# APPENDIX A

**Maps**

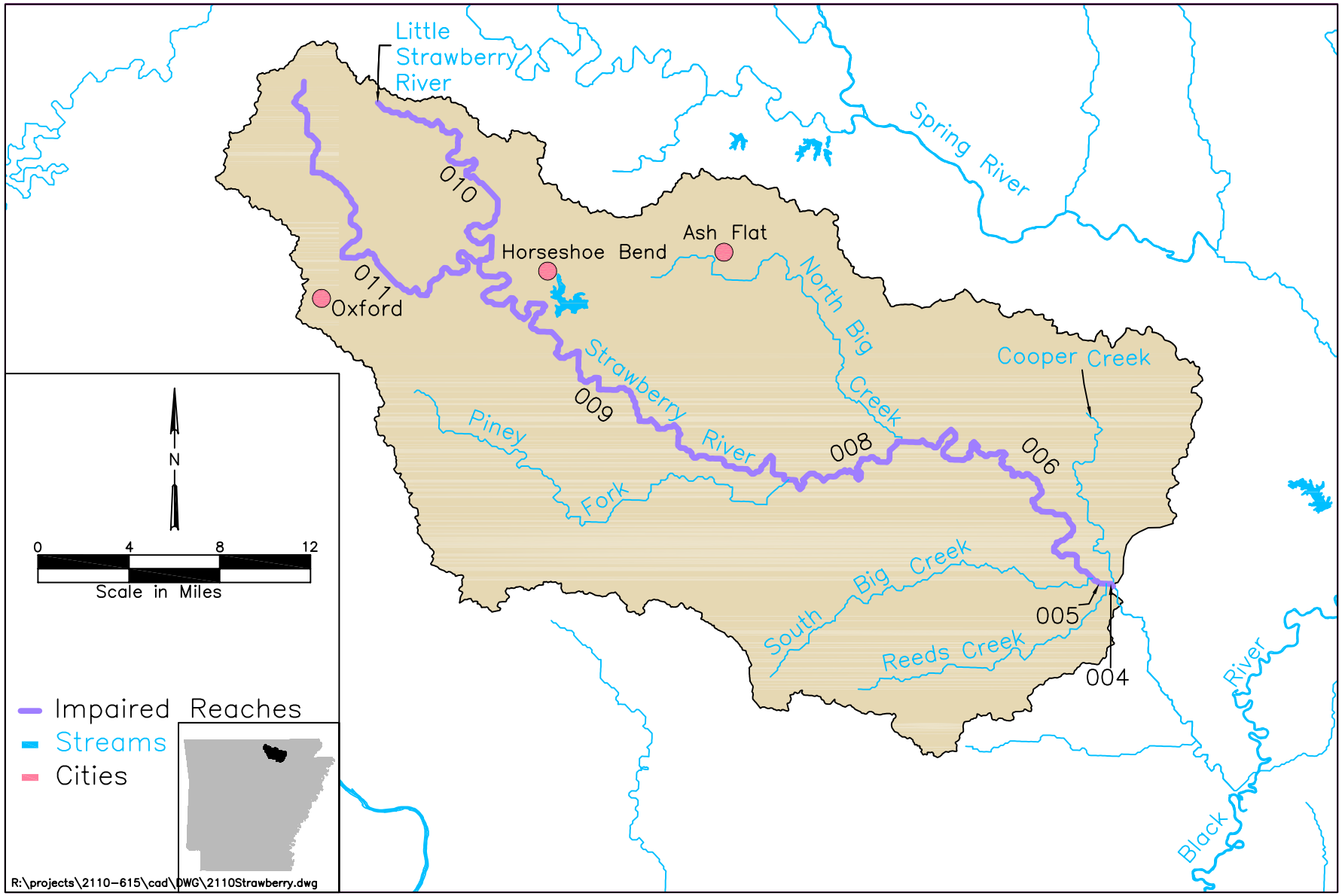


Figure A.1. Map of study area

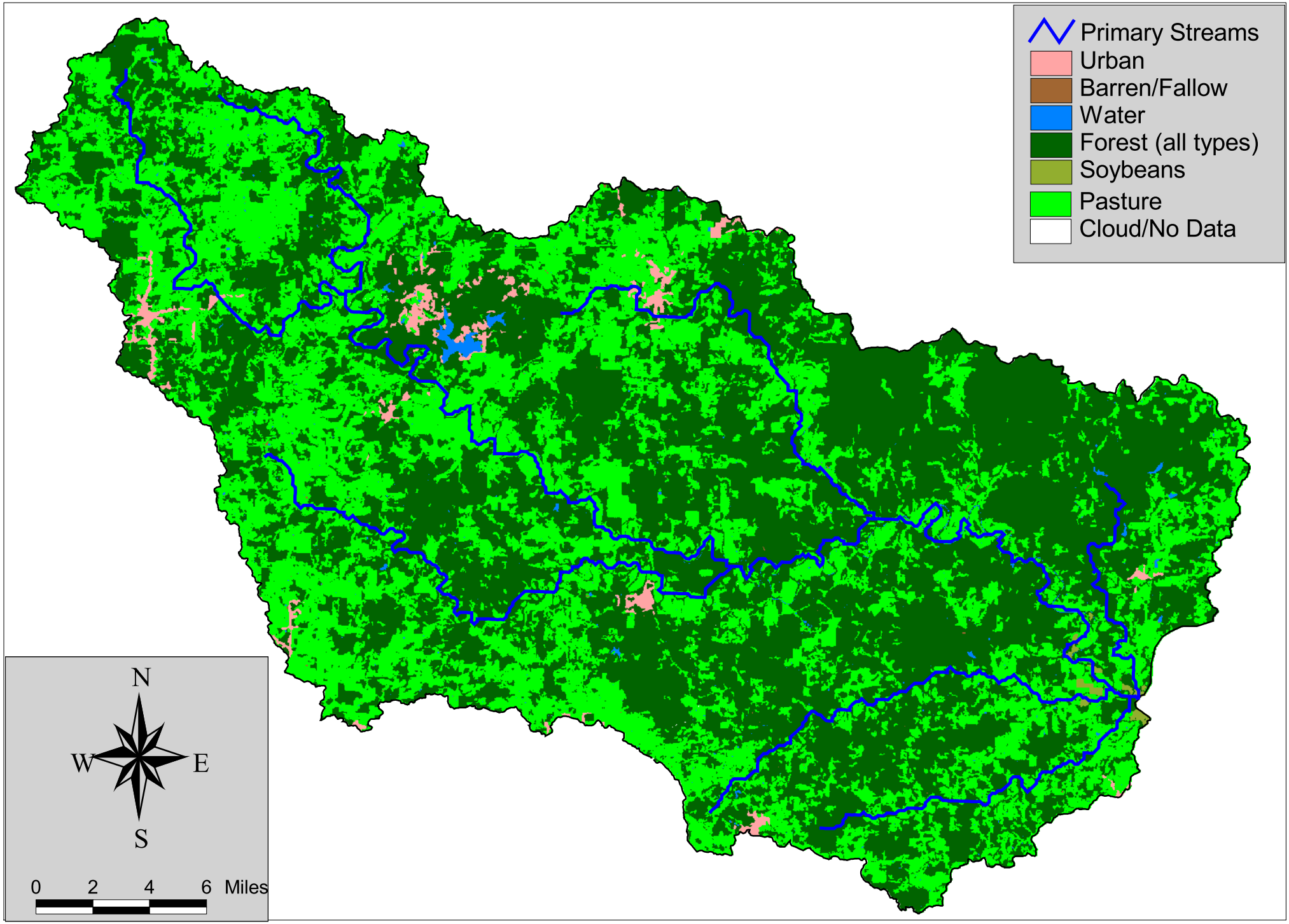


Figure A.2. Land use in Strawberry River watershed.

Figure A.3. Map of water quality stations and point sources in the study area

# APPENDIX B

## Long Term Plots of Turbidity and TSS

Table B.1. Observed Turbidity and TSS Data for Strawberry River at SBR0001.

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/27/2001 | 12 | 16 | 24 | 0.05 | 4.31E+00 | 99.69% | Base flow | 10 | No | |
| 9/12/1994 | 4.2 | 5 | 61 | 0.13 | 3.48E+00 | 87.17% | Base flow | 10 | Yes | |
| 12/3/2002 | 2.46 | <1 | 62 | 0.13 | 7.07E-01 | 86.43% | Base flow | 10 | Yes | |
| 7/18/1995 | 15 | 15 | 68 | 0.14 | 1.16E+01 | 83.28% | Base flow | 10 | No | |
| 10/8/1996 | 2.6 | 1.5 | 70 | 0.15 | 1.19E+00 | 82.14% | Base flow | 10 | Yes | |
| 5/1/2001 | 2.4 | 4.7 | 76 | 0.16 | 4.07E+00 | 78.84% | Base flow | 10 | Yes | |
| 11/6/2001 | 3.4 | 2.5 | 79 | 0.17 | 2.25E+00 | 76.96% | Base flow | 10 | Yes | |
| 8/27/2002 | 5.2 | 3.5 | 79 | 0.17 | 3.15E+00 | 76.96% | Base flow | 10 | Yes | |
| 2/20/1996 | 6.2 | 10.5 | 103 | 0.22 | 1.23E+01 | 67.53% | Base flow | 10 | Yes | |
| 6/13/1994 | 4.1 | 4 | 165 | 0.35 | 7.52E+00 | 52.33% | Storm-flow | 17 | | Yes |
| 6/18/2003 | 5.37 | 3 | 171 | 0.36 | 5.85E+00 | 51.25% | Storm-flow | 17 | | Yes |
| 6/17/2002 | 3.8 | 2.7 | 182 | 0.38 | 5.60E+00 | 49.31% | Storm-flow | 17 | | Yes |
| 3/19/2001 | 3.5 | 1.3 | 185 | 0.39 | 2.74E+00 | 48.81% | Storm-flow | 17 | | Yes |
| 3/19/2003 | 12.9 | 4.7 | 232 | 0.49 | 1.24E+01 | 42.09% | Storm-flow | 17 | | Yes |
| 4/29/2002 | 3 | 2.75 | 385 | 0.81 | 1.21E+01 | 28.47% | Storm-flow | 17 | | Yes |
| 10/3/1995 | 46 | 25.5 | 390 | 0.82 | 1.13E+02 | 28.10% | Storm-flow | 17 | | No |
| 5/6/1996 | 58 | 51.5 | 400 | 0.85 | 2.35E+02 | 27.42% | Storm-flow | 17 | | No |
| 1/17/1995 | 6.7 | 1 | 565 | 1.19 | 6.44E+00 | 18.97% | Storm-flow | 17 | | Yes |
| 2/24/2003 | 20 | 10.8 | 1270 | 2.68 | 1.56E+02 | 6.70% | Storm-flow | 17 | | No |
| 4/8/2002 | 104 | 225.5 | 1470 | 3.11 | 3.78E+03 | 5.44% | Storm-flow | 17 | | No |
| 3/12/2002 | 63 | 70.8 | 3820 | 8.08 | 3.08E+03 | 1.68% | Storm-flow | 17 | | No |
| 4/11/1995 | 74 | 122 | 5533 | 11.70 | 7.70E+03 | 0.99% | Storm-flow | 17 | | No |
| | | | | | | | Number exceeding applicable water quality standard for turbidity = | | 2 | 6 |
| | | | | | | | Total number of observations in each category = | | 9 | 13 |
| | | | | | | | Percent exceeding applicable water quality standard for turbidity = | | 22% | 46% |

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Table B.2. Observed Turbidity and TSS Data for Strawberry River at SBR0002.

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/27/2001 | 4.2 | 3 | 24 | 0.05 | 8.08E-01 | 99.70% | Base flow | 10 | Yes | |
| 9/12/1994 | 2.7 | 3 | 61 | 0.13 | 2.09E+00 | 87.18% | Base flow | 10 | Yes | |
| 12/3/2002 | 1.91 | <1 | 62 | 0.13 | | 86.44% | Base flow | 10 | Yes | |
| 7/18/1995 | 4.1 | 6.5 | 68 | 0.14 | 5.02E+00 | 83.29% | Base flow | 10 | Yes | |
| 10/8/1996 | 3.4 | 3.5 | 70 | 0.15 | 2.79E+00 | 82.15% | Base flow | 10 | Yes | |
| 5/1/2001 | 2.1 | 6.5 | 76 | 0.16 | 5.63E+00 | 78.85% | Base flow | 10 | Yes | |
| 6/19/2001 | | | 77 | 0.16 | | 78.35% | Base flow | 10 | | |
| 11/6/2001 | 1.3 | <1 | 79 | 0.17 | | 76.97% | Base flow | 10 | Yes | |
| 8/27/2002 | 2.4 | 3.2 | 79 | 0.17 | 2.88E+00 | 76.97% | Base flow | 10 | Yes | |
| 2/20/1996 | 3 | 2.5 | 103 | 0.22 | 2.93E+00 | 67.54% | Base flow | 10 | Yes | |
| 1/22/2002 | 2.2 | <1 | 161 | 0.34 | | 53.21% | Storm flow | 17 | | Yes |
| 6/13/1994 | 4.6 | 6.5 | 165 | 0.35 | 1.22E+01 | 52.35% | Storm flow | 17 | | Yes |
| 6/18/2003 | 2.94 | 3.2 | 171 | 0.36 | 6.24E+00 | 51.27% | Storm flow | 17 | | Yes |
| 6/17/2002 | 2.5 | 1.7 | 182 | 0.38 | 3.53E+00 | 49.33% | Storm flow | 17 | | Yes |
| 3/19/2001 | 1.8 | <1 | 185 | 0.39 | | 48.82% | Storm flow | 17 | | Yes |
| 3/19/2003 | 3.28 | <1 | 232 | 0.49 | | 42.11% | Storm flow | 17 | | Yes |
| 4/29/2002 | 1.5 | 3.25 | 385 | 0.81 | 1.43E+01 | 28.49% | Storm flow | 17 | | Yes |
| 10/3/1995 | 3.2 | 4.5 | 390 | 0.82 | 2.00E+01 | 28.12% | Storm flow | 17 | | Yes |
| 5/6/1996 | 4.4 | 4.5 | 400 | 0.85 | 2.05E+01 | 27.44% | Storm flow | 17 | | Yes |
| 1/17/1995 | 6.8 | 3 | 565 | 1.19 | 1.93E+01 | 19.00% | Storm flow | 17 | | Yes |
| 2/24/2003 | 26.2 | 12.8 | 1270 | 2.68 | 1.85E+02 | 6.73% | Storm flow | 17 | | No |
| 4/8/2002 | 31 | 81.5 | 1470 | 3.11 | 1.37E+03 | 5.46% | Storm flow | 17 | | No |
| 3/12/2002 | 70 | 105 | 3820 | 8.08 | 4.57E+03 | 1.71% | Storm flow | 17 | | No |
| 1/24/2002 | 360 | 442 | 5030 | 10.63 | 2.53E+04 | 1.18% | Storm flow | 17 | | No |
| 4/11/1995 | 15 | 46 | 5533 | 11.70 | 2.90E+03 | 1.02% | Storm flow | 17 | | Yes |

| | | |
|---|---|---|
| Number exceeding applicable water quality standard for turbidity = | 0 | 4 |
| Total number of observations in each category = | 9 | 15 |
| Percent exceeding applicable water quality standard for turbidity = | 0% | 27% |

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Table B.3. Observed Turbidity and TSS Data for Strawberry River at WHI0024

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/19/2000 | 4.1 | 8.5 | 15 | 0.03 | 1.49E+00 | 99.94% | Base flow | 10 | Yes | |
| 8/22/2000 | 4.5 | 7.5 | 17 | 0.04 | 1.49E+00 | 99.89% | Base flow | 10 | Yes | |
| 9/28/2004 | 7.79 | 5.5 | 20 | 0.04 | 1.22E+00 | 99.85% | Base flow | 10 | Yes | |
| 8/28/2001 | 7.6 | 13.5 | 24 | 0.05 | 3.63E+00 | 99.69% | Base flow | 10 | Yes | |
| 8/28/2001 | 8.2 | 12.8 | 24 | 0.05 | 3.45E+00 | 99.69% | Base flow | 10 | Yes | |
| 10/21/1997 | 3.9 | 7 | 28 | 0.06 | 2.21E+00 | 99.46% | Base flow | 10 | Yes | |
| 7/24/2001 | 6.2 | 9.8 | 31 | 0.07 | 3.44E+00 | 99.27% | Base flow | 10 | Yes | |
| 1/25/2000 | 2.9 | 2 | 32 | 0.07 | 7.26E-01 | 99.18% | Base flow | 10 | Yes | |
| 10/17/2000 | 2.2 | 6 | 38 | 0.08 | 2.60E+00 | 98.61% | Base flow | 10 | Yes | |
| 7/20/1999 | 7.5 | 11 | 39 | 0.08 | 4.89E+00 | 98.45% | Base flow | 10 | Yes | |
| 8/20/1996 | 6.6 | 12.5 | 41 | 0.09 | 5.85E+00 | 98.06% | Base flow | 10 | Yes | |
| 8/22/1995 | 8.6 | 16.5 | 42 | 0.09 | 7.92E+00 | 97.78% | Base flow | 10 | Yes | |
| 9/21/1999 | 4.4 | 14 | 43 | 0.09 | 6.88E+00 | 97.47% | Base flow | 10 | Yes | |
| 10/10/1995 | 3.8 | 6.5 | 45 | 0.10 | 3.35E+00 | 96.47% | Base flow | 10 | Yes | |
| 11/16/1999 | 2.2 | 4.5 | 45 | 0.10 | 2.32E+00 | 96.47% | Base flow | 10 | Yes | |
| 10/11/1994 | 3.1 | 3.5 | 46 | 0.10 | 1.84E+00 | 95.96% | Base flow | 10 | Yes | |
| 6/26/2001 | 7.9 | 12.3 | 46 | 0.10 | 6.48E+00 | 95.96% | Base flow | 10 | Yes | |
| 7/29/1997 | 6.2 | 13.5 | 47 | 0.10 | 7.27E+00 | 95.63% | Base flow | 10 | Yes | |
| 6/29/2004 | 12.3 | 14 | 47 | 0.10 | 7.54E+00 | 95.63% | Base flow | 10 | No | |
| 6/25/1996 | 7.2 | 12.5 | 49 | 0.10 | 7.02E+00 | 94.78% | Base flow | 10 | Yes | |
| 10/7/2003 | 4.65 | 4.8 | 51 | 0.11 | 2.81E+00 | 93.78% | Base flow | 10 | Yes | |
| 10/1/1991 | 3 | 5 | 52 | 0.11 | 2.96E+00 | 93.40% | Base flow | 10 | Yes | |
| 11/4/2003 | 6.19 | 7.2 | 53 | 0.11 | 4.38E+00 | 92.21% | Base flow | 10 | Yes | |
| 10/8/2002 | 7.5 | 6.75 | 55 | 0.12 | 4.23E+00 | 91.13% | Base flow | 10 | Yes | |
| 9/23/1997 | 11 | 17 | 56 | 0.12 | 1.09E+01 | 90.27% | Base flow | 10 | No | |
| 9/22/1998 | 5.6 | 12.5 | 56 | 0.12 | 8.05E+00 | 90.27% | Base flow | 10 | Yes | |
| 10/30/2001 | 3 | 3.2 | 58 | 0.12 | 2.12E+00 | 89.26% | Base flow | 10 | Yes | |
| 4/18/2000 | 4.4 | | 59 | 0.12 | | 88.85% | Base flow | 10 | Yes | |
| 8/13/1991 | 8.6 | 20 | 59 | 0.12 | 1.35E+01 | 88.57% | Base flow | 10 | Yes | |
| 8/24/1993 | 8.4 | 14 | 59 | 0.12 | 9.42E+00 | 88.57% | Base flow | 10 | Yes | |
| 7/7/1998 | 5.4 | 11 | 60 | 0.13 | 7.47E+00 | 88.30% | Base flow | 10 | Yes | |

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 9/7/1993 | 9.4 | 12 | 61 | 0.13 | 8.35E+00 | 87.17% | Base flow | 10 | Yes | |
| 9/27/1994 | 4.4 | 5.5 | 61 | 0.13 | 3.83E+00 | 87.17% | Base flow | 10 | Yes | |
| 8/18/1998 | 4.6 | 14 | 62 | 0.13 | 9.83E+00 | 86.79% | Base flow | 10 | Yes | |
| 10/12/1999 | 6.1 | 9 | 62 | 0.13 | 6.32E+00 | 86.79% | Base flow | 10 | Yes | |
| 9/10/2002 | 5.3 | 7 | 62 | 0.13 | 4.95E+00 | 86.43% | Base flow | 10 | Yes | |
| 12/3/2002 | 2.36 | <1 | 62 | 0.13 | 7.07E-01 | 86.43% | Base flow | 10 | Yes | |
| 11/13/2001 | 3.4 | 2.5 | 63 | 0.13 | 1.80E+00 | 85.81% | Base flow | 10 | Yes | |
| 5/28/1996 | | 12.5 | 65 | 0.14 | 9.22E+00 | 85.03% | Base flow | 10 | | |
| 11/12/2002 | 3.45 | 3 | 65 | 0.14 | 2.22E+00 | 84.71% | Base flow | 10 | Yes | |
| 11/18/1997 | 1.5 | <1 | 66 | 0.14 | 7.49E-01 | 84.39% | Base flow | 10 | Yes | |
| 6/15/1999 | 34 | 36.5 | 66 | 0.14 | 2.73E+01 | 84.39% | Base flow | 10 | No | |
| 2/23/1999 | 2.8 | 6.5 | 68 | 0.14 | 5.02E+00 | 83.28% | Base flow | 10 | Yes | |
| 8/24/1999 | 12 | 21.5 | 68 | 0.14 | 1.66E+01 | 83.28% | Base flow | 10 | No | |
| 9/11/1990 | 16 | 24 | 71 | 0.15 | 1.94E+01 | 81.30% | Base flow | 10 | No | |
| 6/16/1998 | 5.4 | 12 | 73 | 0.15 | 9.97E+00 | 80.51% | Base flow | 10 | Yes | |
| 8/19/1997 | 9.4 | 18 | 75 | 0.16 | 1.54E+01 | 79.33% | Base flow | 10 | Yes | |
| 5/1/2001 | 4.2 | 11.2 | 76 | 0.16 | 9.70E+00 | 78.84% | Base flow | 10 | Yes | |
| 10/27/1992 | 5.2 | 8 | 76 | 0.16 | 6.93E+00 | 78.59% | Base flow | 10 | Yes | |
| 6/19/2001 | 7.8 | 17.25 | 77 | 0.16 | 1.51E+01 | 78.34% | Base flow | 10 | Yes | |
| 9/10/1991 | 4 | 14 | 78 | 0.16 | 1.25E+01 | 77.47% | Base flow | 10 | Yes | |
| 7/30/1996 | 230 | 240 | 78 | 0.16 | 2.13E+02 | 77.18% | Base flow | 10 | No | |
| 11/6/2001 | 3 | 3.8 | 79 | 0.17 | 3.42E+00 | 76.96% | Base flow | 10 | Yes | |
| 6/24/1997 | 5 | 10.5 | 79 | 0.17 | 9.46E+00 | 76.73% | Base flow | 10 | Yes | |
| 8/26/2002 | 7.2 | 8.8 | 81 | 0.17 | 8.13E+00 | 75.97% | Base flow | 10 | Yes | |
| 7/9/2002 | 5.1 | 15.5 | 82 | 0.17 | 1.45E+01 | 75.52% | Base flow | 10 | Yes | |
| 8/13/2002 | 8.8 | 11.5 | 88 | 0.19 | 1.15E+01 | 72.91% | Base flow | 10 | Yes | |
| 2/14/1995 | 1.6 | 1.5 | 91 | 0.19 | 1.56E+00 | 71.55% | Base flow | 10 | Yes | |
| 7/9/1991 | 8.8 | 13 | 92 | 0.19 | 1.36E+01 | 71.37% | Base flow | 10 | Yes | |
| 9/1/1992 | 7.8 | 16 | 95 | 0.20 | 1.73E+01 | 70.30% | Base flow | 10 | Yes | |
| 8/9/1994 | 6.2 | 10.5 | 95 | 0.20 | 1.14E+01 | 70.30% | Base flow | 10 | Yes | |
| 8/16/2004 | 13.6 | 13.3 | 99 | 0.21 | 1.49E+01 | 68.98% | Base flow | 10 | No | |
| 7/27/2004 | 16.9 | 17 | 100 | 0.21 | 1.93E+01 | 68.72% | Base flow | 10 | No | |
| 2/13/1996 | 2.5 | 2 | 102 | 0.21 | 2.32E+00 | 68.00% | Base flow | 10 | Yes | |



Table B.3.
Turbidity and TSS data WHI0024

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 5/11/1999 | 4.2 | 11 | 102 | 0.21 | 1.27E+01 | 68.00% | Base flow | 10 | Yes | |
| 8/1/2000 | 6.6 | 13 | 103 | 0.22 | 1.52E+01 | 67.53% | Base flow | 10 | Yes | |
| 3/16/2004 | 11.2 | 6.2 | 103 | 0.22 | 7.26E+00 | 67.53% | Base flow | 10 | No | |
| 12/17/2002 | 2.98 | 3.3 | 110 | 0.23 | 4.14E+00 | 65.40% | Base flow | 10 | Yes | |
| 7/6/1993 | 6.7 | 13 | 111 | 0.23 | 1.65E+01 | 65.09% | Base flow | 10 | Yes | |
| 12/30/1997 | 2.1 | 1.5 | 113 | 0.24 | 1.93E+00 | 64.59% | Base flow | 10 | Yes | |
| 3/21/2000 | 4.3 | 7 | 113 | 0.24 | 9.01E+00 | 64.59% | Base flow | 10 | Yes | |
| 4/17/2001 | 3.6 | 8 | 113 | 0.24 | 1.03E+01 | 64.59% | Base flow | 10 | Yes | |
| 9/22/1992 | 115 | 153 | 122 | 0.26 | 2.13E+02 | 62.07% | Base flow | 10 | No | |
| 1/19/1999 | 4.8 | 6 | 123 | 0.26 | 8.43E+00 | 61.59% | Base flow | 10 | Yes | |
| 12/18/2000 | 4.9 | 2 | 123 | 0.26 | 2.81E+00 | 61.59% | Base flow | 10 | Yes | |
| 5/22/2001 | 10 | 18 | 123 | 0.26 | 2.53E+01 | 61.59% | Base flow | 10 | Yes | |
| 11/6/1990 | 3.7 | | 133 | 0.28 | | 59.46% | Storm flow | 17 | | Yes |
| 11/20/1995 | 2.2 | 1 | 133 | 0.28 | 1.52E+00 | 59.20% | Storm flow | 17 | | Yes |
| 9/24/1996 | 6.1 | 7 | 133 | 0.28 | 1.07E+01 | 59.20% | Storm flow | 17 | | Yes |
| 10/19/2004 | 26 | 25.8 | 133 | 0.28 | 3.93E+01 | 59.20% | Storm flow | 17 | | No |
| 1/28/2003 | 4.46 | 1.3 | 137 | 0.29 | 2.03E+00 | 58.31% | Storm flow | 17 | | Yes |
| 7/25/1995 | 17 | 37 | 144 | 0.30 | 6.06E+01 | 56.97% | Storm flow | 17 | | Yes |
| 4/22/2003 | 10 | 11 | 148 | 0.31 | 1.86E+01 | 55.97% | Storm flow | 17 | | Yes |
| 10/12/1993 | 2.6 | 2 | 149 | 0.32 | 3.40E+00 | 55.76% | Storm flow | 17 | | Yes |
| 6/14/1994 | 5.8 | 10.5 | 152 | 0.32 | 1.82E+01 | 55.26% | Storm flow | 17 | | Yes |
| 12/6/1994 | 3.3 | 5 | 154 | 0.33 | 8.78E+00 | 54.83% | Storm flow | 17 | | Yes |
| 9/19/1995 | 11 | 19 | 154 | 0.33 | 3.34E+01 | 54.83% | Storm flow | 17 | | Yes |
| 6/11/1991 | 6.4 | 11 | 154 | 0.33 | 1.93E+01 | 54.60% | Storm flow | 17 | | Yes |
| 1/22/2002 | 1.7 | 1.8 | 161 | 0.34 | 3.30E+00 | 53.20% | Storm flow | 17 | | Yes |
| 1/21/1997 | 2.8 | 3 | 164 | 0.35 | 5.62E+00 | 52.49% | Storm flow | 17 | | Yes |
| 6/18/2002 | 7.1 | 9.5 | 168 | 0.36 | 1.82E+01 | 51.81% | Storm flow | 17 | | Yes |
| 6/27/2000 | 10 | 22.5 | 175 | 0.37 | 4.48E+01 | 50.71% | Storm flow | 17 | | Yes |
| 3/20/2001 | 3.3 | 3.8 | 175 | 0.37 | 7.56E+00 | 50.71% | Storm flow | 17 | | Yes |
| 5/18/2004 | 26.3 | 6 | 175 | 0.37 | 1.19E+01 | 50.71% | Storm flow | 17 | | No |
| 6/30/2003 | 6.66 | 4 | 178 | 0.38 | 8.12E+00 | 49.96% | Storm flow | 17 | | Yes |
| 6/17/2002 | 7.2 | 10.5 | 182 | 0.38 | 2.18E+01 | 49.31% | Storm flow | 17 | | Yes |
| 11/9/1998 | 4.3 | 6 | 185 | 0.39 | 1.26E+01 | 48.81% | Storm flow | 17 | | Yes |



Table B.3.

