22.92	0.5822	11.90	5341	7.691	337.0	1213
1.92	23.04	0.5852	12.00	5386	7.756	339.8	1223
1.93	23.16	0.5883	12.20	5475	7.885	345.5	1243
1.94	23.28	0.5913	12.30	5520	7.949	348.3	1253
1.95	23.40	0.5944	12.50	5610	8.079	354.0	1274
1.96	23.52	0.5974	12.60	5655	8.143	356.8	1284
1.97	23.64	0.6005	12.80	5745	8.273	362.5	1304
1.98	23.76	0.6035	12.90	5790	8.337	365.3	1315
1.99	23.88	0.6066	13.00	5834	8.402	368.2	1325
2.00	24.00	0.6096	13.20	5924	8.531	373.8	1345
2.01	24.12	0.6126	13.30	5969	8.596	376.7	1355
2.02	24.24	0.6157	13.50	6059	8.725	382.3	1376
2.03	24.36	0.6187	13.60	6104	8.790	385.2	1386
2.04	24.48	0.6218	13.70	6149	8.854	388.0	1396
2.05	24.60	0.6248	13.90	6238	8.984	393.6	1416
2.06	24.72	0.6279	14.10	6328	9.113	399.3	1437
2.07	24.84	0.6309	14.20	6373	9.177	402.1	1447
2.08	24.96	0.6340	14.40	6463	9.307	407.8	1467
2.09	25.08	0.6370	14.50	6508	9.371	410.6	1478
2.10	25.20	0.6401	14.70	6597	9.501	416.3	1498
2.11	25.32	0.6431	14.80	6642	9.565	419.1	1508
2.12	25.44	0.6462	15.00	6732	9.695	424.8	1529
2.13	25.56	0.6492	15.20	6822	9.824	430.5	1549
2.14	25.68	0.6523	15.30	6867	9.888	433.3	1559
2.15	25.80	0.6553	15.50	6956	10.02	439.0	1579
2.16	25.92	0.6584	15.60	7001	10.08	441.8	1590
2.17	26.04	0.6614	15.80	7091	10.21	447.5	1610
2.18	26.16	0.6645	15.90	7136	10.28	450.3	1620
2.19	26.28	0.6675	16.10	7226	10.41	456.0	1641
2.20	26.40	0.6706	16.30	7315	10.53	461.6	1661
2.21	26.52	0.6736	16.40	7360	10.60	464.4	1671
2.22	26.64	0.6767	16.60	7450	10.73	470.1	1692
2.23	26.76	0.6797	16.80	7540	10.86	475.8	1712
2.24	26.88	0.6828	16.90	7585	10.92	478.6	1722
2.25	27.00	0.6858	17.10	7674	11.05	484.3	1742
2.26	27.12	0.6888	17.30	7764	11.18	489.9	1763
2.27	27.24	0.6919	17.40	7809	11.25	492.8	1773
2.28	27.36	0.6949	17.60	7899	11.37	498.4	1793
2.29	27.48	0.6980	17.80	7989	11.50	504.1	1814
2.30	27.60	0.7010	18.00	8078	11.63	509.8	1834

