OPENCHANNELFLOW

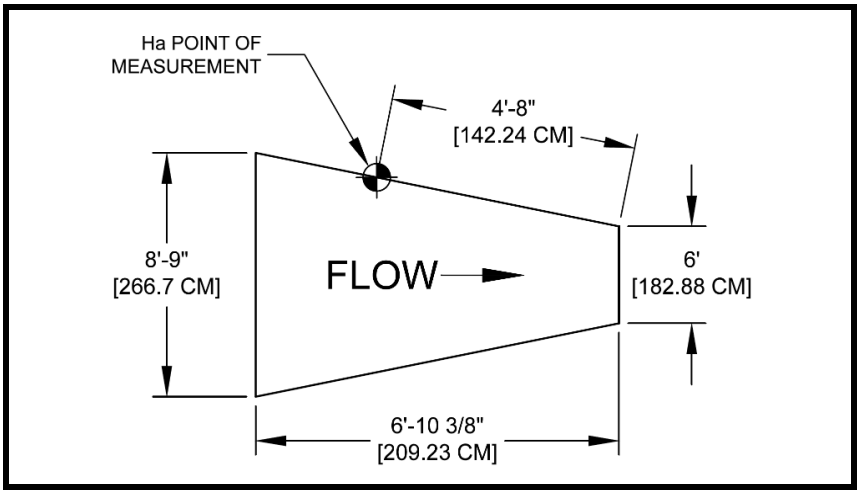
72-Inch Montana Flume Discharge Table

No Submergence ±3-5% Accuracy

Formulas (H in feet): CFS = 24 $H_{ft.}^{1.595}$ GPM = 10771 $H_{ft.}^{1.595}$ MGD = 15.51 $H_{ft.}^{1.595}$

Formulas (H in meters): L/S = 4521 $H_{m}^{1.595}$ M3/HR = 16280 $H_{m}^{1.595}$

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					
0.11	1.32	0.0335					
0.12	1.44	0.0366					
0.13	1.56	0.0396					
0.14	1.68	0.0427					
0.15	1.80	0.0457					
0.16	1.92	0.0488					
0.17	2.04	0.0518					
0.18	2.16	0.0549					
0.19	2.28	0.0579					
0.20	2.40	0.0610					
0.21	2.52	0.0640					
0.22	2.64	0.0671					
0.23	2.76	0.0701					
0.24	2.88	0.0732					
0.25	3.00	0.0762	2.630	1180	1.700	74.48	268.0
0.26	3.12	0.0792	2.800	1256	1.809	79.28	285.3
0.27	3.24	0.0823	2.973	1334	1.922	84.20	303.0
0.28	3.36	0.0853	3.151	1414	2.036	89.23	321.1
0.29	3.48	0.0884	3.332	1496	2.154	94.37	339.6
0.30	3.60	0.0914	3.517	1579	2.273	99.61	358.4



Sources: Water Measurement Manual, 3rd Edition, United States Department of the Interior, Bureau of Reclamation