Turbidity and TSS data WHI0024

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 3/19/2001 | 2.6 | 3.3 | 185 | 0.39 | 6.95E+00 | 48.81% | Storm flow | 17 | | Yes |
| 5/24/1994 | 3.8 | 6.5 | 185 | 0.39 | 1.37E+01 | 48.68% | Storm flow | 17 | | Yes |
| 4/1/2003 | 5 | 3 | 192 | 0.41 | 6.57E+00 | 47.79% | Storm flow | 17 | | Yes |
| 7/26/1994 | 7.2 | 14 | 193 | 0.41 | 3.08E+01 | 47.67% | Storm flow | 17 | | Yes |
| 3/28/1995 | 2.2 | 3 | 195 | 0.41 | 6.67E+00 | 47.31% | Storm flow | 17 | | Yes |
| 11/2/1993 | 2.4 | 2 | 196 | 0.41 | 4.47E+00 | 47.17% | Storm flow | 17 | | Yes |
| 3/12/1991 | 2.8 | 2 | 202 | 0.43 | 4.61E+00 | 46.14% | Storm flow | 17 | | Yes |
| 12/9/2003 | 16 | 11 | 205 | 0.43 | 2.57E+01 | 45.67% | Storm flow | 17 | | Yes |
| 12/14/2004 | 12.8 | 5.8 | 205 | 0.43 | 1.36E+01 | 45.67% | Storm flow | 17 | | Yes |
| 4/29/1997 | 2.1 | 3 | 216 | 0.46 | 7.37E+00 | 44.33% | Storm flow | 17 | | Yes |
| 3/19/2003 | 7.83 | 7.7 | 232 | 0.49 | 2.04E+01 | 42.09% | Storm flow | 17 | | Yes |
| 5/12/1992 | 2 | 6 | 239 | 0.51 | 1.63E+01 | 41.29% | Storm flow | 17 | | Yes |
| 6/9/1992 | 9.4 | 22 | 240 | 0.51 | 6.02E+01 | 41.19% | Storm flow | 17 | | Yes |
| 1/30/1996 | 6.8 | 6 | 246 | 0.52 | 1.69E+01 | 40.32% | Storm flow | 17 | | Yes |
| 7/7/1992 | 46 | 64 | 250 | 0.53 | 1.82E+02 | 39.84% | Storm flow | 17 | | No |
| 2/12/1991 | 3.6 | 5 | 253 | 0.53 | 1.44E+01 | 39.55% | Storm flow | 17 | | Yes |
| 9/25/2001 | 6.6 | 5.7 | 257 | 0.54 | 1.67E+01 | 39.19% | Storm flow | 17 | | Yes |
| 10/29/1996 | 7.6 | 12 | 267 | 0.56 | 3.65E+01 | 38.11% | Storm flow | 17 | | Yes |
| 10/20/1998 | 1.5 | 15 | 267 | 0.56 | 4.56E+01 | 38.11% | Storm flow | 17 | | Yes |
| 1/25/2005 | 11.2 | 4.5 | 267 | 0.56 | 1.37E+01 | 38.11% | Storm flow | 17 | | Yes |
| 3/8/2005 | 7.29 | 6 | 267 | 0.56 | 1.83E+01 | 38.11% | Storm flow | 17 | | Yes |
| 1/2/2002 | 4.4 | 5 | 270 | 0.57 | 1.54E+01 | 37.76% | Storm flow | 17 | | Yes |
| 8/5/2003 | 41.8 | 46.2 | 296 | 0.63 | 1.56E+02 | 35.35% | Storm flow | 17 | | No |
| 5/27/1997 | 61 | 173 | 298 | 0.63 | 5.87E+02 | 35.14% | Storm flow | 17 | | No |
| 6/1/1993 | 6.1 | 12 | 305 | 0.64 | 4.17E+01 | 34.51% | Storm flow | 17 | | Yes |
| 3/23/1999 | 5.5 | 8 | 308 | 0.65 | 2.81E+01 | 34.29% | Storm flow | 17 | | Yes |
| 1/16/2001 | 4.2 | 7 | 308 | 0.65 | 2.46E+01 | 34.29% | Storm flow | 17 | | Yes |
| 2/17/2004 | 10.6 | 2.5 | 318 | 0.67 | 9.07E+00 | 33.37% | Storm flow | 17 | | Yes |
| 9/9/2003 | 23.1 | 28.2 | 322 | 0.68 | 1.04E+02 | 33.09% | Storm flow | 17 | | No |
| 3/17/1992 | 1.8 | 3 | 323 | 0.68 | 1.10E+01 | 33.00% | Storm flow | 17 | | Yes |
| 12/11/2001 | 13 | 14.3 | 355 | 0.75 | 5.79E+01 | 30.63% | Storm flow | 17 | | Yes |
| 5/27/2003 | 15.9 | 21.5 | 359 | 0.76 | 8.80E+01 | 30.38% | Storm flow | 17 | | Yes |
| 11/7/2000 | 5.7 | 8.5 | 370 | 0.78 | 3.58E+01 | 29.52% | Storm flow | 17 | | Yes |



Table B.3.
Turbidity and TSS data WHI0024

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 4/29/2002 | 12 | 41.25 | 385 | 0.81 | 1.81E+02 | 28.47% | Storm flow | 17 | | Yes |
| 4/26/1994 | 1.8 | 5 | 390 | 0.82 | 2.22E+01 | 28.18% | Storm flow | 17 | | Yes |
| 5/16/1995 | 5.5 | 15 | 390 | 0.82 | 6.67E+01 | 28.10% | Storm flow | 17 | | Yes |
| 7/22/2003 | 69.6 | 73.2 | 396 | 0.84 | 3.30E+02 | 27.70% | Storm flow | 17 | | No |
| 3/16/1993 | 2.2 | 4 | 398 | 0.84 | 1.82E+01 | 27.57% | Storm flow | 17 | | Yes |
| 12/15/1998 | 1.4 | 5 | 411 | 0.87 | 2.34E+01 | 26.79% | Storm flow | 17 | | Yes |
| 1/20/2004 | 21.5 | 7.5 | 431 | 0.91 | 3.69E+01 | 25.57% | Storm flow | 17 | | No |
| 4/13/1993 | 3.3 | 7 | 464 | 0.98 | 3.70E+01 | 23.62% | Storm flow | 17 | | Yes |
| 3/25/1997 | 4.3 | 10.5 | 472 | 1.00 | 5.65E+01 | 23.19% | Storm flow | 17 | | Yes |
| 3/4/2003 | 5.32 | 4 | 476 | 1.01 | 2.17E+01 | 22.95% | Storm flow | 17 | | Yes |
| 2/25/1992 | 3.1 | 3 | 481 | 1.02 | 1.65E+01 | 22.64% | Storm flow | 17 | | Yes |
| 2/12/2002 | 7.5 | 11 | 482 | 1.02 | 6.05E+01 | 22.59% | Storm flow | 17 | | Yes |
| 11/5/1991 | 16 | 20 | 493 | 1.04 | 1.12E+02 | 22.14% | Storm flow | 17 | | Yes |
| 11/19/1996 | 13 | 17.5 | 513 | 1.09 | 1.02E+02 | 21.22% | Storm flow | 17 | | Yes |
| 8/4/1992 | 10 | 12 | 523 | 1.11 | 7.16E+01 | 20.74% | Storm flow | 17 | | Yes |
| 1/21/1992 | 2.2 | 4 | 533 | 1.13 | 2.43E+01 | 20.33% | Storm flow | 17 | | Yes |
| 1/27/1998 | 3.1 | 4.5 | 534 | 1.13 | 2.74E+01 | 20.31% | Storm flow | 17 | | Yes |
| 5/12/1998 | 35 | 64.5 | 534 | 1.13 | 3.93E+02 | 20.31% | Storm flow | 17 | | No |
| 1/17/1995 | 11 | 9 | 565 | 1.19 | 5.79E+01 | 18.97% | Storm flow | 17 | | Yes |
| 5/7/1991 | 6.6 | 9 | 617 | 1.30 | 6.33E+01 | 17.00% | Storm flow | 17 | | Yes |
| 2/29/2000 | 34 | 52 | 657 | 1.39 | 3.89E+02 | 15.80% | Storm flow | 17 | | No |
| 3/22/1994 | 4.6 | 9.5 | 676 | 1.43 | 7.32E+01 | 15.23% | Storm flow | 17 | | Yes |
| 12/17/1996 | 20 | 30 | 698 | 1.48 | 2.39E+02 | 14.63% | Storm flow | 17 | | No |
| 12/14/1999 | | 56 | 698 | 1.48 | 4.46E+02 | 14.63% | Storm flow | 17 | | |
| 5/21/2002 | 12 | 28.5 | 702 | 1.48 | 2.28E+02 | 14.49% | Storm flow | 17 | | Yes |
| 1/26/1993 | 9.4 | 13 | 740 | 1.56 | 1.10E+02 | 13.57% | Storm flow | 17 | | Yes |
| 2/18/1997 | 3.5 | 10.5 | 780 | 1.65 | 9.34E+01 | 12.83% | Storm flow | 17 | | Yes |
| 4/9/1991 | 18 | 30 | 797 | 1.68 | 2.73E+02 | 12.51% | Storm flow | 17 | | No |
| 4/2/1996 | 22 | | 821 | 1.74 | | 12.00% | Storm flow | 17 | | No |
| 6/13/1995 | 30 | 31.5 | 862 | 1.82 | 3.10E+02 | 11.14% | Storm flow | 17 | | No |
| 4/7/1998 | 5.4 | 10.5 | 862 | 1.82 | 1.03E+02 | 11.14% | Storm flow | 17 | | Yes |
| 2/15/2005 | 39.7 | 37.8 | 903 | 1.91 | 3.89E+02 | 10.47% | Storm flow | 17 | | No |
| 3/5/1996 | 3.2 | 3 | 955 | 2.02 | 3.27E+01 | 9.73% | Storm flow | 17 | | Yes |



Table B.3.
Turbidity and TSS data WHI0024

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 10/9/1990 | 74 | 188 | 1030 | 2.18 | 2.21E+03 | 8.83% | Storm flow | 17 | | No |
| 2/13/2001 | 5.3 | 8.2 | 1037 | 2.19 | 9.69E+01 | 8.77% | Storm flow | 17 | | Yes |
| 2/23/1993 | 30 | 32 | 1050 | 2.22 | 3.83E+02 | 8.59% | Storm flow | 17 | | No |
| 1/15/1991 | 13 | 24 | 1110 | 2.35 | 3.04E+02 | 7.96% | Storm flow | 17 | | Yes |
| 5/30/2000 | 45 | 106.5 | 1170 | 2.47 | 1.42E+03 | 7.41% | Storm flow | 17 | | No |
| 2/24/2003 | 50.4 | 54.5 | 1270 | 2.68 | 7.89E+02 | 6.70% | Storm flow | 17 | | No |
| 4/16/2002 | 19 | 39 | 1280 | 2.71 | 5.69E+02 | 6.62% | Storm flow | 17 | | No |
| 11/15/1994 | 18 | 19 | 1283 | 2.71 | 2.78E+02 | 6.57% | Storm flow | 17 | | No |
| 5/11/1993 | 26 | | 1380 | 2.92 | | 5.91% | Storm flow | 17 | | No |
| 12/18/1990 | 27 | 44 | 1400 | 2.96 | 7.02E+02 | 5.79% | Storm flow | 17 | | No |
| 4/8/2002 | 10 | 20.8 | 1470 | 3.11 | 3.49E+02 | 5.44% | Storm flow | 17 | | Yes |
| 12/14/1993 | 26 | 40 | 1500 | 3.17 | 6.84E+02 | 5.31% | Storm flow | 17 | | No |
| 3/10/1998 | 55 | 107.5 | 1591 | 3.36 | 1.95E+03 | 4.98% | Storm flow | 17 | | No |
| 2/17/1998 | 46 | 92 | 1848 | 3.91 | 1.94E+03 | 4.10% | Storm flow | 17 | | No |
| 11/23/1992 | 200 | 334 | 1870 | 3.95 | 7.12E+03 | 4.02% | Storm flow | 17 | | No |
| 12/3/1991 | | | 2400 | 5.07 | | 2.99% | Storm flow | 17 | | |
| 1/25/1994 | 6.2 | 196 | 2670 | 5.64 | 5.97E+03 | 2.57% | Storm flow | 17 | | Yes |
| 4/30/1991 | 180 | | 3270 | 6.91 | | 2.03% | Storm flow | 17 | | No |
| 4/6/1999 | 78 | 223 | 3357 | 7.10 | 8.53E+03 | 1.95% | Storm flow | 17 | | No |
| 12/19/1995 | 81 | 102 | 3541 | 7.49 | 4.12E+03 | 1.84% | Storm flow | 17 | | No |
| 2/22/1994 | 110 | 209 | 3560 | 7.53 | 8.48E+03 | 1.82% | Storm flow | 17 | | No |
| 3/19/2002 | 57 | 158.3 | 3620 | 7.65 | 6.53E+03 | 1.79% | Storm flow | 17 | | No |
| 3/12/2002 | 76 | 155.5 | 3820 | 8.08 | 6.77E+03 | 1.68% | Storm flow | 17 | | No |
| 11/30/2004 | 103 | 102 | 4209 | 8.90 | 4.89E+03 | 1.55% | Storm flow | 17 | | No |
| 4/21/1992 | 115 | 137 | 5030 | 10.63 | 7.86E+03 | 1.16% | Storm flow | 17 | | No |
| 1/24/2002 | 33 | 610 | 5030 | 10.63 | 3.50E+04 | 1.16% | Storm flow | 17 | | No |
| 4/11/1995 | 18 | 43 | 5533 | 11.70 | 2.71E+03 | 0.99% | Storm flow | 17 | | No |
| | | | | | | | Number exceeding applicable water quality standard for turbidity = | | 10 | 37 |
| | | | | | | | Total number of observations in each category = | | 75 | 112 |
| | | | | | | | Percent exceeding applicable water quality standard for turbidity = | | 13% | 33% |

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Table B.3.
Turbidity and TSS data WHI0024

Table B.4. Observed Turbidity and TSS Data for Strawberry River at WHI143h.

| Date | Observed turbidity (NTU) | Observed TSS (mg/L) | Flow at USGS gage (cfs) | Flow per unit area (cfs/mi2) | Load per unit area (lbs/day/mi2) | Percent of days flow exceeded | Applicable category | Applicable water quality standard (NTU) | Turbidity meeting base flow standard? | Turbidity meeting storm-flow standard? |
|---|---|---|---|---|---|---|---|---|---|---|
| 8/27/2001 | 4.8 | 4.7 | 24 | 0.05 | 1.27E+00 | 99.70 | Base flow | 10 | Yes | |
| 12/3/2002 | 3.9 | 2.5 | 62 | 0.13 | 1.77E+00 | 86.44 | Base flow | 10 | Yes | |
| 5/1/2001 | 2 | 3.8 | 76 | 0.16 | 3.29E+00 | 78.85 | Base flow | 10 | Yes | |
| 6/19/2001 | 3.6 | 5.5 | 77 | 0.16 | 4.83E+00 | 78.35 | Base flow | 10 | Yes | |
| 11/6/2001 | 2.2 | 2 | 79 | 0.17 | 1.80E+00 | 76.97 | Base flow | 10 | Yes | |
| 8/26/2002 | 3.2 | 3.2 | 81 | 0.17 | 2.96E+00 | 75.98 | Base flow | 10 | Yes | |
| 1/22/2002 | 1.5 | 1.3 | 161 | 0.34 | 2.39E+00 | 53.21 | Storm-flow | 17 | | Yes |
| 6/18/2003 | 3.4 | 2.5 | 171 | 0.36 | 4.87E+00 | 51.27 | Storm-flow | 17 | | Yes |
| 6/17/2002 | 2.7 | 1 | 182 | 0.38 | 2.08E+00 | 49.33 | Storm-flow | 17 | | Yes |
| 3/19/2001 | 1.3 | <1 | 185 | 0.39 | 2.11E+00 | 48.82 | Storm-flow | 17 | | Yes |
| 3/19/2003 | 5.6 | 1 | 232 | 0.49 | 2.65E+00 | 42.11 | Storm-flow | 17 | | Yes |
| 4/29/2002 | 1.9 | 4.25 | 385 | 0.81 | 1.87E+01 | 28.49 | Storm-flow | 17 | | Yes |
| 2/24/2003 | 17.8 | 16 | 1270 | 2.68 | 2.32E+02 | 6.73 | Storm-flow | 17 | | No |
| 4/8/2002 | 55 | 68 | 1470 | 3.11 | 1.14E+03 | 5.46 | Storm-flow | 17 | | No |
| 3/12/2002 | 33 | 13 | 3820 | 8.08 | 5.66E+02 | 1.71 | Storm-flow | 17 | | No |
| 1/24/2002 | 64 | 49 | 5030 | 10.63 | 2.81E+03 | 1.18 | Storm-flow | 17 | | No |

| | | |
|---|---|---|
| Number exceeding applicable water quality standard for turbidity = | 0 | 4 |
| Total number of observations in each category = | 6 | 10 |
| Percent exceeding applicable water quality standard for turbidity = | 0% | 40% |

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**Figure B.1. Observed Long Term TSS for Strawberry River near Wiseman, AR (SBR0001)**

