

Appendix O

**SAN JUAN RIVER TROUT HABITAT
SUITABILITY ASSESSMENT**

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January 24, 2002

Mr. Kirk Lashmett
Bureau of Reclamation
835 East 2nd Ave., Suite 300
Durango, CO 81301

Dear Kirk:

I have run the program PHABSIM for Windows for the cross sections taken on the San Juan River in January, 1997. Enclosed are the following results:

1. Table 1 provides weighted usable area for all transects for adult rainbow trout by flow stage in the San Juan River. Note that I am providing three versions of this table; one for the South Platte adult rainbow trout curve, one for the Gosse/BOR curve, and one for the Miller results provided in the BOR report. Please note that the first two data sets are from data generated from runs that I did with PHABSIM using the South Platte and Gosse/BOR curves. The table showing the Miller results is from the BOR report. I added percentage figures to illustrate the proportion of habitat above and below Texas Hole.
2. Figures 1-3 are of the weighted usable areas by flow stage for (a) South Platte adult rainbow trout curve, and (b) Gosse/BOR adult rainbow trout curve. Please note the greater amount of habitat reflected with the South Platte curve than in the Gosse/BOR curve. The reason for this is primarily because the Gosse/BOR curve drops from suitability of 1.0 before velocities reach 1.0 fps. This explains why weighted usable area with the Gosse/BOR curve does not increase with flow—habitat is not suitable at velocities above about 1 fps. The South Platte curve is what one would expect with rainbow trout, where velocities are suitable past 2 fps. The Gosse/BOR curve reflects winter data and data collected from fish in deep, quiet holes.
3. Table 2 is a summary of habitat suitability criteria (HSC) for the South Platte rainbow trout data and for the Gosse/BOR data collected from the San Juan River. I have provided these data to document the data used in the PHABSIM model.

4. Figures 4-9 show suitability criteria for velocity, depth, and substrate, as plotted from the data presented in Table 2. Note especially the velocity criteria for the two data sets. The South Platte HSC show that habitat remains highly suitable (index of 0.81) to a velocity of 2.45 fps, while the Gosse/BOR curve decreases dramatically in suitability at velocities above 0.98 fps.

The data in their present form were difficult to run because of the following characteristics of the datasets:

1. Transects were not linked, making it impossible to run the more powerful aspects of the PHBASIM model, including MANSQ, WSP, and STDQ. This also presents problems on slope determination for the model to derive velocities. As a result, some modeled velocities had to be adjusted with Manning's "n" to more closely approximate measured velocities at a given flow.
2. The datasets were lacking calibration data on water surface elevations and velocities. Without calibrations (i.e., measures of water surface elevation and velocities at flows other than the two measured flows – 250 and 500 cfs), model precision is weak. Supplemental data are provided in the dataset, but their source is unknown. Good calibration data would have been collected with programs such as R2 Cross or WinXS Pro.
3. The data provided to me contain duplicate data sets for each transect to provide length dimension to the transect, in lieu of linking transects. This duplicate transect is treated as a second transect by the PHABSIM models. These duplicate datasets essentially say that the river for that reach is represented by a single cross section.
4. Transect measures were taken at only two flows, 250 and 500 cfs. This is in the lower range of flows for the San Juan River, below channel capacity, and makes prediction of the full range of fish habitat impossible. A better approach would have been to take at least one additional set of measurements at a flow of about 1,000 to 2,000 cfs. The rule of thumb for good cross sectional data is to apply the data to 2.5 times the highest flow and 0.5 times the lowest. This would put reliable prediction of WUA for data collected at 250 and 500 cfs at a range of 125 to 1,250 cfs. However, lack of calibration measurements and failure to link the cross sections makes even this range of habitat predictions imprecise. Nevertheless, I ran the model for a range of 200 to 4,000 cfs to see how the model would behave, knowing that WUA predictions beyond about 1,000 cfs are probably unreliable.

5. Failure to measure a broader range of flows also presented problems with the split channel cross sections. High flows likely topped the intervening bank, linking the two channels, but there were no data connecting the two channels at higher flows. I tried to adjust for this as best as possible within the constraints of the model.
6. I used the mapped lengths for each transect as provided in the BOR report to delineate the length of the cross section. This is a common strategy when single cross sections are used.

I sincerely hope that the information I have provided is helpful to Reclamation in assessment of alternative for the reoperation of Navajo Dam. Please contact me if you need additional information.

Sincerely,

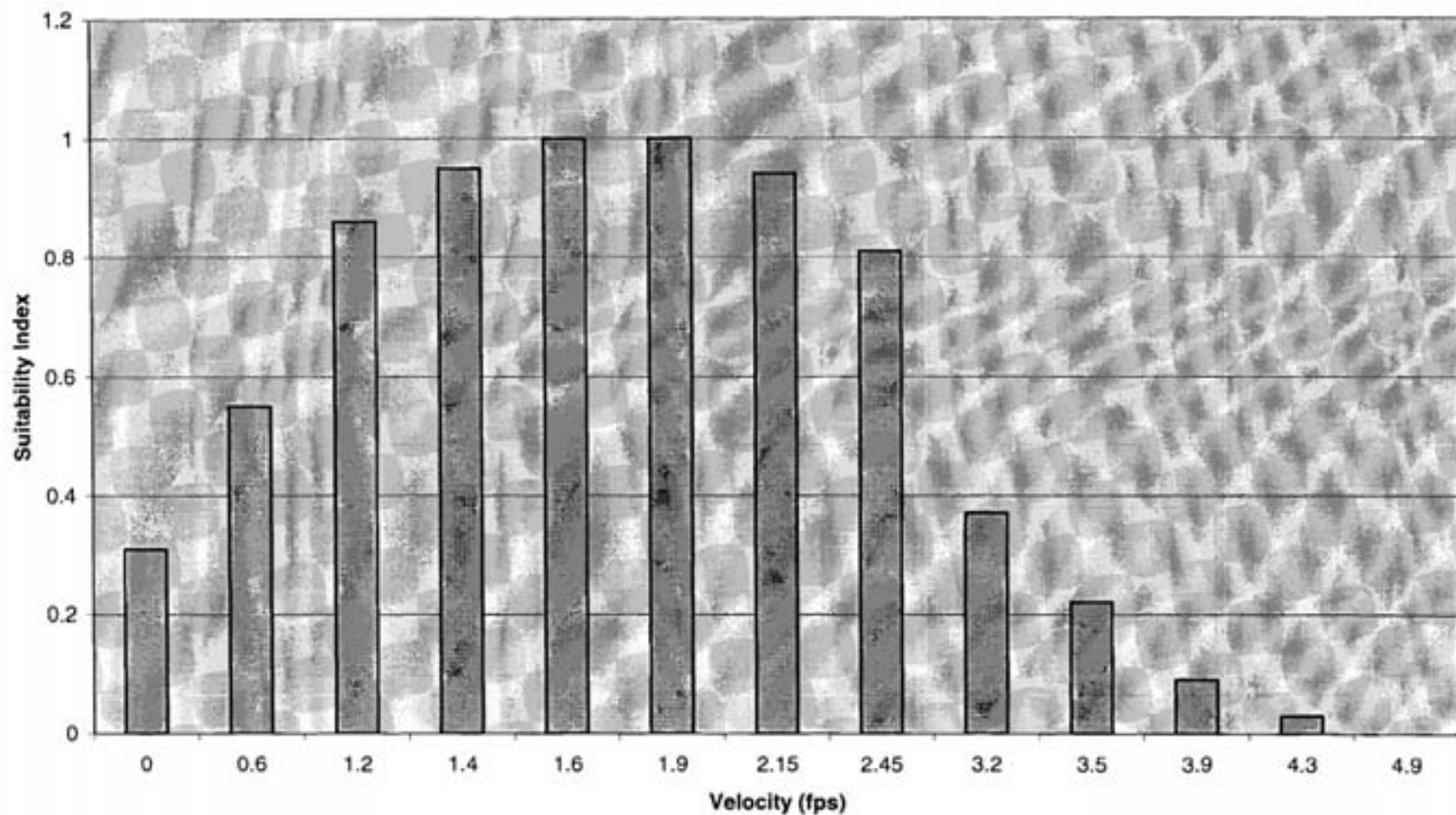
Richard A. Valdez, Ph.D.

