

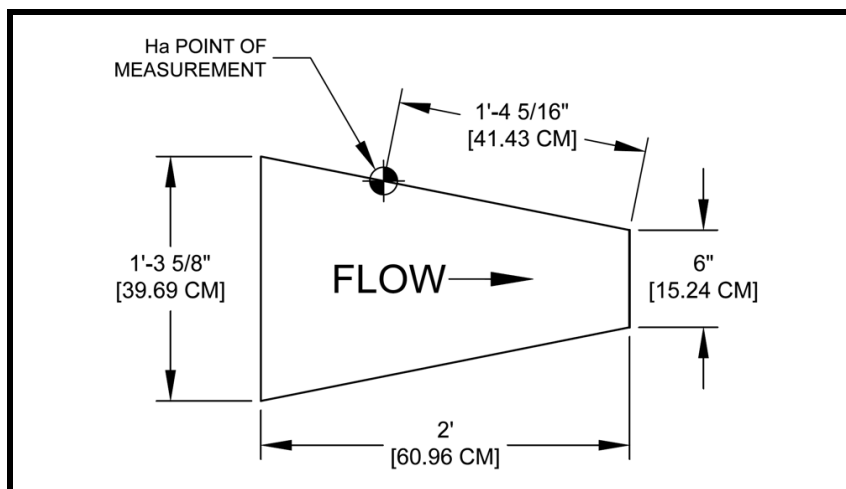
## 6-Inch Montana Flume Discharge Table

No Submergence ±3-5% Accuracy

Formulas (H in feet):  $CFS = 2.06 H_{ft}^{1.58}$   
 Formulas (H in meters):  $L/S = 381.2 H_m^{1.58}$

$GPM = 924.5 H_{ft}^{1.58}$   $MGD = 1331 H_{ft}^{1.58}$   
 $M3/HR = 1372 H_m^{1.58}$

| 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 | 0.0542                                                               | 24.32 | 0.0350 | 1.534 | 5.521 |
| 0.11 | 1.32   | 0.0335 | 0.0630                                                               | 28.27 | 0.0407 | 1.784 | 6.419 |
| 0.12 | 1.44   | 0.0366 | 0.0723                                                               | 32.44 | 0.0467 | 2.047 | 7.365 |
| 0.13 | 1.56   | 0.0396 | 0.0820                                                               | 36.81 | 0.0530 | 2.323 | 8.357 |
| 0.14 | 1.68   | 0.0427 | 0.0922                                                               | 41.38 | 0.0596 | 2.611 | 9.396 |
| 0.15 | 1.80   | 0.0457 | 0.1028                                                               | 46.15 | 0.0665 | 2.912 | 10.48 |
| 0.16 | 1.92   | 0.0488 | 0.1139                                                               | 51.10 | 0.0736 | 3.225 | 11.60 |
| 0.17 | 2.04   | 0.0518 | 0.1253                                                               | 56.24 | 0.0810 | 3.549 | 12.77 |
| 0.18 | 2.16   | 0.0549 | 0.1372                                                               | 61.55 | 0.0886 | 3.884 | 13.98 |
| 0.19 | 2.28   | 0.0579 | 0.1494                                                               | 67.04 | 0.0965 | 4.230 | 15.22 |
| 0.20 | 2.40   | 0.0610 | 0.1620                                                               | 72.70 | 0.1047 | 4.588 | 16.51 |
| 0.21 | 2.52   | 0.0640 | 0.1750                                                               | 78.53 | 0.1131 | 4.955 | 17.83 |
| 0.22 | 2.64   | 0.0671 | 0.1883                                                               | 84.52 | 0.1217 | 5.333 | 19.19 |
| 0.23 | 2.76   | 0.0701 | 0.2020                                                               | 90.67 | 0.1306 | 5.721 | 20.59 |
| 0.24 | 2.88   | 0.0732 | 0.2161                                                               | 96.97 | 0.1396 | 6.119 | 22.02 |
| 0.25 | 3.00   | 0.0762 | 0.2305                                                               | 103.4 | 0.1490 | 6.527 | 23.48 |
| 0.26 | 3.12   | 0.0792 | 0.2452                                                               | 110.0 | 0.1585 | 6.944 | 24.99 |
| 0.27 | 3.24   | 0.0823 | 0.2603                                                               | 116.8 | 0.1682 | 7.371 | 26.52 |
| 0.28 | 3.36   | 0.0853 | 0.2757                                                               | 123.7 | 0.1782 | 7.807 | 28.09 |
| 0.29 | 3.48   | 0.0884 | 0.2914                                                               | 130.8 | 0.1883 | 8.252 | 29.69 |
| 0.30 | 3.60   | 0.0914 | 0.3074                                                               | 138.0 | 0.1987 | 8.706 | 31.33 |