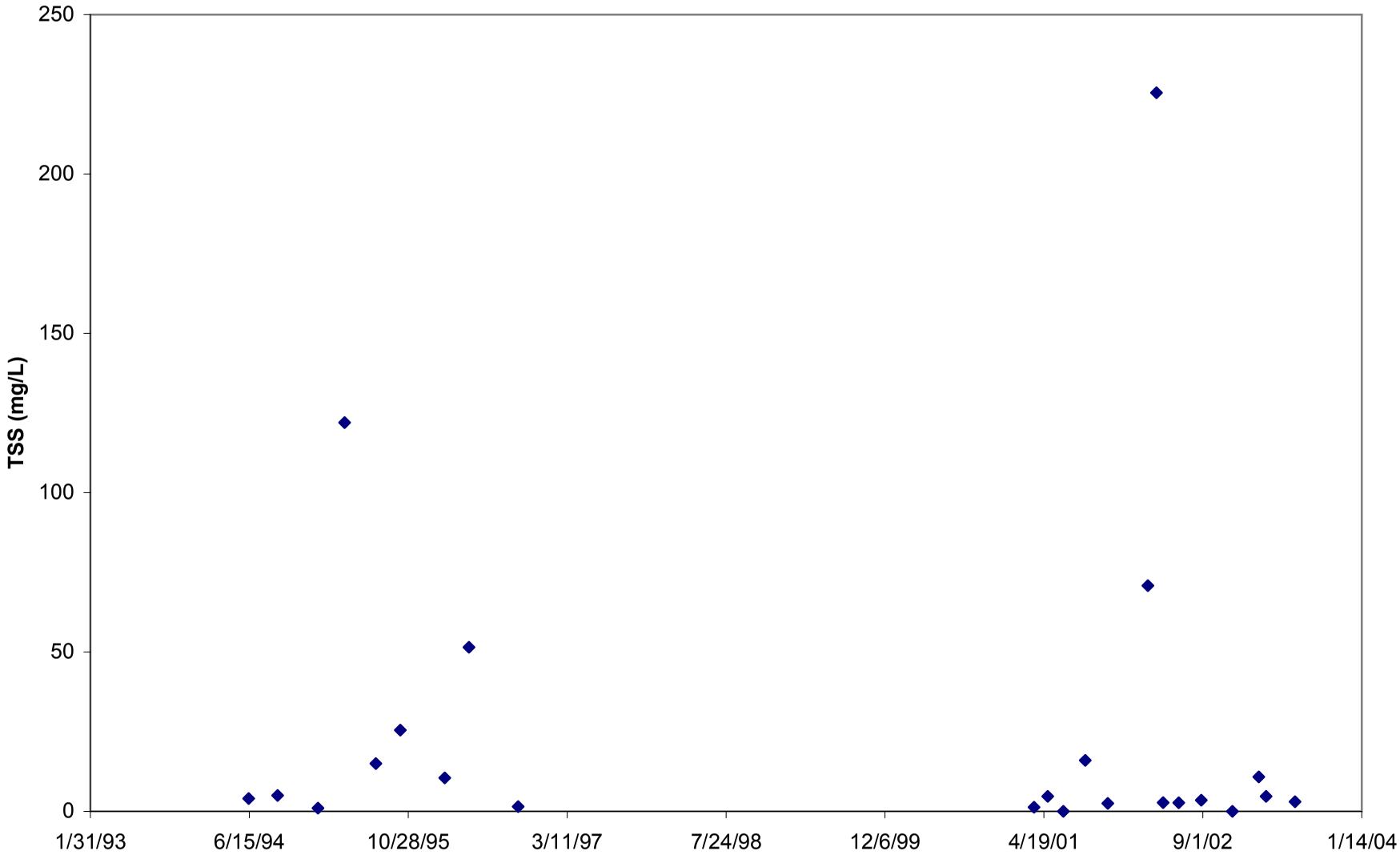


**Figure B.2. Observed Long Term Turbidity for Strawberry River near Wiseman, AR (SBR0001)**

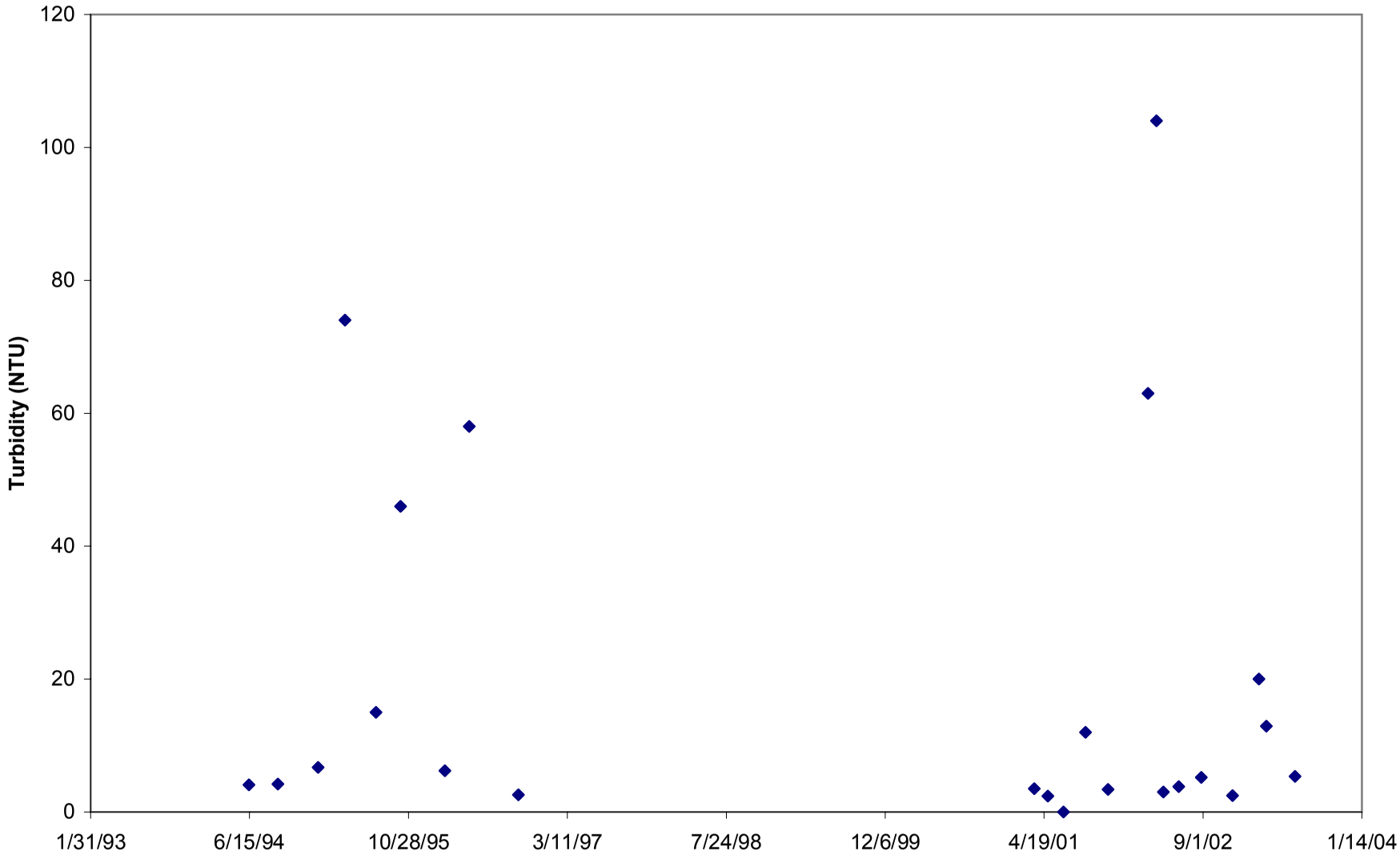


**Figure B.3. Observed long Term TSS for Strawberry River at Hwy 167 (SBR0002)**

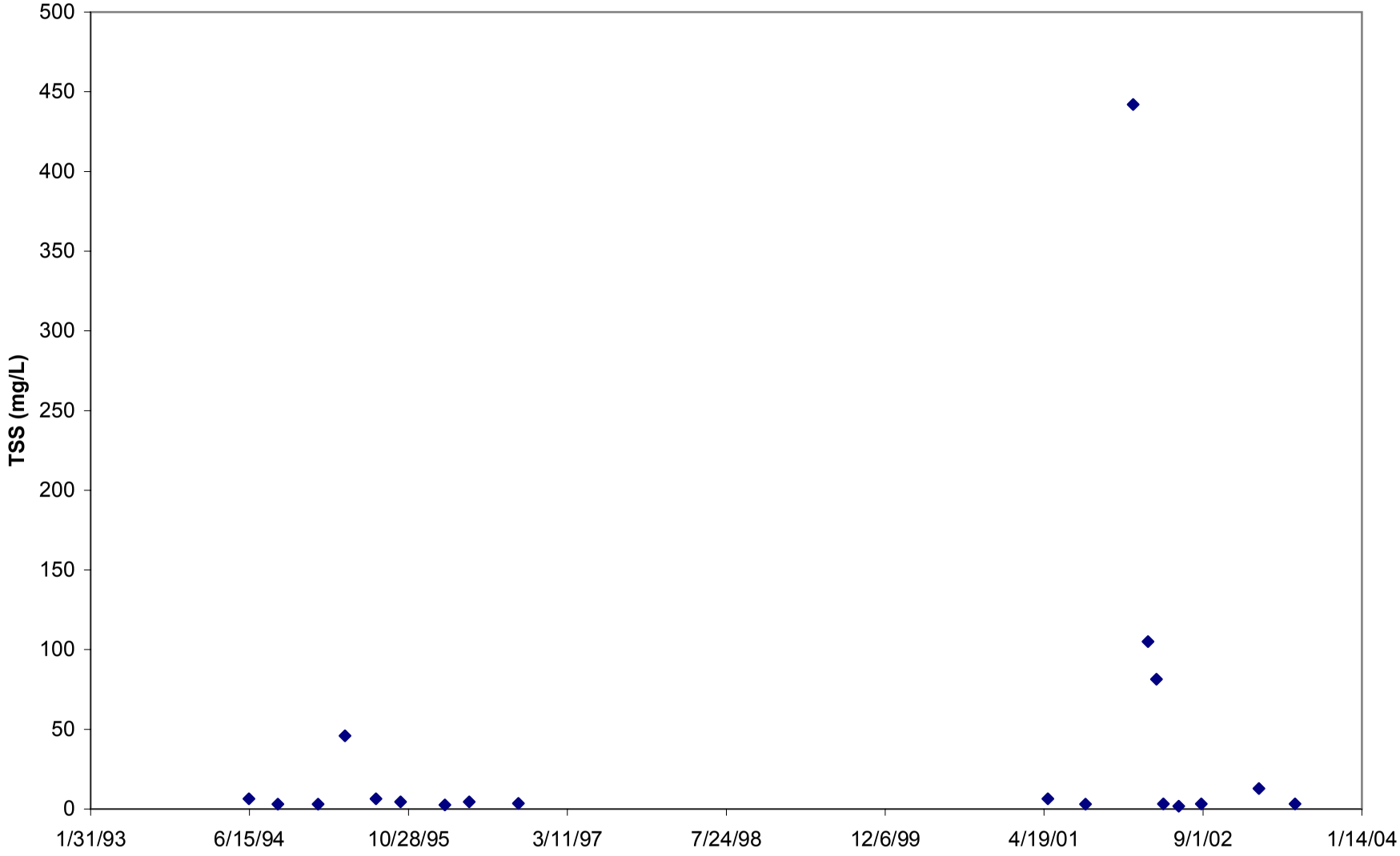


**Figure B.4. Observed long Term Turbidity for Strawberry River at Hwy 167 (SBR0002)**

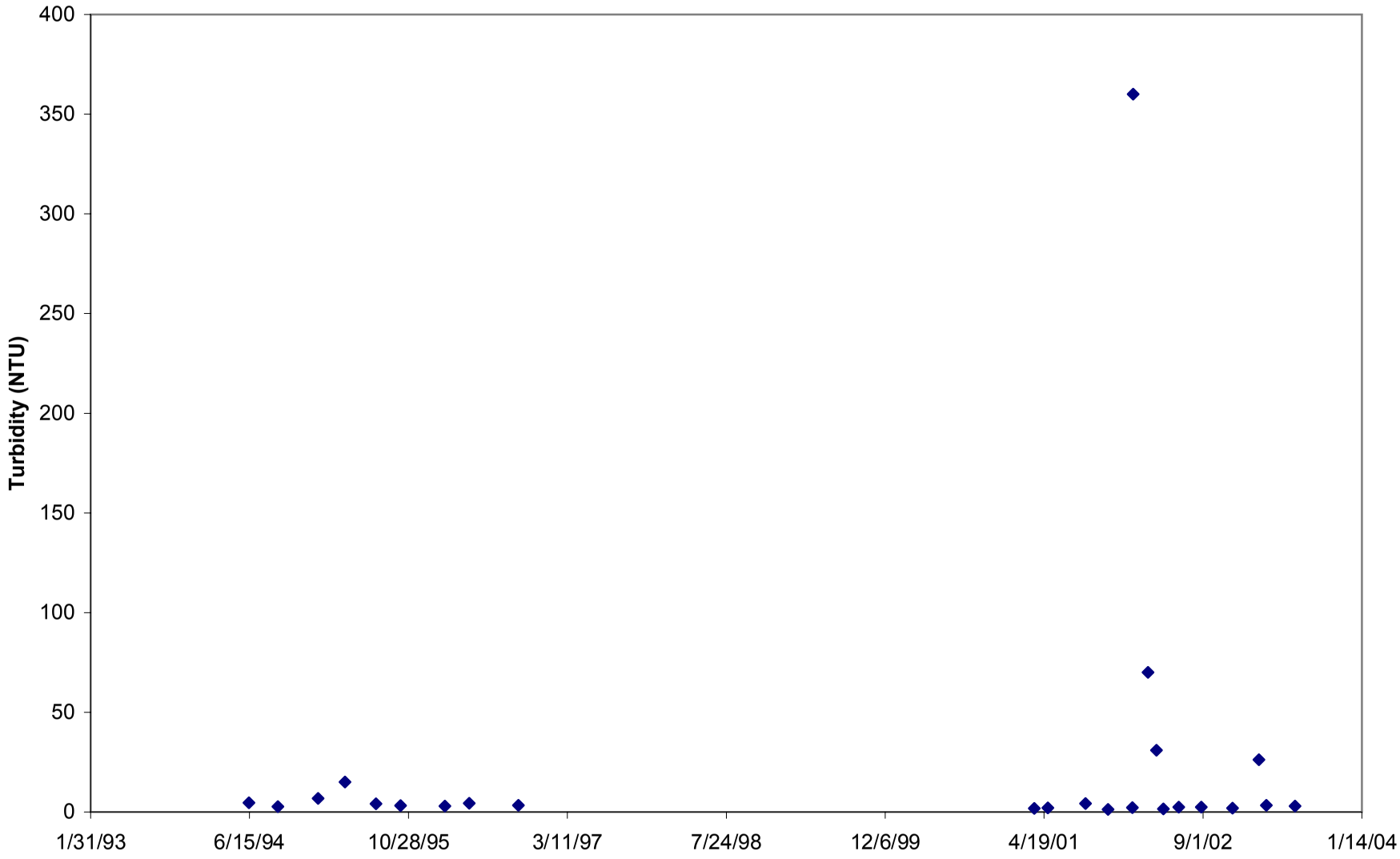


**Figure F.5. Base Flow Load Duration Curve For Strawberry River SBR0002**

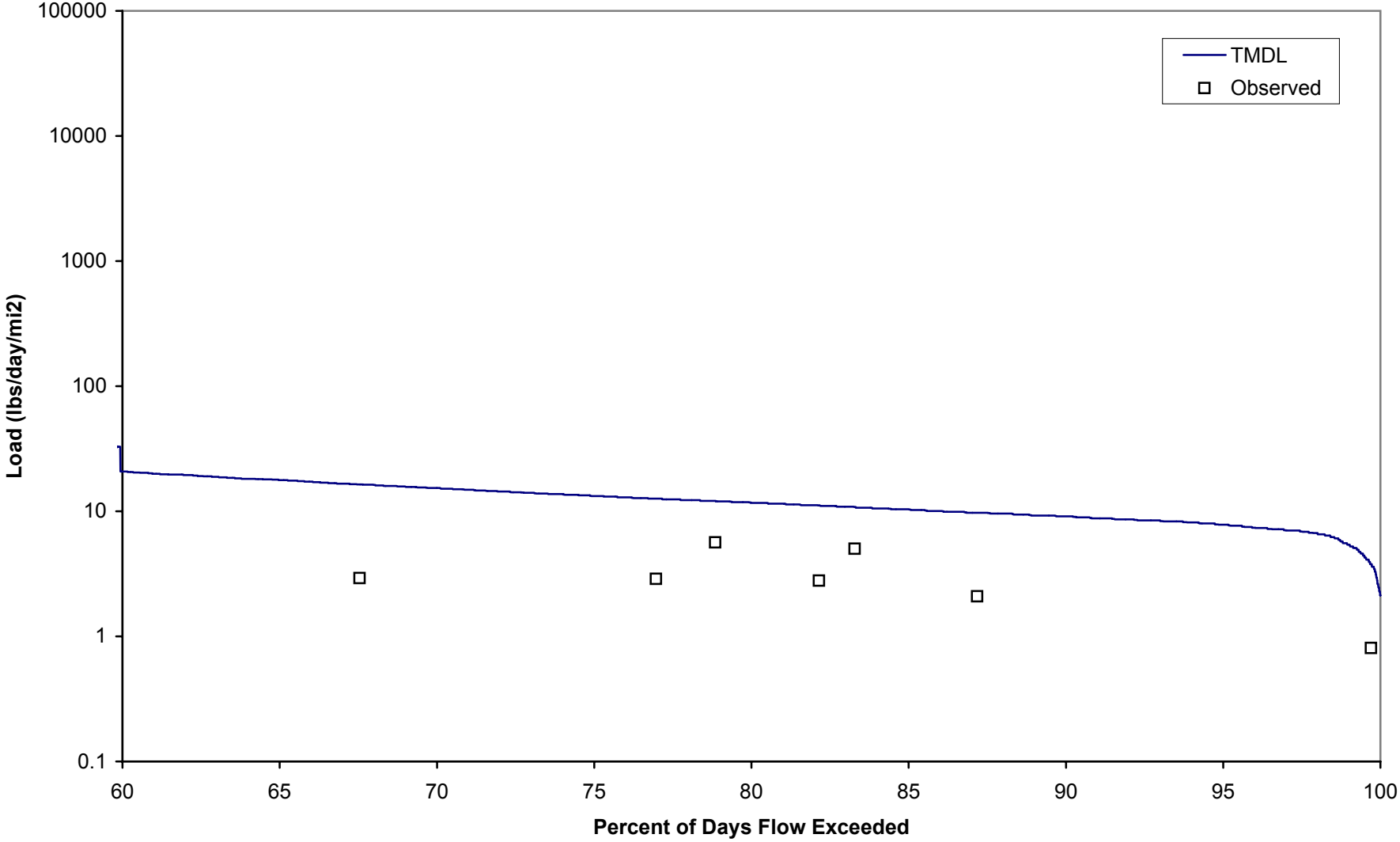


**Figure B.6. Observed Long Term Turbidity for Strawberry River near Smithville, AR (WHI0024)**

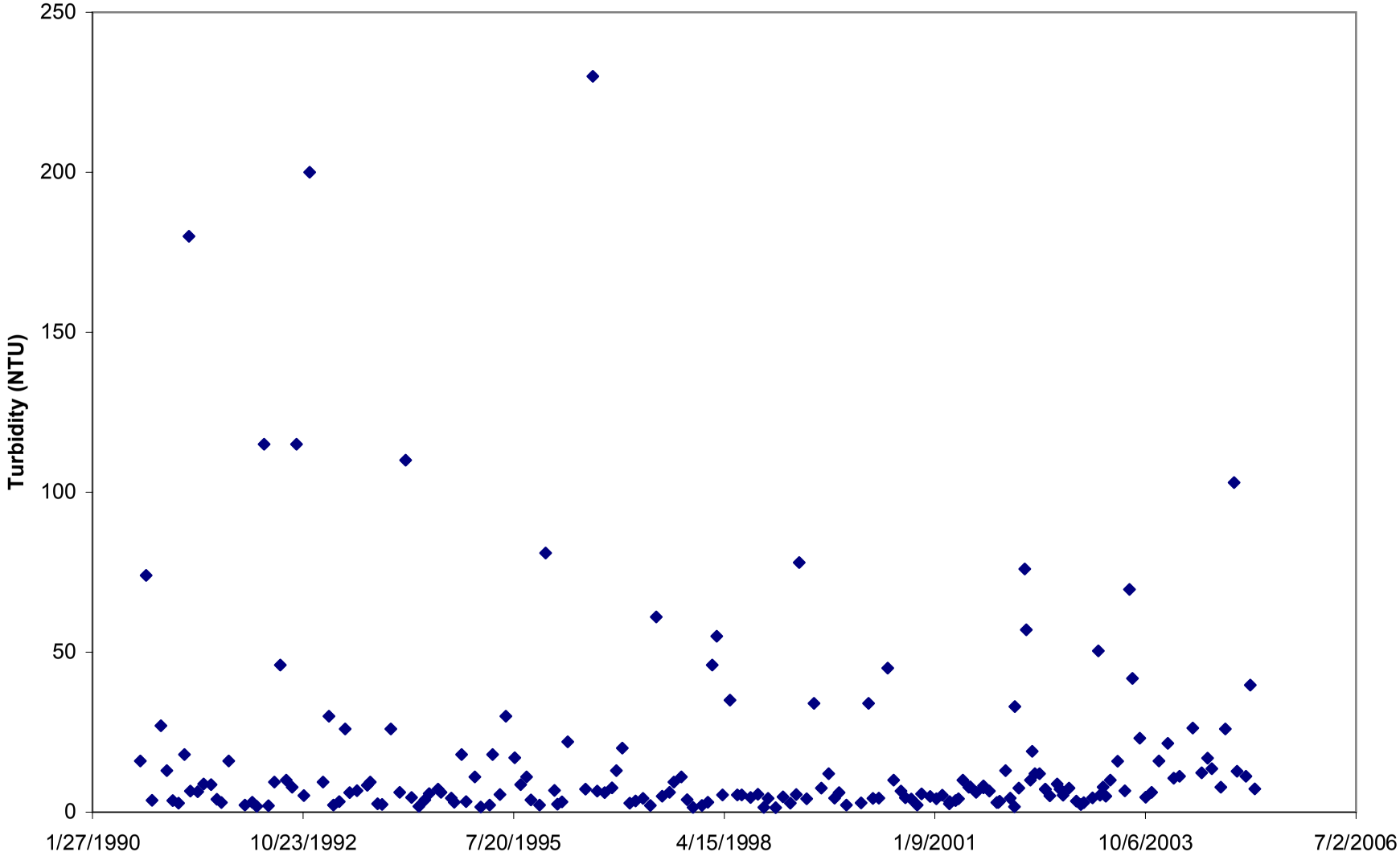


**Figure B.7. Observed Long Term TSS for Strawberry River (WHI143)**

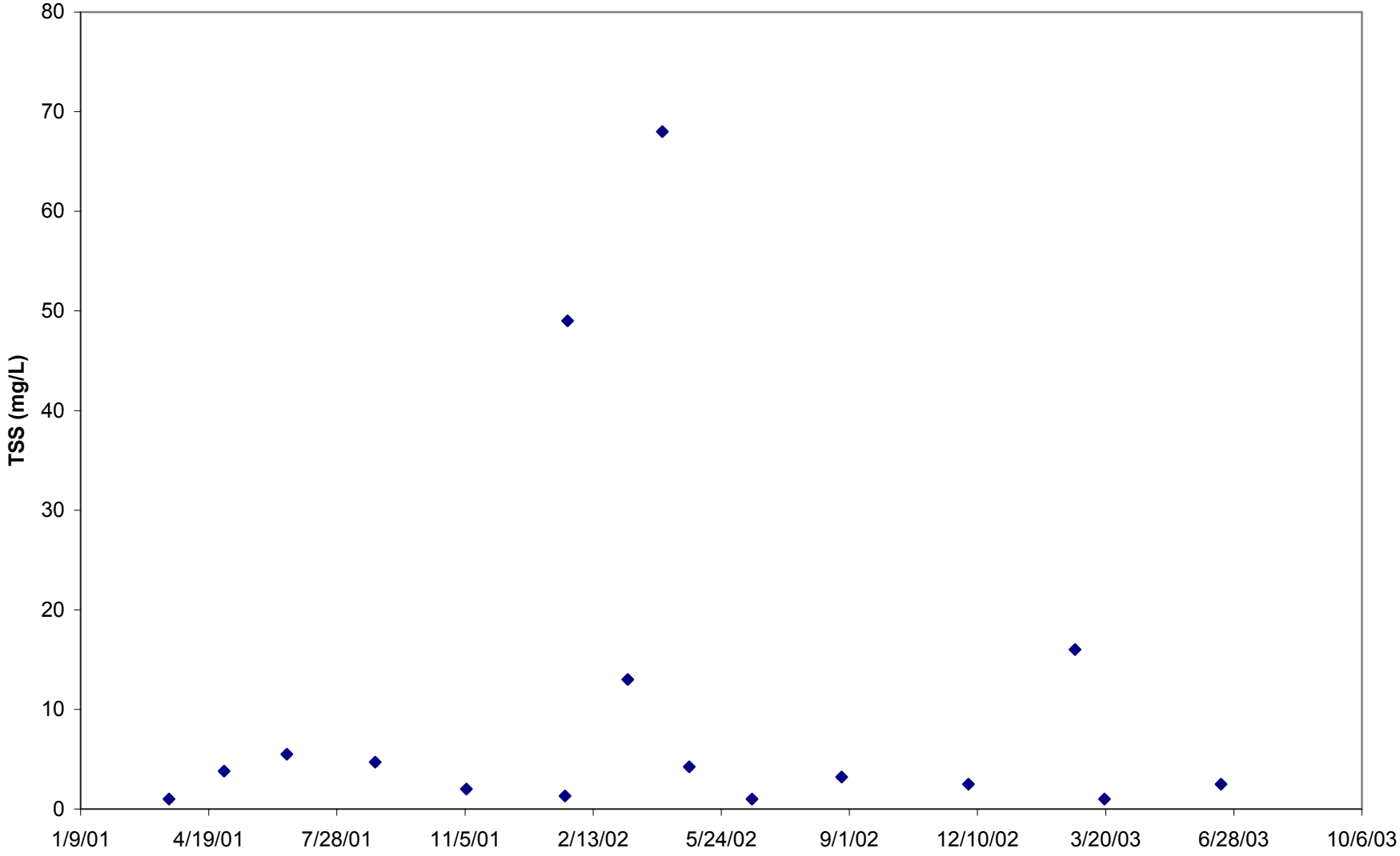
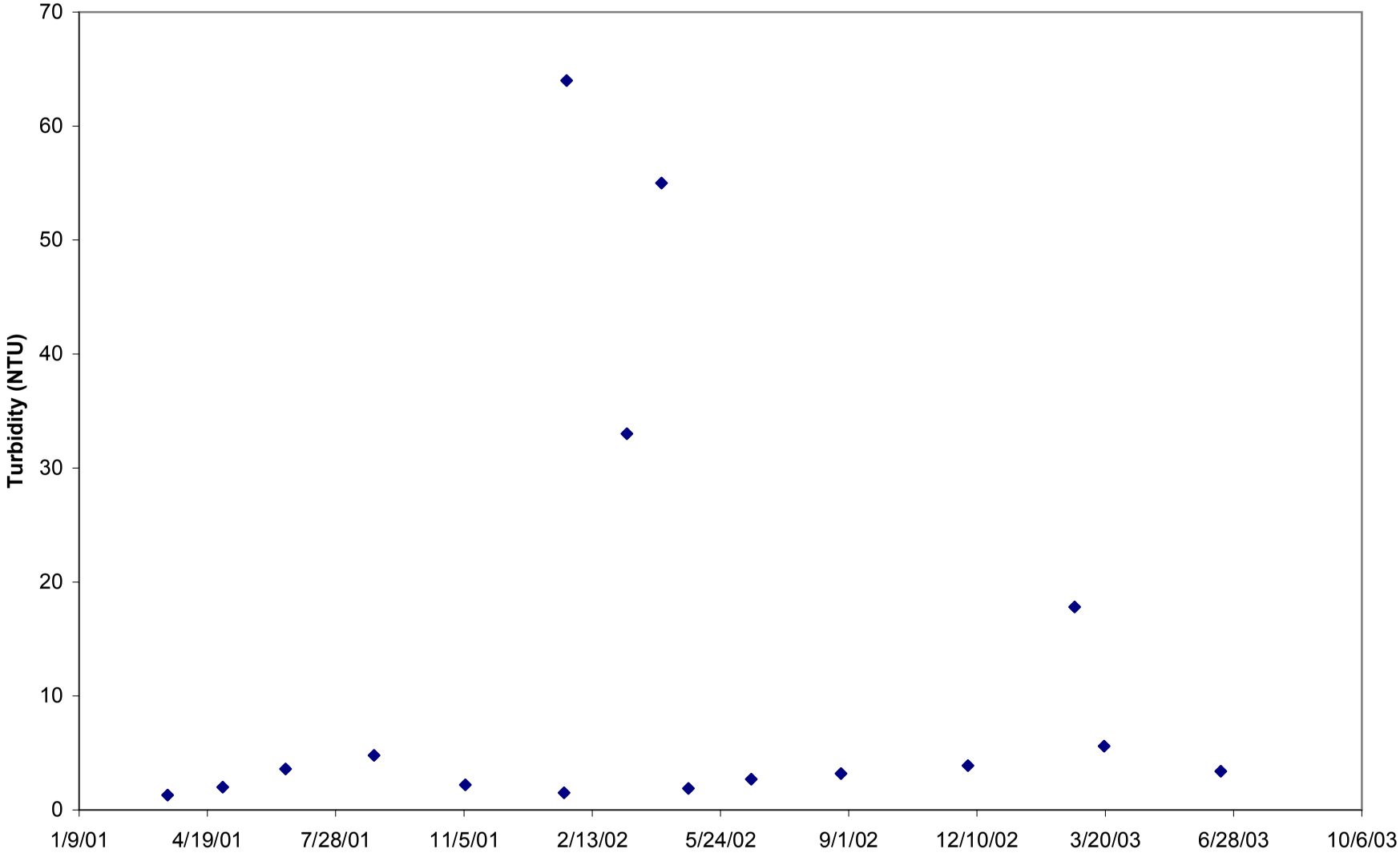


