

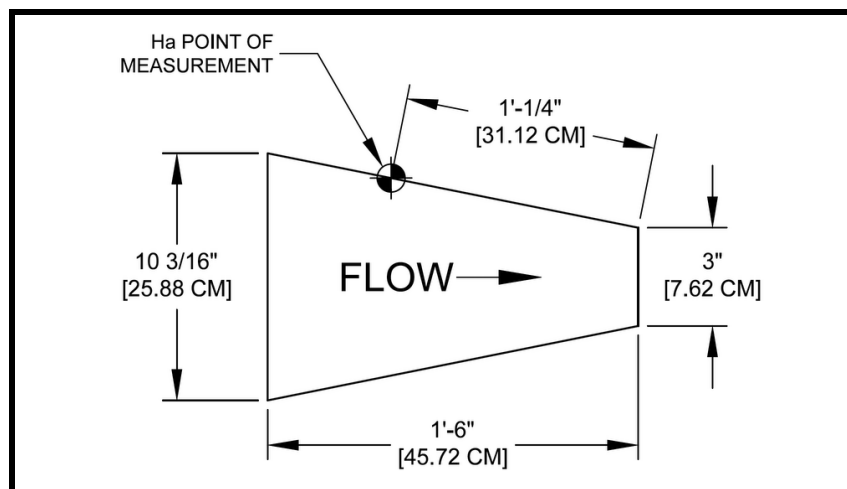


3-Inch Montana Flume Discharge Table

No Submergence ±3-5% Accuracy

Formulas (H in feet): CFS = $0.992 H_{ft}^{1.55}$ GPM = $445.2 H_{ft}^{1.55}$ MGD = $0.6411 H_{ft}^{1.55}$
 Formulas (H in meters): L/S = $176.5 H_m^{1.55}$ M3/HR = $635.5 H_m^{1.55}$

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					
0.10	1.20	0.0305	0.0280	12.55	0.0181	0.7918	2.849
0.11	1.32	0.0335	0.0324	14.55	0.0209	0.9178	3.303
0.12	1.44	0.0366	0.0371	16.65	0.0240	1.050	3.779
0.13	1.56	0.0396	0.0420	18.84	0.0271	1.189	4.279
0.14	1.68	0.0427	0.0471	21.14	0.0304	1.334	4.799
0.15	1.80	0.0457	0.0524	23.52	0.0339	1.484	5.341
0.16	1.92	0.0488	0.0579	26.00	0.0374	1.641	5.903
0.17	2.04	0.0518	0.0636	28.56	0.0411	1.802	6.485
0.18	2.16	0.0549	0.0695	31.21	0.0449	1.969	7.085
0.19	2.28	0.0579	0.0756	33.93	0.0489	2.141	7.705
0.20	2.40	0.0610	0.0819	36.74	0.0529	2.318	8.342
0.21	2.52	0.0640	0.0883	39.63	0.0571	2.501	8.998
0.22	2.64	0.0671	0.0949	42.59	0.0613	2.688	9.670
0.23	2.76	0.0701	0.1017	45.63	0.0657	2.879	10.36
0.24	2.88	0.0732	0.1086	48.74	0.0702	3.076	11.07
0.25	3.00	0.0762	0.1157	51.92	0.0748	3.277	11.79
0.26	3.12	0.0792	0.1229	55.18	0.0795	3.482	12.53
0.27	3.24	0.0823	0.1304	58.50	0.0842	3.692	13.28
0.28	3.36	0.0853	0.1379	61.90	0.0891	3.906	14.05
0.29	3.48	0.0884	0.1456	65.36	0.0941	4.124	14.84
0.30	3.60	0.0914	0.1535	68.88	0.0992	4.347	15.64



Sources: [Water Measurement Manual](#), 3rd Edition, United States Department of the Interior, Bureau of Reclamation
 ASTM D 1941-91 (2007): Standard Test Method for Open Channel Flow Measurement of Water with Parshall Flume