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972

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4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
2.31	27.72	0.7041	18.10	8123	11.70	512.6	1844
2.32	27.84	0.7071	18.30	8213	11.83	518.3	1865
2.33	27.96	0.7102	18.50	8303	11.96	523.9	1885
2.34	28.08	0.7132	18.70	8393	12.09	529.6	1906
2.35	28.20	0.7163	18.80	8437	12.15	532.4	1916
2.36	28.32	0.7193	19.00	8527	12.28	538.1	1936
2.37	28.44	0.7224	19.20	8617	12.41	543.7	1956
2.38	28.56	0.7254	19.40	8707	12.54	549.4	1977
2.39	28.68	0.7285	19.60	8796	12.67	555.1	1997
2.40	28.80	0.7315	19.70	8841	12.73	557.9	2007
2.41	28.92	0.7346	19.90	8931	12.86	563.6	2028
2.42	29.04	0.7376	20.10	9021	12.99	569.2	2048
2.43	29.16	0.7407	20.30	9111	13.12	574.9	2069
2.44	29.28	0.7437	20.50	9200	13.25	580.6	2089
2.45	29.40	0.7468	20.70	9290	13.38	586.2	2109
2.46	29.52	0.7498	20.90	9380	13.51	591.9	2130
2.47	29.64	0.7529	21.00	9425	13.57	594.7	2140
2.48	29.76	0.7559	21.20	9515	13.70	600.4	2160
2.49	29.88	0.7590	21.40	9604	13.83	606.0	2181
2.50	30.00	0.7620	21.60	9694	13.96	611.7	2201
2.51	30.12	0.7650	21.80	9784	14.09	617.4	2221
2.52	30.24	0.7681	22.00	9874	14.22	623.0	2242
2.53	30.36	0.7711	22.20	9963	14.35	628.7	2262
2.54	30.48	0.7742	22.40	10053	14.48	634.4	2283
2.55	30.60	0.7772	22.60	10143	14.61	640.0	2303
2.56	30.72	0.7803	22.80	10233	14.74	645.7	2323
2.57	30.84	0.7833	23.00	10322	14.86	651.4	2344
2.58	30.96	0.7864	23.20	10412	14.99	657.0	2364
2.59	31.08	0.7894	23.40	10502	15.12	662.7	2384
2.60	31.20	0.7925	23.60	10592	15.25	668.4	2405
2.61	31.32	0.7955	23.80	10681	15.38	674.0	2425
2.62	31.44	0.7986	24.00	10771	15.51	679.7	2446
2.63	31.56	0.8016	24.20	10861	15.64	685.3	2466
2.64	31.68	0.8047	24.40	10951	15.77	691.0	2486
2.65	31.80	0.8077	24.60	11040	15.90	696.7	2507
2.66	31.92	0.8108	24.90	11175	16.09	705.2	2537
2.67	32.04	0.8138	25.10	11265	16.22	710.8	2558
2.68	32.16	0.8169	25.30	11355	16.35	716.5	2578
2.69	32.28	0.8199	25.50	11444	16.48	722.2	2598
2.70	32.40	0.8230	25.70	11534	16.61	727.8	2619
2.71	32.52	0.8260	25.90	11624	16.74	733.5	2639
2.72	32.64	0.8291	26.10	11714	16.87	739.2	2660
2.73	32.76	0.8321	26.40	11848	17.06	747.6	2690
2.74	32.88	0.8352	26.60	11938	17.19	753.3	2711
2.75	33.00	0.8382	26.80	12028	17.32	759.0	2731
2.76	33.12	0.8412	27.00	12118	17.45	764.6	2751
2.77	33.24	0.8443	27.20	12207	17.58	770.3	2772
2.78	33.36	0.8473	27.40	12297	17.71	776.0	2792
2.79	33.48	0.8504	27.70	12432	17.90	784.5	2823
2.80	33.60	0.8534	27.90	12522	18.03	790.1	2843