**Figure B.8.Observed Long Term Turbidity for Strawberry River (WHI143h)**



# APPENDIX C

**Seasonal Plots of Turbidity and TSS>**

**Figure C.1. Seasonal TSS for Strawberry River near Wiseman, AR (SBR0001)**

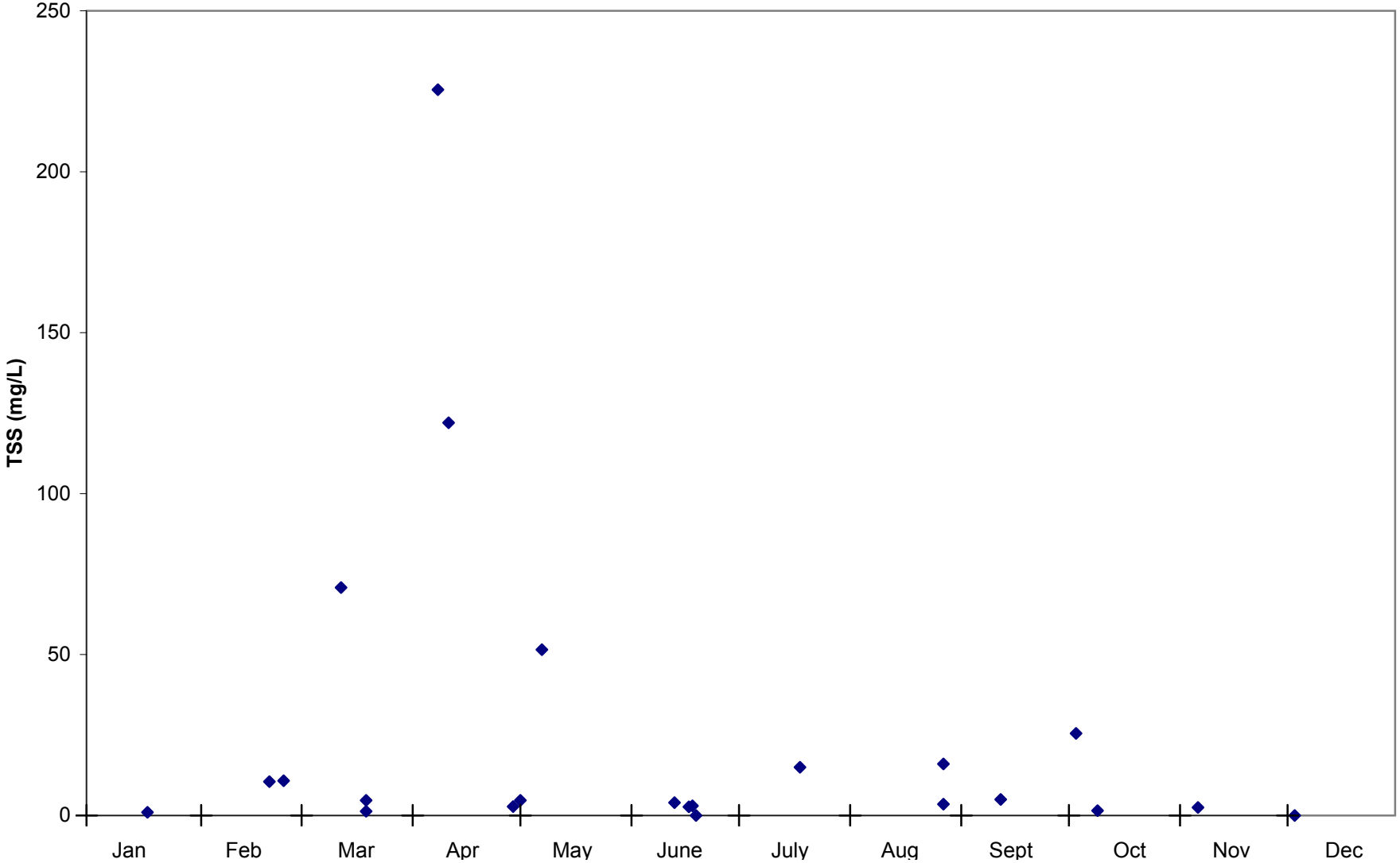


**Figure C.2. Seasonal Turbidity for Strawberry River near Wiseman, AR (SBR0001)**

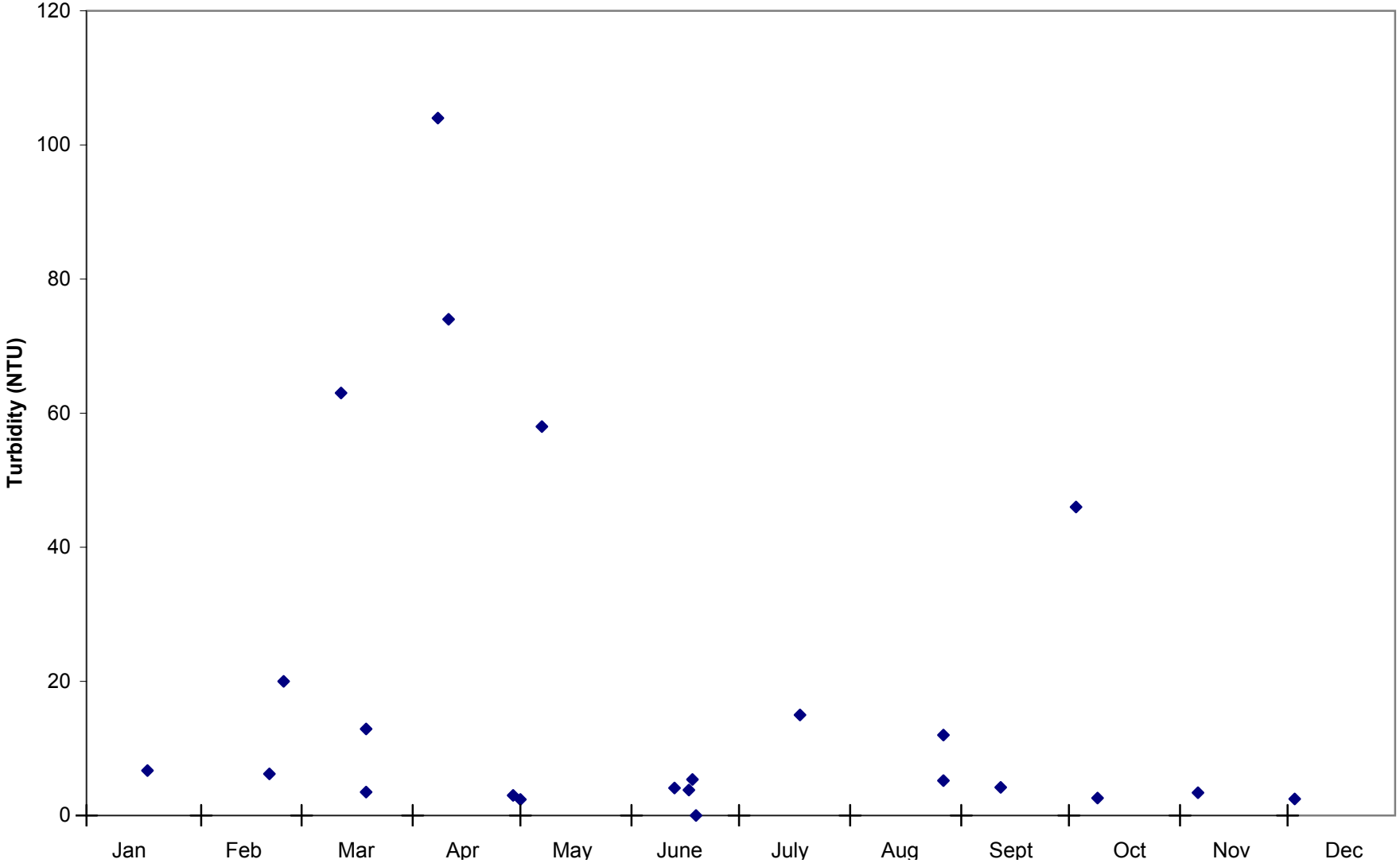


**Figure C.3. Observed Seasonal TSS on Strawberry River at Hwy 167 (SBR0002)**

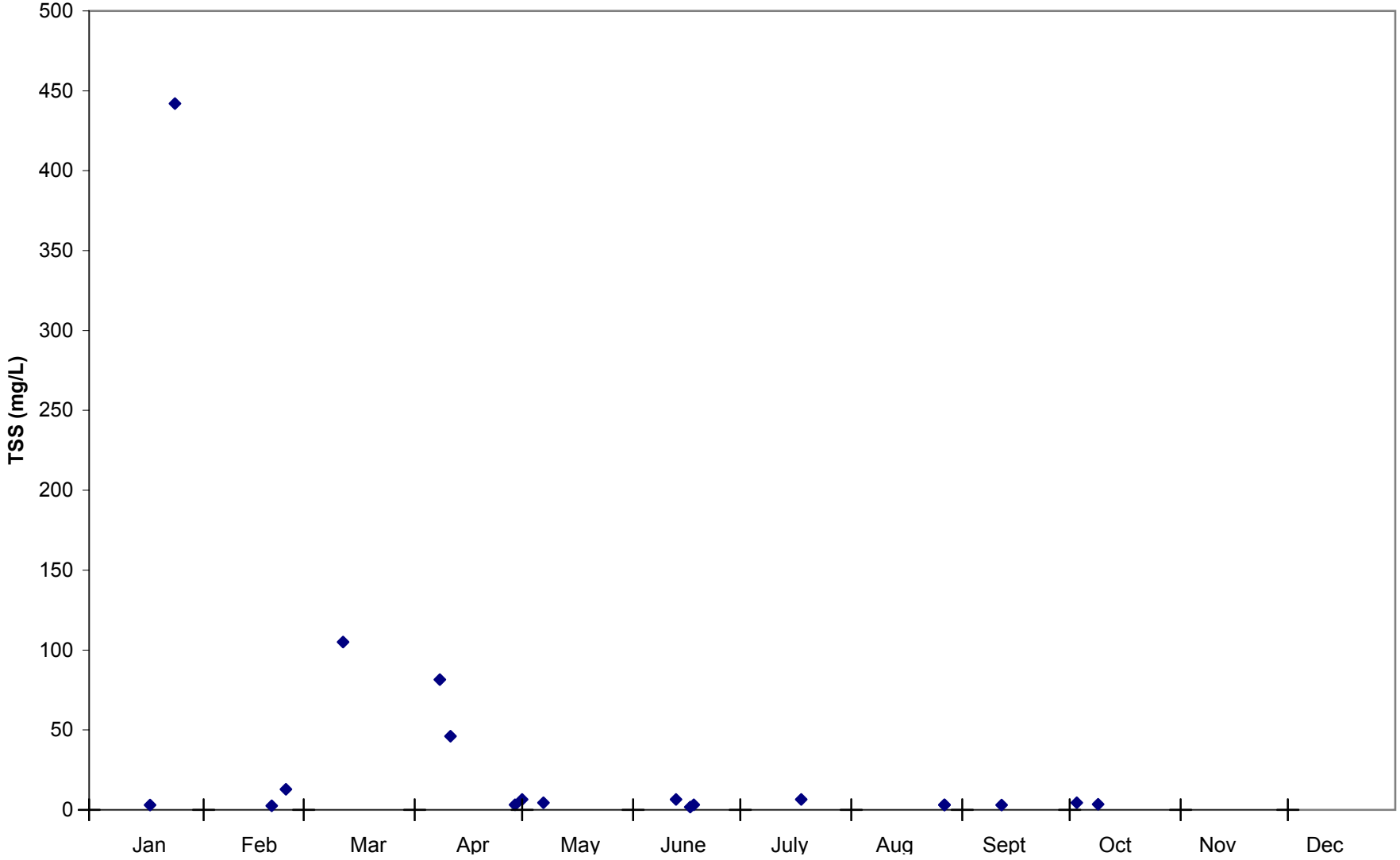


**Figure C.4. Observed Seasonal Turbidity on Strawberry River at Hwy 167 (SBR0002)**

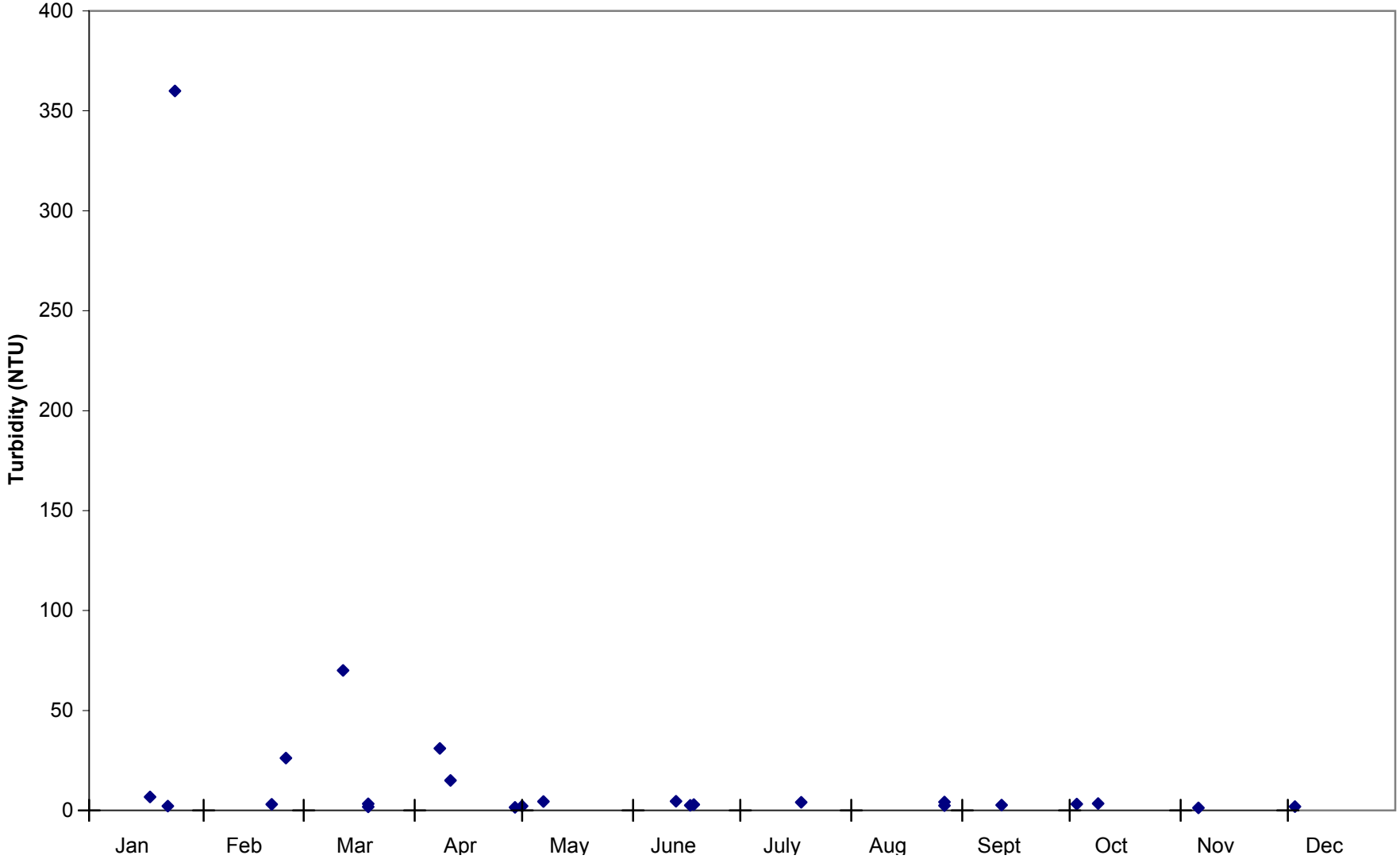


**Figure C.5. Seasonal TSS for Strawberry River near Smithville, AR (WHI0024)**

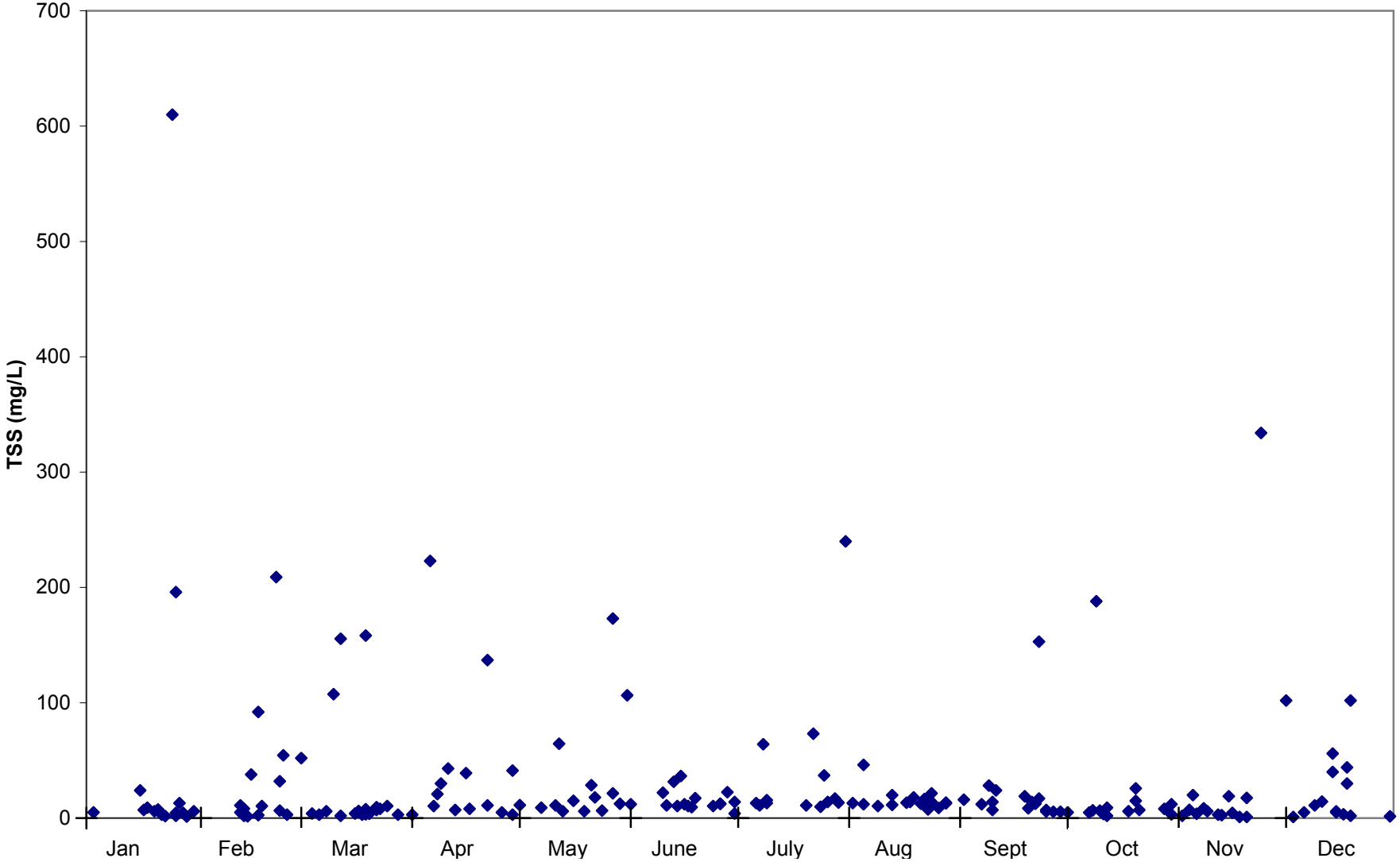


**Figure C.6. Seasonal Turbidity for Strawberry River near Smithville, AR (WHI0024)**

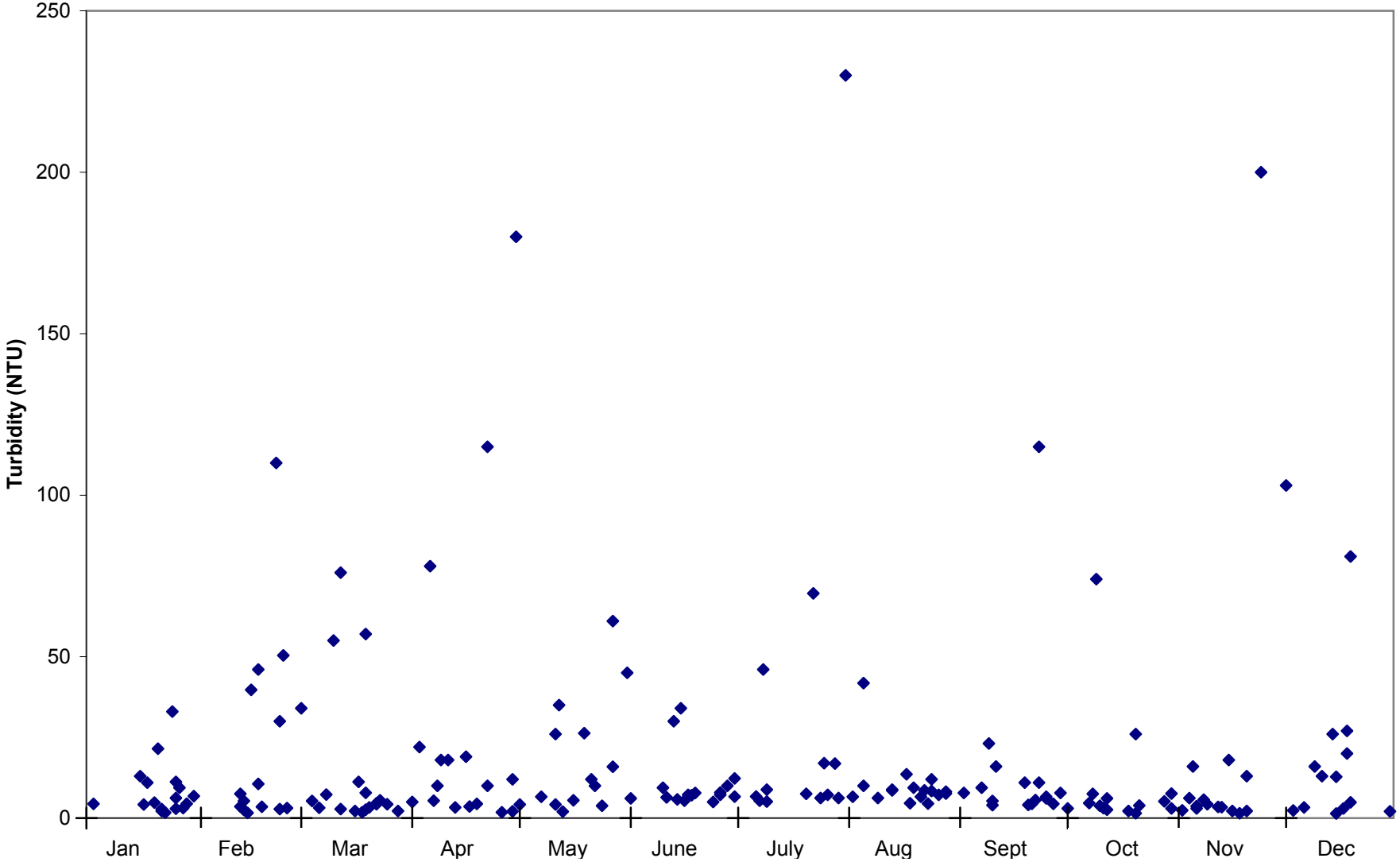


**Figure C.7. Seasonal TSS for Strawberry River (WHI143h)**

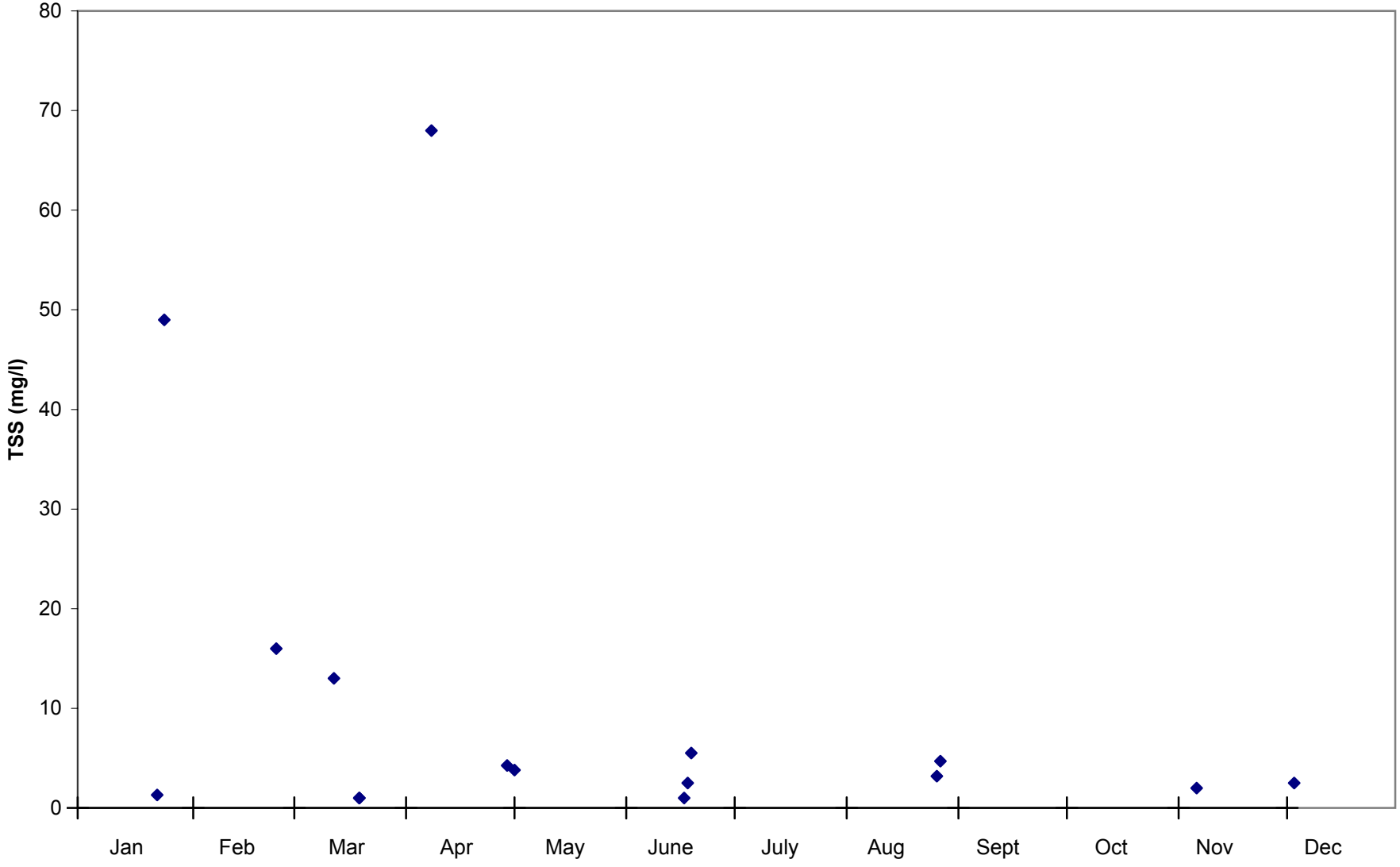
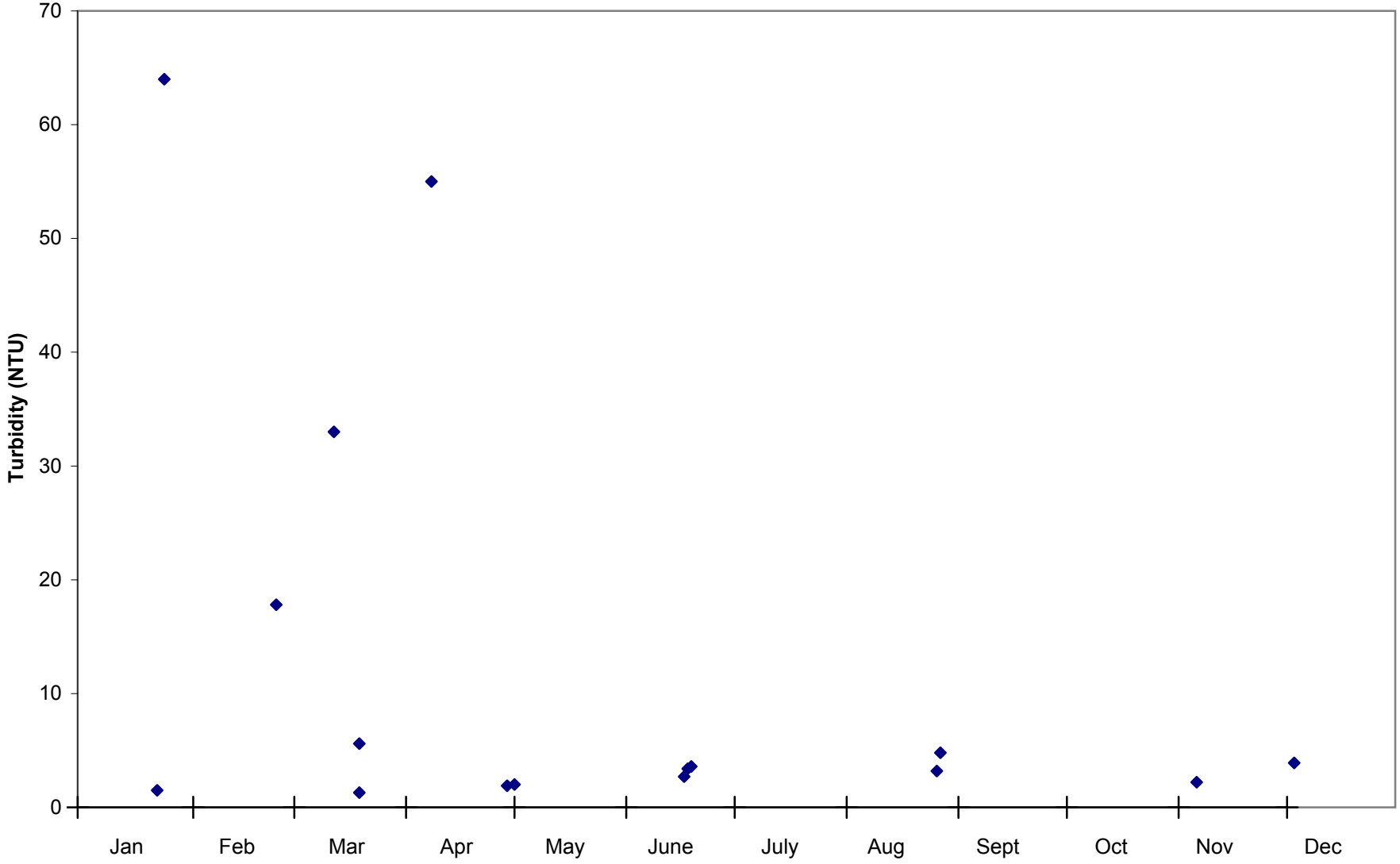