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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	0.1615	72.47	0.1044	4.573	16.45
0.32	3.84	0.0975	0.1696	76.13	0.1096	4.804	17.28
0.33	3.96	0.1006	0.1779	79.85	0.1150	5.039	18.13
0.34	4.08	0.1036	0.1863	83.63	0.1204	5.277	18.99
0.35	4.20	0.1067	0.1949	87.47	0.1260	5.520	19.86
0.36	4.32	0.1097	0.2036	91.38	0.1316	5.766	20.75
0.37	4.44	0.1128	0.2124	95.34	0.1373	6.016	21.65
0.38	4.56	0.1158	0.2214	99.36	0.1431	6.270	22.56
0.39	4.68	0.1189	0.2305	103.4	0.1490	6.528	23.49
0.40	4.80	0.1219	0.2397	107.6	0.1549	6.789	24.43
0.41	4.92	0.1250	0.2491	111.8	0.1610	7.054	25.38
0.42	5.04	0.1280	0.2586	116.0	0.1671	7.322	26.35
0.43	5.16	0.1311	0.2682	120.3	0.1733	7.594	27.33
0.44	5.28	0.1341	0.2779	124.7	0.1796	7.870	28.32
0.45	5.40	0.1372	0.2877	129.1	0.1860	8.149	29.32
0.46	5.52	0.1402	0.2977	133.6	0.1924	8.431	30.34
0.47	5.64	0.1433	0.3078	138.1	0.1989	8.717	31.36
0.48	5.76	0.1463	0.3180	142.7	0.2055	9.006	32.40
0.49	5.88	0.1494	0.3283	147.4	0.2122	9.298	33.46
0.50	6.00	0.1524	0.3388	152.0	0.2190	9.594	34.52
0.51	6.12	0.1554	0.3493	156.8	0.2258	9.893	35.60
0.52	6.24	0.1585	0.3600	161.6	0.2327	10.20	36.69
0.53	6.36	0.1615	0.3708	166.4	0.2396	10.50	37.78
0.54	6.48	0.1646	0.3817	171.3	0.2467	10.81	38.90
0.55	6.60	0.1676	0.3927	176.2	0.2538	11.12	40.02
0.56	6.72	0.1707	0.4038	181.2	0.2610	11.44	41.15
0.57	6.84	0.1737	0.4151	186.3	0.2683	11.75	42.30
0.58	6.96	0.1768	0.4264	191.4	0.2756	12.08	43.45
0.59	7.08	0.1798	0.4379	196.5	0.2830	12.40	44.62
0.60	7.20	0.1829	0.4494	201.7	0.2905	12.73	45.80
0.61	7.32	0.1859	0.4611	206.9	0.2980	13.06	46.98
0.62	7.44	0.1890	0.4728	212.2	0.3056	13.39	48.18
0.63	7.56	0.1920	0.4847	217.5	0.3133	13.73	49.39
0.64	7.68	0.1951	0.4967	222.9	0.3210	14.07	50.61
0.65	7.80	0.1981	0.5088	228.3	0.3288	14.41	51.84
0.66	7.92	0.2012	0.5210	233.8	0.3367	14.75	53.09
0.67	8.04	0.2042	0.5332	239.3	0.3446	15.10	54.34
0.68	8.16	0.2073	0.5456	244.9	0.3526	15.45	55.60
0.69	8.28	0.2103	0.5581	250.5	0.3607	15.81	56.87
0.70	8.40	0.2134	0.5707	256.1	0.3688	16.16	58.16
0.71	8.52	0.2164	0.5834	261.8	0.3770	16.52	59.45
0.72	8.64	0.2195	0.5962	267.6	0.3853	16.88	60.75
0.73	8.76	0.2225	0.6091	273.3	0.3936	17.25	62.06
0.74	8.88	0.2256	0.6220	279.2	0.4020	17.62	63.39
0.75	9.00	0.2286	0.6351	285.0	0.4105	17.99	64.72
0.76	9.12	0.2316	0.6483	291.0	0.4190	18.36	66.06
0.77	9.24	0.2347	0.6616	296.9	0.4276	18.74	67.41
0.78	9.36	0.2377	0.6749	302.9	0.4362	19.11	68.78
0.79	9.48	0.2408	0.6884	308.9	0.4449	19.50	70.15
0.80	9.60	0.2438	0.7019	315.0	0.4537	19.88	71.53