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.31	3.72	0.0945	3.706	1663	2.395	105.0	377.7
0.32	3.84	0.0975	3.899	1750	2.520	110.4	397.3
0.33	3.96	0.1006	4.095	1838	2.647	116.0	417.3
0.34	4.08	0.1036	4.295	1927	2.776	121.6	437.6
0.35	4.20	0.1067	4.498	2019	2.907	127.4	458.3
0.36	4.32	0.1097	4.705	2111	3.041	133.2	479.4
0.37	4.44	0.1128	4.915	2206	3.176	139.2	500.8
0.38	4.56	0.1158	5.128	2302	3.314	145.2	522.6
0.39	4.68	0.1189	5.345	2399	3.455	151.4	544.7
0.40	4.80	0.1219	5.565	2498	3.597	157.6	567.1
0.41	4.92	0.1250	5.789	2598	3.741	163.9	589.9
0.42	5.04	0.1280	6.016	2700	3.888	170.4	613.0
0.43	5.16	0.1311	6.246	2803	4.037	176.9	636.5
0.44	5.28	0.1341	6.479	2908	4.187	183.5	660.2
0.45	5.40	0.1372	6.716	3014	4.340	190.2	684.3
0.46	5.52	0.1402	6.955	3121	4.495	197.0	708.7
0.47	5.64	0.1433	7.198	3230	4.652	203.8	733.5
0.48	5.76	0.1463	7.444	3341	4.811	210.8	758.5
0.49	5.88	0.1494	7.693	3452	4.972	217.9	783.9
0.50	6.00	0.1524	7.945	3566	5.135	225.0	809.5
0.51	6.12	0.1554	8.199	3680	5.299	232.2	835.5
0.52	6.24	0.1585	8.457	3796	5.466	239.5	861.8
0.53	6.36	0.1615	8.718	3913	5.635	246.9	888.4
0.54	6.48	0.1646	8.982	4031	5.805	254.4	915.3
0.55	6.60	0.1676	9.249	4151	5.978	261.9	942.5
0.56	6.72	0.1707	9.519	4272	6.152	269.6	969.9
0.57	6.84	0.1737	9.791	4394	6.328	277.3	997.7
0.58	6.96	0.1768	10.07	4518	6.506	285.1	1026
0.59	7.08	0.1798	10.34	4643	6.686	293.0	1054
0.60	7.20	0.1829	10.63	4769	6.867	300.9	1083
0.61	7.32	0.1859	10.91	4896	7.051	309.0	1112
0.62	7.44	0.1890	11.20	5025	7.236	317.1	1141
0.63	7.56	0.1920	11.49	5155	7.423	325.3	1170
0.64	7.68	0.1951	11.78	5286	7.612	333.6	1200
0.65	7.80	0.1981	12.07	5418	7.803	341.9	1230
0.66	7.92	0.2012	12.37	5552	7.995	350.3	1261
0.67	8.04	0.2042	12.67	5687	8.189	358.8	1291
0.68	8.16	0.2073	12.97	5823	8.385	367.4	1322
0.69	8.28	0.2103	13.28	5960	8.582	376.1	1353
0.70	8.40	0.2134	13.59	6098	8.782	384.8	1385
0.71	8.52	0.2164	13.90	6238	8.983	393.6	1416
0.72	8.64	0.2195	14.21	6378	9.185	402.5	1448
0.73	8.76	0.2225	14.53	6520	9.390	411.4	1480
0.74	8.88	0.2256	14.85	6663	9.596	420.5	1513
0.75	9.00	0.2286	15.17	6807	9.803	429.6	1546
0.76	9.12	0.2316	15.49	6953	10.01	438.7	1579
0.77	9.24	0.2347	15.82	7099	10.22	448.0	1612
0.78	9.36	0.2377	16.15	7247	10.44	457.3	1645
0.79	9.48	0.2408	16.48	7396	10.65	466.7	1679
0.80	9.60	0.2438	16.81	7546	10.87	476.1	1713