**Figure C.8. Seasonal Turbidity for Strawberry River (WHI143h)**



# APPENDIX D

## Plots of Turbidity and TSS vs Flow

**Figure D.1. TSS vs flow for Strawberry River near Wiseman, AR (SBR0001)**

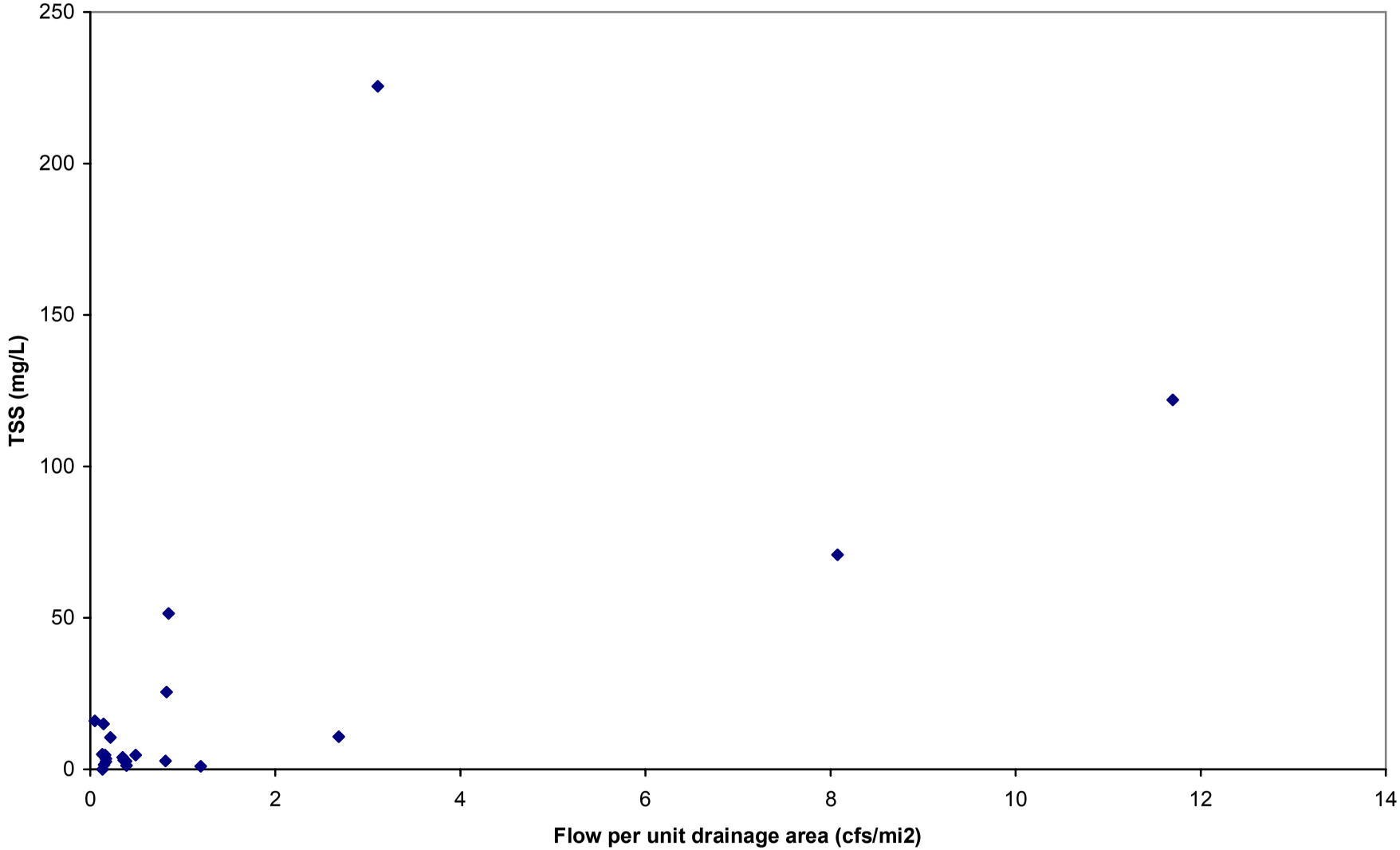


**Figure D.2. Turbidity vs flow for Strawberry River near Wiseman, AR (SBR0001)**

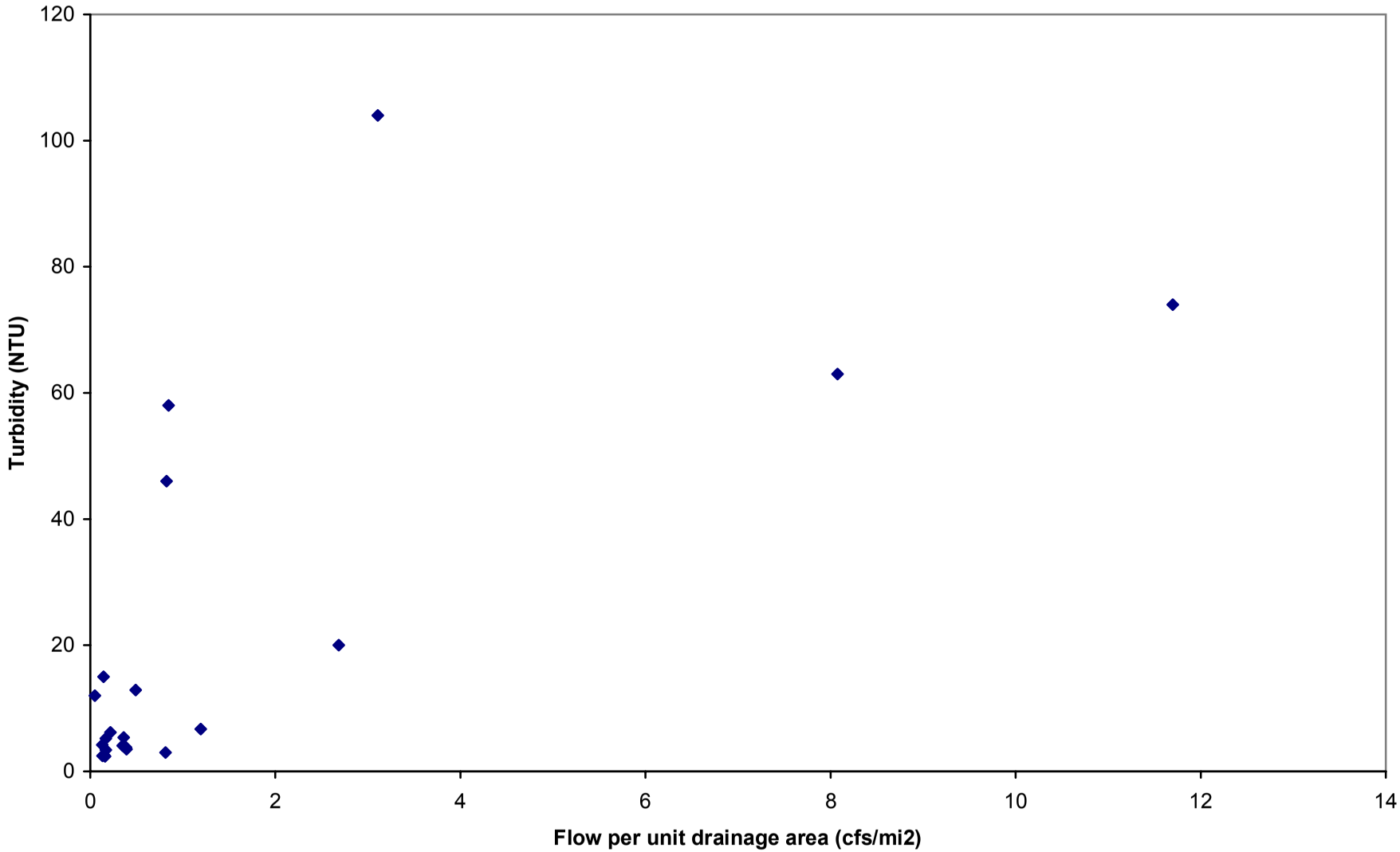


**Figure D.3. Turbidity vs flow for Strawberry River at Hwy 187 (SBR0002)**

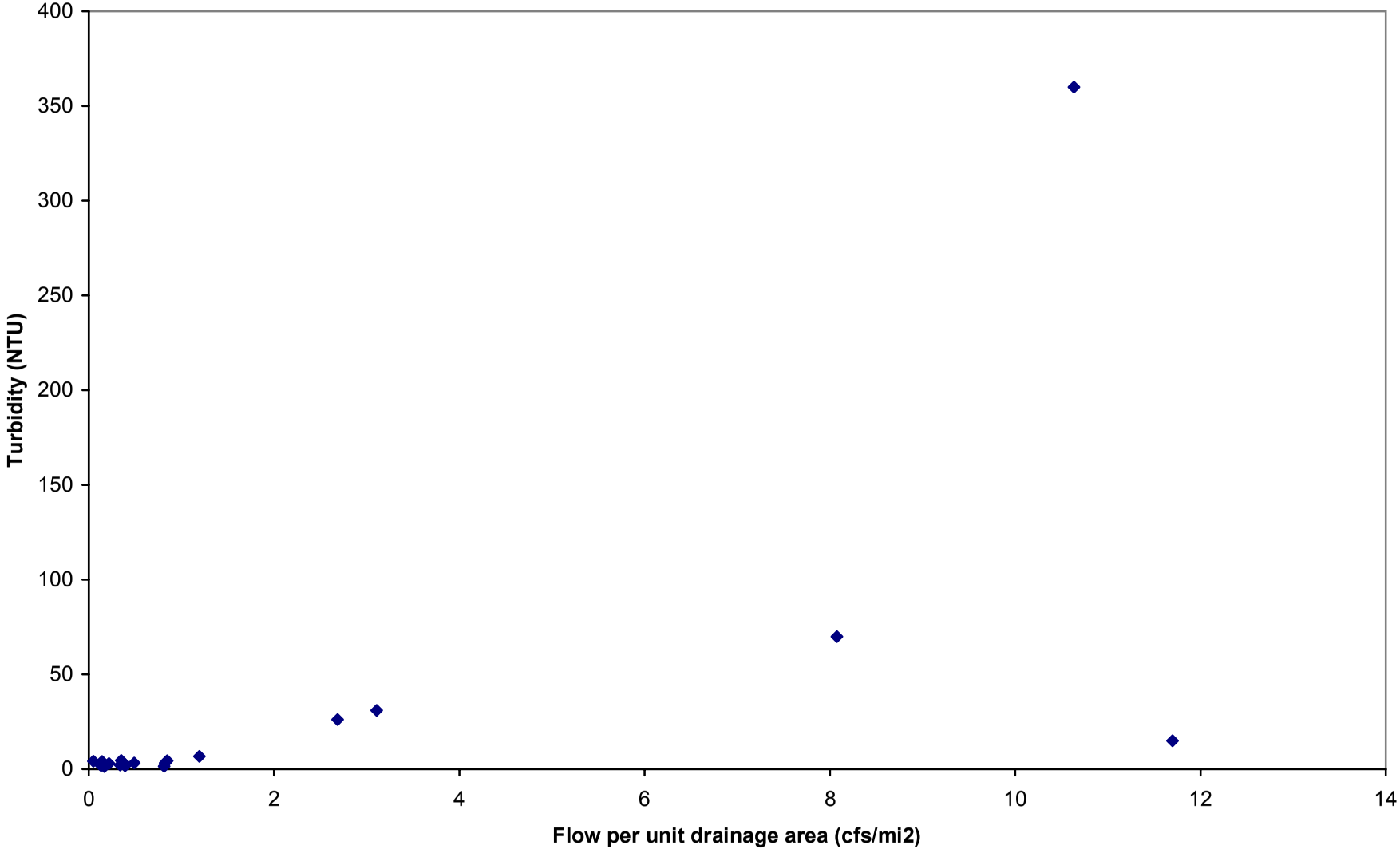


**Figure D.4. TSS vs flow for Strawberry River at Hwy 187 (SBR0002)**

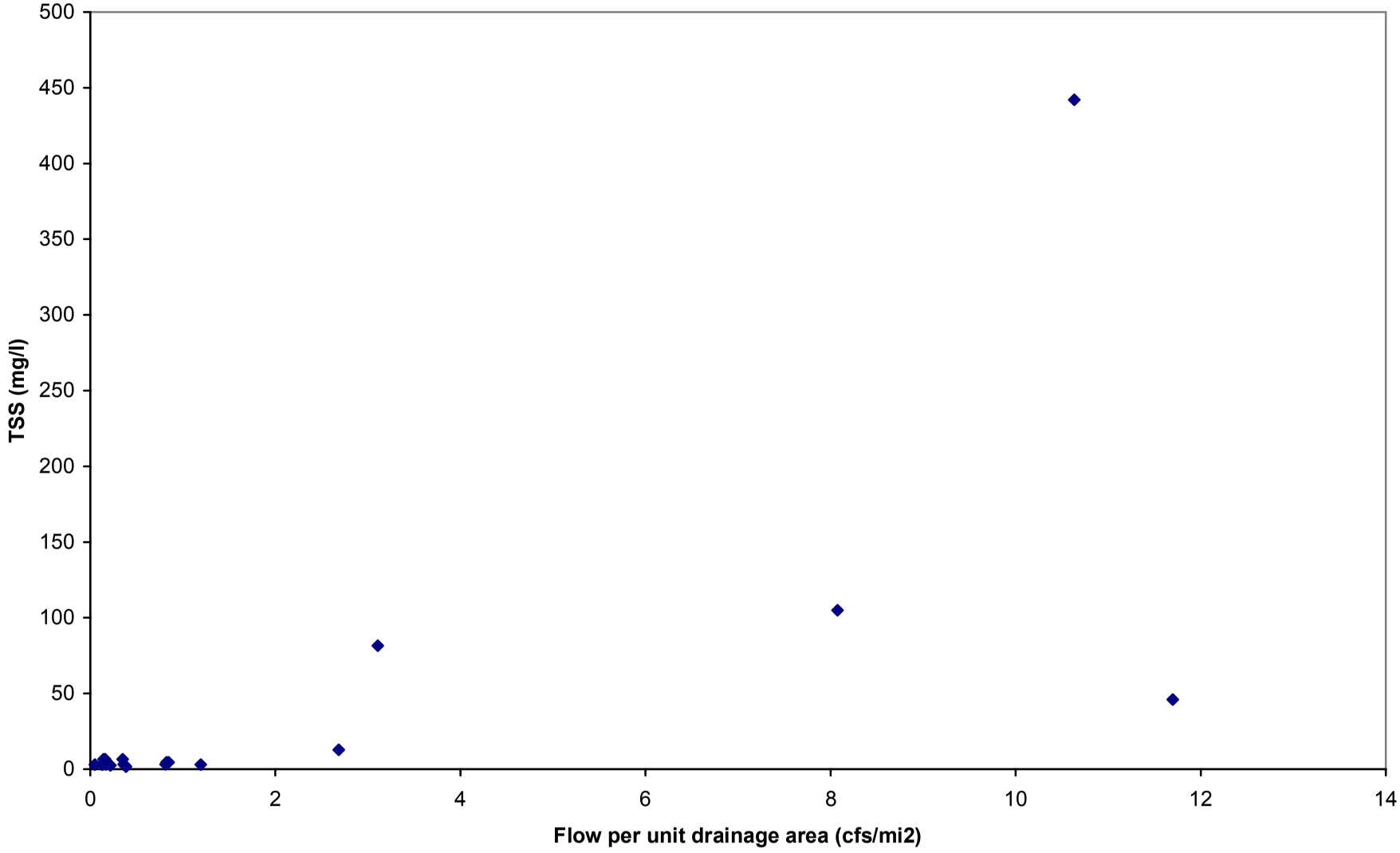


**Figure D.5. TSS vs flow for Strawberry River near Smithville, AR (WHI0024)**

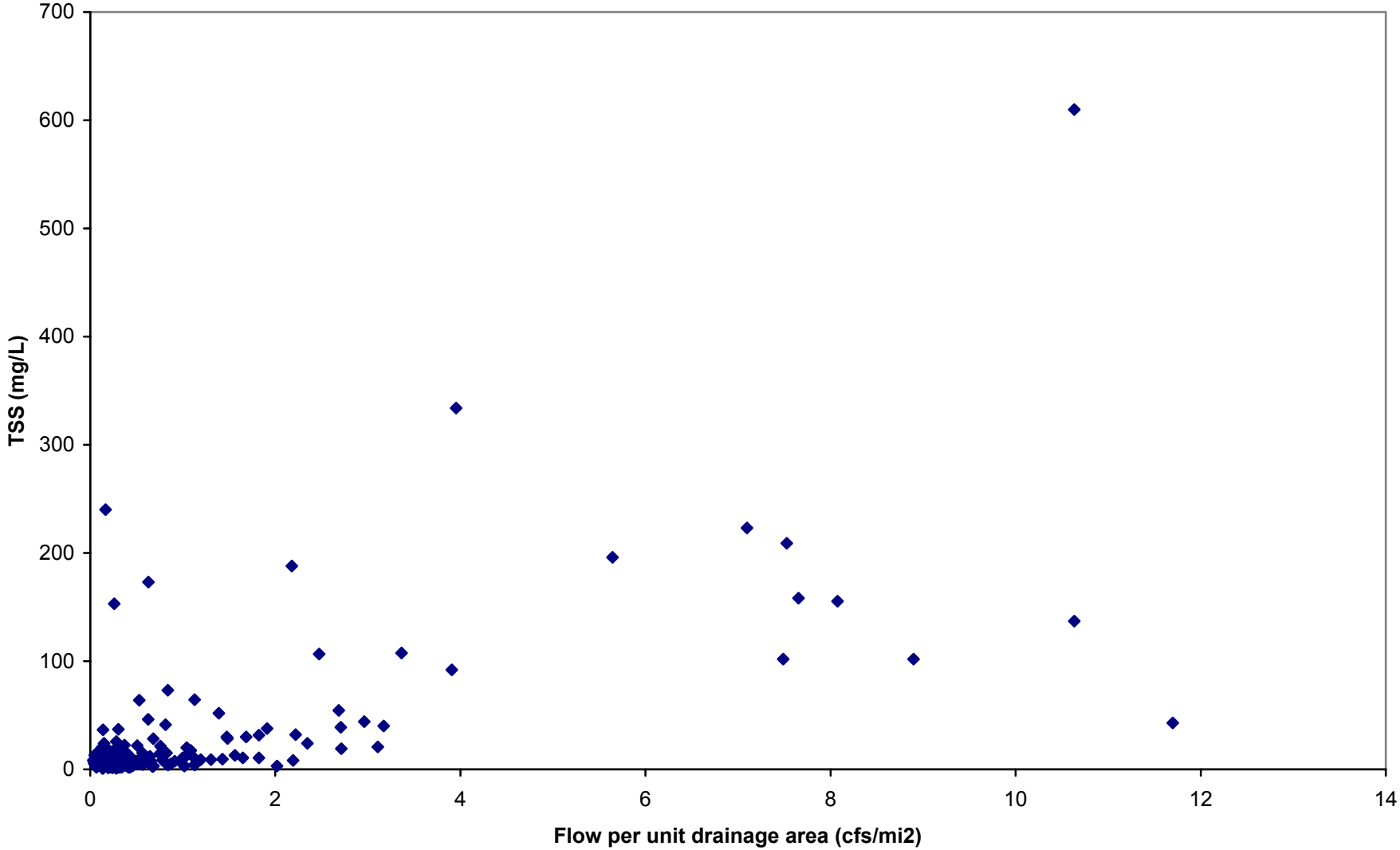


**Figure D.6. Turbidity vs flow for Strawberry River near SMithville, AR (WHI0024)**

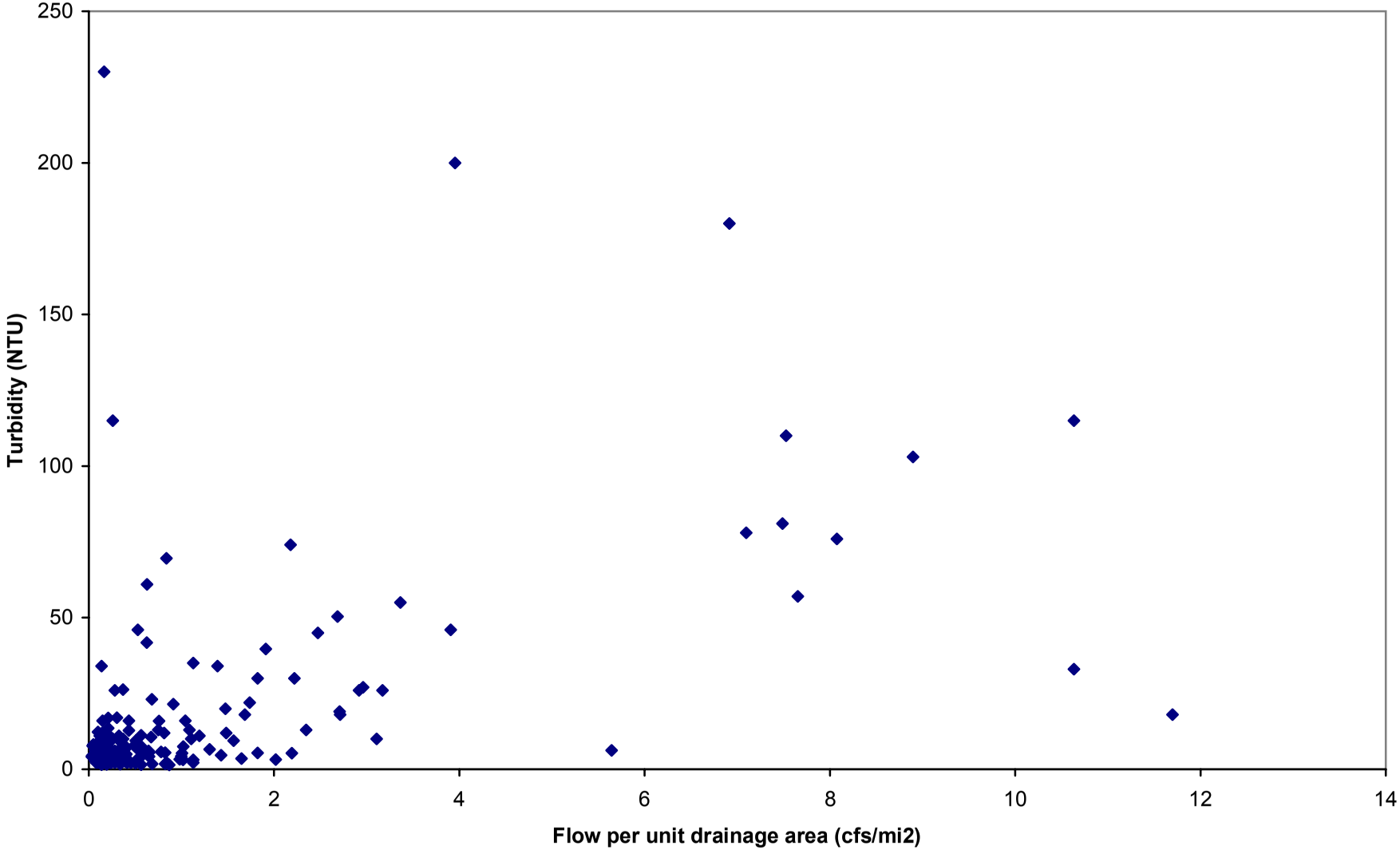


**Figure D.7. TSS vs flow for Strawberry River (WHI143h)**

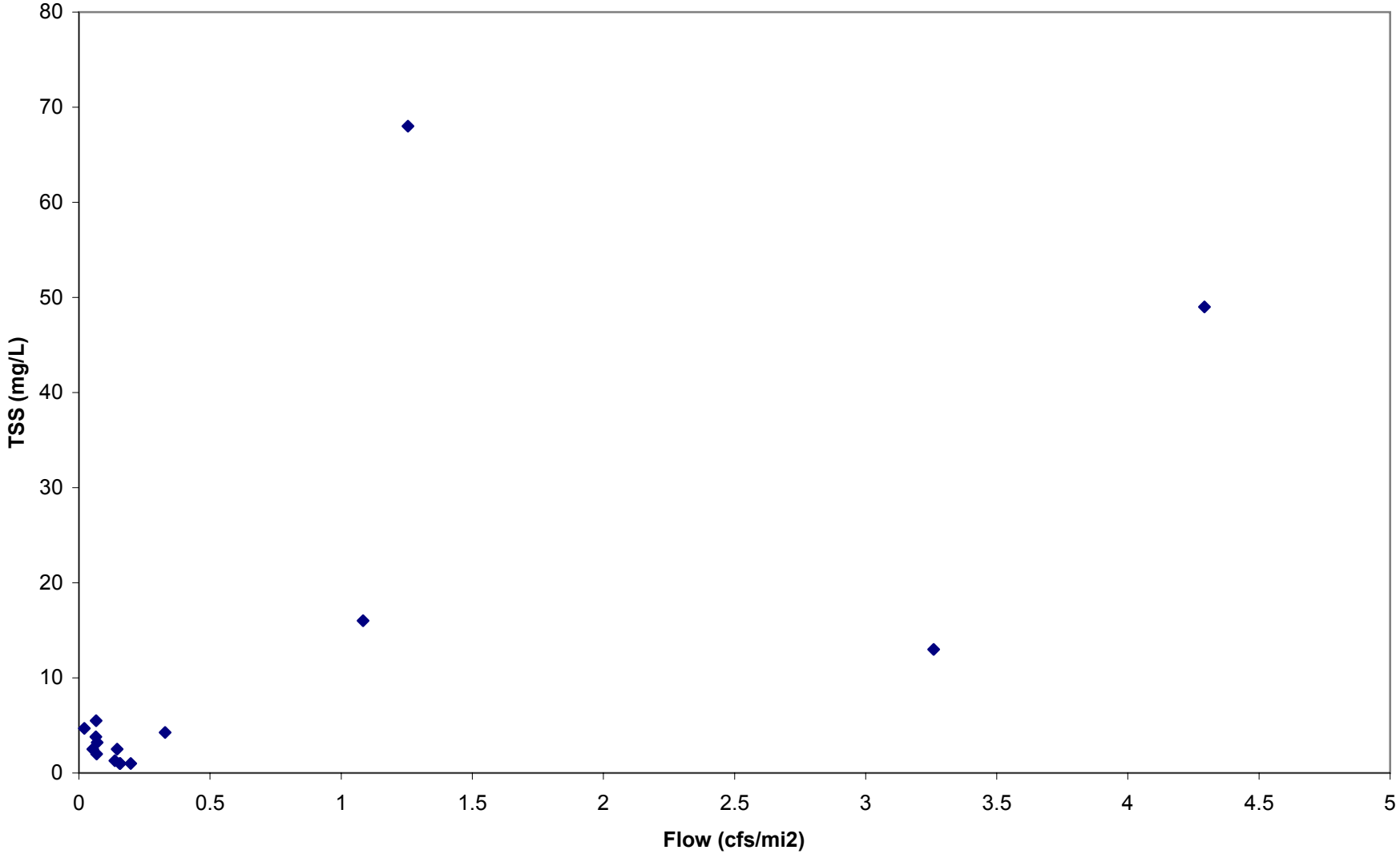
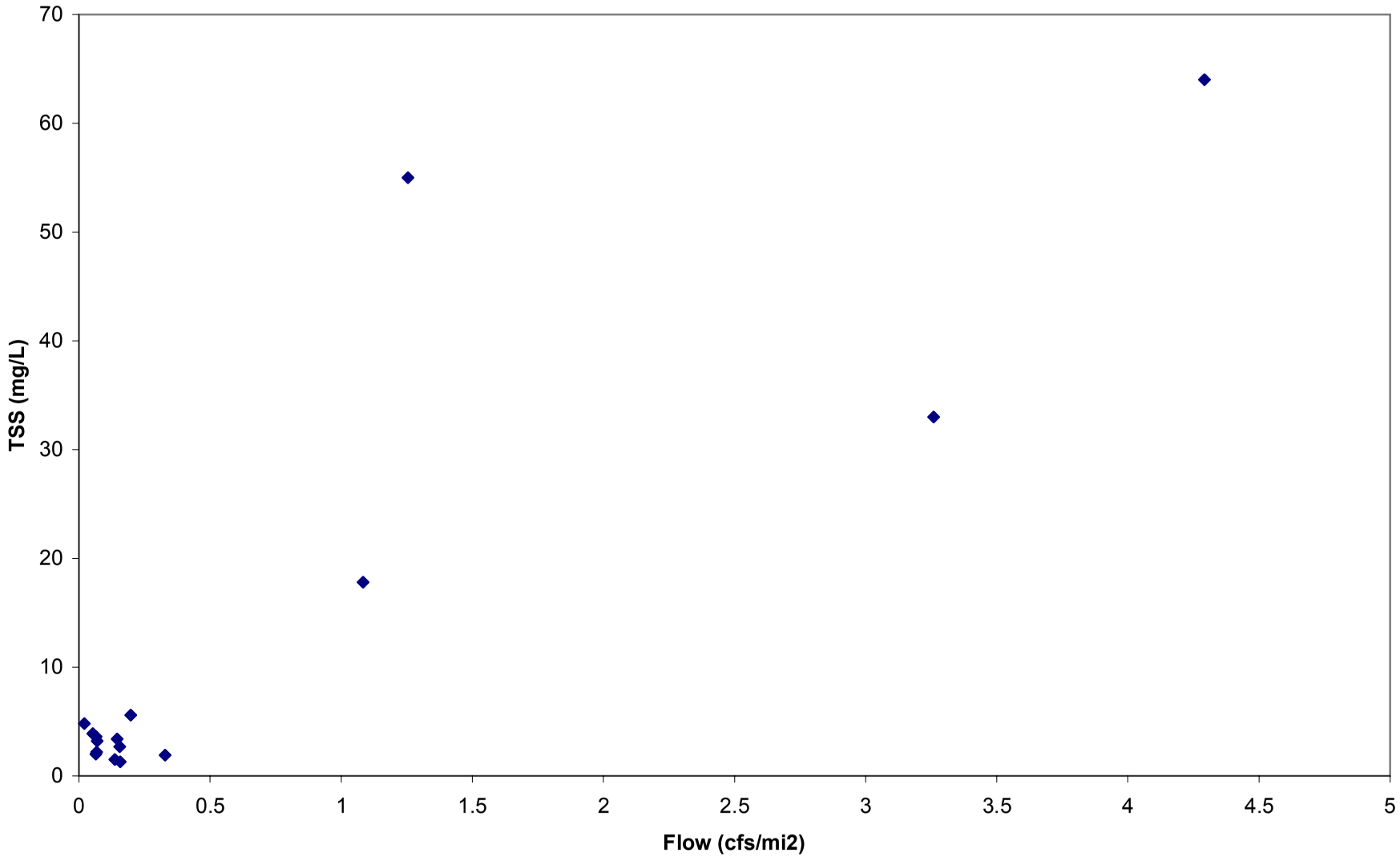