Enclosures: 2 tables, 9 figures

cc: S. McCall

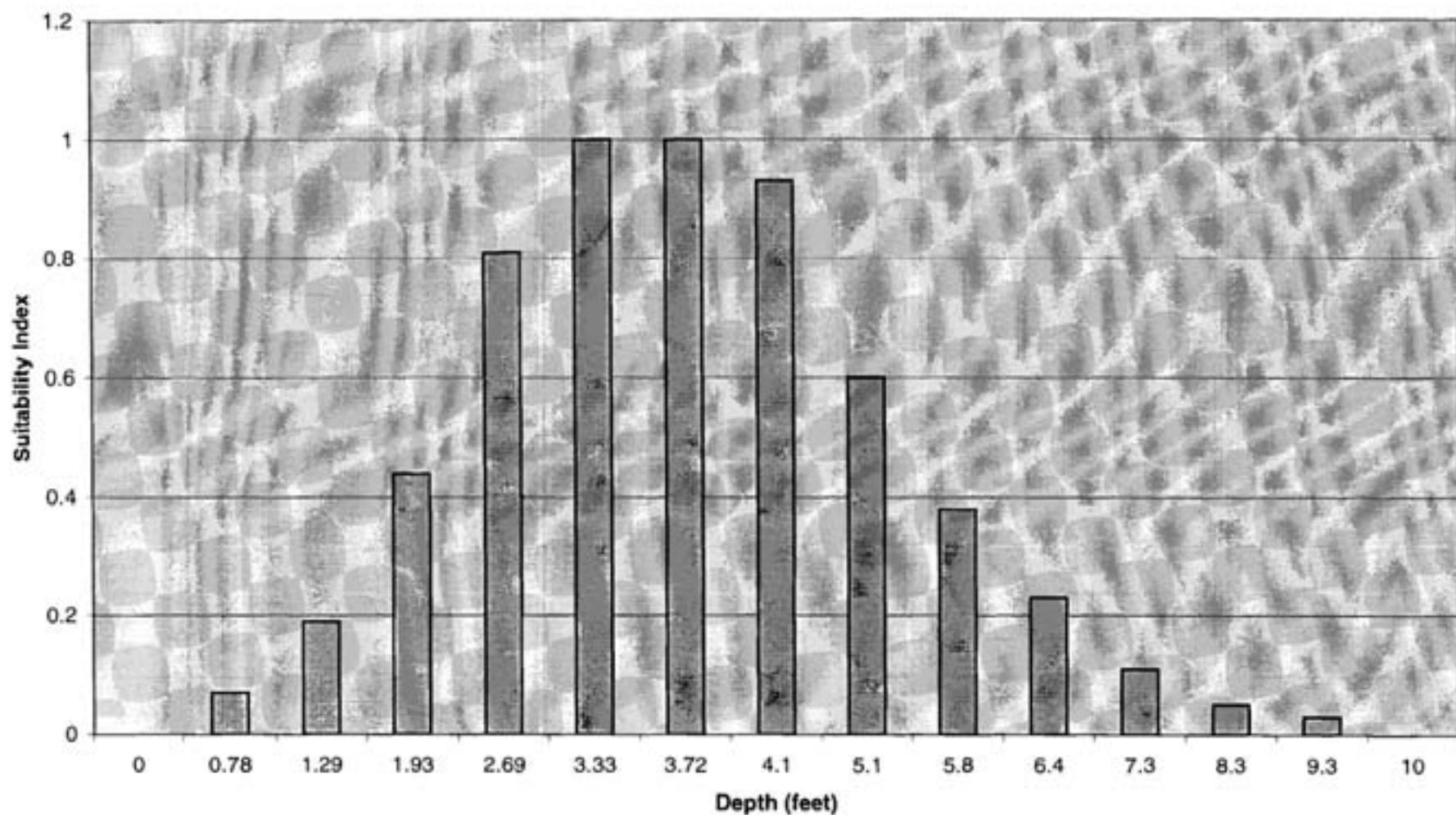
VELOCITY

SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT



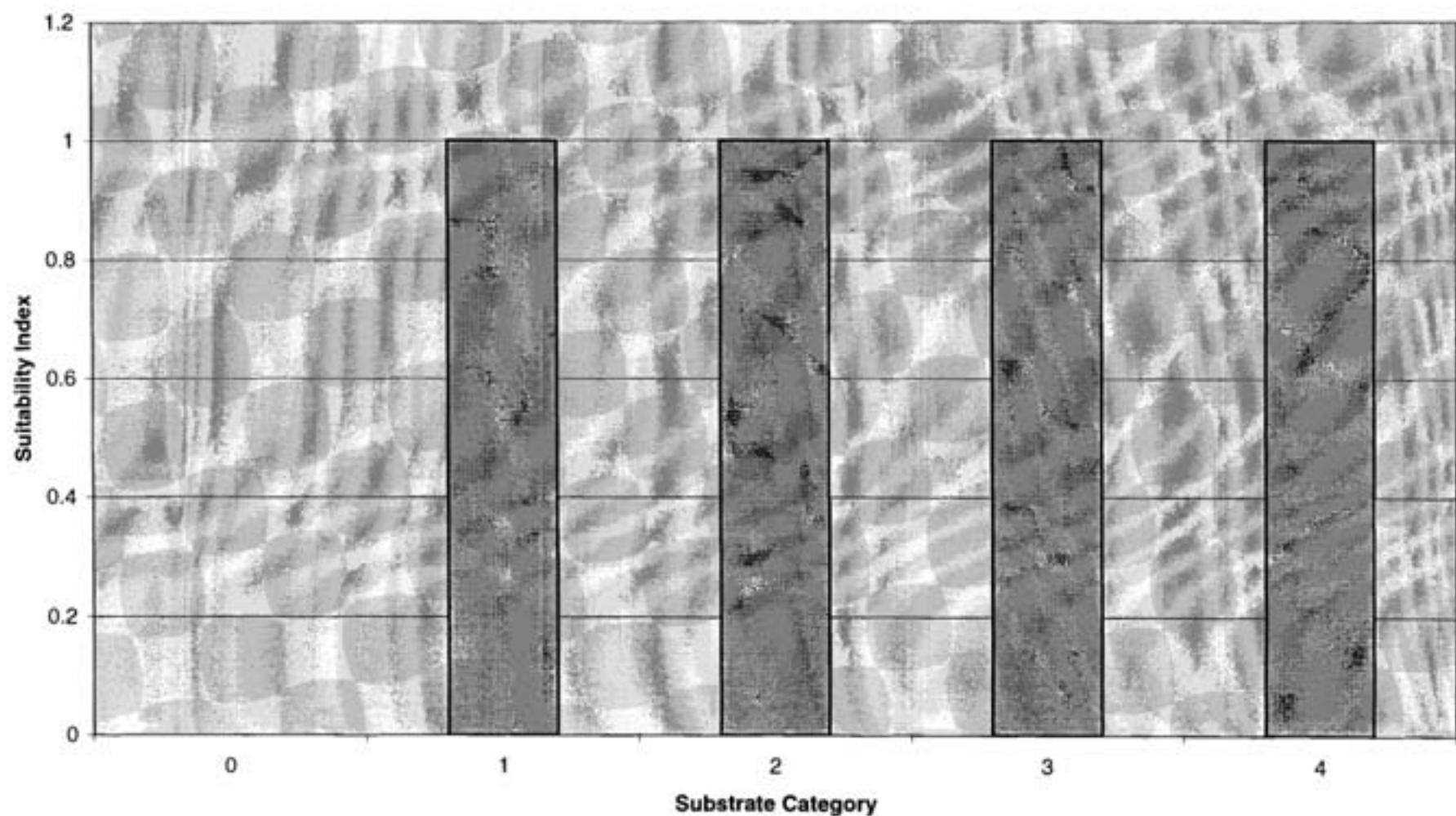
DEPTH

SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT



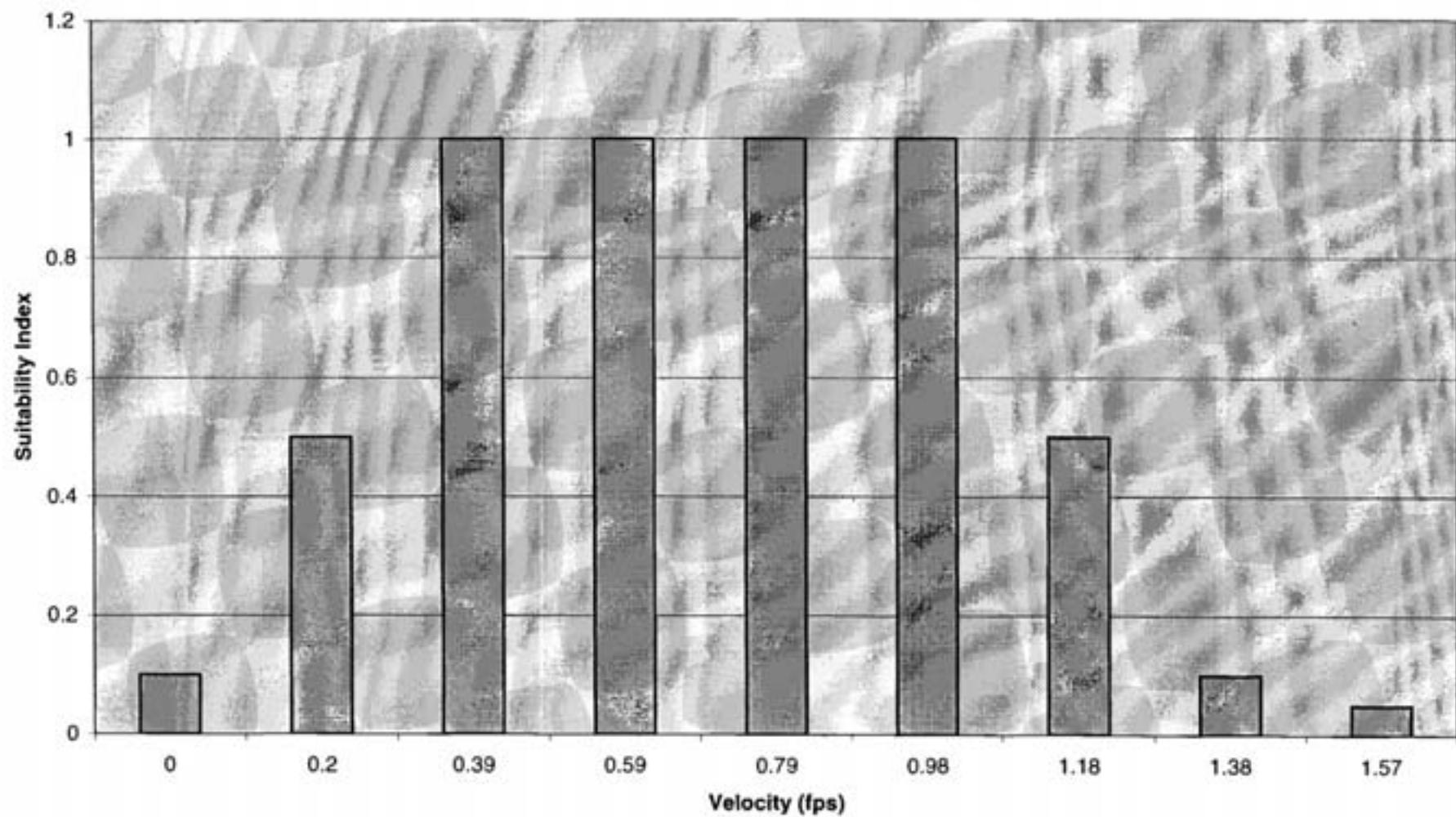
SUBSTRATE

■ SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT



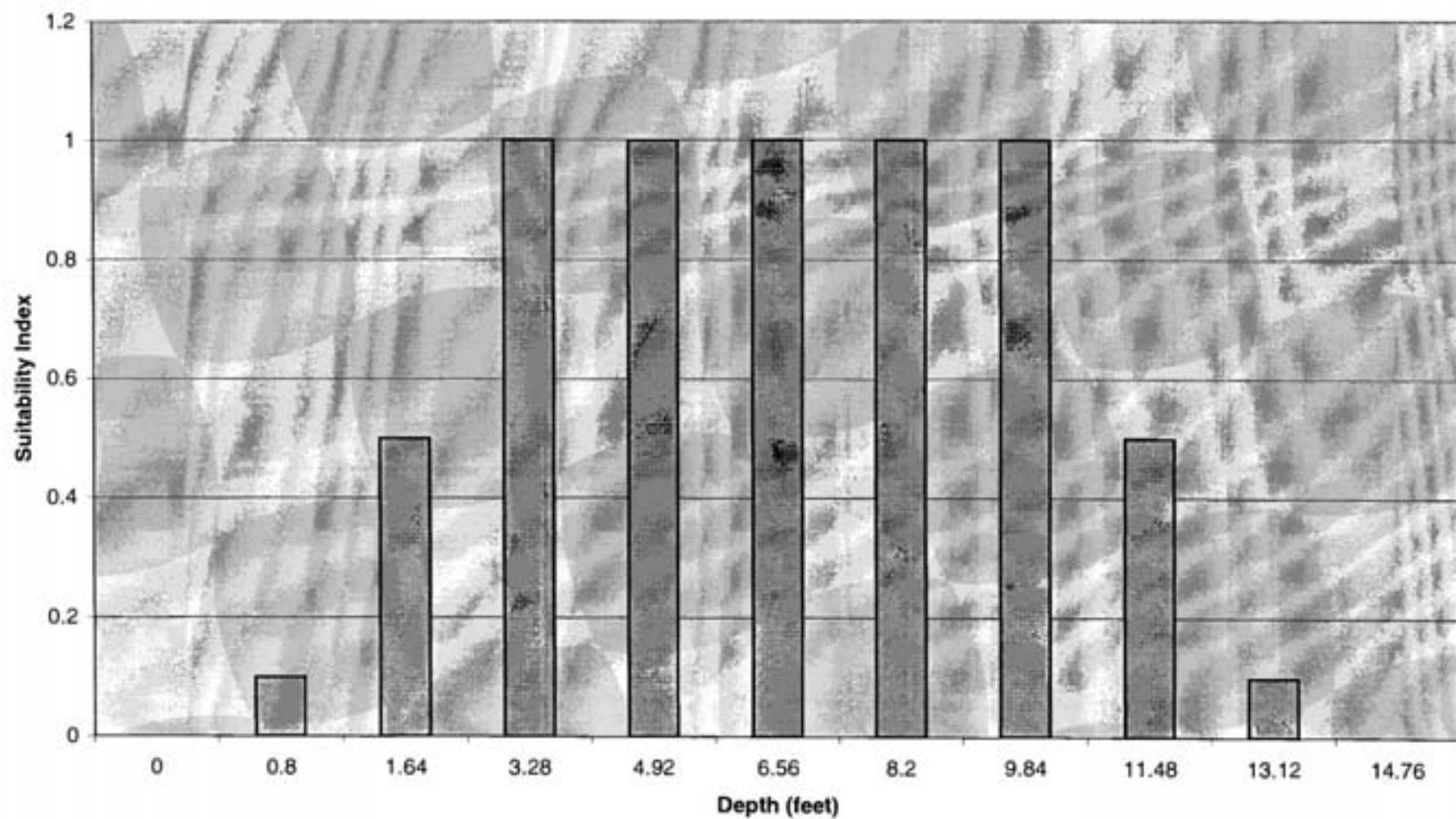
VELOCITY

■ GOSSE/BOR RAINBOW TROUT (1996) - ADULTS



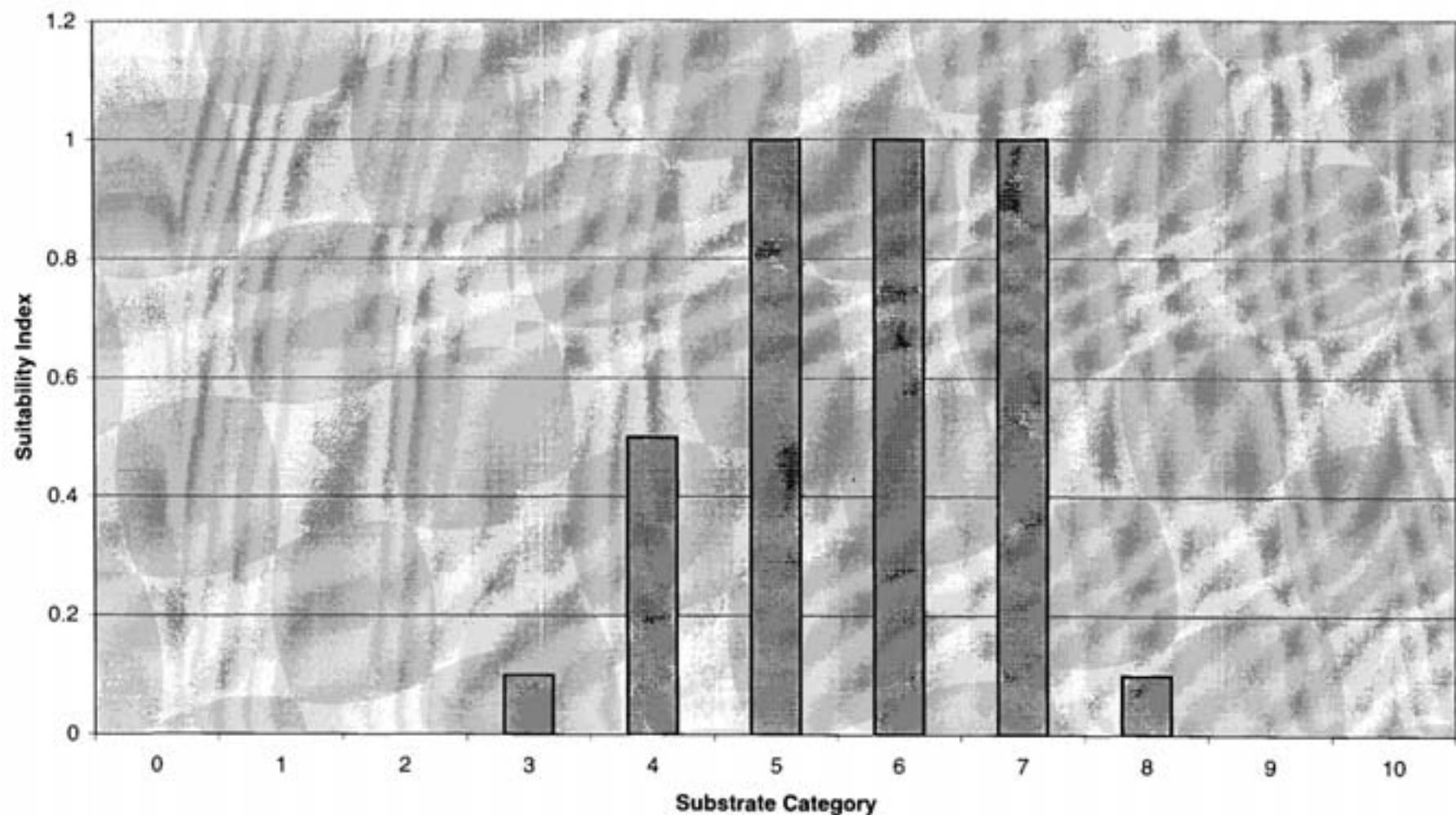
DEPTH

GOSSE/BOR RAINBOW TROUT (1996) - ADULTS



SUBSTRATE

■ GOSSE/BOR RAINBOW TROUT (1996) - ADULTS



HABITAT SUITABILITY CRITERIA USED FOR SAN JUAN RIVER PHABSIM

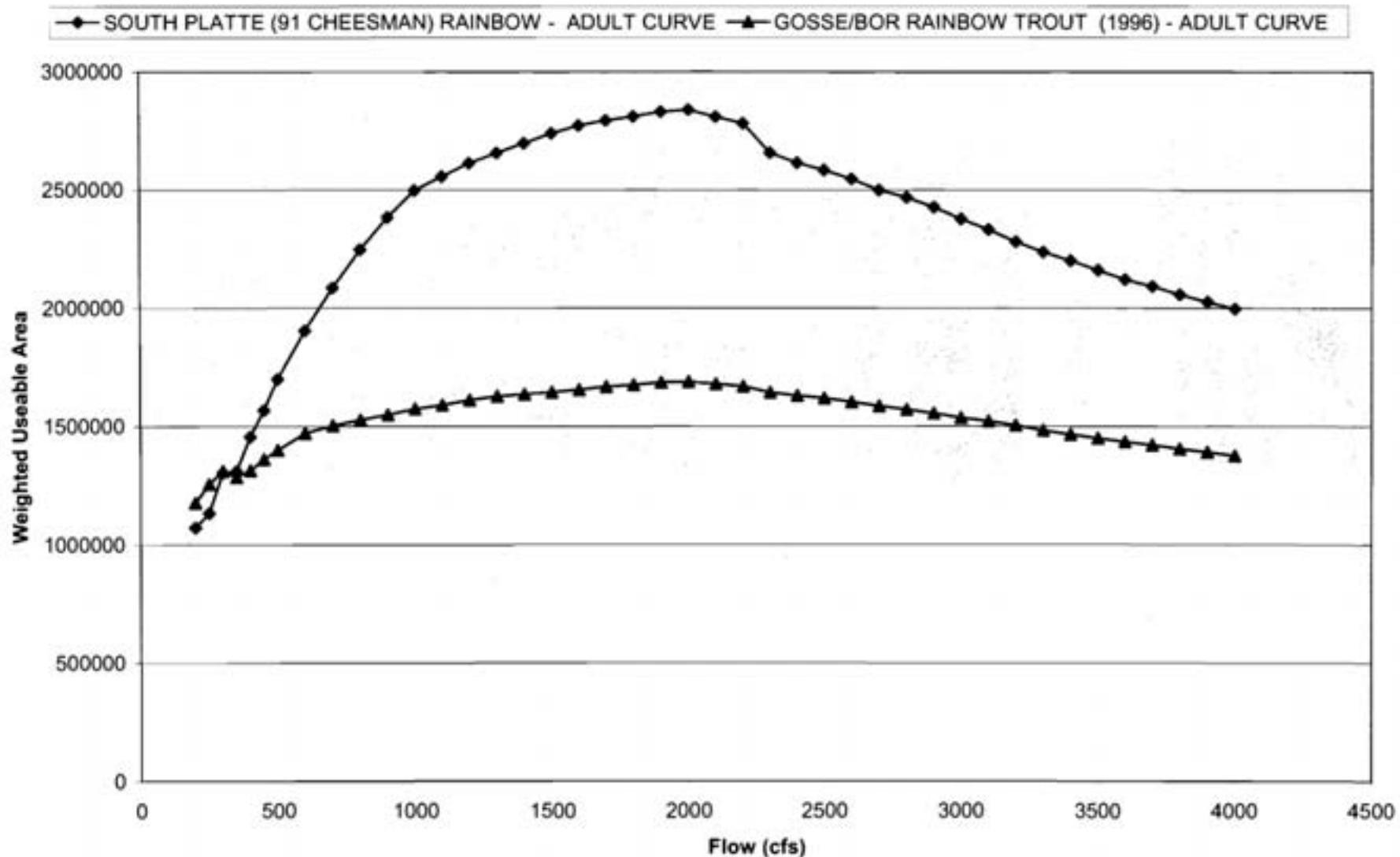
SOUTH PLATTE (91 CHEESEMAN) RAINBOW - ADULT

| Velocity | SI | Depth | SI | Substrate | SI |
|----------|------|-------|------|-----------|----|
| 0 | 0.31 | 0 | 0 | 0 | 0 |
| 0.6 | 0.55 | 0.78 | 0.07 | 1 | 1 |
| 1.2 | 0.86 | 1.29 | 0.19 | 2 | 1 |
| 1.4 | 0.95 | 1.93 | 0.44 | 3 | 1 |
| 1.6 | 1 | 2.69 | 0.81 | 4 | 1 |
| 1.9 | 1 | 3.33 | 1 | | |
| 2.15 | 0.94 | 3.72 | 1 | | |
| 2.45 | 0.81 | 4.1 | 0.93 | | |
| 3.2 | 0.37 | 5.1 | 0.6 | | |
| 3.5 | 0.22 | 5.8 | 0.38 | | |
| 3.9 | 0.09 | 6.4 | 0.23 | | |
| 4.3 | 0.03 | 7.3 | 0.11 | | |
| 4.9 | 0 | 8.3 | 0.05 | | |
| | | 9.3 | 0.03 | | |
| | | 10 | 0 | | |

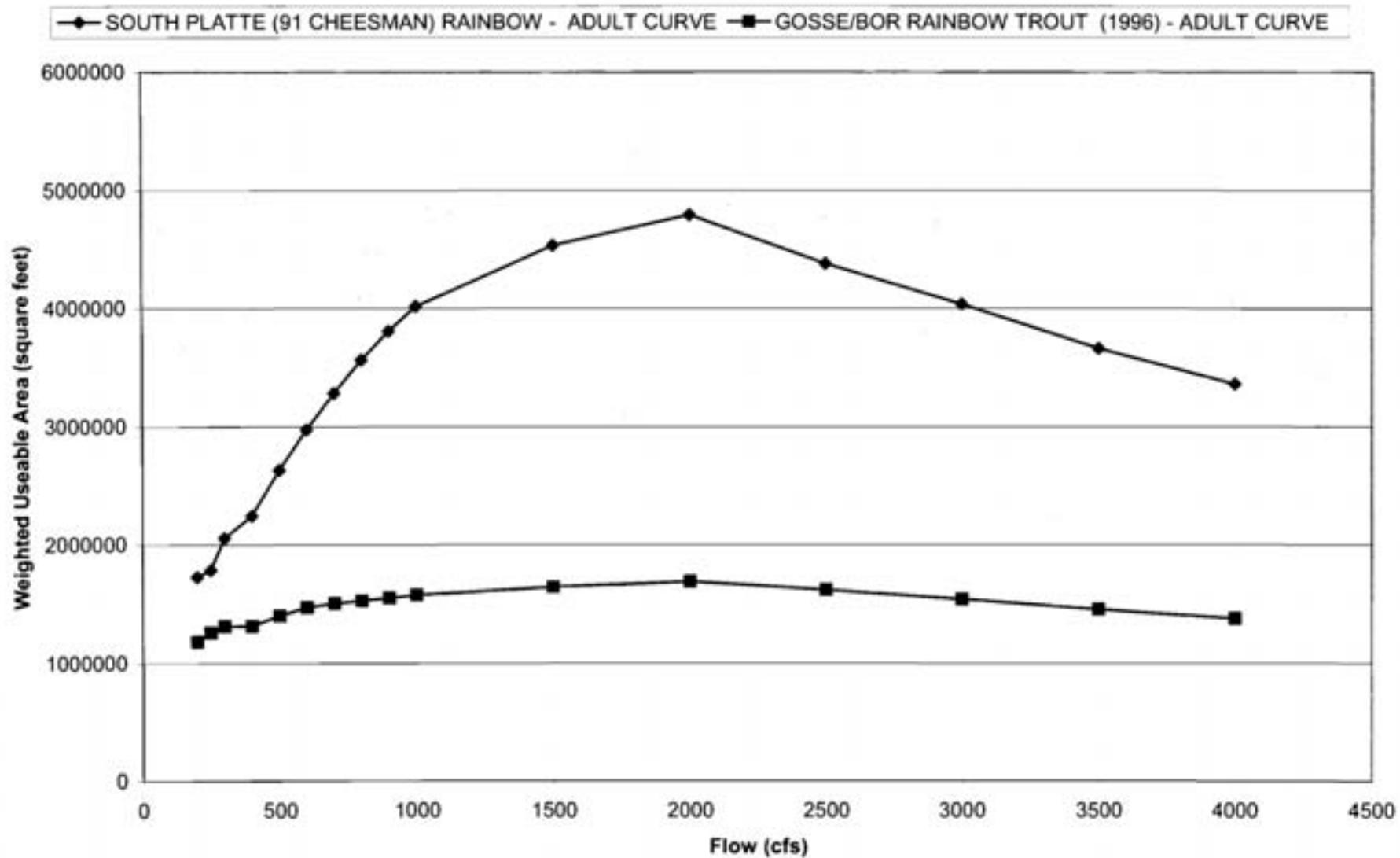
GOSSE/BOR RAINBOW TROUT (1996) - ADULTS

| Velocity | SI | Depth | SI | Substrate | SI |
|----------|------|-------|-----|-----------|-----|
| 0 | 0.1 | 0 | 0 | 0 | 0 |
| 0.2 | 0.5 | 0.8 | 0.1 | 1 | 0 |
| 0.39 | 1 | 1.64 | 0.5 | 2 | 0 |
| 0.59 | 1 | 3.28 | 1 | 3 | 0.1 |
| 0.79 | 1 | 4.92 | 1 | 4 | 0.5 |
| 0.98 | 1 | 6.56 | 1 | 5 | 1 |
| 1.18 | 0.5 | 8.2 | 1 | 6 | 1 |
| 1.38 | 0.1 | 9.84 | 1 | 7 | 1 |
| 1.57 | 0.05 | 11.48 | 0.5 | 8 | 0.1 |
| | | 13.12 | 0.1 | 9 | 0 |
| | | 14.76 | 0 | 10 | 0 |