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972

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4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
2.81	33.72	0.8565	28.10	12611	18.16	795.8	2863
2.82	33.84	0.8595	28.40	12746	18.35	804.3	2894
2.83	33.96	0.8626	28.60	12836	18.48	810.0	2914
2.84	34.08	0.8656	28.80	12925	18.61	815.6	2935
2.85	34.20	0.8687	29.00	13015	18.74	821.3	2955
2.86	34.32	0.8717	29.30	13150	18.94	829.8	2986
2.87	34.44	0.8748	29.50	13240	19.07	835.4	3006
2.88	34.56	0.8778	29.70	13329	19.20	841.1	3026
2.89	34.68	0.8809	30.00	13464	19.39	849.6	3057
2.90	34.80	0.8839	30.20	13554	19.52	855.3	3077
2.91	34.92	0.8870	30.40	13644	19.65	860.9	3098
2.92	35.04	0.8900	30.70	13778	19.84	869.4	3128
2.93	35.16	0.8931	30.90	13868	19.97	875.1	3149
2.94	35.28	0.8961	31.20	14003	20.16	883.6	3179
2.95	35.40	0.8992	31.40	14092	20.29	889.2	3200
2.96	35.52	0.9022	31.70	14227	20.49	897.7	3230
2.97	35.64	0.9053	31.90	14317	20.62	903.4	3251
2.98	35.76	0.9083	32.20	14451	20.81	911.9	3281
2.99	35.88	0.9114	32.40	14541	20.94	917.6	3302
3.00	36.00	0.9144	32.70	14676	21.13	926.1	3332
3.01	36.12	0.9174	32.90	14766	21.26	931.7	3353
3.02	36.24	0.9205	33.20	14900	21.46	940.2	3383
3.03	36.36	0.9235	33.40	14990	21.59	945.9	3403
3.04	36.48	0.9266	33.70	15125	21.78	954.4	3434
3.05	36.60	0.9296	33.90	15214	21.91	960.0	3454
3.06	36.72	0.9327	34.20	15349	22.10	968.5	3485
3.07	36.84	0.9357	34.40	15439	22.23	974.2	3505
3.08	36.96	0.9388	34.70	15573	22.43	982.7	3536
3.09	37.08	0.9418	35.00	15708	22.62	991.2	3567
3.10	37.20	0.9449	35.20	15798	22.75	996.9	3587
3.11	37.32	0.9479	35.50	15932	22.94	1005	3617
3.12	37.44	0.9510	35.80	16067	23.14	1014	3648
3.13	37.56	0.9540	36.00	16157	23.27	1020	3668
3.14	37.68	0.9571	36.30	16291	23.46	1028	3699
3.15	37.80	0.9601	36.60	16426	23.65	1037	3730
3.16	37.92	0.9632	36.80	16516	23.78	1042	3750
3.17	38.04	0.9662	37.10	16650	23.98	1051	3780
3.18	38.16	0.9693	37.40	16785	24.17	1059	3811
3.19	38.28	0.9723	37.70	16920	24.37	1068	3842
3.20	38.40	0.9754	37.90	17010	24.49	1073	3862
3.21	38.52	0.9784	38.20	17144	24.69	1082	3893
3.22	38.64	0.9815	38.50	17279	24.88	1090	3923
3.23	38.76	0.9845	38.80	17413	25.08	1099	3954
3.24	38.88	0.9876	39.00	17503	25.21	1104	3974
3.25	39.00	0.9906	39.30	17638	25.40	1113	4005
3.26	39.12	0.9936	39.60	17772	25.59	1121	4035
3.27	39.24	0.9967	39.90	17907	25.79	1130	4066
3.28	39.36	0.9997	40.20	18042	25.98	1138	4096
3.29	39.48	1.0028	40.50	18176	26.18	1147	4127
3.30	39.60	1.0058	40.80	18311	26.37	1155	4158