**Figure D.8. Turb vs flow for Strawberry River (WHI143h)**



# APPENDIX E

**Plots of TSS vs Turbidity**

**Figure E.1. Base flow regression for TSS vs Turbidity for Strawberry River near Wiseman, AR (SBR0001)**

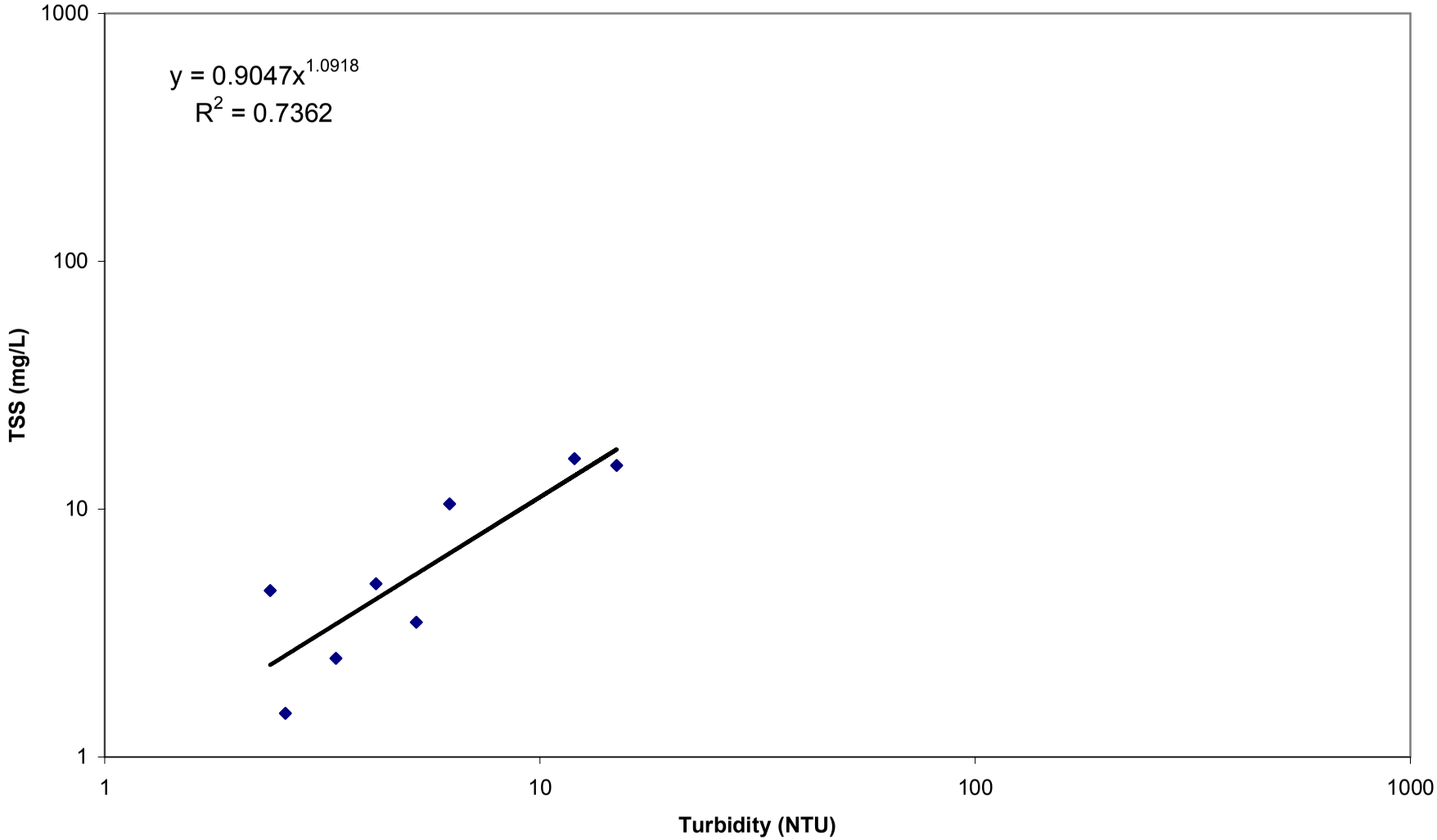


**Figure E.2. Storm flow regression for TSS vs Turbidity for Strawberry River near Wiseman, AR (SBR0001)**

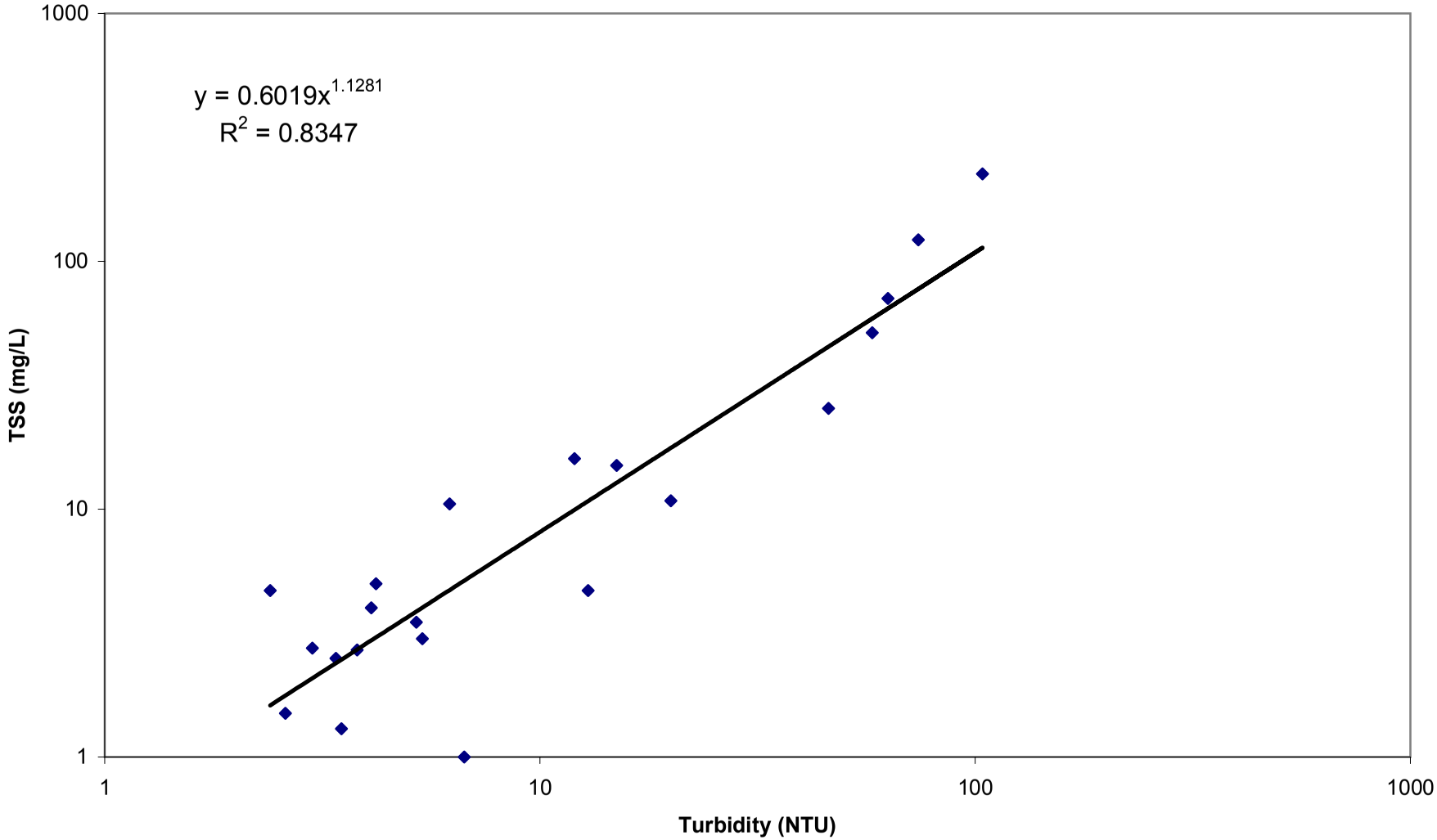


**Figure E.3. Base flow regresssion for TSS vs Turbidity for Strawberry River at Hwy 187 (SBR0002)**

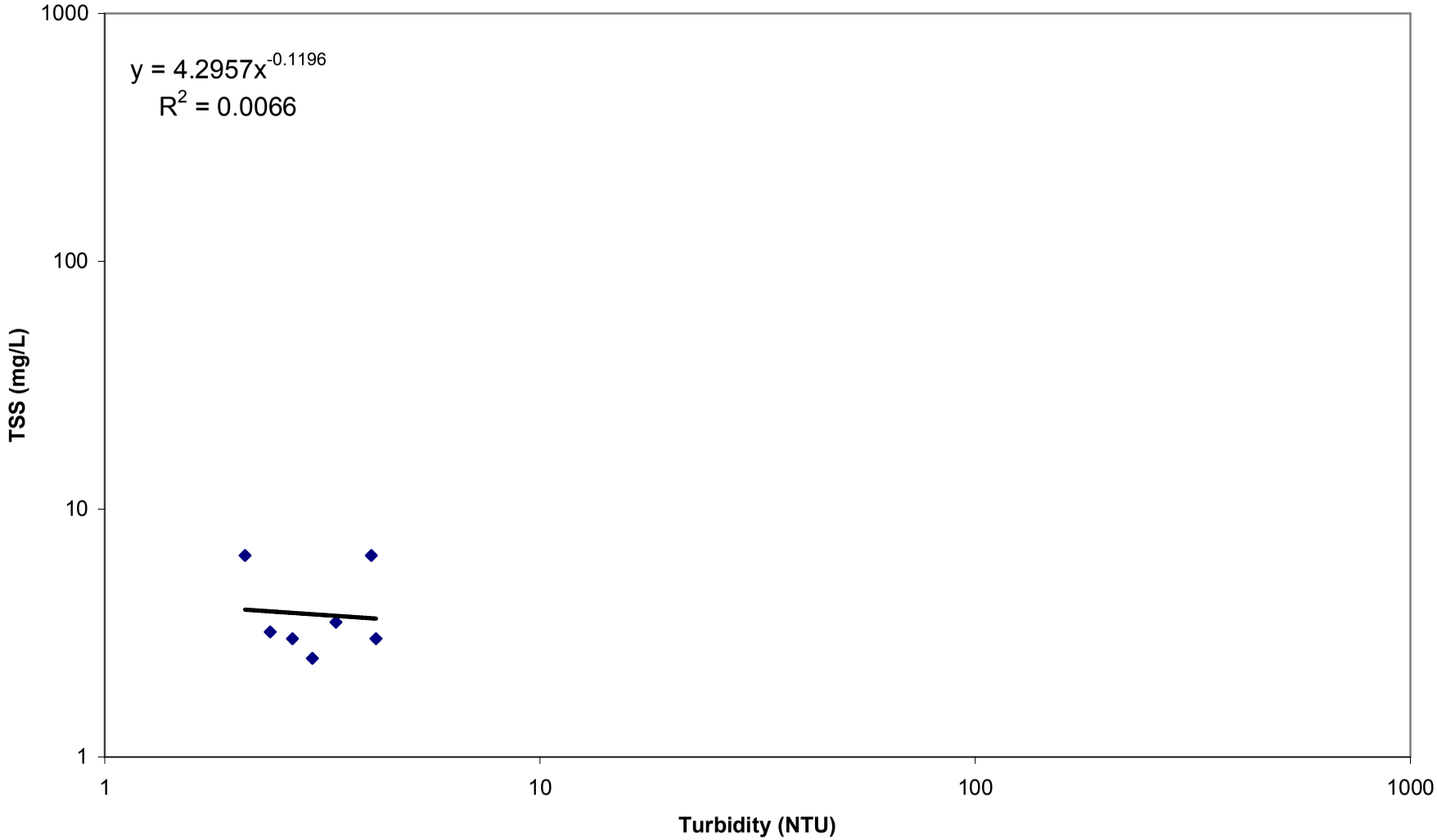


**Figure E.4. Storm flow regression for TSS vs Turbidity for Strawberry River at Hwy 187 (SBR0002)**

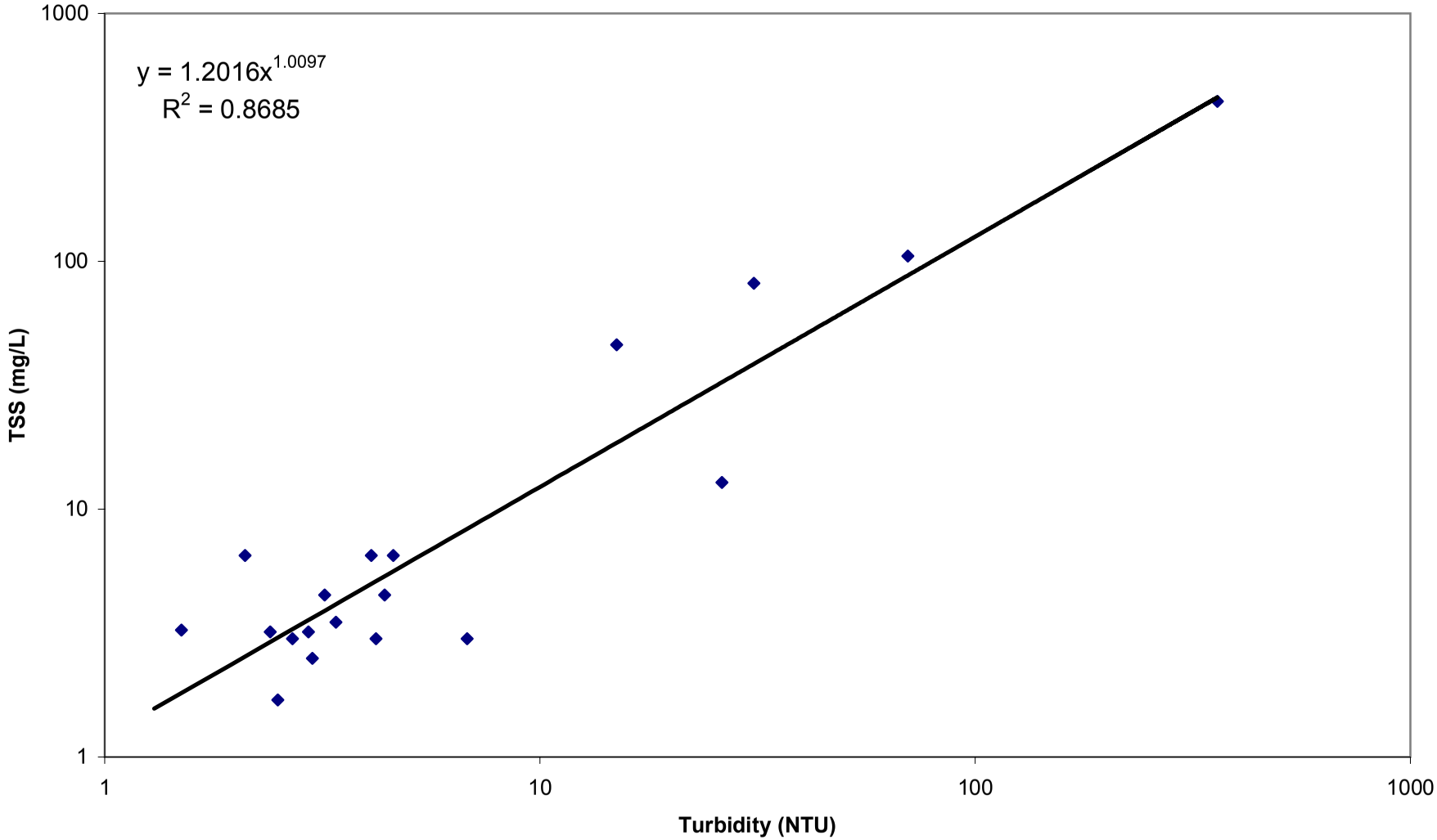


**Figure E.5. Base flow Regression for TSS vs Turbidity for Strawberry River near Smithville, AR (WHI0024)**

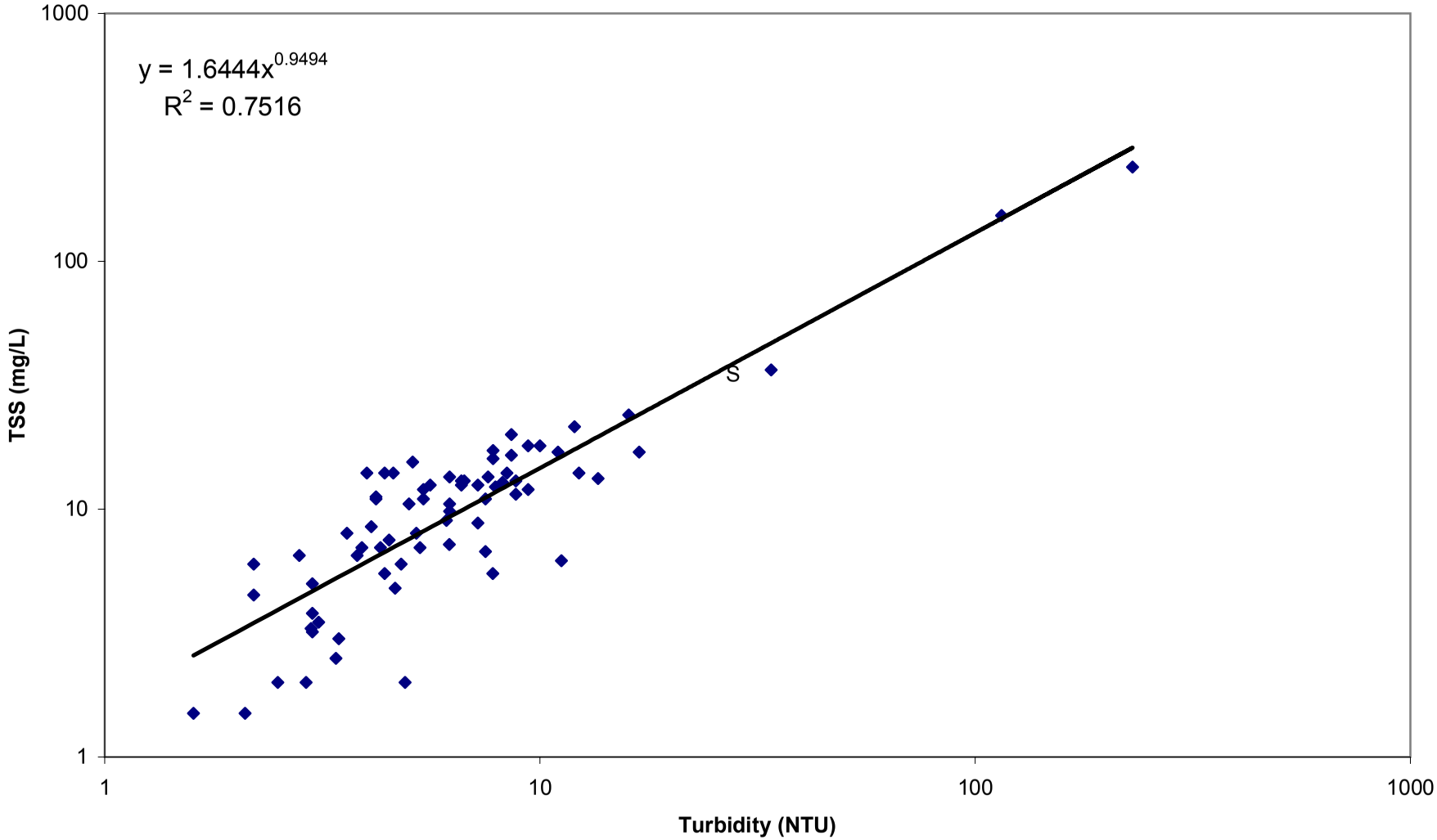


**Figure E.6. Storm flow Regression for TSS vs Turbidity for Strawberry River near Smithville, AR (WHI0024)**

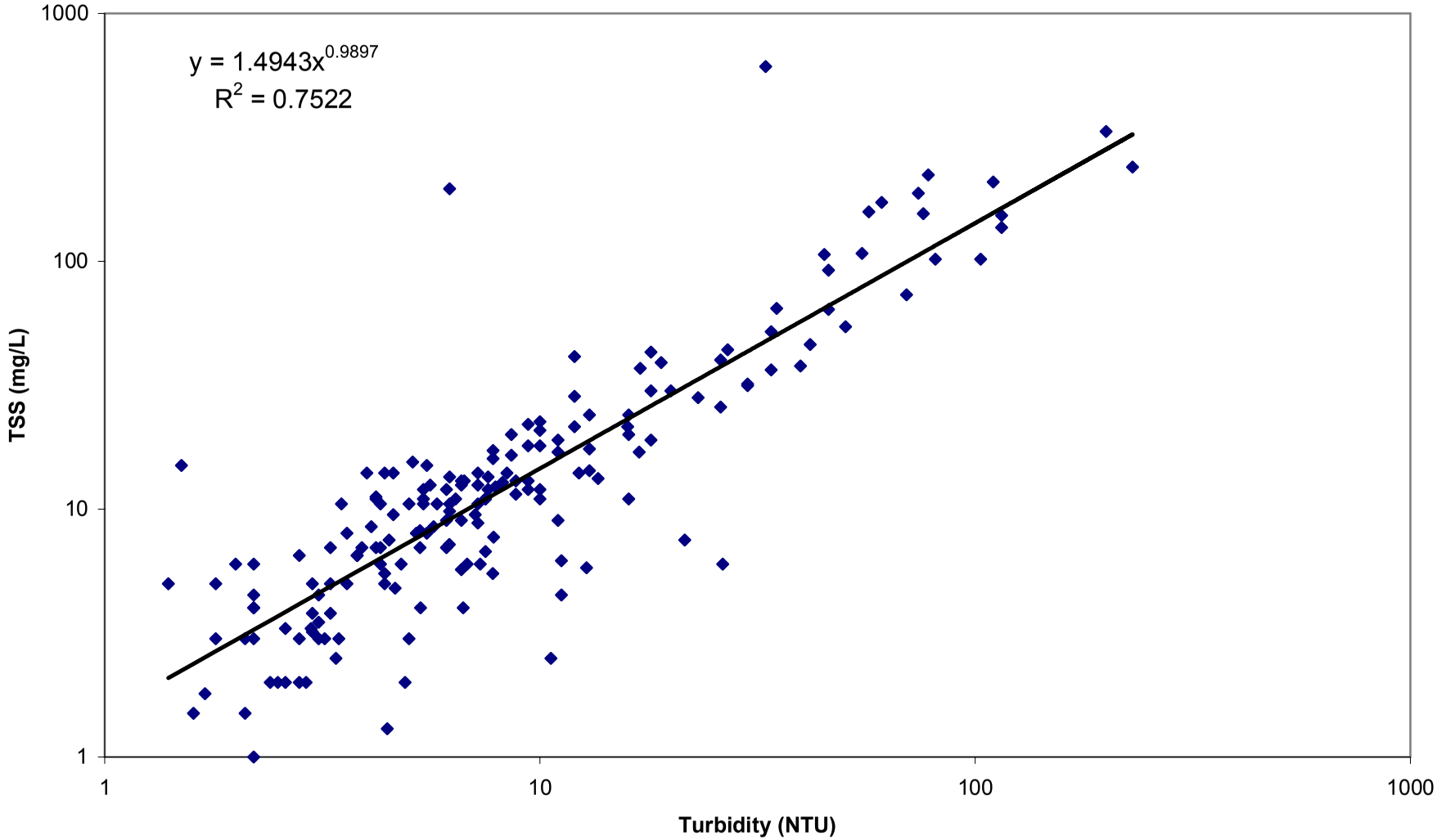


**Figure E.7. Base flow Regression of TSS vs Turbidity for Strawberry River (WHI143h)**

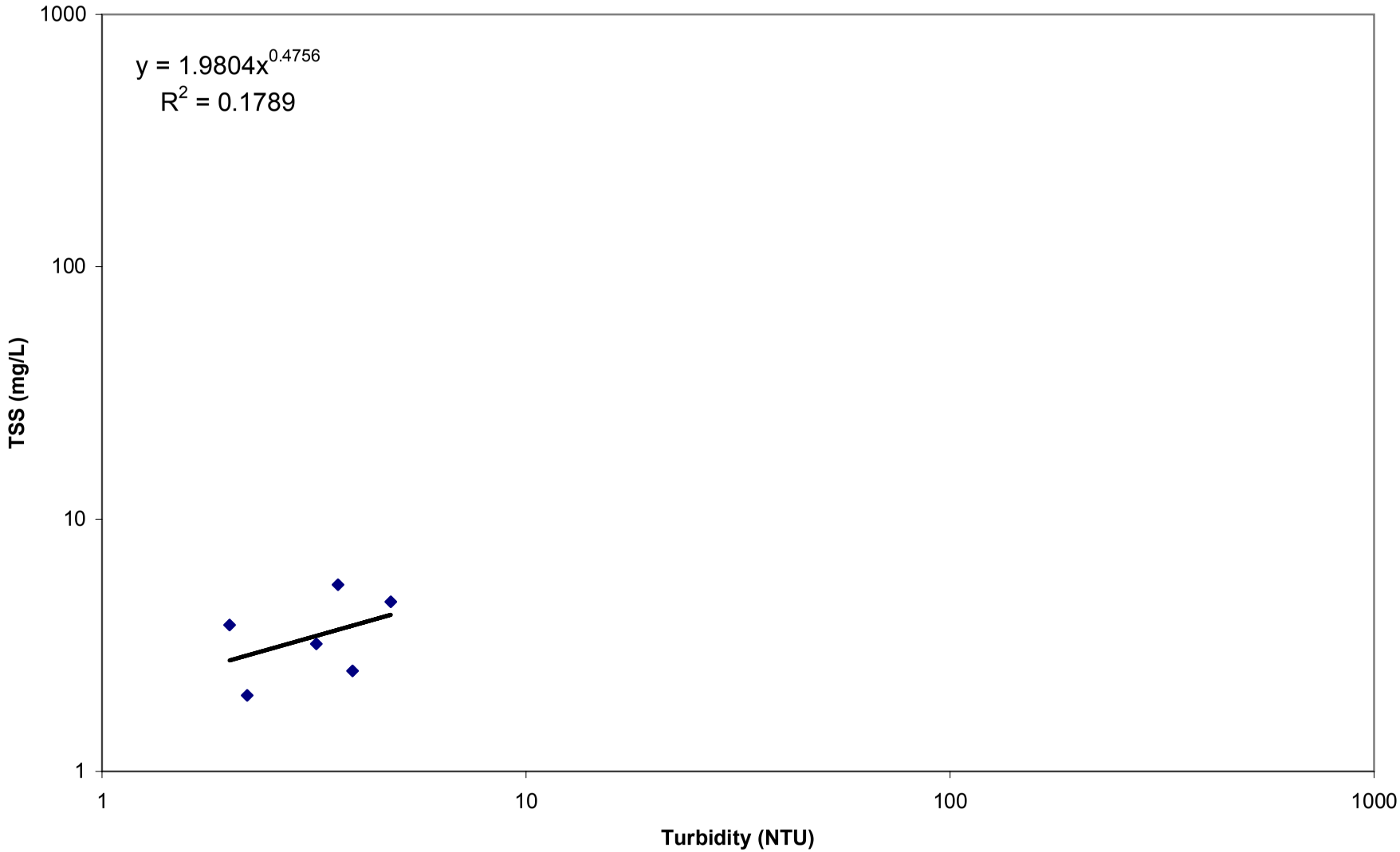


**Figure E.8. Storm flow Regression of TSS vs Turbidity for Strawberry River (WHI143h)**

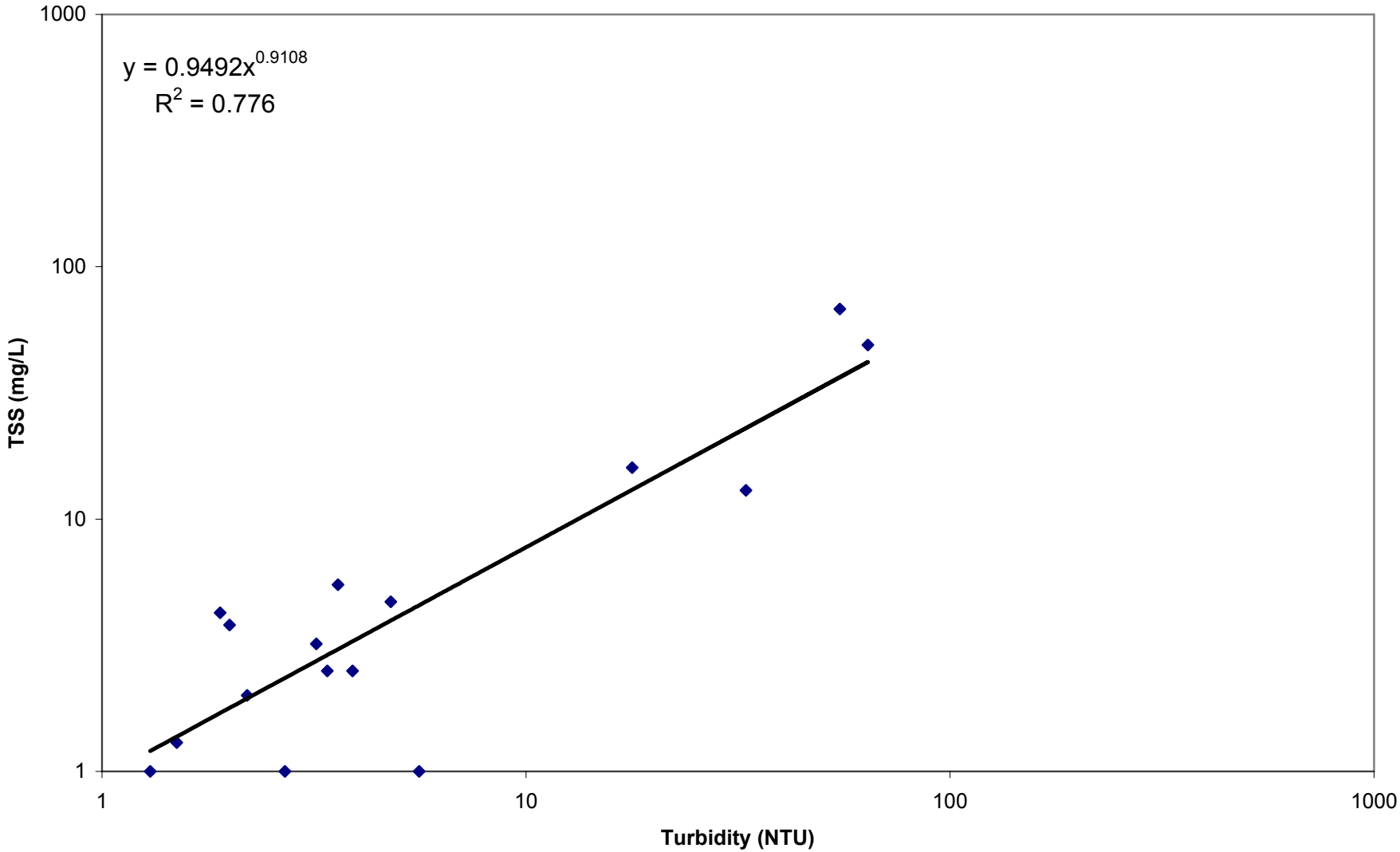


**Figure E.9. Base-flow Regression for TSS versus Turbidity on the Strawberry River**

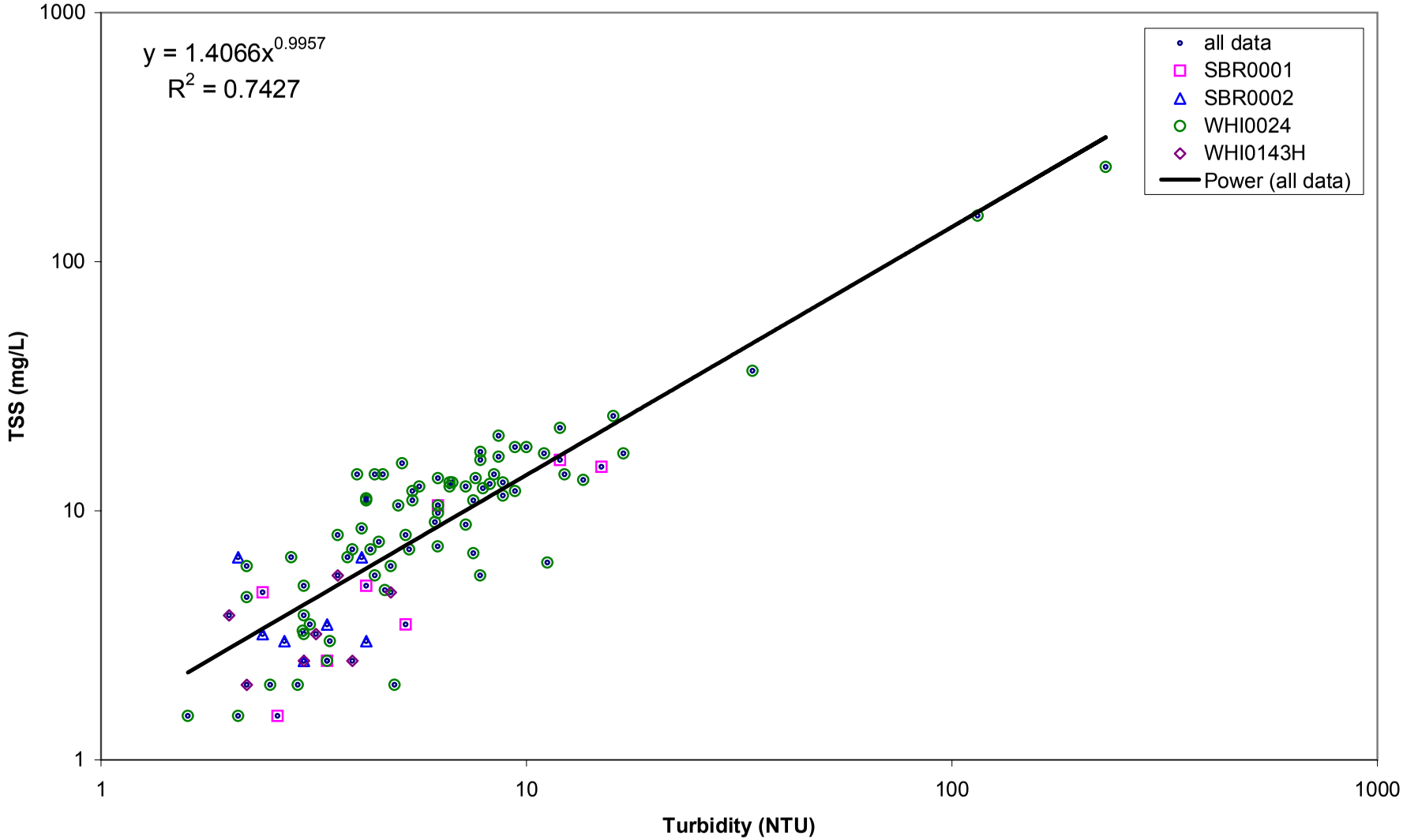
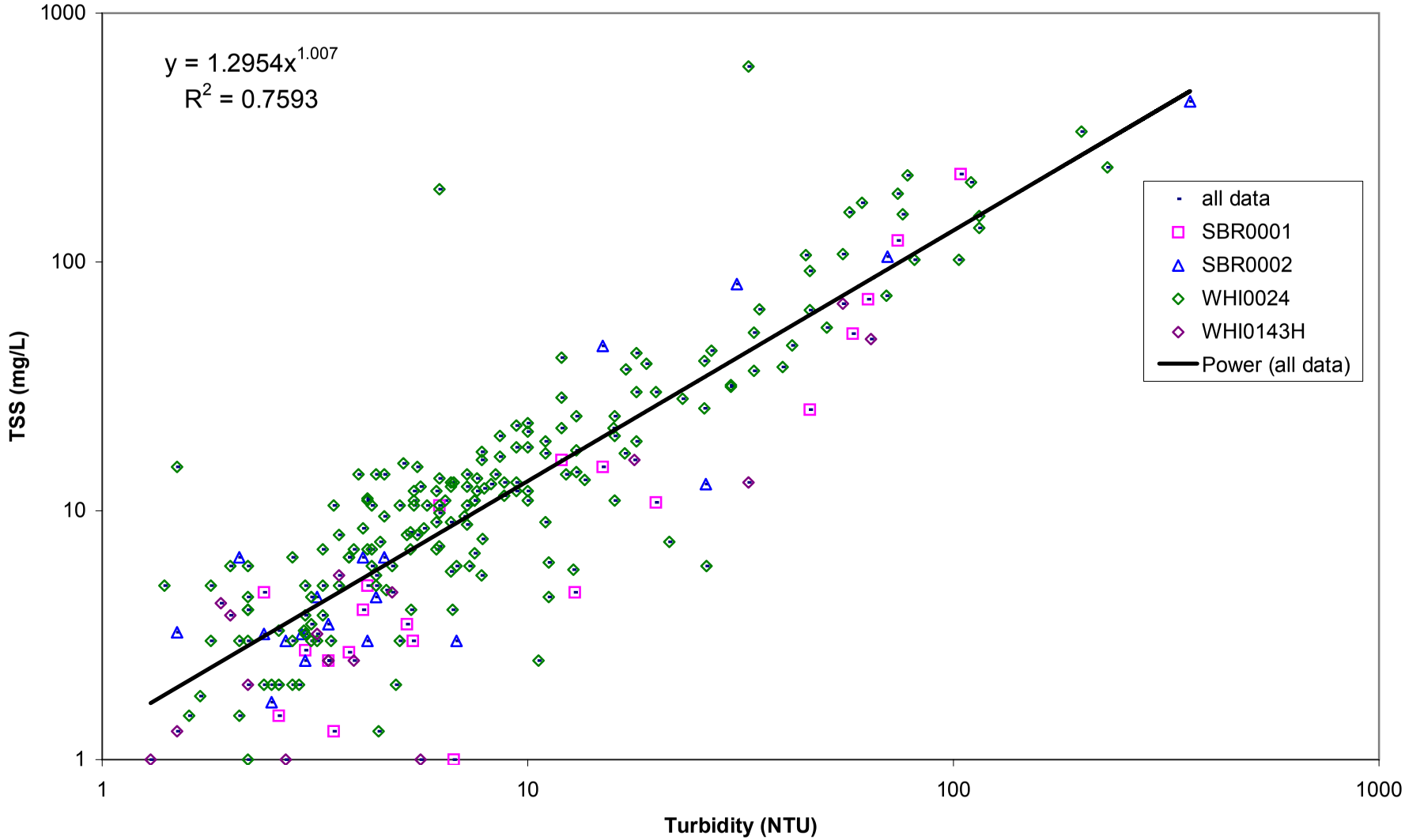