SAN JUAN RIVER - ADULT RAINBOW TROUT

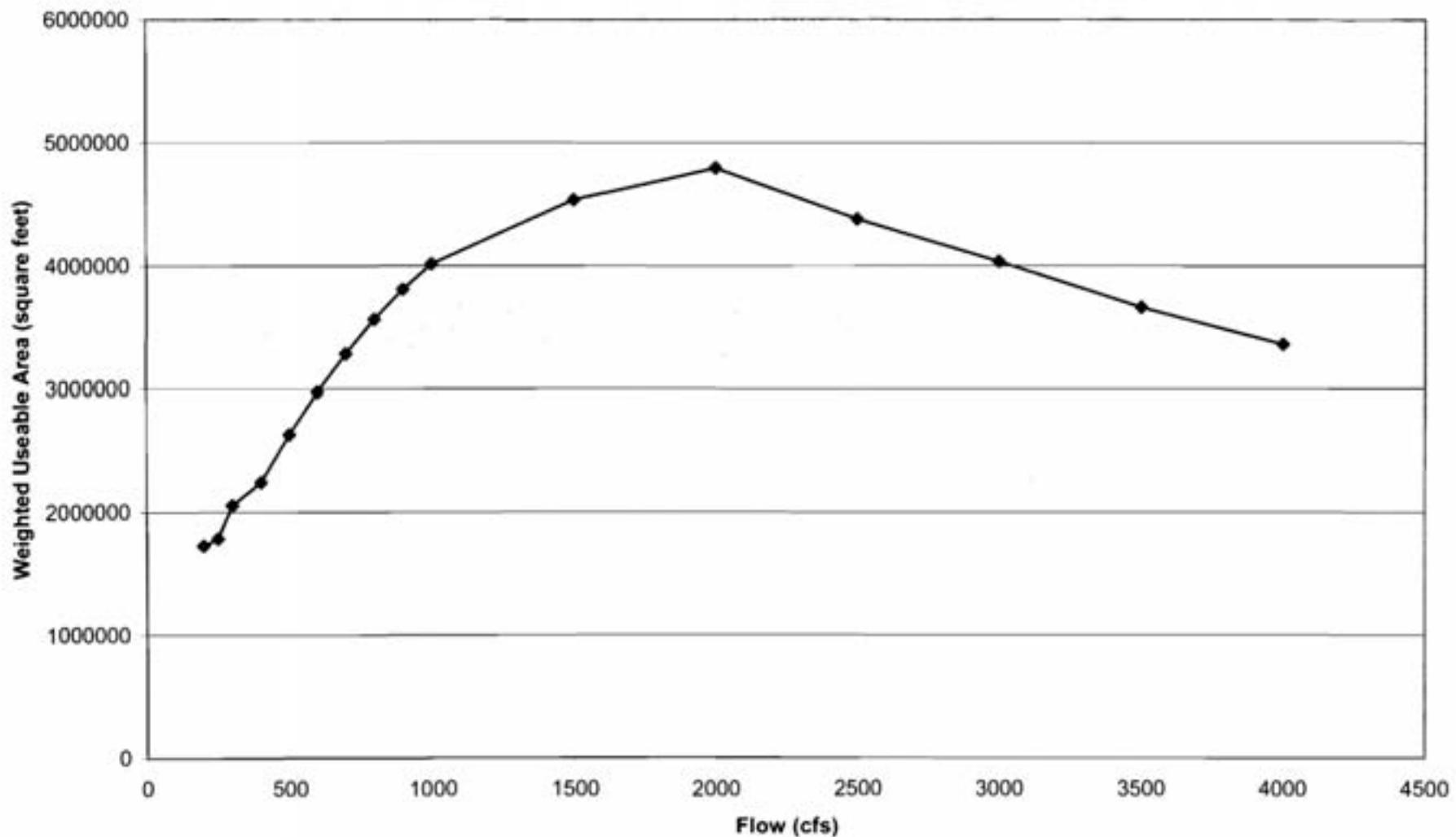


SAN JUAN RIVER - ADULT RAINBOW TROUT



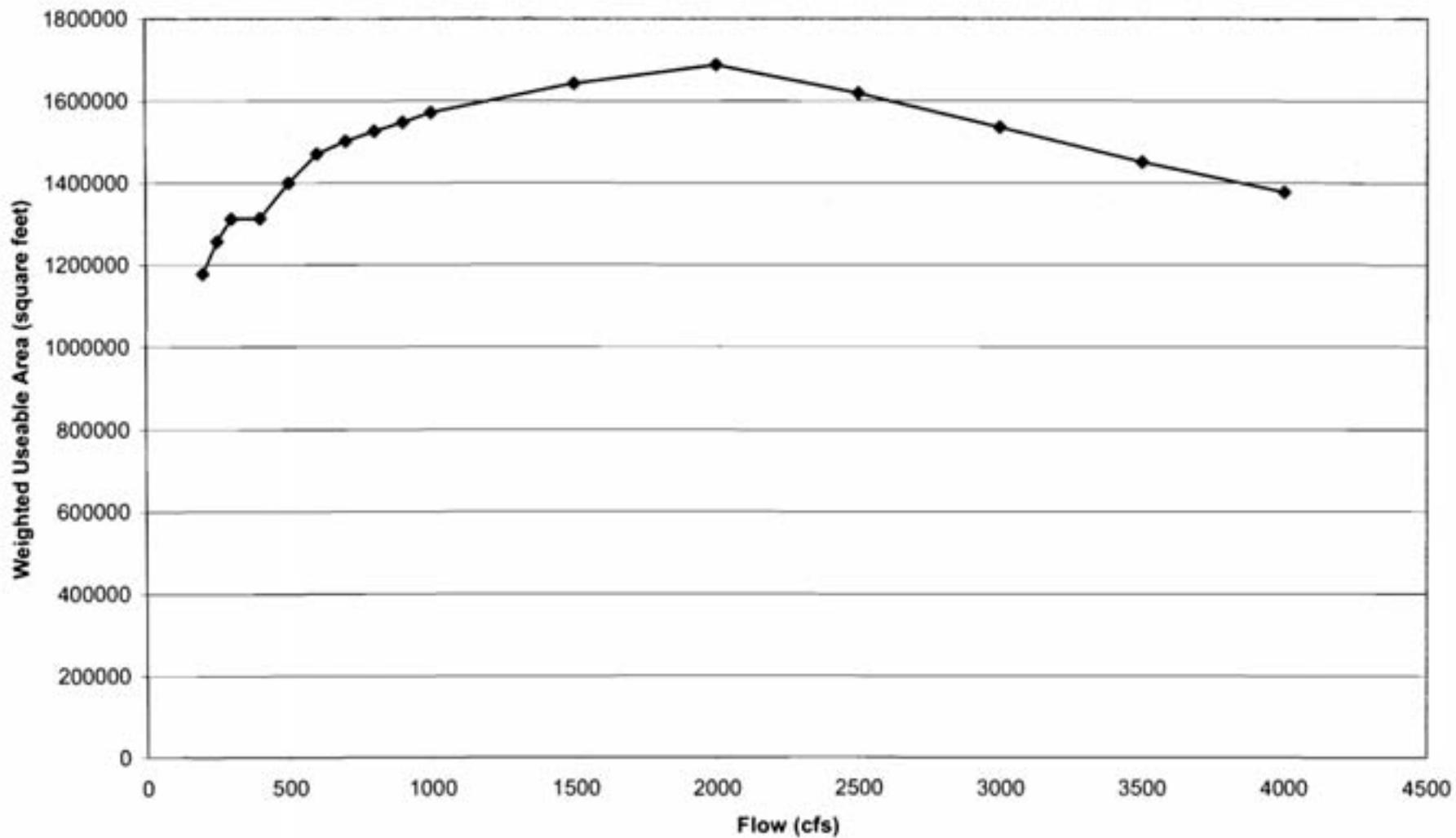
SAN JUAN RIVER - ADULT RAINBOW TROUT

—●— SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT CURVE

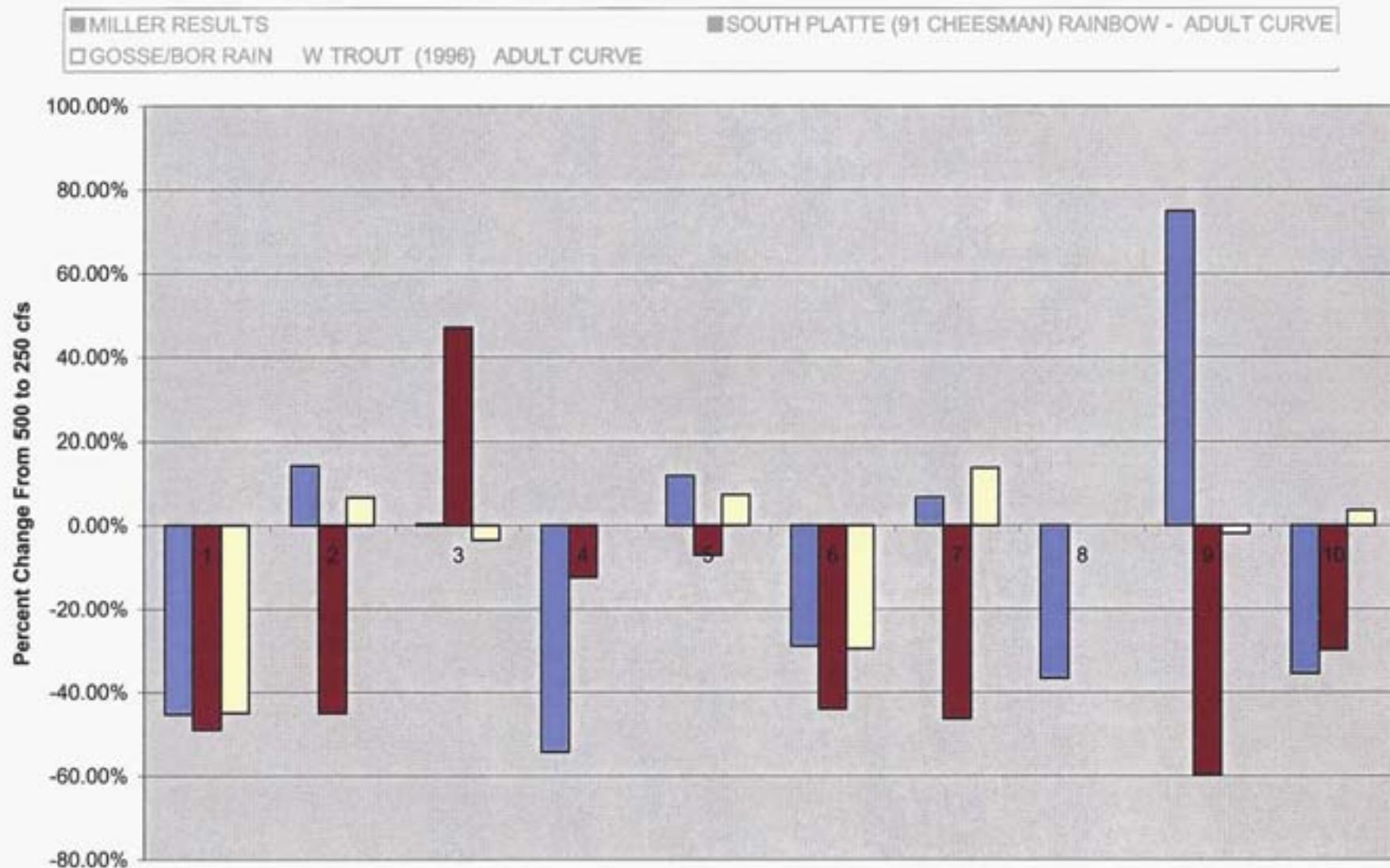


SAN JUAN RIVER - ADULT RAINBOW TROUT

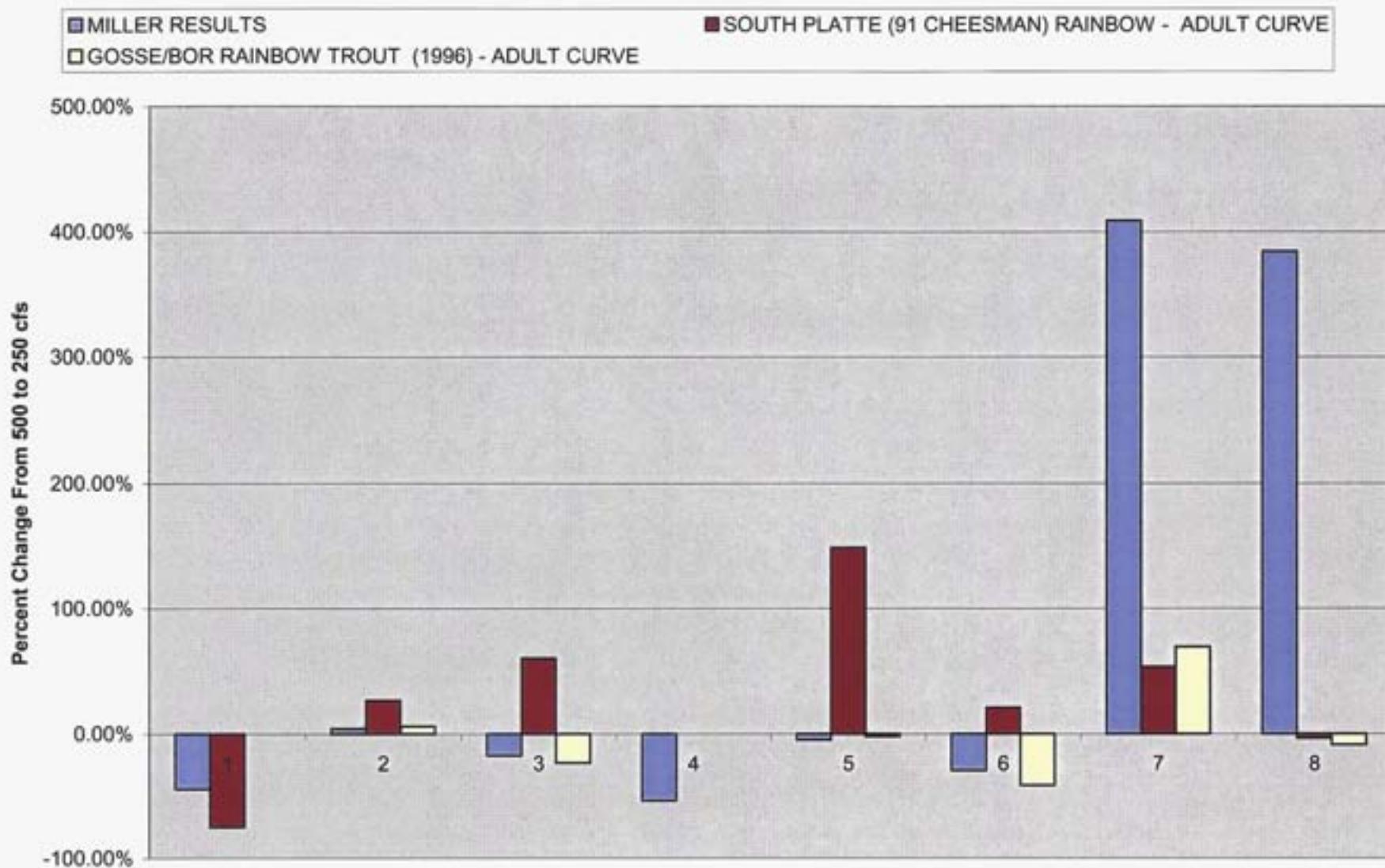
◆ GOSSE/BOR RAINBOW TROUT (1996) - ADULT CURVE