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GPM =  $924.5 H_{ft}^{1.58}$  MGD =  $1331 H_{ft}^{1.58}$   
 M3/HR =  $1372 H_m^{1.58}$

| FEET | INCHES | METERS | CFS    | GPM   | MGD    | L/S   | M3/HR |
|------|--------|--------|--------|-------|--------|-------|-------|
| 0.31 | 3.72   | 0.0945 | 0.3238 | 145.3 | 0.2092 | 9.169 | 32.99 |
| 0.32 | 3.84   | 0.0975 | 0.3404 | 152.8 | 0.2200 | 9.640 | 34.69 |
| 0.33 | 3.96   | 0.1006 | 0.3574 | 160.4 | 0.2310 | 10.12 | 36.42 |
| 0.34 | 4.08   | 0.1036 | 0.3746 | 168.1 | 0.2421 | 10.61 | 38.17 |
| 0.35 | 4.20   | 0.1067 | 0.3922 | 176.0 | 0.2535 | 11.11 | 39.96 |
| 0.36 | 4.32   | 0.1097 | 0.4100 | 184.0 | 0.2650 | 11.61 | 41.78 |
| 0.37 | 4.44   | 0.1128 | 0.4282 | 192.2 | 0.2767 | 12.13 | 43.63 |
| 0.38 | 4.56   | 0.1158 | 0.4466 | 200.4 | 0.2886 | 12.65 | 45.51 |
| 0.39 | 4.68   | 0.1189 | 0.4653 | 208.8 | 0.3007 | 13.18 | 47.42 |
| 0.40 | 4.80   | 0.1219 | 0.4843 | 217.4 | 0.3130 | 13.72 | 49.35 |
| 0.41 | 4.92   | 0.1250 | 0.5036 | 226.0 | 0.3255 | 14.26 | 51.31 |
| 0.42 | 5.04   | 0.1280 | 0.5231 | 234.8 | 0.3381 | 14.81 | 53.31 |
| 0.43 | 5.16   | 0.1311 | 0.5429 | 243.7 | 0.3509 | 15.38 | 55.33 |
| 0.44 | 5.28   | 0.1341 | 0.5630 | 252.7 | 0.3639 | 15.94 | 57.37 |
| 0.45 | 5.40   | 0.1372 | 0.5834 | 261.8 | 0.3770 | 16.52 | 59.45 |
| 0.46 | 5.52   | 0.1402 | 0.6040 | 271.1 | 0.3904 | 17.10 | 61.55 |
| 0.47 | 5.64   | 0.1433 | 0.6249 | 280.4 | 0.4038 | 17.70 | 63.67 |
| 0.48 | 5.76   | 0.1463 | 0.6460 | 289.9 | 0.4175 | 18.29 | 65.83 |
| 0.49 | 5.88   | 0.1494 | 0.6674 | 299.5 | 0.4313 | 18.90 | 68.01 |
| 0.50 | 6.00   | 0.1524 | 0.6890 | 309.2 | 0.4453 | 19.51 | 70.21 |
| 0.51 | 6.12   | 0.1554 | 0.7109 | 319.1 | 0.4595 | 20.13 | 72.44 |
| 0.52 | 6.24   | 0.1585 | 0.7331 | 329.0 | 0.4738 | 20.76 | 74.70 |
| 0.53 | 6.36   | 0.1615 | 0.7555 | 339.1 | 0.4883 | 21.40 | 76.98 |