**Figure E.10. Storm-flow Regression for TSS versus Turbidity on the Strawberry River**



# APPENDIX F

## Load Duration Curves and TMDL Calculations

**Figure F.1. Flow Duration Curve For Strawberry River near Poughkeepsie, AR (USGS 07074000)**

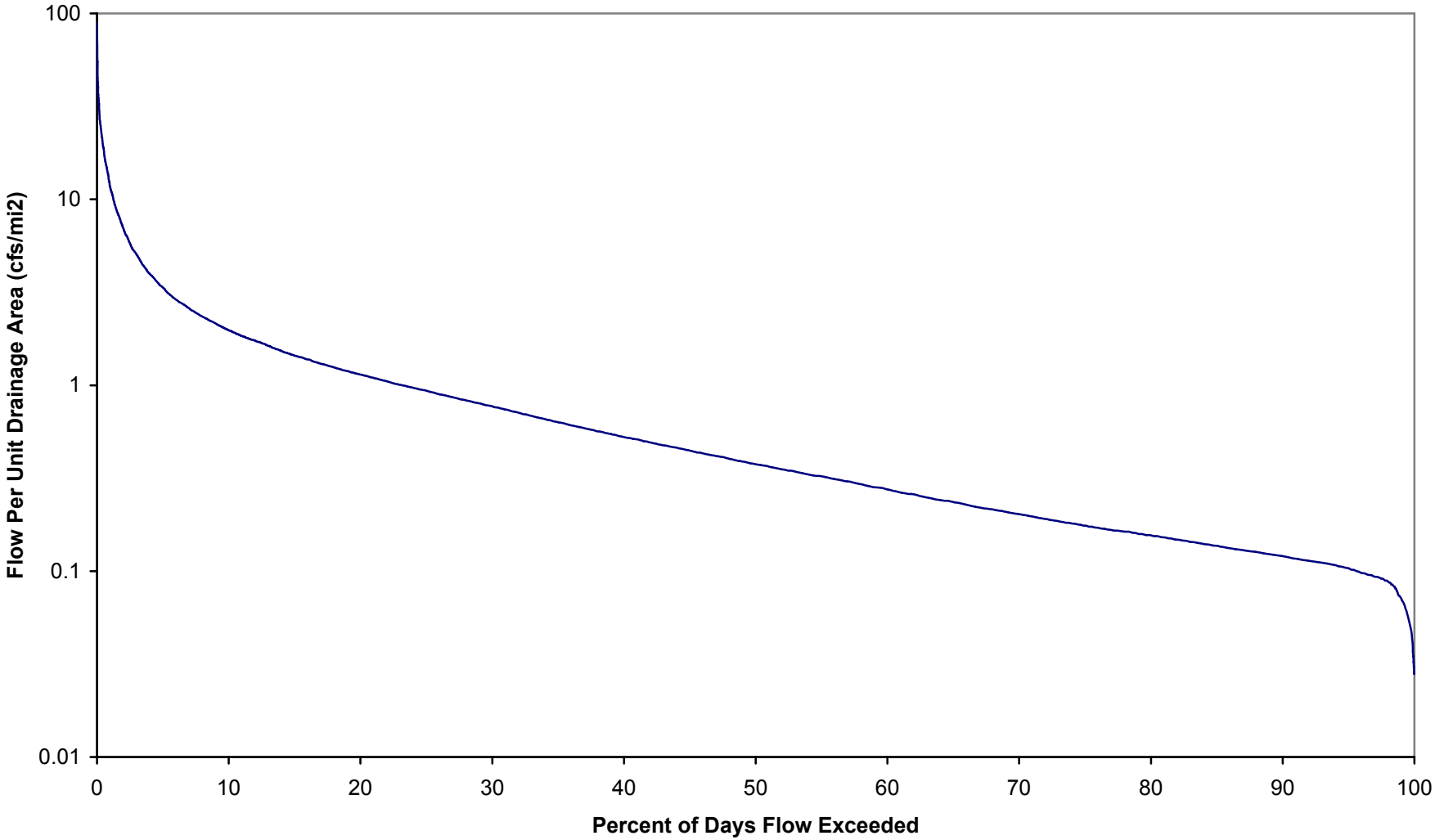


**Figure F.2. Storm-Flow Load Duration Curve for Strawberry River at SBR0001**

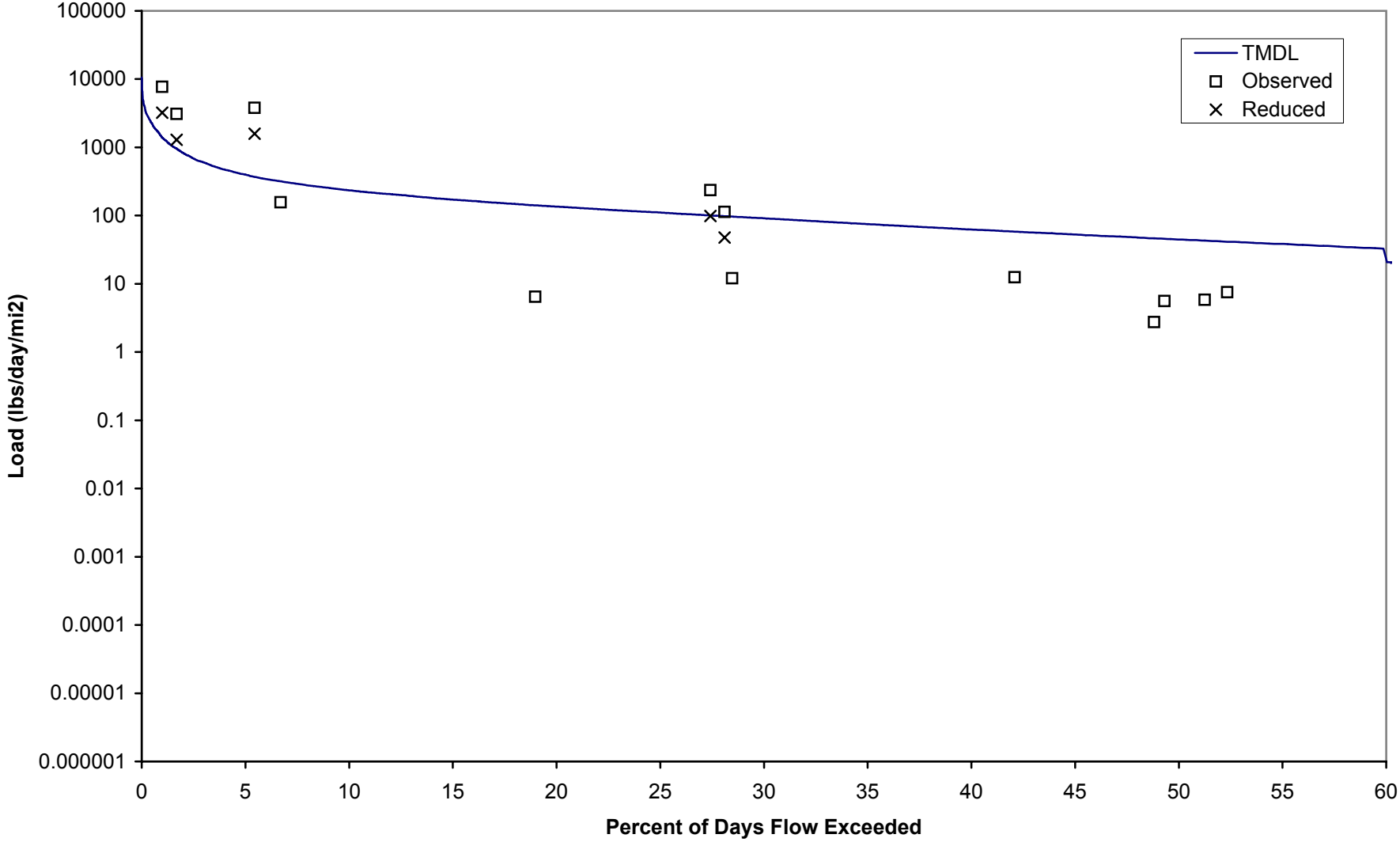


**Figure F.3. Base Flow Load Duration Curve For Strawberry River at SBR0001**

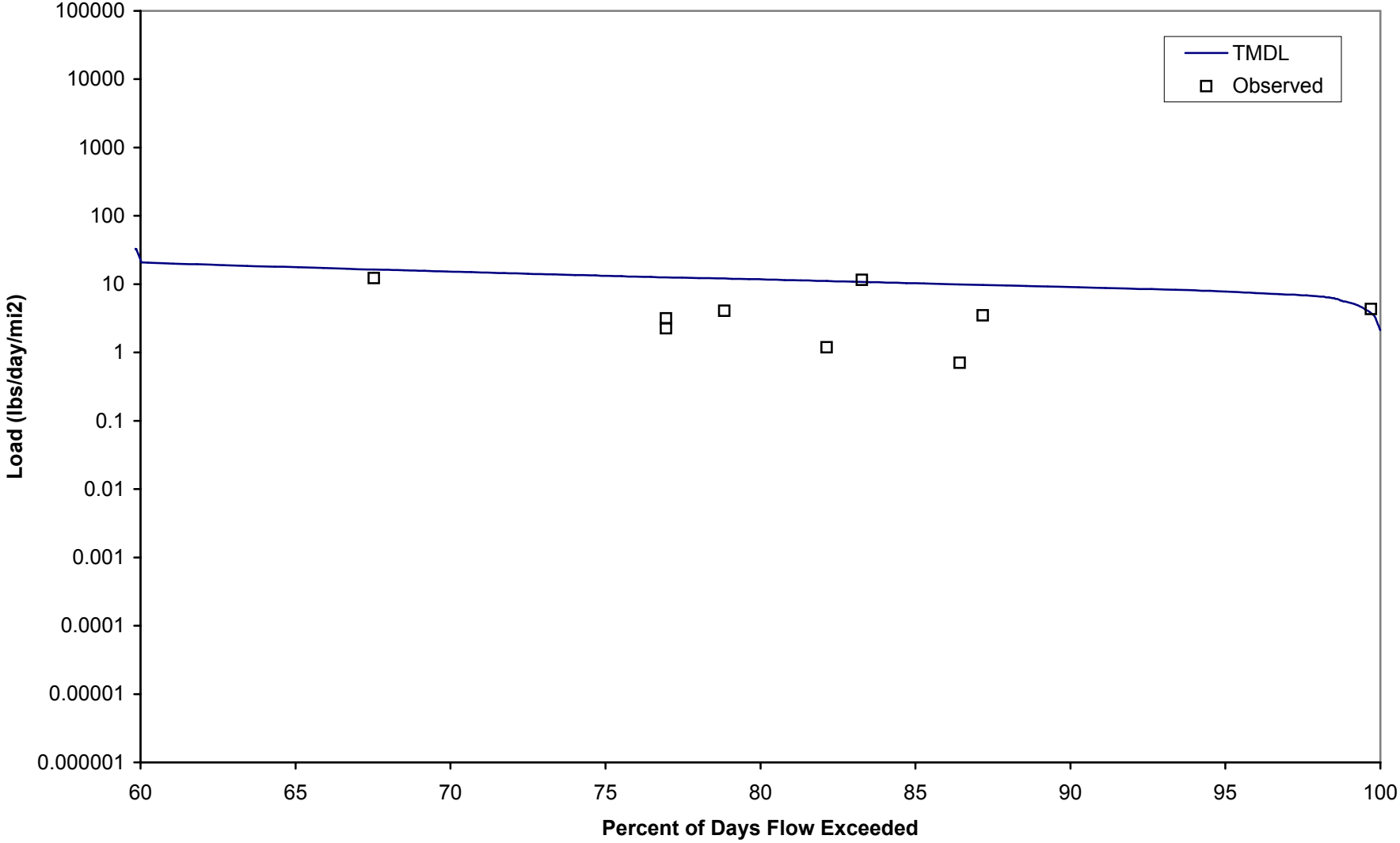


**Figure F.4. Storm Flow Load Duration Curve for Strawberry River at SBR0002**

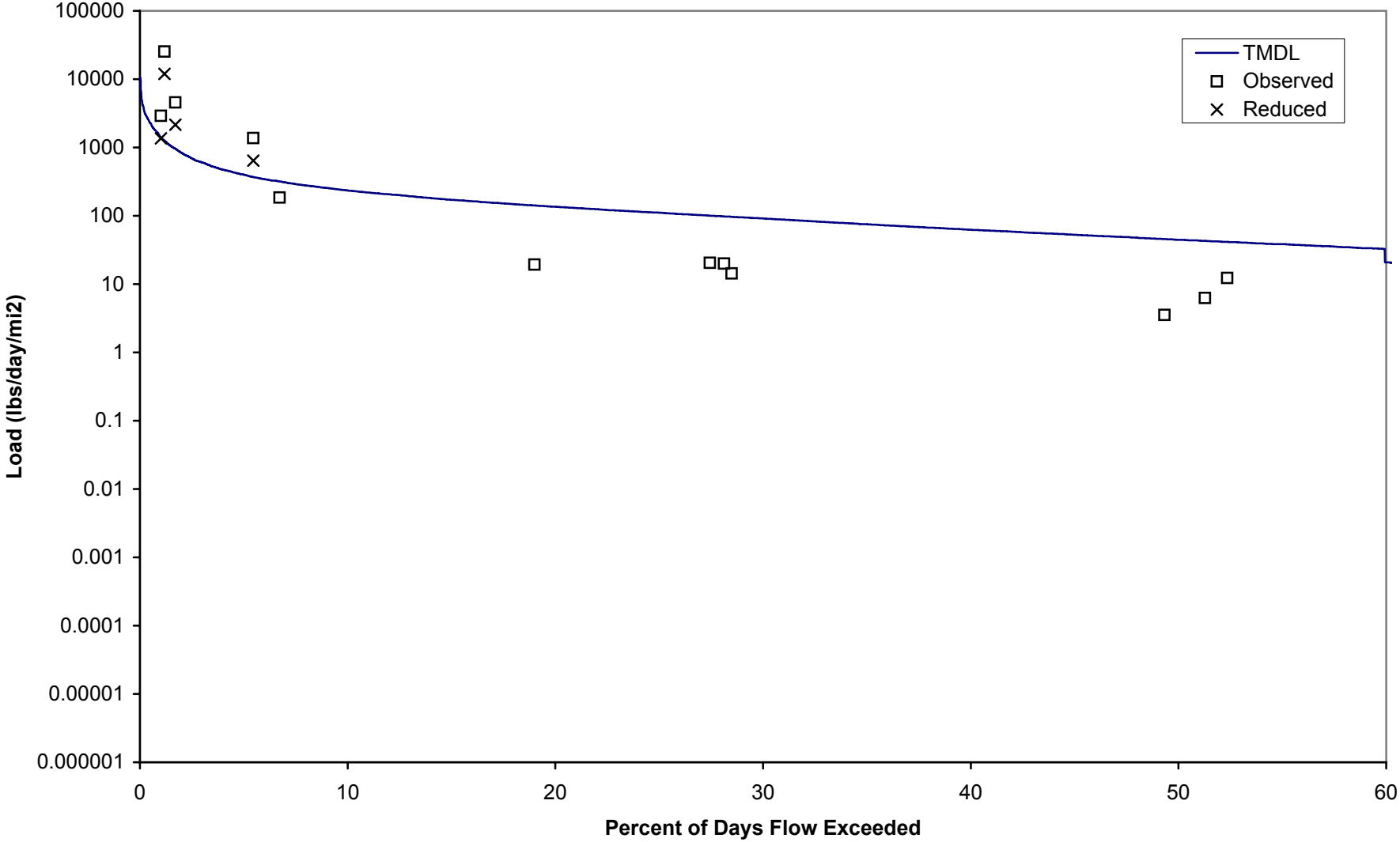


**Figure F.5. Base Flow Load Duration Curve For Strawberry River SBR0002**

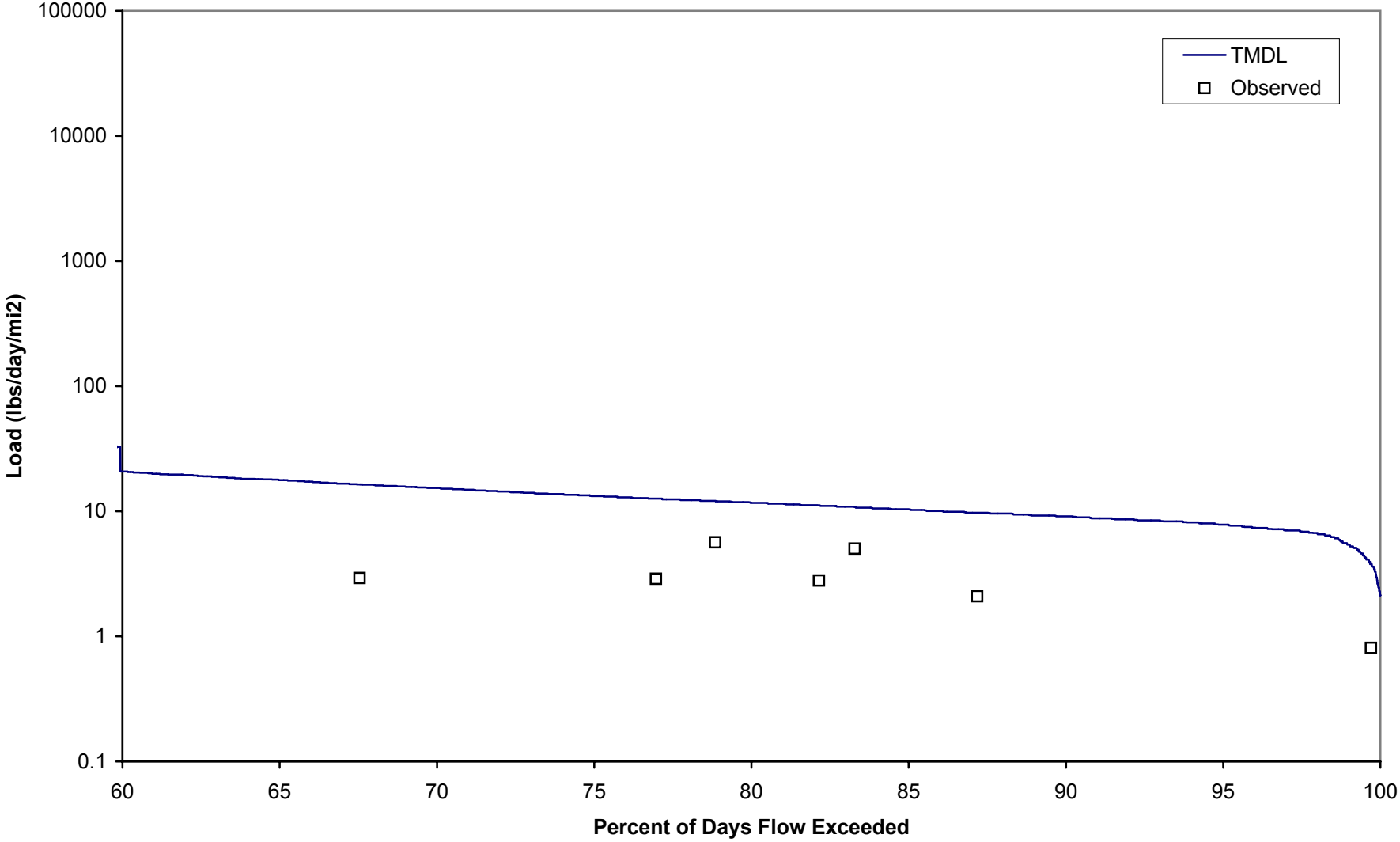


**Figure F.6. Storm-Flow Load Duration Curve for Strawberry River at WHI0024**

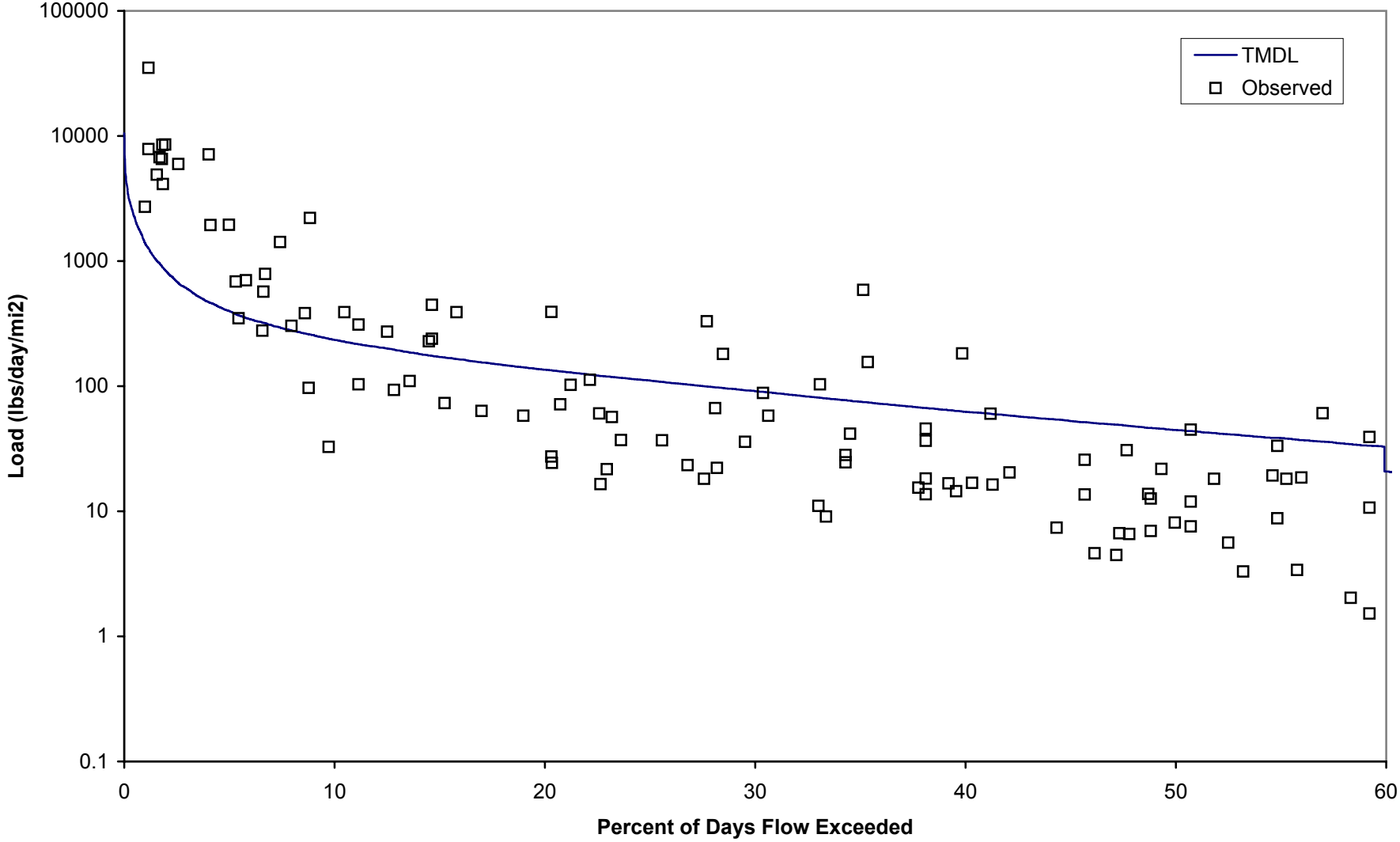


**Figure F.7. Base Flow Load Duration Curve For Strawberry River at WHI0024**

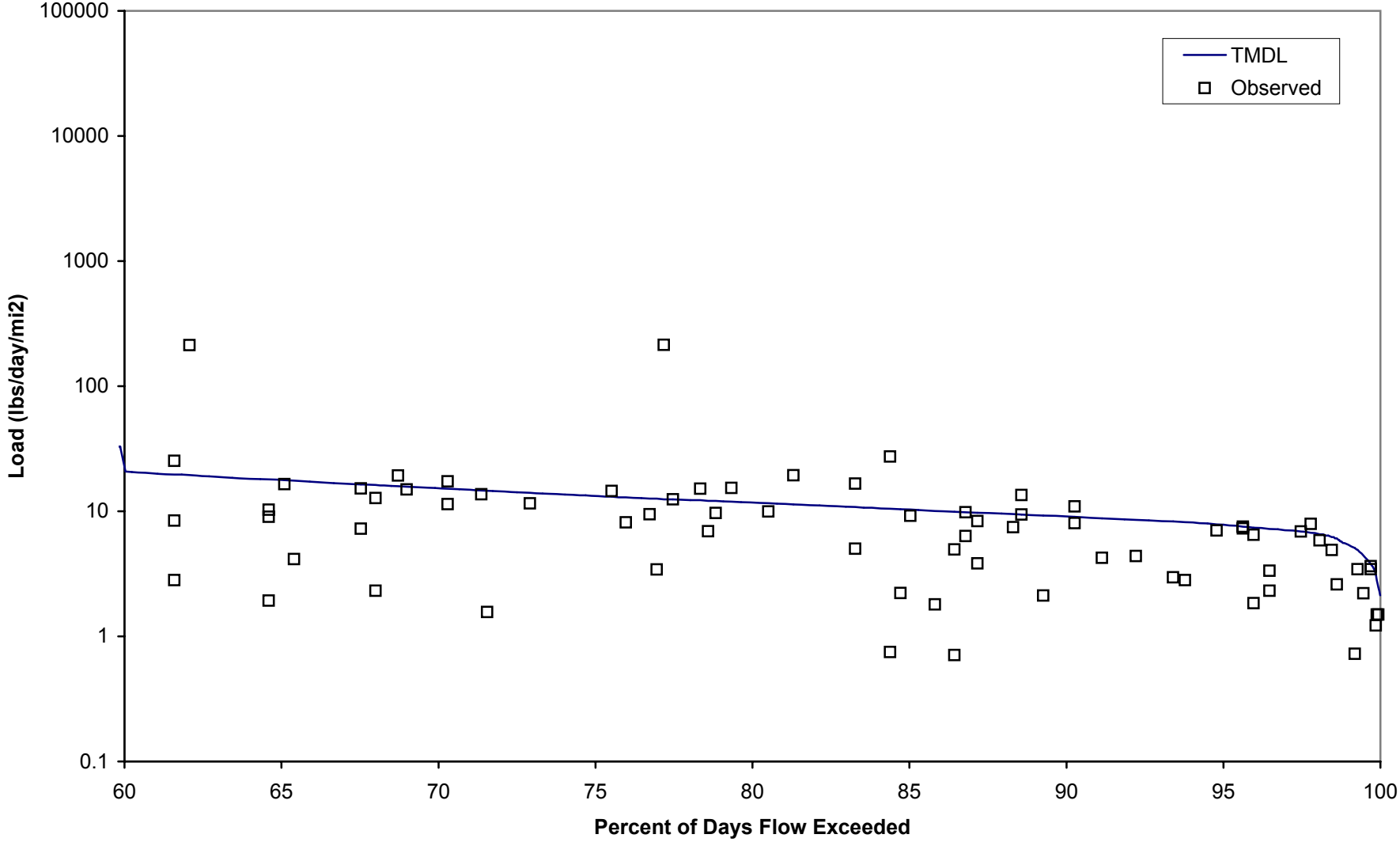


**Figure F.8. Storm-Flow Load Duration Curve for Little Strawberry River at WHI0143h**

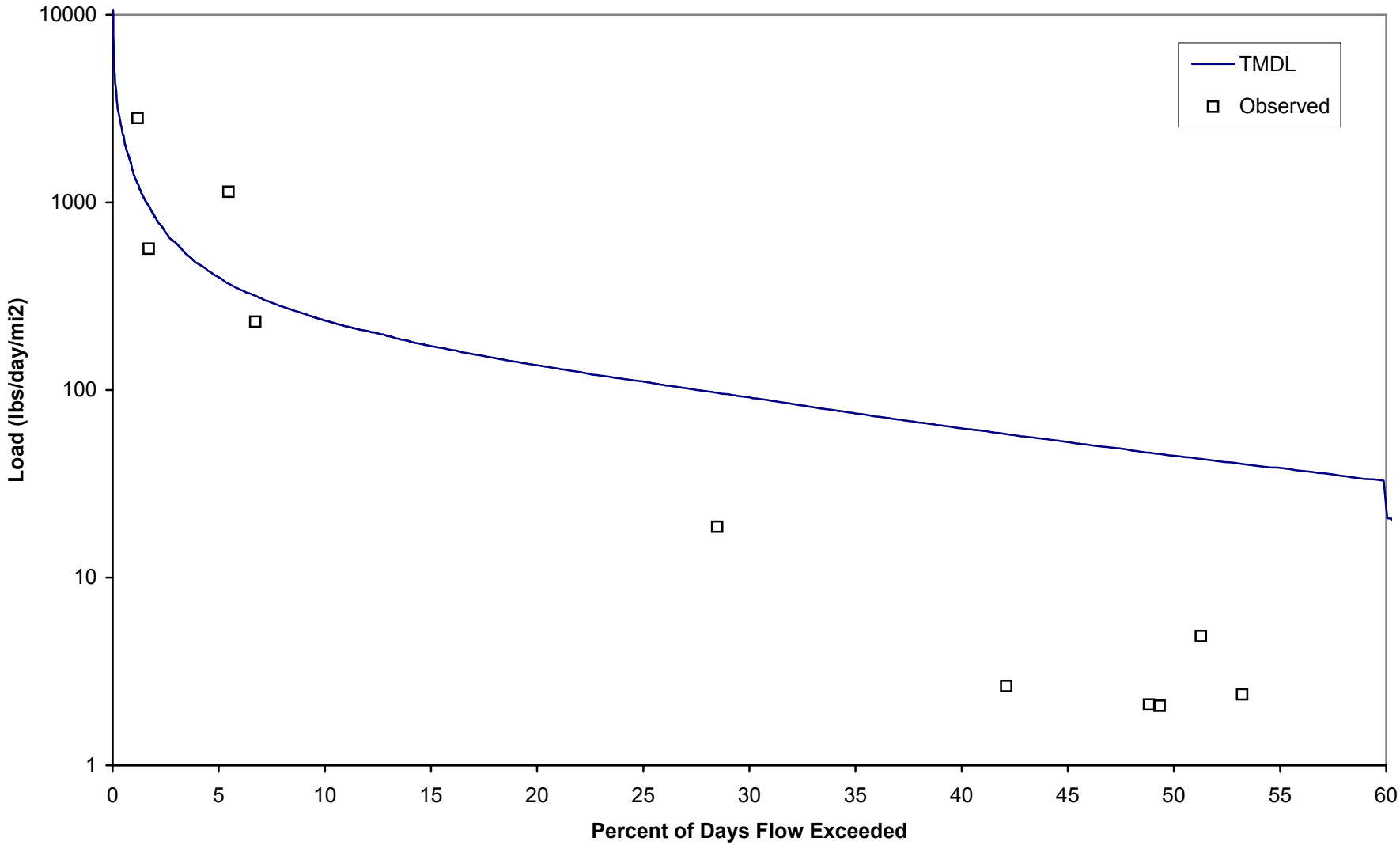


**Figure F.9. Base Flow Load Duration Curve For Little Strawberry River at WHI0143h**

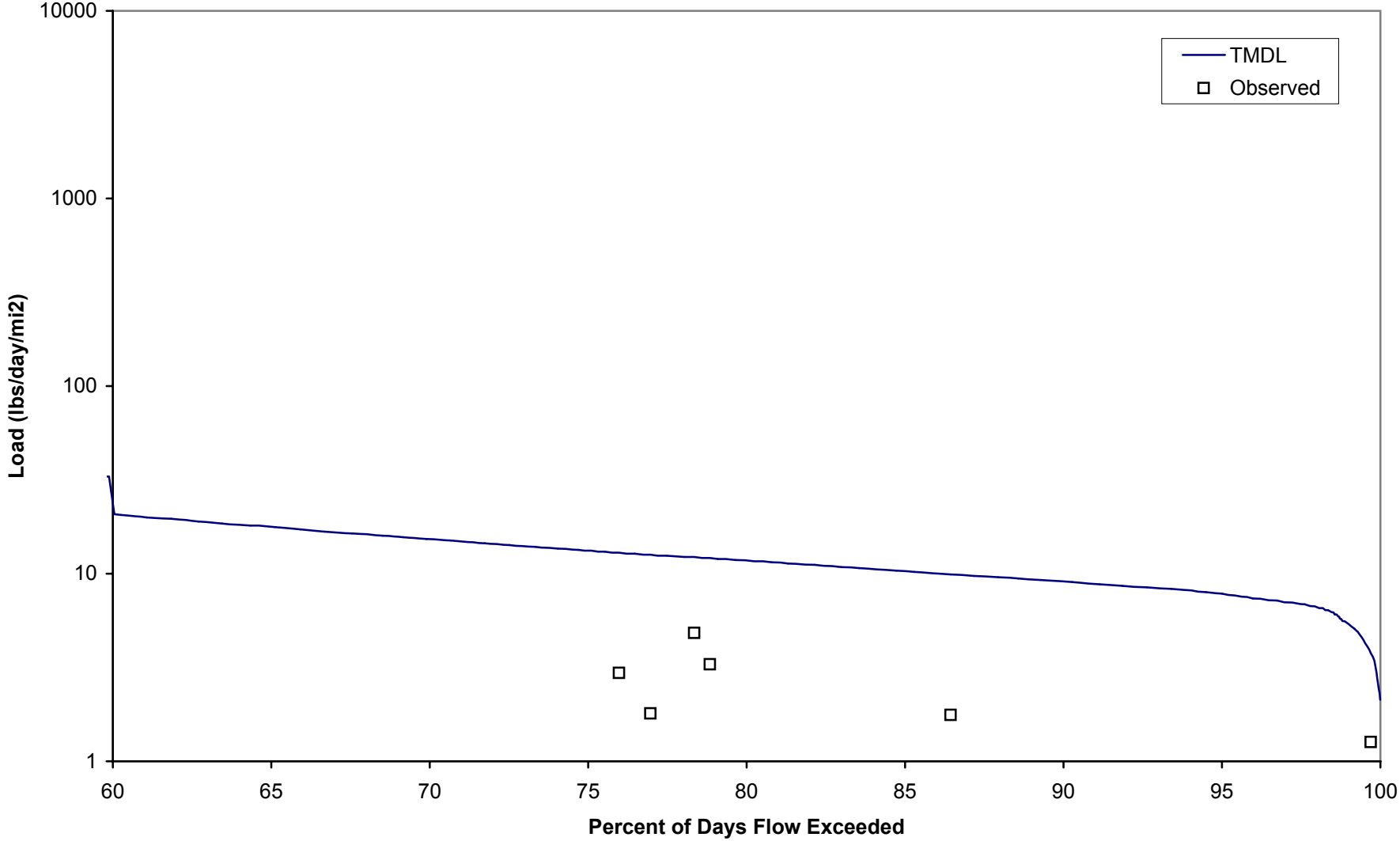


Table F.1. Calcuations for allowable load for Strawberry River Station SBR0001.
drainage area at USGS flow gage = 473 mi2, (Strawberry River near Poughkeepsie)

| Date | Flow at gage (cfs) | Flow (cfs/mi2) | Percent of days flow exceeded | WQ Standard type | WQ Standard (NTU) | Target TSS (mg/L) | Allowable TSS load (lbs/day/mi2) |
|---|---|---|---|---|---|---|---|
| 09/11/95 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 09/12/95 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 11/04/97 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| The rows between 98.99 and 80.23 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 09/23/02 | 73 | 1.54E-01 | 80.23% | Base flow | 10 | 14 | 1.17E+01 |
| 12/08/02 | 73 | 1.54E-01 | 80.23% | Base flow | 10 | 14 | 1.17E+01 |
| 12/12/02 | 73 | 1.54E-01 | 80.23% | Base flow | 10 | 14 | 1.17E+01 |
| The rows between 98.99 and 60.03 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 07/23/93 | 130 | 2.75E-01 | 60.03% | Base flow | 10 | 14 | 2.08E+01 |
| 07/22/94 | 130 | 2.75E-01 | 60.03% | Base flow | 10 | 14 | 2.08E+01 |
| 06/23/02 | 130 | 2.75E-01 | 60.03% | Base flow | 10 | 14 | 2.08E+01 |
| 06/16/40 | 131 | 2.77E-01 | 59.86% | Storm-flow | 17 | 22 | 3.29E+01 |
| 06/17/40 | 131 | 2.77E-01 | 59.86% | Storm-flow | 17 | 22 | 3.29E+01 |
| 12/08/40 | 131 | 2.77E-01 | 59.86% | Storm-flow | 17 | 22 | 3.29E+01 |
| The rows between 59.86 and 30.04 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 01/26/82 | 363 | 7.67E-01 | 30.04% | Storm-flow | 17 | 22 | 9.11E+01 |
| 04/19/82 | 363 | 7.67E-01 | 30.04% | Storm-flow | 17 | 22 | 9.11E+01 |
| 05/28/93 | 363 | 7.67E-01 | 30.04% | Storm-flow | 17 | 22 | 9.11E+01 |
| The rows between 30.04 and 0.01 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 01/25/49 | 38800 | 8.20E+01 | 0.01% | Storm-flow | 17 | 22 | 9.73E+03 |
| 05/27/00 | 39211 | 8.29E+01 | 0.00% | Storm-flow | 17 | 22 | 9.84E+03 |
| 12/03/82 | 42000 | 8.88E+01 | 0.00% | Storm-flow | 17 | 22 | 1.05E+04 |

| | | |
|---|---|---|
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.154 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 011 = | 83.76 | mi2 |
| Flow at downstream end of reach 011 for base flow conditions = | 12.9 | cfs |
| Target TSS for base flow conditions for reach 011 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 011 = | 0.488 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.77 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 011 = | 83.76 | mi2 |
| Flow at downstream end of reach 011 for stormwater conditions = | 64.3 | cfs |
| Target TSS for stormwater conditions for reach 011 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 011 = | 3.81 | tons/day |

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Table F.2. Calcuations allowable load for Strawberry River at SBR0002.
drainage area at USGS flow gage = 473 mi2, (Strawberry River at Puoghkeepsie)

| Date | Flow at gage (cfs) | Flow (cfs/mi2) | Percent of days flow exceeded | WQ Standard type | WQ Standard (NTU) | Target TSS (mg/L) | Allowable TSS load (lbs/day/mi2) |
|---|---|---|---|---|---|---|---|
| 09/11/95 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 09/12/95 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 11/04/97 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| The rows between 99.99 and 80.24 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 08/29/02 | 73 | 1.54E-01 | 80.24% | Base flow | 10 | 14 | 1.17E+01 |