IANG WUA ABOVE TEXAS HOL



CHANGE IN WUA BELOW TEXAS HOLE



SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT CURVE

| Discharge | XSEC 1 | XSEC 2 | XSEC 3 | XSEC 4L | XSEC 4R | XSEC 5 | XSEC 6 | XSEC 7L | XSEC 7R | XSEC 8 | XSEC 9L | XSEC 9R |
|-----------|-----------|-----------|----------|----------|-----------|----------|----------|----------|----------|-----------|---------|-----------|
| 200 | 57806.26 | 45308.83 | 24740.15 | 88129.58 | 90884.43 | 129188.1 | 28491.1 | 100151.5 | 57940.04 | 32234.58 | 0 | 151980.39 |
| 250 | 70522.99 | 56342.12 | 30679.49 | 104624.9 | 93825.16 | 154085.5 | 34841.23 | 0 | 72366.09 | 35593.21 | 0 | 163377.33 |
| 300 | 82471.46 | 67109.91 | 28930.09 | 119456.5 | 97185.2 | 179894.2 | 41764.15 | 0 | 94012.24 | 40873.82 | 0 | 176186.69 |
| 350 | 96380.96 | 76648.43 | 26942.75 | 0 | 98888.8 | 205515.7 | 47621.95 | 0 | 110063.6 | 45716.99 | 0 | 185321.81 |
| 400 | 110109.51 | 85962.31 | 24462.33 | 0 | 101316.7 | 229585.6 | 53320.54 | 0 | 136716.7 | 46209.2 | 0 | 195056.13 |
| 450 | 124446.91 | 94887.54 | 22558.18 | 0 | 101461.34 | 253242.9 | 58988.56 | 0 | 154247.6 | 46209.2 | 0 | 200166.63 |
| 500 | 138290.95 | 102427.66 | 20855.51 | 0 | 101000.73 | 275044 | 64872.78 | 0 | 179687.6 | 50703.24 | 0 | 206685.94 |
| 600 | 167571.09 | 116935.54 | 19023.56 | 0 | 98652.45 | 316339.3 | 75572.42 | 0 | 220193.5 | 54593.91 | 0 | 212645.03 |
| 700 | 198820.34 | 125355.79 | 18065.74 | 0 | 94607.57 | 356130.8 | 82754.65 | 0 | 258848.8 | 60450.05 | 0 | 212438.22 |
| 800 | 232523.17 | 131662.39 | 17417.12 | 0 | 90236.69 | 394336.1 | 90048.8 | 0 | 293839 | 65795.74 | 0 | 209442.89 |
| 900 | 268198.69 | 135301.61 | 17105.32 | 0 | 85508.44 | 427133.8 | 95482.52 | 0 | 327277 | 68431.39 | 0 | 204690.08 |
| 1000 | 302214.63 | 137834.47 | 17104.01 | 0 | 80756.61 | 456272.8 | 99964.06 | 0 | 352776 | 72320.43 | 0 | 199124.28 |
| 1100 | 333274.41 | 137023.54 | 16478.64 | 0 | 76650.86 | 476700 | 102628.2 | 0 | 367776.1 | 74816.95 | 0 | 194189.98 |
| 1200 | 365371.28 | 134003.3 | 16160.95 | 0 | 73036.89 | 495390.3 | 102720.7 | 0 | 379477.6 | 77592.53 | 0 | 189102.77 |
| 1300 | 395315.75 | 133681.91 | 16354.62 | 0 | 69934.84 | 507641.1 | 104644.6 | 0 | 387515.9 | 80612.59 | 0 | 184092.23 |
| 1400 | 426955.28 | 131579.3 | 16182.92 | 0 | 66603.32 | 521612.6 | 104369.4 | 0 | 393536.9 | 82261.88 | 0 | 178932.34 |
| 1500 | 456381.34 | 132298.47 | 16426.34 | 0 | 63388.37 | 535099.8 | 106172.5 | 0 | 398340.5 | 85824.59 | 0 | 173379.66 |
| 1600 | 483581.38 | 132982.25 | 16589.41 | 0 | 60362.99 | 546413.2 | 107886.1 | 0 | 400645.5 | 88037.63 | 0 | 168274.16 |
| 1700 | 506791.94 | 133500.53 | 16907.71 | 0 | 57294.53 | 556945.1 | 107332.2 | 0 | 399494.5 | 90673.77 | 0 | 163602.97 |
| 1800 | 525075.5 | 136129.28 | 17396.13 | 0 | 54755.02 | 563584.6 | 109637.1 | 0 | 398145.9 | 93505.34 | 0 | 159995.77 |
| 1900 | 543792.75 | 137565.17 | 17486.4 | 0 | 52106.64 | 573202.4 | 109415.7 | 0 | 397303.8 | 96117.38 | 0 | 155930.19 |
| 2000 | 559732.25 | 140513.05 | 17677.11 | 0 | 50192.74 | 581387.4 | 111544.2 | 0 | 392060.2 | 98811.41 | 0 | 152051.48 |
| 2100 | 571672.06 | 141951.63 | 17520.86 | 0 | 48423.8 | 579917.4 | 111145.8 | 0 | 377925.7 | 98880.95 | 0 | 149618.47 |
| 2200 | 575250.38 | 142507.98 | 17427.38 | 0 | 46931.53 | 579124.3 | 107968.2 | 0 | 368734.7 | 102704.56 | 0 | 146701.08 |
| 2300 | 575150.38 | 144527.59 | 17349.44 | 0 | 45269.79 | 582197.8 | 107113.5 | 0 | 360833.3 | 0 | 0 | 143872.41 |
| 2400 | 573440.56 | 146462.19 | 17306.75 | 0 | 44050.63 | 579363.4 | 103816.4 | 0 | 347747.8 | 0 | 0 | 141839.98 |
| 2500 | 567306.06 | 149187.83 | 17259.38 | 0 | 42970.15 | 575687.2 | 102792.3 | 0 | 339406.4 | 0 | 0 | 139755.47 |
| 2600 | 557437.63 | 151815.39 | 17246.09 | 0 | 42051.59 | 570878.9 | 101727.1 | 0 | 330862.9 | 0 | 0 | 137346.88 |
| 2700 | 545177.94 | 154695.61 | 17342.11 | 0 | 40966.13 | 565773.6 | 98277.66 | 0 | 320375.7 | 0 | 0 | 134824.02 |
| 2800 | 529849.69 | 158020.67 | 17445.42 | 0 | 39772.61 | 566170 | 97459.34 | 0 | 313547.9 | 0 | 0 | 132172.52 |
| 2900 | 510007.63 | 161253.11 | 17560.01 | 0 | 39015.86 | 561708.4 | 94083.99 | 0 | 307231.8 | 0 | 0 | 129400.5 |
| 3000 | 491834.5 | 163577.47 | 17648 | 0 | 38528.61 | 558238.4 | 92949.05 | 0 | 295095.7 | 0 | 0 | 126962.83 |
| 3100 | 473626.78 | 166173.23 | 17534.6 | 0 | 37980.04 | 553607.1 | 89443.73 | 0 | 286590 | 0 | 0 | 125030.73 |
| 3200 | 455740.56 | 168770.06 | 17667.3 | 0 | 37239.38 | 545972.8 | 86492.51 | 0 | 276385.6 | 0 | 0 | 123485.43 |
| 3300 | 439500.53 | 171350.67 | 17616.55 | 0 | 36521.38 | 538875.3 | 83412.62 | 0 | 268813.2 | 0 | 0 | 121185.2 |
| 3400 | 420705.03 | 174055.81 | 17543.43 | 0 | 35684.94 | 536051.1 | 80578.06 | 0 | 263100.8 | 0 | 0 | 119039.9 |
| 3500 | 402635.56 | 176447.67 | 17498.33 | 0 | 34590.57 | 533854.1 | 78073.7 | 0 | 255486.7 | 0 | 0 | 115678.8 |
| 3600 | 383859.88 | 178769.42 | 17807.25 | 0 | 33643.53 | 526609.1 | 75256.55 | 0 | 251007.8 | 0 | 0 | 112652.43 |
| 3700 | 366550.84 | 181310.38 | 17962.25 | 0 | 32815.56 | 524747.6 | 72820.28 | 0 | 247170.3 | 0 | 0 | 110392.2 |
| 3800 | 350388.75 | 183519.42 | 18115.31 | 0 | 31983.45 | 518649.6 | 70282.5 | 0 | 241554.1 | 0 | 0 | 108043.02 |
| 3900 | 332673.81 | 185595.3 | 18468.18 | 0 | 31080.18 | 513918.9 | 68123.73 | 0 | 238549.4 | 0 | 0 | 105056.73 |
| 4000 | 315051.88 | 187369.47 | 18631.08 | 0 | 30191.41 | 513271 | 65986.54 | 0 | 233714.5 | 0 | 0 | 102562.52 |
| 4100 | 299574.66 | 189111.95 | 19324.02 | 0 | 29251.01 | 509599.7 | 64052.3 | 0 | 229435 | 0 | 0 | 100372.05 |
| 4200 | 284369.38 | 190709.39 | 20018.61 | 0 | 28543.28 | 505741.8 | 60548.55 | 0 | 225827.6 | 0 | 0 | 97991.17 |
| 4300 | 269309.63 | 192611.27 | 20571.46 | 0 | 27826.63 | 502360.7 | 58758.52 | 0 | 223321 | 0 | 0 | 94924.43 |
| 4400 | 255611.47 | 194383.97 | 21273.15 | 0 | 27100.98 | 499336.4 | 57058.69 | 0 | 220891.1 | 0 | 0 | 91733.06 |
| 4500 | 242111.13 | 195887.44 | 21988.87 | 0 | 26454.73 | 496337 | 55526.93 | 0 | 219100.3 | 0 | 0 | 88916.89 |
| 4600 | 227325.53 | 197055.27 | 22775.5 | 0 | 25738.25 | 492743.8 | 52832.28 | 0 | 217669.3 | 0 | 0 | 85890.68 |
| 4700 | 214107.42 | 198651.7 | 23692.44 | 0 | 25107.17 | 491043.3 | 51429.95 | 0 | 217071.5 | 0 | 0 | 82852.8 |
| 4800 | 201307.56 | 199942.31 | 24505.14 | 0 | 24520.75 | 488896.3 | 50071.16 | 0 | 216347.1 | 0 | 0 | 79812.42 |
| 4900 | 190170.55 | 201139.25 | 25472.75 | 0 | 23988 | 487090.3 | 47647.11 | 0 | 215820.8 | 0 | 0 | 76636.72 |
| 5000 | 180591.55 | 202410.33 | 26448.39 | 0 | 23522.27 | 485575.8 | 46243.9 | 0 | 215652 | 0 | 0 | 73745.38 |
| 5100 | 171630.22 | 203558.91 | 27367.15 | 0 | 22621.84 | 483483 | 45074.88 | 0 | 215801.6 | 0 | 0 | 71311.75 |
| 5200 | 163458.03 | 204649.3 | 28022.35 | 0 | 22313.72 | 478913.1 | 43157.43 | 0 | 215538.2 | 0 | 0 | 68782.16 |
| 5300 | 154758.55 | 205626.66 | 28723.92 | 0 | 21765.1 | 478999 | 42403.4 | 0 | 215833.5 | 0 | 0 | 66110.38 |
| 5400 | 146088.38 | 206508.41 | 29639.71 | 0 | 21151.7 | 473006.4 | 40620.61 | 0 | 214456.2 | 0 | 0 | 63954.16 |
| 5500 | 138879.52 | 207324.41 | 30425.65 | 0 | 20734.39 | 472279.6 | 39890.8 | 0 | 215466.7 | 0 | 0 | 61567.49 |
| 5600 | 131440.69 | 207862.84 | 31177.59 | 0 | 20271.94 | 471743.6 | 38214.19 | 0 | 216720.7 | 0 | 0 | 59143.07 |
| 5700 | 123921.5 | 208807.22 | 31942.63 | 0 | 0 | 468497.4 | 36321.51 | 0 | 218392.4 | 0 | 0 | 56734.17 |
| 5800 | 116752.72 | 209381.31 | 32967.29 | 0 | 0 | 467425.7 | 35604.85 | 0 | 218402.6 | 0 | 0 | 54404.77 |
| 5900 | 111451.74 | 209802.41 | 33912.74 | 0 | 0 | 463951.6 | 33771.61 | 0 | 0 | 0 | 0 | 0 |
| 6000 | 106183.13 | 210370.38 | 34759.93 | 0 | 0 | 462672.4 | 33021.5 | 0 | 0 | 0 | 0 | 0 |

| XSEC 10 | XSEC 11L | XSEC 11R | XSEC 12 | XSEC 13 | XSEC 14 | TOTAL |
|----------|----------|----------|----------|----------|----------|---------|
| 38250.95 | 0 | 79210.31 | 40045.98 | 91126.95 | 17061.31 | 1072559 |
| 45142.19 | 0 | 98932.32 | 40974.86 | 110974.8 | 20645.18 | 1132927 |
| 51792.54 | 0 | 126525 | 42602.12 | 127973.4 | 24739.16 | 1303516 |
| 57818.73 | 0 | 150468.9 | 44559.51 | 139979.7 | 24326.99 | 1310175 |
| 62550.25 | 0 | 186906.5 | 46708.19 | 153483.2 | 22837.94 | 1455225 |
| 67641.33 | 0 | 210873.2 | 48518.3 | 162405.5 | 21242.31 | 1566899 |
| 72282.92 | 0 | 245652.5 | 49551.72 | 170134.6 | 19927.9 | 1697098 |
| 79785.05 | 0 | 301028.3 | 51381.79 | 173682.3 | 15574.98 | 1903079 |
| 85570.27 | 0 | 353874.3 | 52179.57 | 173456.3 | 12004.08 | 2084356 |
| 89764.18 | 0 | 401709.8 | 53020.87 | 166900.1 | 8860.7 | 2245558 |
| 92605.1 | 0 | 447423 | 53022.48 | 153848.6 | 6454.35 | 2382482 |
| 95799.12 | 0 | 482283.1 | 52565.32 | 142063.4 | 4757.9 | 2495836 |
| 96252.77 | 0 | 502789.7 | 52089.26 | 121357.7 | 3277.27 | 2555305 |
| 98076.38 | 0 | 518787 | 51774.13 | 107222.2 | 2195.39 | 2610911 |
| 100296.3 | 0 | 529776.2 | 51502.88 | 92061.73 | 1646.55 | 2655077 |
| 102160.5 | 0 | 538007.5 | 50731.36 | 82360.41 | 1245.13 | 2696539 |
| 104696.2 | 0 | 544574.6 | 49833.6 | 71032.57 | 953.01 | 2738402 |
| 106582.9 | 0 | 547725.8 | 48823.11 | 62363.27 | 853.04 | 2771121 |
| 109028.1 | 0 | 546152.2 | 47425.34 | 56706.63 | 733.51 | 2792589 |
| 110789.7 | 0 | 544308.6 | 46597.35 | 49206.53 | 637.25 | 2809764 |
| 112454 | 0 | 543157.3 | 45722.42 | 44377.88 | 544.75 | 2829177 |
| 113577.6 | 0 | 535988.7 | 45037.23 | 39487.5 | 494.8 | 2838556 |
| 114726.3 | 0 | 516665.3 | 44651.73 | 34010.47 | 439.17 | 2808550 |
| 115603 | 0 | 504100.3 | 44559.67 | 28749.59 | 385.82 | 2780748 |
| 116228.7 | 0 | 493298.3 | 44597.96 | 24862.9 | 368.25 | 2655670 |
| 117473.2 | 0 | 475409 | 44780.21 | 21482.25 | 353.2 | 2613528 |
| 119248.9 | 0 | 464005.3 | 45111.63 | 19096.43 | 338.93 | 2582166 |
| 120917.8 | 0 | 452325.4 | 45439.25 | 16852.25 | 317.34 | 2545218 |
| 122579.5 | 0 | 437988.3 | 45612.05 | 14519.46 | 291.48 | 2498423 |
| 124694.2 | 0 | 428654 | 46329.46 | 12994.09 | 271.41 | 2467381 |
| 126328.8 | 0 | 420019.2 | 47426.66 | 11564.76 | 243.74 | 2425844 |
| 128082.1 | 0 | 403427.8 | 48664.56 | 10634.4 | 240.34 | 2375884 |
| 129613.7 | 0 | 391799.6 | 49884.93 | 9225.7 | 236.31 | 2330746 |
| 131471.4 | 0 | 377849.1 | 50899.55 | 7710.5 | 232.43 | 2279917 |
| 132910.1 | 0 | 367496.7 | 51900.93 | 7064.54 | 232.92 | 2236881 |
| 134552.6 | 0 | 359687.4 | 52686.64 | 6651.72 | 230.64 | 2200568 |
| 136187.2 | 0 | 349278 | 53652.99 | 6225.21 | 230.28 | 2159837 |
| 137738.1 | 0 | 343155 | 54232.62 | 5825.66 | 224.67 | 2120782 |
| 139333.5 | 0 | 337908.5 | 55372.62 | 5460.07 | 229.34 | 2092073 |
| 140953.5 | 0 | 330230.7 | 56873.71 | 5399.84 | 241.86 | 2056236 |
| 142583.9 | 0 | 326122.9 | 58336.36 | 5323.87 | 257.64 | 2026091 |
| 144389.3 | 0 | 319513 | 59310.44 | 5267.21 | 287.21 | 1995545 |
| 145884.3 | 0 | 313662.6 | 60329.72 | 5182.72 | 317.47 | 1966097 |
| 147789.1 | 0 | 308730.9 | 61008.69 | 4907.65 | 335.91 | 1936522 |
| 149255.8 | 0 | 305304.1 | 61905.19 | 5160.35 | 371.15 | 1911680 |
| 150981.9 | 0 | 301982.1 | 62140 | 5443.17 | 393.88 | 1888330 |
| 152600.8 | 0 | 299533.8 | 62414.45 | 5730.89 | 426.11 | 1867029 |
| 154045.6 | 0 | 297577.4 | 62490.47 | 5912.98 | 473.06 | 1842530 |
| 155777.8 | 0 | 298760.3 | 62664.32 | 6180.24 | 503.6 | 1825843 |
| 156998.3 | 0 | 295769.9 | 63018.47 | 6435.04 | 563.02 | 1806188 |
| 158426.6 | 0 | 295050.3 | 62970.29 | 6574.35 | 611.06 | 1791598 |
| 159613.7 | 0 | 294819.7 | 63091.26 | 6878.13 | 680.85 | 1779273 |
| 160796.9 | 0 | 295024.2 | 63335.86 | 7066.7 | 734.89 | 1768008 |
| 161962.2 | 0 | 294664.1 | 63535.21 | 7266.25 | 808.44 | 1753070 |
| 163027.9 | 0 | 295067.6 | 63508.35 | 7503.83 | 863.19 | 1742192 |
| 164104.7 | 0 | 293184.8 | 63620.21 | 7816.11 | 947.44 | 1724899 |
| 165005.3 | 0 | 294566.3 | 63574.1 | 7728.35 | 1016.1 | 1718459 |
| 166292.4 | 0 | 296280.6 | 63560.25 | 7837.98 | 1086.9 | 1711633 |
| 167264 | 0 | 298566 | 63132.37 | 7937.37 | 1182.74 | 1682699 |
| 168293.6 | 0 | 298580.1 | 62874.57 | 8169.62 | 1260.17 | 1674107 |
| 169178.1 | 0 | 0 | 62407.27 | 8300.19 | 1345.38 | 1094121 |
| 170115.2 | 0 | 0 | 61964.08 | 8538.6 | 1416.67 | 1089042 |