| 0.54 | 6.48   | 0.1646 | 0.7781 | 349.2 | 0.5029 | 22.04 | 79.29 |
| 0.55 | 6.60   | 0.1676 | 0.8010 | 359.5 | 0.5177 | 22.68 | 81.62 |
| 0.56 | 6.72   | 0.1707 | 0.8241 | 369.9 | 0.5326 | 23.34 | 83.98 |
| 0.57 | 6.84   | 0.1737 | 0.8475 | 380.4 | 0.5478 | 24.00 | 86.36 |
| 0.58 | 6.96   | 0.1768 | 0.8711 | 391.0 | 0.5630 | 24.67 | 88.77 |
| 0.59 | 7.08   | 0.1798 | 0.8950 | 401.7 | 0.5784 | 25.35 | 91.20 |
| 0.60 | 7.20   | 0.1829 | 0.9191 | 412.5 | 0.5940 | 26.03 | 93.65 |
| 0.61 | 7.32   | 0.1859 | 0.9434 | 423.4 | 0.6097 | 26.72 | 96.13 |
| 0.62 | 7.44   | 0.1890 | 0.9679 | 434.4 | 0.6256 | 27.41 | 98.63 |
| 0.63 | 7.56   | 0.1920 | 0.9927 | 445.5 | 0.6416 | 28.11 | 101.2 |
| 0.64 | 7.68   | 0.1951 | 1.018  | 456.8 | 0.658  | 28.82 | 103.7 |
| 0.65 | 7.80   | 0.1981 | 1.043  | 468.1 | 0.674  | 29.54 | 106.3 |
| 0.66 | 7.92   | 0.2012 | 1.068  | 479.5 | 0.691  | 30.26 | 108.9 |
| 0.67 | 8.04   | 0.2042 | 1.094  | 491.0 | 0.707  | 30.99 | 111.5 |
| 0.68 | 8.16   | 0.2073 | 1.120  | 502.7 | 0.724  | 31.72 | 114.1 |
| 0.69 | 8.28   | 0.2103 | 1.146  | 514.4 | 0.741  | 32.46 | 116.8 |
| 0.70 | 8.40   | 0.2134 | 1.173  | 526.2 | 0.758  | 33.21 | 119.5 |
| 0.71 | 8.52   | 0.2164 | 1.199  | 538.2 | 0.775  | 33.96 | 122.2 |
| 0.72 | 8.64   | 0.2195 | 1.226  | 550.2 | 0.792  | 34.72 | 124.9 |
| 0.73 | 8.76   | 0.2225 | 1.253  | 562.3 | 0.810  | 35.48 | 127.7 |
| 0.74 | 8.88   | 0.2256 | 1.280  | 574.5 | 0.827  | 36.25 | 130.4 |
| 0.75 | 9.00   | 0.2286 | 1.308  | 586.8 | 0.845  | 37.03 | 133.2 |
| 0.76 | 9.12   | 0.2316 | 1.335  | 599.2 | 0.863  | 37.81 | 136.1 |
| 0.77 | 9.24   | 0.2347 | 1.363  | 611.8 | 0.881  | 38.60 | 138.9 |
| 0.78 | 9.36   | 0.2377 | 1.391  | 624.4 | 0.899  | 39.40 | 141.8 |
| 0.79 | 9.48   | 0.2408 | 1.419  | 637.0 | 0.917  | 40.20 | 144.6 |
| 0.80 | 9.60   | 0.2438 | 1.448  | 649.8 | 0.936  | 41.01 | 147.5 |