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972

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4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
3.31	39.72	1.0089	41.2	18491	26.63	1167	4198
3.32	39.84	1.0119	41.3	18535	26.69	1170	4208
3.33	39.96	1.0150	41.6	18670	26.89	1178	4239
3.34	40.08	1.0180	41.9	18805	27.08	1187	4270
3.35	40.20	1.0211	42.2	18939	27.27	1195	4300
3.36	40.32	1.0241	42.5	19074	27.47	1204	4331
3.37	40.44	1.0272	42.8	19209	27.66	1212	4361
3.38	40.56	1.0302	43.1	19343	27.86	1221	4392
3.39	40.68	1.0333	43.4	19478	28.05	1229	4422
3.40	40.80	1.0363	43.7	19613	28.24	1238	4453
3.41	40.92	1.0394	44.0	19747	28.44	1246	4484
3.42	41.04	1.0424	44.3	19882	28.63	1255	4514
3.43	41.16	1.0455	44.6	20016	28.82	1263	4545
3.44	41.28	1.0485	44.9	20151	29.02	1272	4575
3.45	41.40	1.0516	45.2	20286	29.21	1280	4606
3.46	41.52	1.0546	45.5	20420	29.41	1289	4636
3.47	41.64	1.0577	45.8	20555	29.60	1297	4667
3.48	41.76	1.0607	46.1	20690	29.79	1306	4698
3.49	41.88	1.0638	46.4	20824	29.99	1314	4728
3.50	42.00	1.0668	46.8	21004	30.25	1325	4769
3.51	42.12	1.0698	47.1	21138	30.44	1334	4799
3.52	42.24	1.0729	47.4	21273	30.63	1342	4830
3.53	42.36	1.0759	47.7	21408	30.83	1351	4861
3.54	42.48	1.0790	48.0	21542	31.02	1359	4891
3.55	42.60	1.0820	48.3	21677	31.22	1368	4922
3.56	42.72	1.0851	48.6	21812	31.41	1376	4952
3.57	42.84	1.0881	49.0	21991	31.67	1388	4993
3.58	42.96	1.0912	49.3	22126	31.86	1396	5024
3.59	43.08	1.0942	49.6	22260	32.06	1405	5054
3.60	43.20	1.0973	49.9	22395	32.25	1413	5085
3.61	43.32	1.1003	50.3	22575	32.51	1424	5126
3.62	43.44	1.1034	50.6	22709	32.70	1433	5156
3.63	43.56	1.1064	50.9	22844	32.90	1441	5187
3.64	43.68	1.1095	51.2	22979	33.09	1450	5217
3.65	43.80	1.1125	51.6	23158	33.35	1461	5258
3.66	43.92	1.1156	51.9	23293	33.54	1470	5289
3.67	44.04	1.1186	52.2	23427	33.74	1478	5319
3.68	44.16	1.1217	52.6	23607	34.00	1490	5360
3.69	44.28	1.1247	52.9	23742	34.19	1498	5391
3.70	44.40	1.1278	53.2	23876	34.38	1507	5421
3.71	44.52	1.1308	53.6	24056	34.64	1518	5462
3.72	44.64	1.1339	53.9	24190	34.84	1526	5492
3.73	44.76	1.1369	54.3	24370	35.09	1538	5533
3.74	44.88	1.1400	54.6	24504	35.29	1546	5564
3.75	45.00	1.1430	54.9	24639	35.48	1555	5594
3.76	45.12	1.1460	55.3	24819	35.74	1566	5635
3.77	45.24	1.1491	55.6	24953	35.93	1575	5666
3.78	45.36	1.1521	56.0	25133	36.19	1586	5706
3.79	45.48	1.1552	56.3	25267	36.39	1594	5737
3.80	45.60	1.1582	56.7	25447	36.65	1606	5778