SOUTH PLATTE RAINBOW TROUT (1987) - ADULT CURVE

| Discharge | XSEC 1 | XSEC 2 | XSEC 3 | XSEC 4L | XSEC 4R | XSEC 5 | XSEC 6 | XSEC 7L | XSEC 7R | XSEC 8 | XSEC 9L | XSEC 9R |
|-----------|-----------|-----------|----------|----------|-----------|----------|----------|----------|----------|-----------|---------|-----------|
| 200 | 57806.26 | 45308.83 | 24740.15 | 88129.58 | 90884.43 | 129188.1 | 28491.1 | 100151.5 | 57940.04 | 32234.58 | 0 | 151980.39 |
| 250 | 70522.99 | 56342.12 | 30679.49 | 104624.9 | 93825.16 | 154085.5 | 34841.23 | 0 | 72366.09 | 35593.21 | 0 | 163377.33 |
| 300 | 82471.46 | 67109.91 | 28930.09 | 119456.5 | 97185.2 | 179894.2 | 41764.15 | 0 | 94012.24 | 40873.82 | 0 | 176185.69 |
| 350 | 96380.98 | 76648.43 | 26942.75 | 0 | 100270.01 | 205515.7 | 47621.95 | 0 | 110063.6 | 45716.99 | 0 | 185321.81 |
| 400 | 110109.51 | 85962.31 | 24462.33 | 0 | 101316.7 | 229565.6 | 53320.54 | 0 | 136716.7 | 46209.2 | 0 | 195056.13 |
| 450 | 124446.91 | 94887.54 | 22558.18 | 0 | 101461.34 | 253242.9 | 58998.56 | 0 | 154247.6 | 46209.2 | 0 | 200166.63 |
| 500 | 138290.95 | 102427.66 | 20855.51 | 0 | 101000.73 | 275044 | 64872.78 | 0 | 179687.6 | 50703.24 | 0 | 206665.94 |
| 600 | 167671.09 | 116935.54 | 19023.56 | 0 | 98652.45 | 316339.3 | 75572.42 | 0 | 220193.5 | 54593.91 | 0 | 212645.03 |
| 700 | 198620.34 | 125355.79 | 18065.74 | 0 | 94607.57 | 36130.6 | 82754.65 | 0 | 258848.8 | 60450.05 | 0 | 212438.22 |
| 800 | 232523.17 | 131662.39 | 17417.12 | 0 | 90236.89 | 394336.1 | 90048.8 | 0 | 293839 | 65795.74 | 0 | 209442.89 |
| 900 | 268198.69 | 135301.61 | 17105.32 | 0 | 85508.44 | 427133.8 | 95482.52 | 0 | 327277 | 68431.39 | 0 | 204690.08 |
| 1000 | 302214.63 | 137834.47 | 17104.01 | 0 | 80756.61 | 456272.8 | 99964.06 | 0 | 352776 | 72320.43 | 0 | 199124.28 |
| 1100 | 333274.41 | 137023.64 | 16478.64 | 0 | 76650.86 | 476700 | 102628.2 | 0 | 387776.1 | 74816.95 | 0 | 194189.98 |
| 1200 | 365371.28 | 134003.3 | 16160.95 | 0 | 73036.89 | 495390.3 | 102720.7 | 0 | 379477.6 | 77562.53 | 0 | 189102.77 |
| 1300 | 395315.75 | 133681.91 | 16354.62 | 0 | 69934.84 | 507641.1 | 104644.6 | 0 | 387515.9 | 80612.59 | 0 | 184092.23 |
| 1400 | 426955.28 | 131579.3 | 16182.92 | 0 | 66603.32 | 521612.6 | 104369.4 | 0 | 393536.9 | 82261.88 | 0 | 178932.34 |
| 1500 | 456381.34 | 132298.47 | 16426.34 | 0 | 63388.37 | 535099.8 | 106172.5 | 0 | 398340.5 | 85824.59 | 0 | 173379.66 |
| 1600 | 483581.38 | 132982.25 | 16589.41 | 0 | 60362.99 | 546413.2 | 107886.1 | 0 | 400645.5 | 88037.63 | 0 | 168274.16 |
| 1700 | 506791.94 | 133500.53 | 16907.71 | 0 | 57294.53 | 556945.1 | 107332.2 | 0 | 399494.5 | 90673.77 | 0 | 163602.97 |
| 1800 | 525075.5 | 136129.28 | 17396.13 | 0 | 54755.02 | 563584.6 | 109637.1 | 0 | 398145.9 | 93505.34 | 0 | 159995.77 |
| 1900 | 543792.75 | 137565.17 | 17486.4 | 0 | 52106.64 | 573202.4 | 109415.7 | 0 | 397303.8 | 98117.38 | 0 | 155930.19 |
| 2000 | 559732.25 | 140513.05 | 17877.11 | 0 | 50192.74 | 581387.4 | 111544.2 | 0 | 392060.2 | 98811.41 | 0 | 152051.48 |
| 2100 | 571672.06 | 141951.63 | 17520.86 | 0 | 48423.8 | 579917.4 | 111145.8 | 0 | 377925.7 | 99880.95 | 0 | 149618.47 |
| 2200 | 575250.38 | 142507.98 | 17427.38 | 0 | 46931.53 | 579124.3 | 107968.2 | 0 | 368734.7 | 102704.56 | 0 | 146701.08 |
| 2300 | 575150.38 | 144527.59 | 17349.44 | 0 | 45269.79 | 582197.8 | 107113.5 | 0 | 360833.3 | 0 | 0 | 143872.41 |
| 2400 | 573440.56 | 146462.19 | 17306.75 | 0 | 44050.63 | 579363.4 | 103816.4 | 0 | 347747.8 | 0 | 0 | 141839.98 |
| 2500 | 567306.06 | 149187.83 | 17259.38 | 0 | 42970.15 | 575687.2 | 102792.3 | 0 | 339406.4 | 0 | 0 | 139755.47 |
| 2600 | 557437.63 | 151815.39 | 17246.09 | 0 | 42051.59 | 570878.9 | 101727.1 | 0 | 330862.9 | 0 | 0 | 137348.88 |
| 2700 | 545177.94 | 154695.61 | 17342.11 | 0 | 40966.13 | 565773.6 | 98277.66 | 0 | 320375.7 | 0 | 0 | 134824.02 |
| 2800 | 529849.69 | 158020.67 | 17445.42 | 0 | 39772.61 | 566170 | 97459.34 | 0 | 313547.9 | 0 | 0 | 132172.52 |
| 2900 | 510007.63 | 161253.11 | 17560.01 | 0 | 39015.86 | 561708.4 | 94083.99 | 0 | 307231.8 | 0 | 0 | 129400.5 |
| 3000 | 491834.5 | 163577.47 | 17848 | 0 | 38528.61 | 558238.4 | 92949.05 | 0 | 295095.7 | 0 | 0 | 126962.83 |
| 3100 | 473626.78 | 166173.23 | 17534.6 | 0 | 37980.04 | 553607.1 | 89443.73 | 0 | 286590 | 0 | 0 | 125030.73 |
| 3200 | 455740.56 | 168870.06 | 17667.3 | 0 | 37239.38 | 545972.8 | 86492.51 | 0 | 276385.6 | 0 | 0 | 123485.43 |
| 3300 | 439500.53 | 171350.67 | 17616.55 | 0 | 36521.38 | 536875.3 | 83412.62 | 0 | 268813.2 | 0 | 0 | 121185.2 |
| 3400 | 420705.03 | 174055.81 | 17543.43 | 0 | 35684.94 | 536051.1 | 80578.06 | 0 | 263100.8 | 0 | 0 | 119039.9 |
| 3500 | 402635.56 | 176447.67 | 17498.33 | 0 | 34590.57 | 533854.1 | 78073.7 | 0 | 255486.7 | 0 | 0 | 115676.8 |
| 3600 | 383859.88 | 178769.42 | 17807.25 | 0 | 33643.53 | 526609.1 | 75256.55 | 0 | 251007.8 | 0 | 0 | 112652.43 |
| 3700 | 366550.84 | 181310.38 | 17962.25 | 0 | 32815.56 | 524747.6 | 72820.28 | 0 | 247170.3 | 0 | 0 | 110392.2 |
| 3800 | 350388.75 | 183519.42 | 18115.31 | 0 | 31983.45 | 516649.6 | 70282.5 | 0 | 241554.1 | 0 | 0 | 108043.02 |
| 3900 | 332673.81 | 185595.3 | 18468.18 | 0 | 31080.18 | 513918.9 | 68123.73 | 0 | 238549.4 | 0 | 0 | 105056.73 |
| 4000 | 315051.68 | 187369.47 | 18631.08 | 0 | 30191.41 | 513271 | 65986.54 | 0 | 233714.5 | 0 | 0 | 102562.52 |
| 4100 | 299574.66 | 189111.95 | 19324.02 | 0 | 29251.01 | 509599.7 | 64052.3 | 0 | 229435 | 0 | 0 | 100372.05 |
| 4200 | 284369.38 | 190709.39 | 20018.61 | 0 | 28543.28 | 505741.8 | 60548.55 | 0 | 225827.6 | 0 | 0 | 97991.17 |
| 4300 | 269309.63 | 192611.27 | 20571.46 | 0 | 27826.63 | 502360.7 | 58758.52 | 0 | 223321 | 0 | 0 | 94924.43 |
| 4400 | 255811.47 | 194383.97 | 21273.15 | 0 | 27100.98 | 499336.4 | 57058.69 | 0 | 220891.1 | 0 | 0 | 91733.06 |
| 4500 | 242111.13 | 195887.44 | 21988.87 | 0 | 26454.73 | 496337 | 55526.93 | 0 | 219100.3 | 0 | 0 | 88916.89 |
| 4600 | 227325.53 | 197055.27 | 22775.5 | 0 | 25738.25 | 492743.8 | 52832.28 | 0 | 217689.3 | 0 | 0 | 85890.68 |
| 4700 | 214107.42 | 198651.7 | 23692.44 | 0 | 25107.17 | 491043.3 | 51429.95 | 0 | 217071.5 | 0 | 0 | 82852.8 |
| 4800 | 201307.56 | 199942.31 | 24505.14 | 0 | 24520.75 | 488895.3 | 50071.16 | 0 | 216347.1 | 0 | 0 | 79812.42 |
| 4900 | 190170.55 | 201139.25 | 25472.75 | 0 | 23988 | 487090.3 | 47647.11 | 0 | 215820.8 | 0 | 0 | 76636.72 |
| 5000 | 180591.55 | 202410.33 | 26448.39 | 0 | 23522.27 | 485575.8 | 46243.9 | 0 | 215652 | 0 | 0 | 73745.38 |
| 5100 | 171630.22 | 203558.91 | 27367.15 | 0 | 22821.84 | 483483 | 45074.88 | 0 | 215801.6 | 0 | 0 | 71311.75 |
| 5200 | 163458.03 | 204649.3 | 28022.35 | 0 | 22313.72 | 478913.1 | 43157.43 | 0 | 215538.2 | 0 | 0 | 68782.16 |
| 5300 | 154768.55 | 205626.66 | 28723.92 | 0 | 21765.1 | 476999 | 42403.4 | 0 | 215833.5 | 0 | 0 | 66110.38 |
| 5400 | 146088.38 | 206508.41 | 29639.71 | 0 | 21151.7 | 473006.4 | 40620.61 | 0 | 214456.2 | 0 | 0 | 63954.16 |
| 5500 | 138879.52 | 207324.41 | 30425.65 | 0 | 20734.39 | 472279.6 | 39890.8 | 0 | 215466.7 | 0 | 0 | 61567.49 |
| 5600 | 131440.69 | 207862.64 | 31177.59 | 0 | 20271.94 | 471743.6 | 38214.19 | 0 | 216720.7 | 0 | 0 | 59143.07 |
| 5700 | 123921.5 | 208807.22 | 31942.63 | 0 | 0 | 468497.4 | 36321.51 | 0 | 216392.4 | 0 | 0 | 56734.17 |
| 5800 | 116752.72 | 209381.31 | 32967.29 | 0 | 0 | 467425.7 | 35604.85 | 0 | 218402.6 | 0 | 0 | 54404.77 |
| 5900 | 111451.74 | 209802.41 | 33912.74 | 0 | 0 | 463951.6 | 33771.61 | 0 | 0 | 0 | 0 | 0 |
| 6000 | 106183.13 | 210370.38 | 34759.93 | 0 | 0 | 462672.4 | 33021.5 | 0 | 0 | 0 | 0 | 0 |

| XSEC 10 | XSEC 11L | XSEC 11R | XSEC 12 | XSEC 13 | XSEC 14 | TOTAL |
|----------|----------|----------|----------|----------|----------|---------|
| 38259.95 | 0 | 79210.31 | 40045.98 | 91126.95 | 17061.31 | 1072559 |
| 45142.19 | 0 | 98932.32 | 40974.86 | 110974.8 | 20645.18 | 1132927 |
| 51792.54 | 0 | 128525 | 42602.12 | 127973.4 | 24739.16 | 1303516 |
| 57818.73 | 0 | 150468.9 | 44559.51 | 139979.7 | 24326.99 | 1311636 |
| 62550.25 | 0 | 186906.5 | 46708.19 | 153483.2 | 22837.94 | 1455225 |
| 67641.33 | 0 | 210873.2 | 48518.3 | 162405.5 | 21242.31 | 1566899 |
| 72282.92 | 0 | 245652.5 | 49551.72 | 170134.6 | 19927.9 | 1697098 |
| 79785.05 | 0 | 301028.3 | 51381.79 | 173682.3 | 15574.98 | 1903079 |
| 85570.27 | 0 | 353874.3 | 52179.57 | 173456.3 | 12004.08 | 2084356 |
| 89764.18 | 0 | 401709.8 | 53020.87 | 166900.1 | 8860.7 | 2245558 |
| 92605.1 | 0 | 447423 | 53022.48 | 153848.6 | 6454.35 | 2382482 |
| 95799.12 | 0 | 482283.1 | 52565.32 | 142063.4 | 4757.9 | 2495836 |
| 96252.77 | 0 | 502789.7 | 52089.26 | 121357.7 | 3277.27 | 2555305 |
| 98076.38 | 0 | 518787 | 51774.13 | 107222.2 | 2195.39 | 2610911 |
| 100296.3 | 0 | 529776.2 | 51502.88 | 92061.73 | 1646.55 | 2655077 |
| 102160.5 | 0 | 538007.5 | 50731.36 | 82360.41 | 1245.13 | 2696539 |
| 104696.2 | 0 | 544574.6 | 49833.6 | 71032.57 | 953.01 | 2738402 |
| 106582.9 | 0 | 547725.8 | 48823.11 | 62363.27 | 853.04 | 2771121 |
| 109028.1 | 0 | 546152.2 | 47425.34 | 56706.63 | 733.51 | 2792589 |
| 110789.7 | 0 | 544308.6 | 46597.35 | 49206.53 | 637.25 | 2809764 |
| 112454 | 0 | 543157.3 | 45722.42 | 44377.88 | 544.75 | 2829177 |
| 113577.6 | 0 | 535988.7 | 45037.23 | 39487.5 | 494.8 | 2838556 |
| 114726.3 | 0 | 516665.3 | 44651.73 | 34010.47 | 439.17 | 2808550 |
| 115603 | 0 | 504100.3 | 44559.67 | 28749.59 | 385.82 | 2780748 |
| 116228.7 | 0 | 493298.3 | 44597.96 | 24862.9 | 368.25 | 2655670 |
| 117473.2 | 0 | 475409 | 44780.21 | 21482.25 | 353.2 | 2613526 |
| 119248.9 | 0 | 464005.3 | 45111.63 | 19096.43 | 338.93 | 2582166 |
| 120917.8 | 0 | 452325.4 | 45439.25 | 16852.25 | 317.34 | 2545218 |
| 122579.5 | 0 | 437988.3 | 45612.05 | 14519.46 | 291.48 | 2498423 |
| 124694.2 | 0 | 428654 | 46329.46 | 12994.09 | 271.41 | 2467381 |
| 126328.8 | 0 | 420019.2 | 47426.66 | 11564.76 | 243.74 | 2425844 |
| 128082.1 | 0 | 403427.8 | 48664.56 | 10634.4 | 240.34 | 2375884 |
| 129613.7 | 0 | 391799.6 | 49884.93 | 9225.7 | 236.31 | 2330746 |
| 131471.4 | 0 | 377849.1 | 50899.55 | 7710.5 | 232.43 | 2279917 |
| 132910.1 | 0 | 367496.7 | 51900.93 | 7064.54 | 232.92 | 2236881 |
| 134552.6 | 0 | 359627.4 | 52686.64 | 6651.72 | 230.64 | 2200568 |
| 136187.2 | 0 | 742278 | 53652.99 | 6225.21 | 230.28 | 2159837 |
| 137738.1 | 0 | 343155 | 54232.62 | 5825.66 | 224.67 | 2120782 |
| 139333.5 | 0 | 337908.5 | 55372.62 | 5460.07 | 229.34 | 2092073 |
| 140953.5 | 0 | 330230.7 | 56873.71 | 5399.84 | 241.86 | 2056236 |
| 142583.9 | 0 | 326122.9 | 58336.36 | 5323.87 | 257.84 | 2026091 |
| 144389.3 | 0 | 319513 | 59310.44 | 5267.21 | 287.21 | 1995545 |
| 145884.3 | 0 | 313662.6 | 60329.72 | 5182.72 | 317.47 | 1966097 |
| 147789.1 | 0 | 308730.9 | 61008.69 | 4907.65 | 335.91 | 1936522 |
| 149255.8 | 0 | 305304.1 | 61905.19 | 5160.35 | 371.15 | 1911680 |
| 150981.9 | 0 | 301982.1 | 62140 | 5443.17 | 393.88 | 1888330 |
| 152600.8 | 0 | 299533.8 | 62414.45 | 5730.89 | 426.11 | 1867029 |
| 154045.6 | 0 | 297577.4 | 62490.47 | 5912.98 | 473.06 | 1842530 |
| 155777.8 | 0 | 296760.3 | 62664.32 | 6180.24 | 503.6 | 1825843 |
| 156998.3 | 0 | 295769.9 | 63018.47 | 6435.04 | 563.02 | 1808188 |
| 158426.6 | 0 | 295050.3 | 62970.29 | 6574.35 | 611.06 | 1791598 |
| 159613.7 | 0 | 294819.7 | 63091.26 | 6878.13 | 680.85 | 1779273 |
| 160796.9 | 0 | 295024.2 | 63335.86 | 7066.7 | 734.89 | 1768008 |
| 161962.2 | 0 | 294664.1 | 63535.21 | 7266.25 | 808.44 | 1753070 |
| 163027.9 | 0 | 295067.8 | 63508.35 | 7503.83 | 863.19 | 1742192 |
| 164104.7 | 0 | 293184.8 | 63620.21 | 7616.11 | 947.44 | 1724899 |
| 165005.3 | 0 | 294566.3 | 63574.1 | 7728.35 | 1016.1 | 1718459 |
| 166292.4 | 0 | 296280.6 | 63560.25 | 7837.98 | 1086.9 | 1711633 |
| 167264 | 0 | 298566 | 63132.37 | 7937.37 | 1182.74 | 1662699 |
| 168293.6 | 0 | 298580.1 | 62874.57 | 8169.62 | 1250.17 | 1674107 |
| 169178.1 | 0 | 0 | 62407.27 | 8300.19 | 1345.38 | 1694121 |
| 170115.2 | 0 | 0 | 61964.06 | 8538.6 | 1416.67 | 1699042 |