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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GPM = 924.5 H<sub>ft</sub><sup>1.58</sup> MGD = 1331 H<sub>ft</sub><sup>1.58</sup>  
 M3/HR = 1372 H<sub>m</sub><sup>1.58</sup>

| FEET | INCHES | METERS | CFS    | GPM   | MGD    | L/S   | M3/HR |
|------|--------|--------|--------|-------|--------|-------|-------|
| 0.81 | 9.72   | 0.2469 | 1.4766 | 662.7 | 0.9544 | 41.82 | 150.5 |
| 0.82 | 9.84   | 0.2499 | 1.5055 | 675.7 | 0.9730 | 42.64 | 153.4 |
| 0.83 | 9.96   | 0.2530 | 1.5347 | 688.8 | 0.9918 | 43.46 | 156.4 |
| 0.84 | 10.08  | 0.2560 | 1.5640 | 701.9 | 1.011  | 44.29 | 159.4 |
| 0.85 | 10.20  | 0.2591 | 1.5935 | 715.2 | 1.030  | 45.13 | 162.4 |
| 0.86 | 10.32  | 0.2621 | 1.6232 | 728.5 | 1.049  | 45.97 | 165.4 |
| 0.87 | 10.44  | 0.2652 | 1.6531 | 741.9 | 1.068  | 46.82 | 168.5 |
| 0.88 | 10.56  | 0.2682 | 1.6833 | 755.4 | 1.088  | 47.67 | 171.5 |
| 0.89 | 10.68  | 0.2713 | 1.7136 | 769.1 | 1.107  | 48.53 | 174.6 |
| 0.90 | 10.80  | 0.2743 | 1.7441 | 782.8 | 1.127  | 49.39 | 177.7 |
| 0.91 | 10.92  | 0.2774 | 1.7748 | 796.5 | 1.147  | 50.26 | 180.9 |
| 0.92 | 11.04  | 0.2804 | 1.8057 | 810.4 | 1.167  | 51.14 | 184.0 |
| 0.93 | 11.16  | 0.2835 | 1.8368 | 824.4 | 1.187  | 52.02 | 187.2 |
| 0.94 | 11.28  | 0.2865 | 1.8681 | 838.4 | 1.207  | 52.91 | 190.4 |
| 0.95 | 11.40  | 0.2896 | 1.8996 | 852.6 | 1.228  | 53.80 | 193.6 |
| 0.96 | 11.52  | 0.2926 | 1.9313 | 866.8 | 1.248  | 54.70 | 196.8 |
| 0.97 | 11.64  | 0.2957 | 1.9632 | 881.1 | 1.269  | 55.60 | 200.1 |
| 0.98 | 11.76  | 0.2987 | 1.9953 | 895.5 | 1.290  | 56.51 | 203.3 |
| 0.99 | 11.88  | 0.3018 | 2.0275 | 910.0 | 1.310  | 57.42 | 206.6 |
| 1.00 | 12.00  | 0.3048 | 2.0600 | 924.5 | 1.331  | 58.34 | 209.9 |
| 1.01 | 12.12  | 0.3078 | 2.0926 | 939.2 | 1.352  | 59.26 | 213.2 |
| 1.02 | 12.24  | 0.3109 | 2.1255 | 953.9 | 1.374  | 60.19 | 216.6 |
| 1.03 | 12.36  | 0.3139 | 2.1585 | 968.7 | 1.395  | 61.13 | 220.0 |
| 1.04 | 12.48  | 0.3170 | 2.1917 | 983.6 | 1.416  | 62.07 | 223.3 |
| 1.05 | 12.60  | 0.3200 | 2.2251 | 998.6 | 1.438  | 63.01 | 226.7 |
| 1.06 | 12.72  | 0.3231 | 2.2587 | 1014  | 1.460  | 63.97 | 230.2 |
| 1.07 | 12.84  | 0.3261 | 2.2924 | 1029  | 1.482  | 64.92 | 233.6 |
| 1.08 | 12.96  | 0.3292 | 2.3264 | 1044  | 1.504  | 65.88 | 237.1 |
| 1.09 | 13.08  | 0.3322 | 2.3605 | 1059  | 1.526  | 66.85 | 240.5 |
| 1.10 | 13.20  | 0.3353 | 2.3948 | 1075  | 1.548  | 67.82 | 244.0 |
| 1.11 | 13.32  | 0.3383 | 2.4293 | 1090  | 1.570  | 68.80 | 247.5 |
| 1.12 | 13.44  | 0.3414 | 2.4639 | 1106  | 1.592  | 69.78 | 251.1 |
| 1.13 | 13.56  | 0.3444 | 2.4988 | 1121  | 1.615  | 70.77 | 254.6 |
| 1.14 | 13.68  | 0.3475 | 2.534  | 1137  | 1.638  | 71.76 | 258.2 |
| 1.15 | 13.80  | 0.3505 | 2.569  | 1153  | 1.660  | 72.76 | 261.8 |
| 1.16 | 13.92  | 0.3536 | 2.604  | 1169  | 1.683  | 73.76 | 265.4 |
| 1.17 | 14.04  | 0.3566 | 2.640  | 1185  | 1.706  | 74.76 | 269.0 |
| 1.18 | 14.16  | 0.3597 | 2.676  | 1201  | 1.729  | 75.78 | 272.7 |
| 1.19 | 14.28  | 0.3627 | 2.712  | 1217  | 1.753  | 76.79 | 276.3 |
| 1.20 | 14.40  | 0.3658 | 2.748  | 1233  | 1.776  | 77.82 | 280.0 |
| 1.21 | 14.52  | 0.3688 | 2.784  | 1249  | 1.799  | 78.84 | 283.7 |
| 1.22 | 14.64  | 0.3719 | 2.820  | 1266  | 1.823  | 79.87 | 287.4 |
| 1.23 | 14.76  | 0.3749 | 2.857  | 1282  | 1.847  | 80.91 | 291.1 |
| 1.24 | 14.88  | 0.3780 | 2.894  | 1299  | 1.870  | 81.95 | 294.9 |
| 1.25 | 15.00  | 0.3810 | 2.931  | 1315  | 1.894  | 83.00 | 298.6 |
| 1.26 | 15.12  | 0.3840 | 2.968  | 1332  | 1.918  | 84.05 | 302.4 |
| 1.27 | 15.24  | 0.3871 | 3.005  | 1349  | 1.942  | 85.11 | 306.2 |
| 1.28 | 15.36  | 0.3901 | 3.043  | 1366  | 1.966  | 86.17 | 310.1 |
| 1.29 | 15.48  | 0.3932 | 3.080  | 1382  | 1.991  | 87.24 | 313.9 |
| 1.30 | 15.60  | 0.3962 | 3.118  | 1399  | 2.015  | 88.31 | 317.7 |