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
0.81	9.72	0.2469	17.15	7697	11.08	485.7	1748
0.82	9.84	0.2499	17.49	7849	11.30	495.3	1782
0.83	9.96	0.2530	17.83	8002	11.52	504.9	1817
0.84	10.08	0.2560	18.17	8156	11.75	514.7	1852
0.85	10.20	0.2591	18.52	8312	11.97	524.5	1887
0.86	10.32	0.2621	18.87	8468	12.19	534.4	1923
0.87	10.44	0.2652	19.22	8626	12.42	544.3	1958
0.88	10.56	0.2682	19.57	8784	12.65	554.3	1995
0.89	10.68	0.2713	19.93	8944	12.88	564.4	2031
0.90	10.80	0.2743	20.29	9105	13.11	574.5	2067
0.91	10.92	0.2774	20.65	9267	13.34	584.8	2104
0.92	11.04	0.2804	21.01	9430	13.58	595.0	2141
0.93	11.16	0.2835	21.38	9594	13.82	605.4	2178
0.94	11.28	0.2865	21.74	9759	14.05	615.8	2216
0.95	11.40	0.2896	22.11	9925	14.29	626.3	2253
0.96	11.52	0.2926	22.49	10092	14.53	636.8	2291
0.97	11.64	0.2957	22.86	10260	14.78	647.4	2330
0.98	11.76	0.2987	23.24	10430	15.02	658.1	2368
0.99	11.88	0.3018	23.62	10600	15.26	668.9	2407
1.00	12.00	0.3048	24.00	10771	15.51	679.7	2446
1.01	12.12	0.3078	24.38	10944	15.76	690.6	2485
1.02	12.24	0.3109	24.77	11117	16.01	701.5	2524
1.03	12.36	0.3139	25.16	11291	16.26	712.5	2564
1.04	12.48	0.3170	25.55	11467	16.51	723.6	2603
1.05	12.60	0.3200	25.94	11643	16.77	734.7	2644
1.06	12.72	0.3231	26.34	11820	17.02	745.9	2684
1.07	12.84	0.3261	26.73	11999	17.28	757.1	2724
1.08	12.96	0.3292	27.13	12178	17.54	768.4	2765
1.09	13.08	0.3322	27.54	12358	17.80	779.8	2806
1.10	13.20	0.3353	27.94	12540	18.06	791.3	2847
1.11	13.32	0.3383	28.35	12722	18.32	802.8	2889
1.12	13.44	0.3414	28.76	12905	18.58	814.3	2930
1.13	13.56	0.3444	29.17	13090	18.85	826.0	2972
1.14	13.68	0.3475	29.58	13275	19.12	837.7	3014
1.15	13.80	0.3505	29.99	13461	19.38	849.4	3056
1.16	13.92	0.3536	30.41	13648	19.65	861.2	3099
1.17	14.04	0.3566	30.83	13836	19.93	873.1	3142
1.18	14.16	0.3597	31.25	14025	20.20	885.0	3184
1.19	14.28	0.3627	31.67	14215	20.47	897.0	3228
1.20	14.40	0.3658	32.10	14406	20.75	909.1	3271
1.21	14.52	0.3688	32.53	14598	21.02	921.2	3315
1.22	14.64	0.3719	32.96	14791	21.30	933.4	3358
1.23	14.76	0.3749	33.39	14985	21.58	945.6	3402
1.24	14.88	0.3780	33.82	15180	21.86	957.9	3447
1.25	15.00	0.3810	34.26	15376	22.14	970.2	3491
1.26	15.12	0.3840	34.70	15572	22.43	982.6	3536
1.27	15.24	0.3871	35.14	15770	22.71	995.1	3581
1.28	15.36	0.3901	35.58	15968	23.00	1008	3626
1.29	15.48	0.3932	36.02	16168	23.28	1020	3671
1.30	15.60	0.3962	36.47	16368	23.57	1033	3716