GOSSE/BOR RAINBOW TROUT (1996) - ADULT CURVE

| Discharge | XSEC 1 | XSEC 2 | XSEC 3 | XSEC 4L | XSEC 4R | XSEC 5 | XSEC 6 | XSEC 7L | XSEC 7R | XSEC 8 | XSEC 9L | XSEC 9R |
|-----------|-----------|-----------|----------|---------|-----------|----------|----------|----------|----------|----------|---------|-----------|
| 200 | 79523.81 | 67848.55 | 6547.19 | 51574.4 | 141452.63 | 240158.2 | 55095.39 | 20575.18 | 15034.47 | 34485.86 | 0 | 323016.84 |
| 250 | 92345.25 | 70676.77 | 10760 | 56767.7 | 145067.42 | 274392.6 | 60217.96 | 0 | 16938.2 | 35892.04 | 0 | 344497.78 |
| 300 | 102851.52 | 71033.38 | 10996.09 | 61666.2 | 129890.47 | 301465.6 | 65681.92 | 0 | 18533.19 | 33997.46 | 0 | 353334.22 |
| 350 | 116658.39 | 68204.76 | 10846.67 | 0 | 121604.17 | 326739.6 | 62004.67 | 0 | 18592.92 | 33386.74 | 0 | 356768.03 |
| 400 | 130716.54 | 65391.1 | 10794.48 | 0 | 122918.38 | 349811.1 | 59025.21 | 0 | 18936.7 | 33143.09 | 0 | 340907.81 |
| 450 | 148642.58 | 65223.01 | 10745.26 | 0 | 132760.45 | 371876.5 | 56271.94 | 0 | 18811.33 | 33143.09 | 0 | 332212.59 |
| 500 | 167782.52 | 66302.52 | 11155.33 | 0 | 135201.55 | 389550.2 | 52975.03 | 0 | 17277.99 | 34656.47 | 0 | 324593.47 |
| 600 | 207582.72 | 74669.31 | 12773.65 | 0 | 136000.59 | 402641.2 | 51419.31 | 0 | 14173.46 | 37518.36 | 0 | 322277.97 |
| 700 | 247294.92 | 84066.57 | 14652.27 | 0 | 134632.22 | 386260.9 | 48188.3 | 0 | 11461.99 | 39520.97 | 0 | 316679.25 |
| 800 | 287904.91 | 92435.6 | 15161.94 | 0 | 139163.2 | 362720.9 | 48547.33 | 0 | 9132.42 | 39533.56 | 0 | 303774.41 |
| 900 | 328762.25 | 100493.95 | 15580.11 | 0 | 146982.58 | 343212.8 | 42558.68 | 0 | 7547.45 | 36991.82 | 0 | 291748.25 |
| 1000 | 365578.69 | 109224.57 | 14688.19 | 0 | 155391.14 | 321589.9 | 38037.71 | 0 | 6815.56 | 35877.11 | 0 | 286755.84 |
| 1100 | 395281.41 | 115841.2 | 13498.59 | 0 | 162042.66 | 309033.8 | 32134.57 | 0 | 6219.94 | 33228.66 | 0 | 281220.41 |
| 1200 | 423055.25 | 122026.08 | 12610.48 | 0 | 164162.56 | 302656.1 | 26274.7 | 0 | 6307.09 | 30381.03 | 0 | 279772.25 |
| 1300 | 445413.91 | 128812.8 | 12560.34 | 0 | 164648.22 | 299775.7 | 23239.02 | 0 | 5988.17 | 28331.46 | 0 | 276504.88 |
| 1400 | 467192.72 | 132718.64 | 13319.68 | 0 | 159062.03 | 303329.9 | 22323.56 | 0 | 5636.26 | 27172.95 | 0 | 268179.25 |
| 1500 | 488410 | 134983.25 | 14309.25 | 0 | 152364.13 | 305705.3 | 22780.12 | 0 | 5233.86 | 26771.54 | 0 | 261036.91 |
| 1600 | 507612.75 | 135877.47 | 15460.44 | 0 | 145335.45 | 312105.6 | 23476.29 | 0 | 4899.47 | 26270.61 | 0 | 255082.5 |
| 1700 | 526276.13 | 135769.95 | 16374.74 | 0 | 139488.83 | 322194.4 | 23461.08 | 0 | 4619.39 | 25027.79 | 0 | 249456.31 |
| 1800 | 543142.25 | 136060.09 | 17230.96 | 0 | 134804.47 | 326142.9 | 23226.6 | 0 | 4350.05 | 24224.6 | 0 | 243821.61 |
| 1900 | 561422.88 | 135173.33 | 17948.21 | 0 | 130166.95 | 331705.3 | 22629.41 | 0 | 4106.9 | 23579.48 | 0 | 240216.69 |
| 2000 | 579985.56 | 135352.19 | 18594.98 | 0 | 125534.13 | 335625.6 | 22143.71 | 0 | 3797.6 | 22803.08 | 0 | 229008.11 |
| 2100 | 591812.81 | 134027.78 | 19209.79 | 0 | 121728.64 | 336004.2 | 21320.84 | 0 | 3424.65 | 21772.02 | 0 | 216954.89 |
| 2200 | 597969.44 | 131891.83 | 19737.7 | 0 | 121268.7 | 335783.1 | 20226.58 | 0 | 3324.42 | 21197.58 | 0 | 207548.88 |
| 2300 | 606937.38 | 130688.54 | 20178.59 | 0 | 120876.03 | 333736.8 | 19486.13 | 0 | 3325.97 | 0 | 0 | 197712.52 |
| 2400 | 612391.38 | 129768.99 | 20602.56 | 0 | 120258.69 | 326823.2 | 18388.61 | 0 | 3316.47 | 0 | 0 | 187415.7 |
| 2500 | 617472.94 | 129180.19 | 21026.6 | 0 | 119479.72 | 322191 | 17732.53 | 0 | 3313.48 | 0 | 0 | 179931.91 |
| 2600 | 619546.56 | 126346.52 | 21450.67 | 0 | 119130.42 | 312732.8 | 16982.46 | 0 | 3332.18 | 0 | 0 | 173374.41 |
| 2700 | 620157.19 | 128184.06 | 21874.77 | 0 | 119095.12 | 302506.1 | 15880.76 | 0 | 3346.07 | 0 | 0 | 166755.2 |
| 2800 | 618525.44 | 129634.08 | 22299.01 | 0 | 119100.84 | 294353.2 | 15020.61 | 0 | 3364.89 | 0 | 0 | 160197.72 |
| 2900 | 618959.38 | 131314.44 | 22723.21 | 0 | 119125.76 | 282890.4 | 14850.02 | 0 | 3374.06 | 0 | 0 | 153466.52 |
| 3000 | 617463.38 | 132745.66 | 23147.43 | 0 | 119157.89 | 269273.3 | 14971.82 | 0 | 3373.67 | 0 | 0 | 147984.16 |
| 3100 | 617066.5 | 133833.53 | 23430.25 | 0 | 119190.04 | 256483.1 | 14977.79 | 0 | 3371.29 | 0 | 0 | 145530.97 |
| 3200 | 615726.31 | 135012.2 | 23854.62 | 0 | 119227.53 | 241528.3 | 14953.65 | 0 | 3358.14 | 0 | 0 | 145095.86 |
| 3300 | 613877.44 | 136038.97 | 24137.48 | 0 | 119259.66 | 225968.7 | 14925.32 | 0 | 3353.53 | 0 | 0 | 144962.03 |
| 3400 | 612804.06 | 137399.19 | 24417.31 | 0 | 117973.39 | 214511.9 | 14947.32 | 0 | 3345.46 | 0 | 0 | 144717.63 |
| 3500 | 612838.94 | 139006.72 | 24697.28 | 0 | 116468.88 | 204006.7 | 15042.71 | 0 | 3336.51 | 0 | 0 | 144542.72 |
| 3600 | 611851.56 | 140056.94 | 25099.14 | 0 | 114959.02 | 194630.6 | 15192.58 | 0 | 3323.88 | 0 | 0 | 144572.34 |
| 3700 | 611282 | 140502.58 | 25343.06 | 0 | 113449.14 | 185534.5 | 15342.4 | 0 | 3310.5 | 0 | 0 | 144733.58 |
| 3800 | 610688.13 | 141021.75 | 25587.07 | 0 | 111939.28 | 176221.5 | 15492.23 | 0 | 3298.2 | 0 | 0 | 145151.67 |
| 3900 | 610217.88 | 141819.84 | 25942.94 | 0 | 110169.83 | 166556.4 | 15642.11 | 0 | 3298.59 | 0 | 0 | 145653.09 |
| 4000 | 610306.06 | 142328.28 | 26182.24 | 0 | 105342.12 | 160356.2 | 15791.9 | 0 | 3298.02 | 0 | 0 | 145421.38 |
| 4100 | 610000.31 | 142921.69 | 26661.15 | 0 | 101210.84 | 152160.8 | 15941.8 | 0 | 3297.7 | 0 | 0 | 145185.09 |
| 4200 | 608756.94 | 143420.8 | 27139.47 | 0 | 95732.67 | 146481.7 | 16016.66 | 0 | 3297.33 | 0 | 0 | 143258.66 |
| 4300 | 606583.63 | 143458.94 | 27486.99 | 0 | 92106.73 | 143584.3 | 16166.55 | 0 | 3295.99 | 0 | 0 | 139988.11 |
| 4400 | 605252.19 | 144317.22 | 27950.62 | 0 | 86640.67 | 141221 | 16316.38 | 0 | 3293.8 | 0 | 0 | 136052.22 |
| 4500 | 604596.88 | 144825.58 | 28414.52 | 0 | 82836.12 | 138292.3 | 16466.23 | 0 | 3294 | 0 | 0 | 131149.03 |
| 4600 | 603878.63 | 145315.25 | 28878.71 | 0 | 78495.2 | 136702.1 | 16541.15 | 0 | 3294.2 | 0 | 0 | 128216.85 |
| 4700 | 601763.94 | 145370.17 | 29343.18 | 0 | 74524.37 | 136021.9 | 16690.99 | 0 | 3294.39 | 0 | 0 | 123955.61 |
| 4800 | 600088.81 | 144404.25 | 29691.67 | 0 | 69794.15 | 135358.7 | 16840.79 | 0 | 3294.59 | 0 | 0 | 120362.66 |
| 4900 | 599894.68 | 144397.11 | 30156.63 | 0 | 66022 | 134895.3 | 16915.73 | 0 | 3294.79 | 0 | 0 | 116460.69 |
| 5000 | 598072.38 | 144514.17 | 30621.87 | 0 | 61474.73 | 134462.5 | 17065.62 | 0 | 3294.99 | 0 | 0 | 112212.73 |
| 5100 | 596739.88 | 142554.22 | 31082.01 | 0 | 57965.46 | 14316.9 | 17215.43 | 0 | 3295.19 | 0 | 0 | 107729.69 |
| 5200 | 594509.25 | 141917.39 | 31427.85 | 0 | 54601.45 | 134042.9 | 17300.46 | 0 | 3295.39 | 0 | 0 | 103524.52 |
| 5300 | 593230.63 | 140147.67 | 31773.72 | 0 | 50300.91 | 134075.2 | 17450.72 | 0 | 3295.59 | 0 | 0 | 99588.77 |
| 5400 | 591757.75 | 139302.83 | 32234.89 | 0 | 47578 | 133798.8 | 17525.92 | 0 | 3295.72 | 0 | 0 | 95129.37 |
| 5500 | 589412.75 | 138035.09 | 32696.06 | 0 | 43141.29 | 134024.4 | 17676.21 | 0 | 3295.92 | 0 | 0 | 90922.4 |
| 5600 | 588412.06 | 136261.55 | 33041.93 | 0 | 41134.82 | 134248.6 | 17751.38 | 0 | 3295.12 | 0 | 0 | 86124.88 |
| 5700 | 587489.69 | 134830.38 | 33387.79 | 0 | 0 | 133975.7 | 17826.57 | 0 | 3295.32 | 0 | 0 | 82533.16 |
| 5800 | 586542.88 | 132939.02 | 33848.97 | 0 | 0 | 133211.6 | 17976.83 | 0 | 3295.46 | 0 | 0 | 78871.51 |
| 5900 | 585305.75 | 131301.06 | 34092.9 | 0 | 0 | 132269.9 | 18052 | 0 | 0 | 0 | 0 | 0 |
| 6000 | 583550.81 | 129366.19 | 33997.76 | 0 | 0 | 131847.7 | 18202.31 | 0 | 0 | 0 | 0 | 0 |

| XSEC 10 | XSEC 11L | XSEC 11R | XSEC 12 | XSEC 13 | XSEC 14 | TOTAL |
|----------|----------|----------|----------|----------|----------|---------|
| 15341.48 | 0 | 20553.75 | 69437.8 | 33960.52 | 2399.78 | 1177006 |
| 14519.07 | 0 | 23156.39 | 80520.4 | 27033.24 | 3190.84 | 1255976 |
| 13974.02 | 0 | 25336.86 | 94927.28 | 23290.14 | 3962.08 | 1310940 |
| 14917.69 | 0 | 25418.55 | 106598.1 | 19507.98 | 4279.69 | 1285528 |
| 16007.32 | 0 | 25888.51 | 117111.4 | 17790.52 | 4150.5 | 1312593 |
| 16857.75 | 0 | 25717.13 | 127679.2 | 15936.54 | 3580.42 | 1359436 |
| 18910.16 | 0 | 23620.92 | 137029.8 | 15960.23 | 3494.64 | 1396511 |
| 23122.88 | 0 | 19376.65 | 146398.2 | 17708.86 | 3830.31 | 1469403 |
| 27088.45 | 0 | 15669.77 | 151409.7 | 20058.1 | 4207.44 | 1501191 |
| 30834.6 | 0 | 12485.01 | 156814.9 | 22189.27 | 4518.77 | 1525217 |
| 34100.01 | 0 | 10318.17 | 180535.8 | 23843.82 | 4788.36 | 1547164 |
| 36886.14 | 0 | 9317.62 | 160706.3 | 25342.38 | 5011.82 | 1571423 |
| 38722.09 | 0 | 8503.35 | 160246 | 26649.16 | 5197.51 | 1587819 |
| 40575.77 | 0 | 8622.49 | 158932.1 | 28133.23 | 5370.47 | 1606880 |
| 42354.23 | 0 | 8186.47 | 154251.1 | 29350.38 | 5610.91 | 1625068 |
| 43362.77 | 0 | 7705.33 | 147370.4 | 30747.01 | 5787.01 | 1633906 |
| 45045.5 | 0 | 7155.26 | 140471.6 | 31870.7 | 6019.31 | 1642157 |
| 46411.86 | 0 | 6698.09 | 134255.9 | 32951.02 | 6252.27 | 1652670 |
| 47514.64 | 0 | 6315.19 | 126324.3 | 34168.1 | 6415.72 | 1665407 |
| 48460.84 | 0 | 5946.99 | 123428.7 | 35171.56 | 6643.06 | 1672655 |
| 49372.71 | 0 | 5614.58 | 118591.7 | 36333.19 | 6828.18 | 1683690 |
| 50119 | 0 | 5191.72 | 114341.8 | 37317.99 | 7074.1 | 1686890 |
| 50749.41 | 0 | 4681.87 | 110636.1 | 38092.28 | 7310.47 | 1677726 |
| 50848.72 | 0 | 4544.85 | 107010.2 | 38921.59 | 7543.55 | 1667917 |
| 51407.69 | 0 | 4546.99 | 104154.2 | 39755.08 | 7775.67 | 1640582 |
| 52030.46 | 0 | 4534.01 | 102014.3 | 40588.42 | 8009.61 | 1628142 |
| 52891.42 | 0 | 4529.9 | 100195 | 41421.89 | 8244.74 | 1617612 |
| 53350.79 | 0 | 4555.45 | 98485.73 | 42255.36 | 8476.98 | 1602020 |
| 53710.36 | 0 | 4574.45 | 97005.13 | 43088.7 | 8706.48 | 1584884 |
| 54476.1 | 0 | 4600.16 | 95407.36 | 43922.18 | 8935.72 | 1569837 |
| 55198.97 | 0 | 4612.68 | 93433.58 | 44698.27 | 9165.95 | 1553813 |
| 55244.9 | 0 | 4612.15 | 92060.98 | 45401.17 | 9396.78 | 1534833 |
| 55063.53 | 0 | 4608.91 | 91543.09 | 45950.96 | 9622.9 | 1520753 |
| 55226.41 | 0 | 4590.92 | 89328.73 | 46499.56 | 9847.42 | 1504250 |
| 54813.04 | 0 | 4584.62 | 83612.42 | 47180.79 | 10069.4 | 1482783 |
| 54728.6 | 0 | 4573.59 | 77596.49 | 47710.26 | 10283.9 | 1465009 |
| 54829.02 | 0 | 4561.36 | 71683.17 | 48193.06 | 10498.39 | 1449705 |
| 54724.96 | 0 | 4544.09 | 68503.41 | 48675.88 | 10659.27 | 1434794 |
| 54916.25 | 0 | 4525.8 | 61500.66 | 49158.68 | 10873.75 | 1420473 |
| 54486.19 | 0 | 4508.97 | 55607.12 | 49762.22 | 11088.25 | 1404853 |
| 54609.12 | 0 | 4509.52 | 50710.55 | 50244.95 | 11302.74 | 1390678 |
| 54613.82 | 0 | 4508.73 | 45918.99 | 50711.23 | 11505.42 | 1376284 |
| 54484.65 | 0 | 4508.3 | 41883.58 | 51127.94 | 11704.93 | 1361089 |
| 54486.45 | 0 | 4507.79 | 37908.69 | 51440.46 | 11854.52 | 1344302 |
| 54439.91 | 0 | 4505.96 | 33179.3 | 51857.18 | 12054.01 | 1328708 |
| 54462.76 | 0 | 4502.97 | 29293.23 | 52258.75 | 12203.61 | 1313765 |
| 54357.21 | 0 | 4503.24 | 25490.97 | 52615.03 | 12402.68 | 1299244 |
| 54195.04 | 0 | 4503.52 | 20975.66 | 52838.47 | 12600.56 | 1286435 |
| 54236.43 | 0 | 4503.79 | 19689.98 | 53106.89 | 12748.96 | 1275251 |
| 54079.43 | 0 | 4504.06 | 19088.01 | 53345.8 | 12946.83 | 1263600 |
| 54357.82 | 0 | 4504.33 | 18568.02 | 53524.96 | 13095.22 | 1256087 |
| 53689.91 | 0 | 4504.61 | 17886.83 | 53701.77 | 13293.09 | 1244795 |
| 53284.61 | 0 | 4504.88 | 17311.28 | 53800.23 | 13429.46 | 1233229 |
| 53041.87 | 0 | 4505.15 | 16540.2 | 53862.79 | 13602.7 | 1222172 |
| 52841.59 | 0 | 4505.42 | 15795.07 | 53946.2 | 13726.15 | 1210678 |
| 52741.85 | 0 | 4505.61 | 15135.86 | 53997.18 | 13890.8 | 1200895 |
| 52694.07 | 0 | 4505.88 | 14833.11 | 54025.03 | 14004.91 | 1189267 |
| 52815.8 | 0 | 4506.15 | 14614.12 | 54052.87 | 14114.27 | 1180375 |
| 52942.48 | 0 | 4506.42 | 14396.75 | 54080.7 | 14260.13 | 1133526 |
| 53058.87 | 0 | 4506.61 | 14179.42 | 54117.82 | 14361.22 | 1126911 |
| 53006.04 | 0 | 0 | 13894.15 | 54145.67 | 14490.43 | 1036558 |
| 52937.27 | 0 | 0 | 13678.59 | 54173.5 | 14587.37 | 1032342 |

SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT CURVE

| Discharge | XSEC 1 | XSEC 2 | XSEC 3 | XSEC 4L | XSEC 4R | XSEC 5 | XSEC 6 | XSEC 7L | XSEC 7R | XSEC 8 | Above TH | XSEC 9L |
|-----------|-----------|-----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|---------|
| 200 | 57806.26 | 45308.83 | 24740.15 | 58129.58 | 90684.43 | 129188.1 | 28491.1 | 100151.5 | 57940.04 | 32234.58 | 654874.5 | 0 |
| 250 | 70522.99 | 56342.12 | 30679.49 | 104624.9 | 93825.16 | 154085.5 | 34841.23 | 0 | 72366.09 | 35593.21 | 652880.7 | 0 |
| 300 | 82471.46 | 67109.91 | 28930.09 | 119456.5 | 97185.2 | 179894.2 | 41764.15 | 0 | 94012.24 | 40873.82 | 751697.6 | 0 |
| 400 | 110109.51 | 85962.31 | 24482.33 | 0 | 101316.7 | 229565.6 | 53320.54 | 0 | 136716.7 | 46209.2 | 787682.8 | 0 |
| 500 | 138290.95 | 102427.66 | 20855.51 | 0 | 101000.73 | 275044 | 64872.78 | 0 | 179687.6 | 50703.24 | 932882.5 | 0 |
| 600 | 167671.09 | 116935.54 | 19023.56 | 0 | 98652.45 | 316339.3 | 75572.42 | 0 | 220193.5 | 54593.91 | 1068982 | 0 |
| 700 | 198620.34 | 125355.79 | 18065.74 | 0 | 94607.57 | 356130.8 | 82754.65 | 0 | 258848.8 | 60450.05 | 1194834 | 0 |
| 800 | 232523.17 | 131662.39 | 17417.12 | 0 | 90236.89 | 394336.1 | 90048.8 | 0 | 293839 | 65795.74 | 1315859 | 0 |
| 900 | 268198.69 | 135301.61 | 17105.32 | 0 | 85508.44 | 427133.8 | 95482.52 | 0 | 327277 | 68431.39 | 1424439 | 0 |
| 1000 | 302214.63 | 137834.47 | 17104.01 | 0 | 80756.61 | 456272.8 | 99964.06 | 0 | 352776 | 72320.43 | 1519243 | 0 |
| 1500 | 456381.34 | 132298.47 | 16426.34 | 0 | 63388.37 | 535099.8 | 106172.5 | 0 | 398340.5 | 85824.59 | 1793932 | 0 |
| 2000 | 559732.25 | 140513.05 | 17677.11 | 0 | 50192.74 | 581387.4 | 111544.2 | 0 | 392060.2 | 98811.41 | 1951918 | 0 |
| 2500 | 567306.06 | 149187.83 | 17259.38 | 0 | 42970.15 | 575687.2 | 102792.3 | 0 | 339406.4 | 0 | 1794609 | 0 |
| 3000 | 491834.5 | 163577.47 | 17848 | 0 | 38528.61 | 558238.4 | 92949.05 | 0 | 295095.7 | 0 | 1657872 | 0 |
| 3500 | 402635.56 | 176447.67 | 17498.33 | 0 | 34590.57 | 533854.1 | 78073.7 | 0 | 255486.7 | 0 | 1498587 | 0 |
| 4000 | 315051.88 | 187369.47 | 18631.08 | 0 | 30191.41 | 513271 | 65986.54 | 0 | 233714.5 | 0 | 1364216 | 0 |

| XSEC 9R | XSEC 10 | XSEC 11L | XSEC 11R | XSEC 12 | XSEC 13 | XSEC 14 | Below TH | TOTAL |
|----------|----------|----------|----------|----------|----------|----------|----------|---------|
| 151980.4 | 38259.95 | 0 | 79210.31 | 40045.98 | 91126.95 | 17061.31 | 417684.9 | 1727434 |
| 163377.3 | 45142.19 | 0 | 98932.32 | 40974.86 | 110974.8 | 20645.18 | 480046.7 | 1785805 |
| 176186.7 | 51792.54 | 0 | 128525 | 42602.12 | 127973.4 | 24739.16 | 551818.8 | 2055214 |
| 195056.1 | 62550.25 | 0 | 186906.5 | 46708.19 | 153483.2 | 22837.94 | 667542.1 | 2242908 |
| 206665.9 | 72282.92 | 0 | 245652.5 | 49551.72 | 170134.6 | 19927.9 | 764215.6 | 2629981 |
| 212645 | 79785.05 | 0 | 301028.3 | 51381.79 | 173682.3 | 15574.98 | 834097.4 | 2972081 |
| 212438.2 | 85570.27 | 0 | 353874.3 | 52179.57 | 173456.3 | 12004.08 | 889522.7 | 3279190 |
| 209442.9 | 89764.18 | 0 | 401709.8 | 53020.87 | 166900.1 | 8860.7 | 929698.6 | 3561417 |
| 204690.1 | 92605.1 | 0 | 447423 | 53022.48 | 153848.6 | 6454.35 | 958043.6 | 3806921 |
| 199124.3 | 95799.12 | 0 | 482283.1 | 52565.32 | 142063.4 | 4757.9 | 976593.1 | 4015079 |
| 173379.7 | 104696.2 | 0 | 544574.6 | 49833.6 | 71032.57 | 953.01 | 944469.6 | 4532334 |
| 152051.5 | 113577.6 | 0 | 535988.7 | 45037.23 | 39487.5 | 494.8 | 886637.3 | 4790474 |
| 139755.5 | 119248.9 | 0 | 484005.3 | 45111.63 | 19096.43 | 338.93 | 787556.6 | 4376775 |
| 126962.8 | 128082.1 | 0 | 403427.8 | 48664.56 | 10634.4 | 240.34 | 718012.1 | 4033756 |
| 115678.8 | 136187.2 | 0 | 349278 | 53652.99 | 6225.21 | 230.28 | 661250.5 | 3658424 |
| 102562.5 | 144389.3 | 0 | 319513 | 59310.44 | 5267.21 | 287.21 | 631329.6 | 3359761 |

GOSSE/BOR RAINBOW TROUT (1996) - ADULT CURVE

| Discharge | XSEC 1 | XSEC 2 | XSEC 3 | XSEC 4L | XSEC 4R | XSEC 5 | XSEC 6 | XSEC 7L | XSEC 7R | XSEC 8 | XSEC 9L | XSEC 9R |
|-----------|-----------|-----------|----------|---------|-----------|----------|----------|----------|----------|----------|---------|-----------|
| 200 | 79523.81 | 67848.55 | 6547.19 | 51574.4 | 141452.63 | 240158.2 | 55095.39 | 20575.18 | 15034.47 | 34485.86 | 0 | 323016.84 |
| 250 | 92345.25 | 70676.77 | 10760 | 56767.7 | 145067.42 | 274392.6 | 60217.96 | 0 | 16938.2 | 35802.04 | 0 | 344497.78 |
| 300 | 102851.52 | 71033.38 | 10996.09 | 61666.2 | 129890.47 | 301465.6 | 65681.92 | 0 | 18533.19 | 33997.46 | 0 | 353334.22 |
| 400 | 130716.54 | 65391.1 | 10794.48 | 0 | 122918.38 | 349811.1 | 59025.21 | 0 | 18936.7 | 33143.09 | 0 | 340907.81 |
| 500 | 167782.52 | 68302.52 | 11155.33 | 0 | 135201.55 | 389550.2 | 52975.03 | 0 | 17277.99 | 34656.47 | 0 | 324593.47 |
| 600 | 207582.72 | 74669.31 | 12773.65 | 0 | 136000.59 | 402641.2 | 51419.31 | 0 | 14173.46 | 37518.36 | 0 | 322277.97 |
| 700 | 247294.92 | 84066.57 | 14652.27 | 0 | 134632.22 | 386260.9 | 48188.3 | 0 | 11461.99 | 39520.97 | 0 | 316679.25 |
| 800 | 287904.91 | 92435.6 | 15161.94 | 0 | 139163.2 | 362720.9 | 48547.33 | 0 | 9132.42 | 39533.56 | 0 | 303774.41 |
| 900 | 328762.25 | 100493.95 | 15580.11 | 0 | 146982.58 | 343212.8 | 42258.68 | 0 | 7547.45 | 36901.82 | 0 | 291748.25 |
| 1000 | 365578.69 | 109224.57 | 14688.19 | 0 | 155391.14 | 321589.9 | 38037.71 | 0 | 6815.56 | 35877.11 | 0 | 286975.84 |
| 1500 | 488410 | 134983.25 | 14309.25 | 0 | 152364.13 | 305705.3 | 22780.12 | 0 | 5233.86 | 26771.54 | 0 | 261036.91 |
| 2000 | 578985.56 | 135352.19 | 18594.98 | 0 | 125534.13 | 335625.6 | 22143.71 | 0 | 3797.6 | 22803.08 | 0 | 229008.11 |
| 2500 | 617472.94 | 129180.19 | 21026.6 | 0 | 119479.72 | 322191 | 17732.53 | 0 | 3313.48 | 0 | 0 | 179931.91 |
| 3000 | 617463.38 | 132745.66 | 23147.43 | 0 | 119157.89 | 269273.3 | 14971.82 | 0 | 3373.67 | 0 | 0 | 147984.16 |
| 3500 | 612838.94 | 139006.72 | 24697.28 | 0 | 116468.88 | 204006.7 | 15042.71 | 0 | 3396.51 | 0 | 0 | 144542.72 |
| 4000 | 610306.06 | 142328.28 | 26182.24 | 0 | 105342.12 | 160356.2 | 15791.9 | 0 | 3298.02 | 0 | 0 | 145421.38 |

| XSEC 10 | XSEC 11L | XSEC 11R | XSEC 12 | XSEC 13 | XSEC 14 | TOTAL |
|----------|----------|----------|----------|----------|----------|---------|
| 15341.48 | 0 | 20553.75 | 69437.8 | 33960.52 | 2399.78 | 1177006 |
| 14519.07 | 0 | 23156.39 | 80520.4 | 27033.24 | 3190.84 | 1255976 |
| 13974.02 | 0 | 25336.86 | 94927.28 | 23290.14 | 3962.08 | 1310940 |
| 16007.32 | 0 | 25888.51 | 117111.4 | 17790.52 | 4150.5 | 1312593 |
| 18910.16 | 0 | 23620.92 | 137029.8 | 15960.23 | 3494.64 | 1398511 |
| 23122.88 | 0 | 19376.65 | 146398.2 | 17708.86 | 3830.31 | 1469493 |
| 27088.45 | 0 | 15669.77 | 151409.7 | 20058.1 | 4207.44 | 1501191 |
| 30834.6 | 0 | 12485.01 | 156814.9 | 22189.27 | 4518.77 | 1525217 |
| 34100.01 | 0 | 10318.17 | 160535.8 | 23843.82 | 4788.36 | 1547164 |
| 36866.14 | 0 | 9317.62 | 160706.3 | 25342.38 | 5011.82 | 1571423 |
| 45045.5 | 0 | 7155.26 | 140471.6 | 31870.7 | 6019.31 | 1642157 |
| 50119 | 0 | 5191.72 | 114341.8 | 37317.99 | 7074.1 | 1686890 |
| 52891.42 | 0 | 4529.9 | 100196 | 41421.89 | 8244.74 | 1617612 |
| 55244.9 | 0 | 4612.15 | 92060.98 | 45401.17 | 9396.78 | 1534833 |
| 54829.02 | 0 | 4561.36 | 71683.17 | 48193.06 | 10498.39 | 1449705 |
| 54613.82 | 0 | 4508.73 | 45918.99 | 50711.23 | 11505.42 | 1376284 |

PERCENT CHANGE IN WUA FROM 500 TO 250 CFS**SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT CURVE**

| ABOVE TEXAS HOLE Change from 500 to 250 | | | |
|---|------------------|----------------|-------------------------|
| Transect | 500 | 250 Sq Ft | Percent |
| 1 | 138,291 | 70,523 | -67,768 -49.00% |
| 2 | 102,428 | 56,342 | -46,086 -44.99% |
| 3 | 20,856 | 30,679 | 9,824 47.10% |
| 4L | 119,456 | 104,625 | -14,832 -12.42% |
| 4R | 101,001 | 93,825 | -7,176 -7.10% |
| 5 | 275,044 | 154,085 | -120,959 -43.98% |
| 6 | 64,873 | 34,841 | -30,032 -46.29% |
| 7L | 100,152 | 100,152 | 0 0.00% |
| 7R | 179,688 | 72,366 | -107,322 -59.73% |
| 8 | 50,703 | 35,593 | -15,110 -29.80% |
| Subtotal | 1,152,491 | 753,032 | -399,458 -34.66% |

BELLOW TEXAS HOLE

| ABOVE TEXAS HOLE Change from 500 to 250 | | | |
|---|------------------|------------------|-------------------------|
| Transect | 500 | 250 Sq Ft | Percent |
| 9L | 124,674 | 31,359 | -93,315 -74.85% |
| 9R | 163,377 | 206,666 | 43,289 26.50% |
| 10 | 45,142 | 72,283 | 27,141 60.12% |
| 11L | 152,641 | 152,641 | 0 0.00% |
| 11R | 98,932 | 245,652 | 146,720 148.30% |
| 12 | 40,975 | 49,552 | 8,577 20.93% |
| 13 | 110,975 | 170,135 | 59,160 53.31% |
| 14 | 20,645 | 19,928 | -717 -3.47% |
| Subtotal | 757,361 | 948,215 | 190,854 25.20% |
| SUMMARY | 1,909,652 | 1,701,247 | -208,605 -10.92% |

GOSSE/BOR RAINBOW TROUT (1996) - ADULT CURVE

| ABOVE TEXAS HOLE Change from 500 to 250 | | | |
|---|----------------|----------------|-------------------------|
| Transect | 500 | 250 Sq Ft | Percent |
| 1 | 167,783 | 92,345 | -75,437 -44.96% |
| 2 | 66,303 | 70,677 | 4,374 6.60% |
| 3 | 11,155 | 10,760 | -395 -3.54% |
| 4L | 56,768 | 56,768 | 0 0.00% |
| 4R | 135,202 | 145,067 | 9,866 7.30% |
| 5 | 389,550 | 274,393 | -115,158 -29.56% |
| 6 | 52,975 | 60,218 | 7,243 13.67% |
| 7L | 20,575 | 20,575 | 0 0.00% |
| 7R | 17,278 | 16,938 | -340 -1.97% |
| 8 | 34,656 | 35,892 | 1,236 3.57% |
| Subtotal | 952,245 | 783,633 | -168,611 -17.71% |

BELLOW TEXAS HOLE

| BELLOW TEXAS HOLE | | | |
|-------------------|------------------|------------------|-------------------------|
| Transect | 500 | 250 Sq Ft | Percent |
| 9L | 21,164 | 21,164 | 0 0.00% |
| 9R | 324,593 | 344,498 | 19,904 6.13% |
| 10 | 18,910 | 14,519 | -4,391 -23.22% |
| 11L | 31,359 | 31,359 | 0 0.00% |
| 11R | 23,621 | 23,156 | -465 -1.97% |
| 12 | 137,030 | 80,520 | -56,509 -41.24% |
| 13 | 15,960 | 27,033 | 11,073 69.38% |
| 14 | 3,495 | 3,191 | -304 -8.69% |
| Subtotal | 576,132 | 545,440 | -30,691 -5.33% |
| SUMMARY | 1,528,376 | 1,329,074 | -199,303 -13.04% |

MILLER RESULTS

| ABOVE TEXAS HOLE Change from 500 to 250 | | | |
|---|----------------|----------------|-------------------------|
| Transect | 500 | 250 Sq Ft | Percent |
| 1 | 91,406 | 50,042 | -41,364 -45.25% |
| 2 | 15,740 | 17,968 | 2,228 14.16% |
| 3 | 1,934 | 1,940 | 6 0.31% |
| 4L | 6,004 | 2,747 | -3,257 -54.25% |
| 4R | 69,081 | 77,248 | 8,168 11.82% |
| 5 | 245,338 | 174,433 | -70,905 -28.90% |
| 6 | 20,202 | 21,557 | 1,355 6.71% |
| 7L | 76,604 | 48,525 | -28,079 -36.65% |
| 7R | 8,896 | 15,559 | 6,663 74.90% |
| 8 | 14,345 | 9,254 | -5,091 -35.49% |
| Subtotal | 549,550 | 419,274 | -130,276 -23.71% |

BELLOW TEXAS HOLE

| BELLOW TEXAS HOLE | | | |
|-------------------|----------------|----------------|-------------------------|
| Transect | 500 | 250 Sq Ft | Percent |
| 9L | 2,630 | 1,473 | -1,157 -43.99% |
| 9R | 250,620 | 261,197 | 10,577 4.22% |
| 10 | 12,740 | 10,530 | -2,210 -17.35% |
| 11L | 2,853 | 1,323 | -1,530 -53.63% |
| 11R | 17,351 | 16,552 | -799 -4.60% |
| 12 | 73,530 | 52,060 | -21,470 -29.20% |
| 13 | 4,635 | 23,590 | 18,955 408.95% |
| 14 | 185 | 896 | 711 384.32% |
| Subtotal | 364,544 | 367,621 | 3,077 0.84% |
| SUMMARY | 914,094 | 786,895 | -127,199 -13.92% |

TABLE 1. Weighted Usable Area (ft²) for all transects for adult rainbow trout by flow stage in the San Juan River