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| FEET | INCHES | METERS | CFS   | GPM  | MGD   | L/S   | M3/HR |
|------|--------|--------|-------|------|-------|-------|-------|
| 1.31 | 15.72  | 0.3993 | 3.156 | 1416 | 2.040 | 89.38 | 321.6 |
| 1.32 | 15.84  | 0.4023 | 3.194 | 1434 | 2.064 | 90.46 | 325.5 |
| 1.33 | 15.96  | 0.4054 | 3.233 | 1451 | 2.089 | 91.55 | 329.4 |
| 1.34 | 16.08  | 0.4084 | 3.271 | 1468 | 2.114 | 92.64 | 333.3 |
| 1.35 | 16.20  | 0.4115 | 3.310 | 1485 | 2.139 | 93.73 | 337.3 |
| 1.36 | 16.32  | 0.4145 | 3.349 | 1503 | 2.164 | 94.83 | 341.2 |
| 1.37 | 16.44  | 0.4176 | 3.388 | 1520 | 2.189 | 95.94 | 345.2 |
| 1.38 | 16.56  | 0.4206 | 3.427 | 1538 | 2.215 | 97.04 | 349.2 |
| 1.39 | 16.68  | 0.4237 | 3.466 | 1556 | 2.240 | 98.16 | 353.2 |
| 1.40 | 16.80  | 0.4267 | 3.505 | 1573 | 2.266 | 99.28 | 357.2 |
| 1.41 | 16.92  | 0.4298 | 3.545 | 1591 | 2.291 | 100.4 | 361.2 |
| 1.42 | 17.04  | 0.4328 | 3.585 | 1609 | 2.317 | 101.5 | 365.3 |
| 1.43 | 17.16  | 0.4359 | 3.625 | 1627 | 2.343 | 102.7 | 369.4 |
| 1.44 | 17.28  | 0.4389 | 3.665 | 1645 | 2.369 | 103.8 | 373.5 |
| 1.45 | 17.40  | 0.4420 | 3.705 | 1663 | 2.395 | 104.9 | 377.6 |
| 1.46 | 17.52  | 0.4450 | 3.746 | 1681 | 2.421 | 106.1 | 381.7 |
| 1.47 | 17.64  | 0.4481 | 3.786 | 1699 | 2.447 | 107.2 | 385.8 |
| 1.48 | 17.76  | 0.4511 | 3.827 | 1718 | 2.474 | 108.4 | 390.0 |
| 1.49 | 17.88  | 0.4542 | 3.868 | 1736 | 2.500 | 109.5 | 394.2 |
| 1.50 | 18.00  | 0.4572 | 3.909 | 1754 | 2.527 | 110.7 | 398.4 |

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