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.31	15.72	0.3993	36.92	16570	23.86	1046	3762
1.32	15.84	0.4023	37.37	16772	24.15	1058	3808
1.33	15.96	0.4054	37.82	16975	24.44	1071	3854
1.34	16.08	0.4084	38.28	17179	24.74	1084	3900
1.35	16.20	0.4115	38.73	17384	25.03	1097	3947
1.36	16.32	0.4145	39.19	17590	25.33	1110	3994
1.37	16.44	0.4176	39.65	17796	25.63	1123	4041
1.38	16.56	0.4206	40.12	18004	25.93	1136	4088
1.39	16.68	0.4237	40.58	18213	26.23	1149	4135
1.40	16.80	0.4267	41.05	18422	26.53	1162	4183
1.41	16.92	0.4298	41.52	18632	26.83	1176	4230
1.42	17.04	0.4328	41.99	18844	27.14	1189	4278
1.43	17.16	0.4359	42.46	19056	27.44	1202	4327
1.44	17.28	0.4389	42.93	19269	27.75	1216	4375
1.45	17.40	0.4420	43.41	19483	28.06	1229	4424
1.46	17.52	0.4450	43.89	19697	28.37	1243	4472
1.47	17.64	0.4481	44.37	19913	28.68	1257	4521
1.48	17.76	0.4511	44.85	20129	28.99	1270	4570
1.49	17.88	0.4542	45.34	20347	29.30	1284	4620
1.50	18.00	0.4572	45.82	20565	29.61	1298	4669
1.51	18.12	0.4602	46.31	20784	29.93	1312	4719
1.52	18.24	0.4633	46.80	21004	30.25	1325	4769
1.53	18.36	0.4663	47.29	21225	30.57	1339	4819
1.54	18.48	0.4694	47.79	21447	30.88	1353	4869
1.55	18.60	0.4724	48.28	21669	31.21	1367	4920
1.56	18.72	0.4755	48.78	21893	31.53	1381	4971
1.57	18.84	0.4785	49.28	22117	31.85	1396	5022
1.58	18.96	0.4816	49.78	22342	32.17	1410	5073
1.59	19.08	0.4846	50.29	22568	32.50	1424	5124
1.60	19.20	0.4877	50.79	22795	32.83	1438	5176
1.61	19.32	0.4907	51.30	23022	33.15	1453	5227
1.62	19.44	0.4938	51.81	23251	33.48	1467	5279
1.63	19.56	0.4968	52.32	23480	33.81	1482	5331
1.64	19.68	0.4999	52.83	23710	34.14	1496	5383
1.65	19.80	0.5029	53.35	23941	34.48	1511	5436
1.66	19.92	0.5060	53.86	24173	34.81	1525	5489
1.67	20.04	0.5090	54.38	24406	35.15	1540	5541
1.68	20.16	0.5121	54.90	24640	35.48	1555	5594
1.69	20.28	0.5151	55.42	24874	35.82	1570	5648
1.70	20.40	0.5182	55.95	25109	36.16	1584	5701
1.71	20.52	0.5212	56.47	25345	36.50	1599	5755
1.72	20.64	0.5243	57.00	25582	36.84	1614	5808
1.73	20.76	0.5273	57.53	25819	37.18	1629	5862
1.74	20.88	0.5304	58.06	26058	37.53	1644	5916
1.75	21.00	0.5334	58.59	26297	37.87	1659	5971
1.76	21.12	0.5364	59.13	26537	38.22	1675	6025
1.77	21.24	0.5395	59.67	26778	38.56	1690	6080
1.78	21.36	0.5425	60.20	27020	38.91	1705	6135
1.79	21.48	0.5456	60.75	27262	39.26	1720	6190
1.80	21.60	0.5486	61.29	27506	39.61	1736	6245