SOUTH PLATTE (91 CHEESMAN) RAINBOW - ADULT CURVE

| Flow (cfs) | Below TH | % of Total | Above TH | % of Total | Grand Total |
|------------|----------|------------|-----------|------------|-------------|
| 200 | 417,685 | 38.94% | 654,875 | 61.06% | 1,072,559 |
| 250 | 480,047 | 42.37% | 652,881 | 57.63% | 1,132,927 |
| 300 | 551,819 | 42.33% | 751,698 | 57.67% | 1,303,516 |
| 400 | 667,542 | 45.87% | 787,683 | 54.13% | 1,455,225 |
| 500 | 764,216 | 45.03% | 932,883 | 54.97% | 1,697,098 |
| 600 | 834,097 | 43.83% | 1,068,982 | 56.17% | 1,903,079 |
| 700 | 889,523 | 42.68% | 1,194,834 | 57.32% | 2,084,356 |
| 800 | 929,699 | 41.40% | 1,315,859 | 58.60% | 2,245,558 |
| 900 | 958,044 | 40.21% | 1,424,439 | 59.79% | 2,382,482 |
| 1000 | 976,593 | 39.13% | 1,519,243 | 60.87% | 2,495,836 |
| 1500 | 944,470 | 34.49% | 1,793,932 | 65.51% | 2,738,402 |
| 2000 | 886,637 | 31.24% | 1,951,918 | 68.76% | 2,838,556 |
| 2500 | 787,557 | 30.50% | 1,794,609 | 69.50% | 2,582,166 |
| 3000 | 718,012 | 30.22% | 1,657,872 | 69.78% | 2,375,884 |
| 3500 | 661,250 | 30.62% | 1,498,587 | 69.38% | 2,159,837 |
| 4000 | 631,330 | 31.64% | 1,364,216 | 68.36% | 1,995,545 |

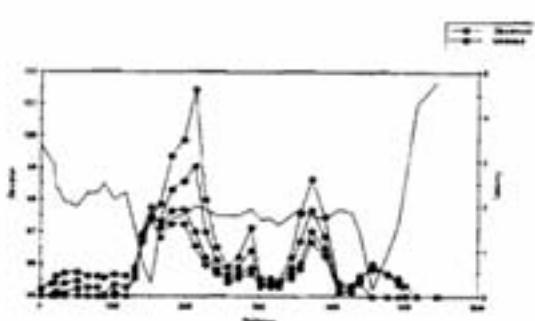
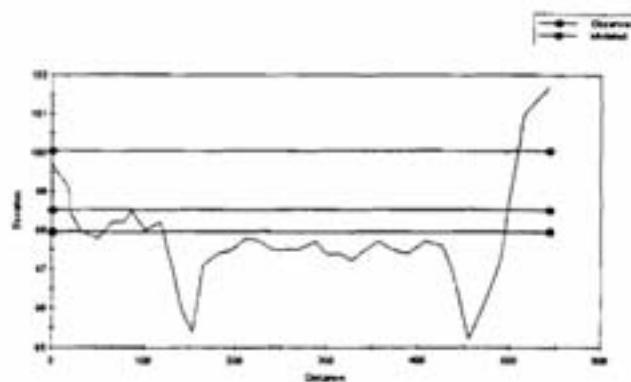
GOSSE/BOR RAINBOW TROUT (1996) - ADULT CURVE

| Flow (cfs) | Below TH | % of Total | Above TH | % of Total | Grand Total |
|------------|----------|------------|-----------|------------|-------------|
| 200 | 464,710 | 39.48% | 712,296 | 60.52% | 1,177,006 |
| 250 | 492,918 | 39.25% | 763,058 | 60.75% | 1,255,976 |
| 300 | 514,825 | 39.27% | 796,116 | 60.73% | 1,310,940 |
| 400 | 521,856 | 39.76% | 790,737 | 60.24% | 1,312,593 |
| 500 | 523,609 | 37.44% | 874,902 | 62.56% | 1,398,511 |
| 600 | 532,715 | 36.25% | 936,779 | 63.75% | 1,469,493 |
| 700 | 535,113 | 35.65% | 966,078 | 64.35% | 1,501,191 |
| 800 | 530,617 | 34.79% | 994,600 | 65.21% | 1,525,217 |
| 900 | 525,334 | 33.95% | 1,021,830 | 66.05% | 1,547,164 |
| 1000 | 524,220 | 33.36% | 1,047,203 | 66.64% | 1,571,423 |
| 1500 | 491,599 | 29.94% | 1,150,557 | 70.06% | 1,642,157 |
| 2000 | 443,053 | 26.26% | 1,243,837 | 73.74% | 1,686,890 |
| 2500 | 387,216 | 23.94% | 1,230,396 | 76.06% | 1,617,612 |
| 3000 | 354,700 | 23.11% | 1,180,133 | 76.89% | 1,534,833 |
| 3500 | 334,308 | 23.06% | 1,115,398 | 76.94% | 1,449,705 |
| 4000 | 312,680 | 22.72% | 1,063,605 | 77.28% | 1,376,284 |

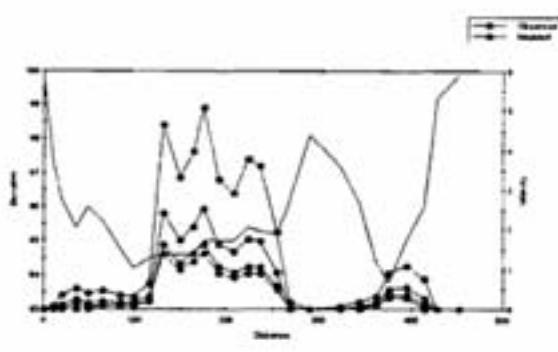
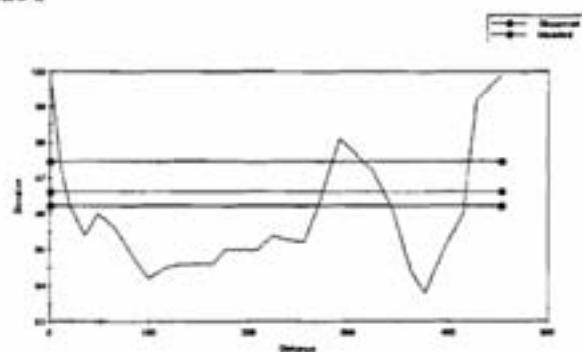
MILLERS RESULTS

| Flow (cfs) | Below TH | % of Total | Above TH | % of Total | Grand Total |
|------------|----------|------------|----------|------------|-------------|
| 200 | 348,079 | 48.03% | 376,647 | 51.97% | 724,726 |
| 250 | 367,625 | 46.72% | 419,279 | 53.28% | 786,904 |
| 300 | 377,394 | 45.89% | 445,032 | 54.11% | 822,426 |
| 350 | 380,913 | 45.02% | 465,180 | 54.98% | 846,093 |
| 400 | 374,144 | 43.30% | 489,862 | 56.70% | 864,006 |
| 450 | 367,656 | 41.38% | 520,853 | 58.62% | 888,509 |
| 500 | 364,548 | 39.88% | 549,555 | 60.12% | 914,103 |
| 600 | 360,104 | 37.84% | 591,549 | 62.16% | 951,653 |
| 800 | 342,030 | 35.59% | 619,069 | 64.41% | 961,099 |
| 1000 | 326,968 | 33.30% | 654,799 | 66.70% | 981,767 |
| 2000 | 276,483 | 25.81% | 794,776 | 74.19% | 1,071,259 |
| 3000 | 224,162 | 22.58% | 768,431 | 77.42% | 992,593 |
| 4000 | 221,365 | 24.44% | 684,457 | 75.56% | 905,822 |
| 5000 | 198,331 | 24.32% | 617,278 | 75.68% | 815,609 |
| 6000 | 165,895 | 23.20% | 549,283 | 76.80% | 715,178 |

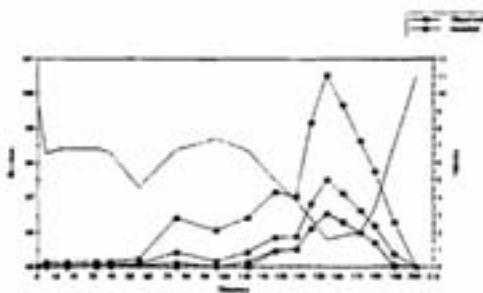
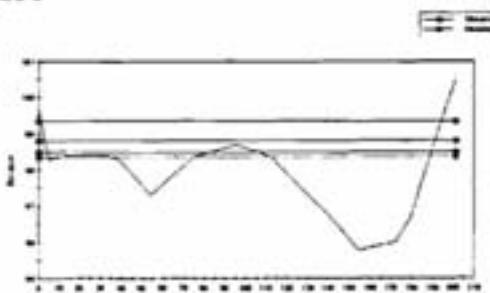
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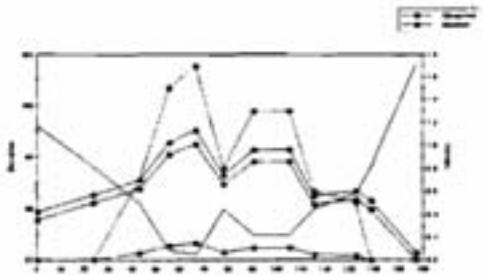
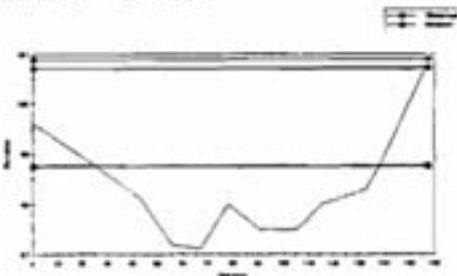
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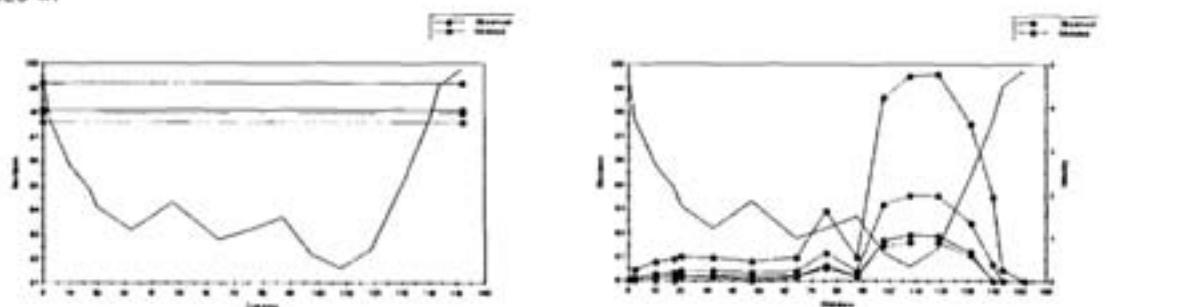
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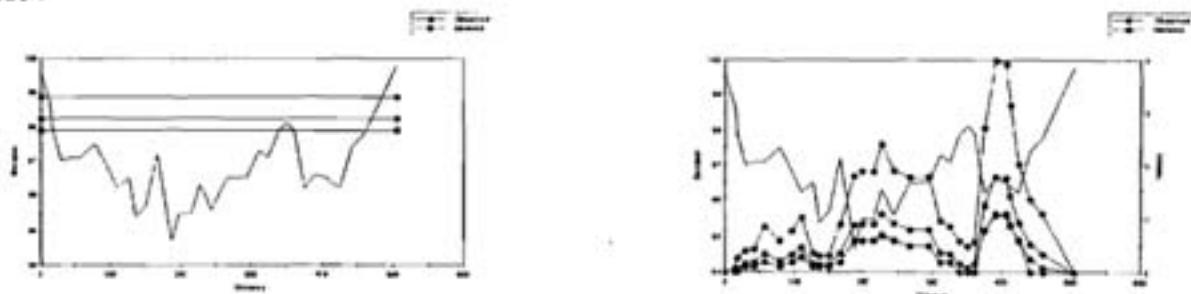
XSEC 4L Q = 10, 260, 312



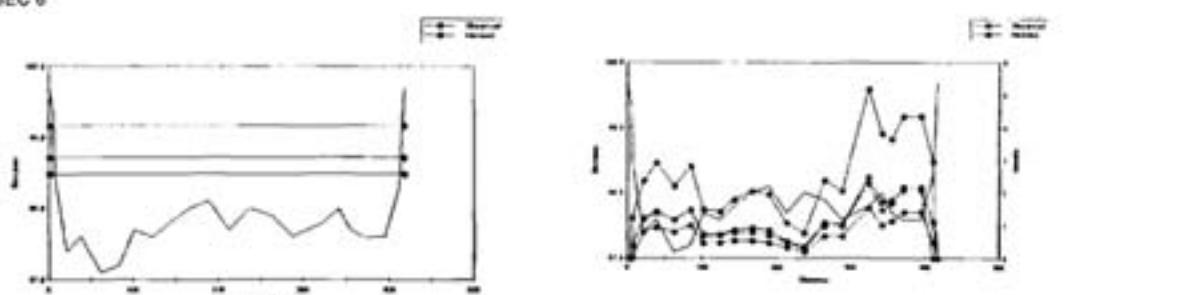
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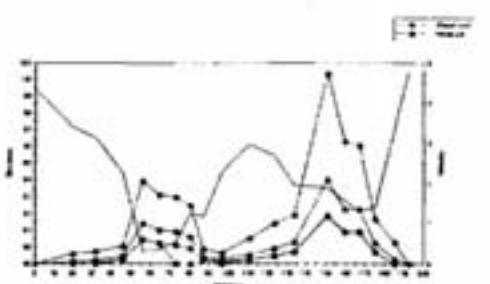
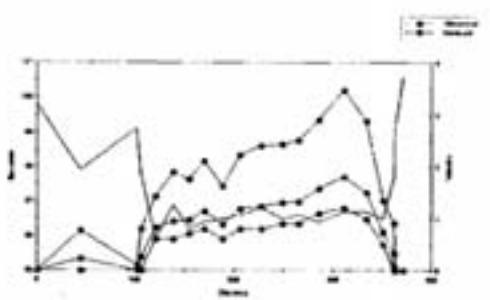


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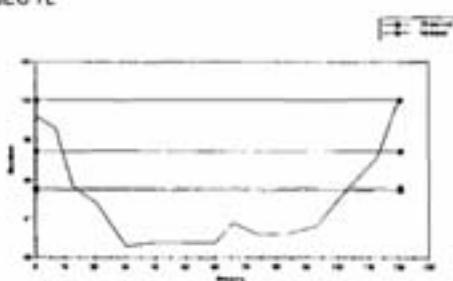


XSEC 6





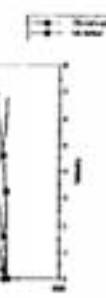
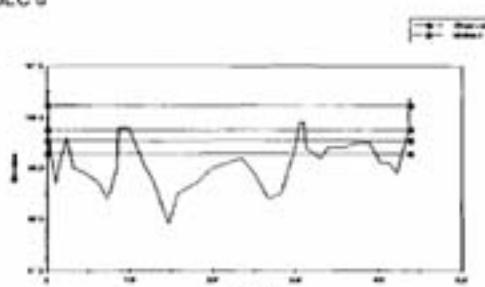
XSEC 7L



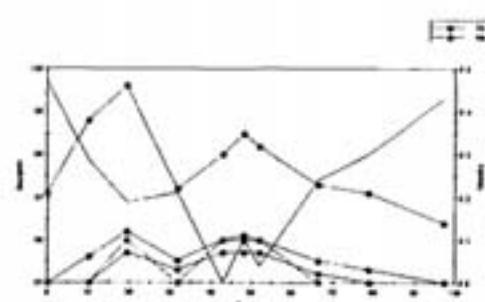
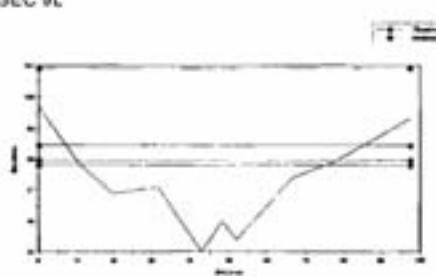
XSEC 7R



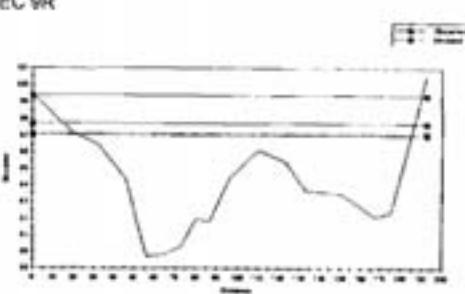
XSEC 8



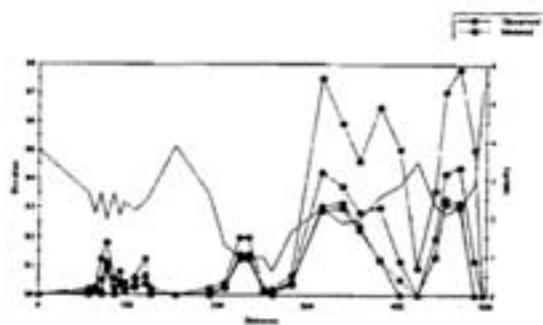
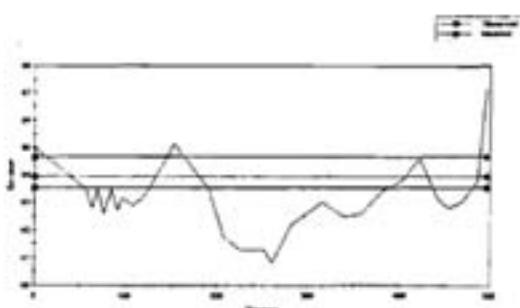
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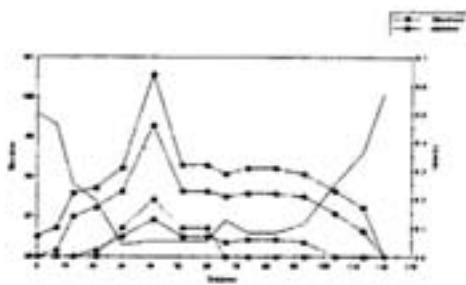
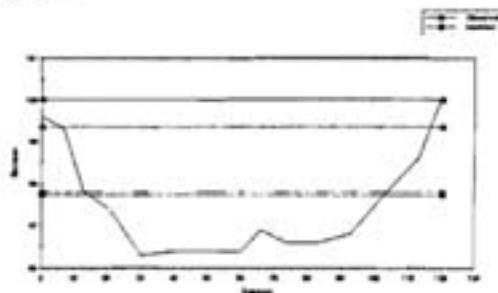
XSEC 9R



XSEC 10



XSEC 11L



XSEC 14