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	0.7156	321.2	0.4625	20.27	72.92
0.82	9.84	0.2499	0.7293	327.3	0.4714	20.65	74.32
0.83	9.96	0.2530	0.7432	333.5	0.4803	21.05	75.73
0.84	10.08	0.2560	0.7571	339.8	0.4893	21.44	77.15
0.85	10.20	0.2591	0.7711	346.1	0.4984	21.84	78.58
0.86	10.32	0.2621	0.7852	352.4	0.5075	22.24	80.01
0.87	10.44	0.2652	0.7994	358.8	0.5167	22.64	81.46
0.88	10.56	0.2682	0.8137	365.2	0.5259	23.04	82.92
0.89	10.68	0.2713	0.8281	371.6	0.5352	23.45	84.38
0.90	10.80	0.2743	0.8425	378.1	0.5445	23.86	85.85
0.91	10.92	0.2774	0.8571	384.7	0.5539	24.27	87.34
0.92	11.04	0.2804	0.8717	391.2	0.5634	24.69	88.83
0.93	11.16	0.2835	0.8865	397.8	0.5729	25.10	90.33
0.94	11.28	0.2865	0.9013	404.5	0.5825	25.52	91.84
0.95	11.40	0.2896	0.9162	411.2	0.5921	25.95	93.36
0.96	11.52	0.2926	0.9312	417.9	0.6018	26.37	94.89
0.97	11.64	0.2957	0.9463	424.7	0.6116	26.80	96.42
0.98	11.76	0.2987	0.9614	431.5	0.6214	27.23	97.97
0.99	11.88	0.3018	0.9767	438.3	0.6312	27.66	99.52
1.00	12.00	0.3048	0.9920	445.2	0.6411	28.09	101.1
1.01	12.12	0.3078	1.007	452.1	0.6511	28.53	102.7
1.02	12.24	0.3109	1.023	459.1	0.6611	28.97	104.2
1.03	12.36	0.3139	1.039	466.1	0.6712	29.41	105.8
1.04	12.48	0.3170	1.054	473.1	0.6813	29.85	107.4
1.05	12.60	0.3200	1.070	480.2	0.6915	30.30	109.0
1.06	12.72	0.3231	1.086	487.3	0.7017	30.75	110.6
1.07	12.84	0.3261	1.102	494.4	0.7120	31.20	112.3
1.08	12.96	0.3292	1.118	501.6	0.7224	31.65	113.9
1.09	13.08	0.3322	1.134	508.8	0.7328	32.11	115.5
1.10	13.20	0.3353	1.150	516.1	0.7432	32.57	117.2
1.11	13.32	0.3383	1.166	523.4	0.7537	33.03	118.8
1.12	13.44	0.3414	1.182	530.7	0.7642	33.49	120.5
1.13	13.56	0.3444	1.199	538.1	0.7748	33.95	122.2
1.14	13.68	0.3475	1.215	545.5	0.7855	34.42	123.8
1.15	13.80	0.3505	1.232	552.9	0.7962	34.89	125.5
1.16	13.92	0.3536	1.249	560.4	0.8070	35.36	127.2
1.17	14.04	0.3566	1.265	567.9	0.8178	35.83	128.9
1.18	14.16	0.3597	1.282	575.4	0.8286	36.31	130.6
1.19	14.28	0.3627	1.299	583.0	0.8395	36.79	132.4
1.20	14.40	0.3658	1.316	590.6	0.8505	37.27	134.1
1.21	14.52	0.3688	1.333	598.2	0.8615	37.75	135.8
1.22	14.64	0.3719	1.350	605.9	0.8726	38.24	137.6
1.23	14.76	0.3749	1.367	613.6	0.8837	38.72	139.3
1.24	14.88	0.3780	1.385	621.4	0.8948	39.21	141.1
1.25	15.00	0.3810	1.402	629.2	0.9061	39.70	142.9
1.26	15.12	0.3840	1.419	637.0	0.9173	40.20	144.6
1.27	15.24	0.3871	1.437	644.9	0.9286	40.69	146.4
1.28	15.36	0.3901	1.454	652.7	0.9400	41.19	148.2
1.29	15.48	0.3932	1.472	660.7	0.9514	41.69	150.0
1.30	15.60	0.3962	1.490	668.6	0.9628	42.19	151.8

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.31	15.72	0.3993	1.508	676.6	0.9744	42.69	153.6
1.32	15.84	0.4023	1.525	684.6	0.9859	43.20	155.4
1.33	15.96	0.4054	1.543	692.7	0.9975	43.71	157.3
1.34	16.08	0.4084	1.561	700.8	1.009	44.22	159.1
1.35	16.20	0.4115	1.580	708.9	1.021	44.73	161.0
1.36	16.32	0.4145	1.598	717.1	1.033	45.25	162.8
1.37	16.44	0.4176	1.616	725.2	1.044	45.76	164.7
1.38	16.56	0.4206	1.634	733.5	1.056	46.28	166.5
1.39	16.68	0.4237	1.653	741.7	1.068	46.80	168.4
1.40	16.80	0.4267	1.671	750.0	1.080	47.33	170.3
1.41	16.92	0.4298	1.690	758.3	1.092	47.85	172.2
1.42	17.04	0.4328	1.708	766.7	1.104	48.38	174.1
1.43	17.16	0.4359	1.727	775.1	1.116	48.91	176.0
1.44	17.28	0.4389	1.746	783.5	1.128	49.44	177.9
1.45	17.40	0.4420	1.765	791.9	1.140	49.97	179.8
1.46	17.52	0.4450	1.783	800.4	1.153	50.51	181.7
1.47	17.64	0.4481	1.802	808.9	1.165	51.04	183.7
1.48	17.76	0.4511	1.821	817.5	1.177	51.58	185.6
1.49	17.88	0.4542	1.841	826.0	1.190	52.12	187.6
1.50	18.00	0.4572	1.860	834.7	1.202	52.67	189.5

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