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972

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4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
3.81	45.72	1.1613	57.00	25582	36.84	1614	5808
3.82	45.84	1.1643	57.40	25761	37.10	1626	5849
3.83	45.96	1.1674	57.70	25896	37.29	1634	5880
3.84	46.08	1.1704	58.10	26075	37.55	1645	5920
3.85	46.20	1.1735	58.40	26210	37.74	1654	5951
3.86	46.32	1.1765	58.80	26389	38.00	1665	5992
3.87	46.44	1.1796	59.20	26569	38.26	1677	6032
3.88	46.56	1.1826	59.50	26704	38.45	1685	6063
3.89	46.68	1.1857	59.90	26883	38.71	1696	6104
3.90	46.80	1.1887	60.20	27018	38.91	1705	6134
3.91	46.92	1.1918	60.60	27197	39.17	1716	6175
3.92	47.04	1.1948	61.00	27377	39.42	1728	6216
3.93	47.16	1.1979	61.30	27511	39.62	1736	6246
3.94	47.28	1.2009	61.70	27691	39.88	1747	6287
3.95	47.40	1.2040	62.10	27870	40.14	1759	6328
3.96	47.52	1.2070	62.40	28005	40.33	1767	6359
3.97	47.64	1.2101	62.80	28185	40.59	1778	6399
3.98	47.76	1.2131	63.20	28364	40.85	1790	6440
3.99	47.88	1.2162	63.60	28544	41.10	1801	6481
4.00	48.00	1.2192	63.90	28678	41.30	1810	6511
4.01	48.12	1.2222	64.30	28858	41.56	1821	6552
4.02	48.24	1.2253	64.70	29037	41.82	1832	6593
4.03	48.36	1.2283	65.10	29217	42.07	1844	6634
4.04	48.48	1.2314	65.40	29352	42.27	1852	6664
4.05	48.60	1.2344	65.80	29531	42.53	1863	6705
4.06	48.72	1.2375	66.20	29711	42.79	1875	6746
4.07	48.84	1.2405	66.60	29890	43.04	1886	6787
4.08	48.96	1.2436	67.00	30070	43.30	1897	6827
4.09	49.08	1.2466	67.40	30249	43.56	1909	6868
4.10	49.20	1.2497	67.80	30429	43.82	1920	6909
4.11	49.32	1.2527	68.20	30608	44.08	1931	6950
4.12	49.44	1.2558	68.50	30743	44.27	1940	6980
4.13	49.56	1.2588	68.90	30922	44.53	1951	7021
4.14	49.68	1.2619	69.30	31102	44.79	1963	7062
4.15	49.80	1.2649	69.70	31281	45.05	1974	7102
4.16	49.92	1.2680	70.10	31461	45.31	1985	7143
4.17	50.04	1.2710	70.50	31640	45.56	1997	7184
4.18	50.16	1.2741	70.90	31820	45.82	2008	7225
4.19	50.28	1.2771	71.30	31999	46.08	2019	7265
4.20	50.40	1.2802	71.70	32179	46.34	2031	7306
4.21	50.52	1.2832	72.10	32358	46.60	2042	7347
4.22	50.64	1.2863	72.50	32538	46.86	2053	7388
4.23	50.76	1.2893	72.90	32718	47.12	2065	7429
4.24	50.88	1.2924	73.30	32897	47.37	2076	7469
4.25	51.00	1.2954	73.80	33121	47.70	2090	7520
4.26	51.12	1.2984	74.20	33301	47.96	2101	7561
4.27	51.24	1.3015	74.60	33480	48.21	2113	7602
4.28	51.36	1.3045	75.00	33660	48.47	2124	7643
4.29	51.48	1.3076	75.40	33840	48.73	2135	7683
4.30	51.60	1.3106	75.80	34019	48.99	2147	7724

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972

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4.5-Foot H Flume Discharge Table

25-30% Submergence Transition ±2-5% Accuracy

Formulas (H in feet): $CFS = 0.000752 - 0.00261\ H_{ft}^{0.1} + 1.419935\ H_{ft}^{1.5} + 1.615803\ H_{ft}^{2.5}$

Formulas (H in meters): $L/S = 0.021294269 - 0.08323077\ H_{m}^{0.1} + 238.9411273\ H_{m}^{1.5} + 892.0637495\ H_{m}^{2.5}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
4.31	51.72	1.3137	76.20	34199	49.25	2158	7765
4.32	51.84	1.3167	76.60	34378	49.51	2169	7806
4.33	51.96	1.3198	77.10	34602	49.83	2183	7856
4.34	52.08	1.3228	77.50	34782	50.09	2195	7897
4.35	52.20	1.3259	77.90	34962	50.35	2206	7938
4.36	52.32	1.3289	78.30	35141	50.61	2217	7979
4.37	52.44	1.3320	78.80	35365	50.93	2232	8030
4.38	52.56	1.3350	79.20	35545	51.19	2243	8070
4.39	52.68	1.3381	79.60	35724	51.45	2254	8111
4.40	52.80	1.3411	80.00	35904	51.70	2266	8152
4.41	52.92	1.3442	80.50	36128	52.03	2280	8203
4.42	53.04	1.3472	80.90	36308	52.29	2291	8244
4.43	53.16	1.3503	81.30	36487	52.54	2302	8284
4.44	53.28	1.3533	81.80	36712	52.87	2317	8335
4.45	53.40	1.3564	82.20	36891	53.13	2328	8376
4.46	53.52	1.3594	82.60	37071	53.38	2339	8417
4.47	53.64	1.3625	83.10	37295	53.71	2353	8468
4.48	53.76	1.3655	83.50	37475	53.97	2365	8509
4.49	53.88	1.3686	84.00	37699	54.29	2379	8560

Source: Field Manual for Research in Agricultural Hydrology, Agriculture Handbook No. 224, U.S. Department of Agriculture, February 1972