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FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
1.81	21.72	0.5517	61.83	27750	39.96	1751	6301
1.82	21.84	0.5547	62.38	27995	40.31	1767	6356
1.83	21.96	0.5578	62.92	28241	40.67	1782	6412
1.84	22.08	0.5608	63.47	28487	41.02	1798	6468
1.85	22.20	0.5639	64.03	28734	41.38	1813	6524
1.86	22.32	0.5669	64.58	28983	41.74	1829	6580
1.87	22.44	0.5700	65.13	29232	42.10	1845	6637
1.88	22.56	0.5730	65.69	29481	42.45	1860	6694
1.89	22.68	0.5761	66.25	29732	42.82	1876	6751
1.90	22.80	0.5791	66.81	29983	43.18	1892	6808
1.91	22.92	0.5822	67.37	30235	43.54	1908	6865
1.92	23.04	0.5852	67.93	30488	43.90	1924	6922
1.93	23.16	0.5883	68.50	30742	44.27	1940	6980
1.94	23.28	0.5913	69.06	30996	44.64	1956	7038
1.95	23.40	0.5944	69.63	31251	45.00	1972	7096
1.96	23.52	0.5974	70.20	31507	45.37	1988	7154
1.97	23.64	0.6005	70.78	31764	45.74	2004	7212
1.98	23.76	0.6035	71.35	32022	46.11	2021	7271
1.99	23.88	0.6066	71.93	32280	46.49	2037	7329
2.00	24.00	0.6096	72.50	32539	46.86	2053	7388
2.01	24.12	0.6126	73.08	32799	47.23	2070	7447
2.02	24.24	0.6157	73.66	33060	47.61	2086	7506
2.03	24.36	0.6187	74.25	33321	47.98	2103	7566
2.04	24.48	0.6218	74.83	33583	48.36	2119	7625
2.05	24.60	0.6248	75.42	33846	48.74	2136	7685
2.06	24.72	0.6279	76.00	34110	49.12	2152	7745
2.07	24.84	0.6309	76.59	34375	49.50	2169	7805
2.08	24.96	0.6340	77.18	34640	49.88	2186	7865
2.09	25.08	0.6370	77.78	34906	50.27	2203	7925
2.10	25.20	0.6401	78.37	35173	50.65	2219	7986
2.11	25.32	0.6431	78.97	35440	51.04	2236	8047
2.12	25.44	0.6462	79.56	35708	51.42	2253	8108
2.13	25.56	0.6492	80.16	35977	51.81	2270	8169
2.14	25.68	0.6523	80.76	36247	52.20	2287	8230
2.15	25.80	0.6553	81.37	36518	52.59	2304	8291
2.16	25.92	0.6584	81.97	36789	52.98	2321	8353
2.17	26.04	0.6614	82.58	37061	53.37	2339	8415
2.18	26.16	0.6645	83.19	37334	53.76	2356	8477
2.19	26.28	0.6675	83.80	37607	54.16	2373	8539
2.20	26.40	0.6706	84.41	37882	54.55	2390	8601
2.21	26.52	0.6736	85.02	38157	54.95	2408	8663
2.22	26.64	0.6767	85.63	38432	55.35	2425	8726
2.23	26.76	0.6797	86.25	38709	55.74	2443	8789
2.24	26.88	0.6828	86.87	38986	56.14	2460	8852
2.25	27.00	0.6858	87.49	39264	56.54	2478	8915
2.26	27.12	0.6888	88.11	39543	56.94	2495	8978
2.27	27.24	0.6919	88.73	39822	57.35	2513	9042
2.28	27.36	0.6949	89.35	40102	57.75	2531	9105
2.29	27.48	0.6980	89.98	40383	58.15	2548	9169
2.30	27.60	0.7010	90.61	40665	58.56	2566	9233

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Formulas (H in feet): CFS = 24 $H_{ft.}^{1.595}$ GPM = 10771 $H_{ft.}^{1.595}$ MGD = 15.51 $H_{ft.}^{1.595}$

Formulas (H in meters): L/S = 4521 $H_{m}^{1.595}$ M3/HR = 16280 $H_{m}^{1.595}$

FEET	INCHES	METERS	CFS	GPM	MGD	L/S	M3/HR
2.31	27.72	0.7041	91.24	40947	58.97	2584	9297
2.32	27.84	0.7071	91.87	41230	59.37	2602	9361
2.33	27.96	0.7102	92.50	41514	59.78	2620	9426
2.34	28.08	0.7132	93.13	41799	60.19	2638	9490
2.35	28.20	0.7163	93.77	42084	60.60	2656	9555
2.36	28.32	0.7193	94.41	42370	61.02	2674	9620
2.37	28.44	0.7224	95.05	42657	61.43	2692	9685
2.38	28.56	0.7254	95.69	42944	61.84	2710	9750
2.39	28.68	0.7285	96.33	43232	62.26	2728	9816
2.40	28.80	0.7315	96.97	43521	62.67	2746	9881
2.41	28.92	0.7346	97.62	43811	63.09	2765	9947
2.42	29.04	0.7376	98.26	44101	63.51	2783	10013
2.43	29.16	0.7407	98.91	44392	63.93	2801	10079
2.44	29.28	0.7437	99.56	44684	64.35	2820	10145
2.45	29.40	0.7468	100.2	44976	64.77	2838	10212
2.46	29.52	0.7498	100.9	45269	65.19	2857	10278
2.47	29.64	0.7529	101.5	45563	65.61	2875	10345
2.48	29.76	0.7559	102.2	45858	66.04	2894	10412
2.49	29.88	0.7590	102.8	46153	66.46	2912	10479
2.50	30.00	0.7620	103.5	46449	66.89	2931	10546

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