| 09/19/02 | 73 | 1.54E-01 | 80.24% | Base flow | 10 | 14 | 1.17E+01 |
| 09/23/02 | 73 | 1.54E-01 | 80.24% | Base flow | 10 | 14 | 1.17E+01 |
| The rows between 80.24 and 60.05 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 07/23/93 | 130 | 2.75E-01 | 60.05% | Base flow | 10 | 14 | 2.08E+01 |
| 07/22/94 | 130 | 2.75E-01 | 60.05% | Base flow | 10 | 14 | 2.08E+01 |
| 06/23/02 | 130 | 2.75E-01 | 60.05% | Base flow | 10 | 14 | 2.08E+01 |
| 06/16/40 | 131 | 2.77E-01 | 59.88% | Storm flow | 17 | 22 | 3.29E+01 |
| 06/17/40 | 131 | 2.77E-01 | 59.88% | Storm flow | 17 | 22 | 3.29E+01 |
| 12/08/40 | 131 | 2.77E-01 | 59.88% | Storm flow | 17 | 22 | 3.29E+01 |
| The rows between 59.98 and 30.02 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 05/21/66 | 364 | 7.70E-01 | 30.02% | Storm flow | 17 | 22 | 9.13E+01 |
| 09/27/77 | 364 | 7.70E-01 | 30.02% | Storm flow | 17 | 22 | 9.13E+01 |
| 12/26/93 | 364 | 7.70E-01 | 30.02% | Storm flow | 17 | 22 | 9.13E+01 |
| The rows between 30.02 and 0.03 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 01/25/49 | 38800 | 8.20E+01 | 0.03% | Storm flow | 17 | 22 | 9.73E+03 |
| 05/27/00 | 39211 | 8.29E+01 | 0.03% | Storm flow | 17 | 22 | 9.84E+03 |
| 12/03/82 | 42000 | 8.88E+01 | 0.03% | Storm flow | 17 | 22 | 1.05E+04 |

| | | |
|---|---|---|
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.154 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 008 = | 451.93 | mi2 |
| Flow at downstream end of reach 008 for base flow conditions = | 69.7 | cfs |
| Target TSS for base flow conditions for reach 008 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 008 = | 2.63 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.77 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 008 = | 451.93 | mi2 |
| Flow at downstream end of reach 008 for stormwater conditions = | 349 | cfs |
| Target TSS for stormwater conditions for reach 008 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 008 = | 20.7 | tons/day |
| | | |
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.156 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 009 = | 338.38 | mi2 |

| | | |
|---|---|---|
| Flow at downstream end of reach 009 for base flow conditions = | 52.9 | cfs |
| Target TSS for base flow conditions for reach 009 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 009 = | 2.00 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.77 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 009 = | 338.38 | mi2 |
| Flow at downstream end of reach 009 for stormwater conditions = | 262 | cfs |
| Target TSS for stormwater conditions for reach 009 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 009 = | 15.5 | tons/day |

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Table F.3. Calcuations for allowable load for Strawberry River (WHI0024).
drainage area at USGS flow gage = 473 mi2, at USGS flow gage

| Date | Flow at gage (cfs) | Flow (cfs/mi2) | Percent of days flow exceeded | WQ Standard type | WQ Standard (NTU) | Target TSS (mg/L) | Allowable TSS load (lbs/day/mi2) |
|---|---|---|---|---|---|---|---|
| 09/11/95 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 09/12/95 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 11/04/97 | 13 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| The rows between 99.99 and 80.23 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 12/08/02 | 73 | 1.54E-01 | 80.23% | Base flow | 10 | 14 | 1.17E+01 |
| 07/22/94 | 130 | 2.75E-01 | 60.03% | Base flow | 10 | 14 | 2.08E+01 |
| 06/23/02 | 130 | 2.75E-01 | 60.03% | Base flow | 10 | 14 | 2.08E+01 |
| 06/16/40 | 131 | 2.77E-01 | 59.86% | Storm flow | 17 | 22 | 3.29E+01 |
| 06/17/40 | 131 | 2.77E-01 | 59.86% | Storm flow | 17 | 22 | 3.29E+01 |
| 12/08/40 | 131 | 2.77E-01 | 59.86% | Storm flow | 17 | 22 | 3.29E+01 |
| The rows between 59.86 and 30.04 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 05/21/66 | 364 | 7.70E-01 | 30.00% | Storm flow | 17 | 22 | 9.13E+01 |
| 09/27/77 | 364 | 7.70E-01 | 30.00% | Storm flow | 17 | 22 | 9.13E+01 |
| 12/26/93 | 364 | 7.70E-01 | 30.00% | Storm flow | 17 | 22 | 9.13E+01 |
| The rows between 30.00 and 0.01 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 01/25/49 | 38800 | 8.20E+01 | 0.01% | Storm flow | 17 | 22 | 9.73E+03 |
| 05/27/00 | 39211 | 8.29E+01 | 0.00% | Storm flow | 17 | 22 | 9.84E+03 |
| 12/03/82 | 42000 | 8.88E+01 | 0.00% | Storm flow | 17 | 22 | 1.05E+04 |

| | | |
|---|---|---|
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.154 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 004 = | 681 | mi2 |
| Flow at downstream end of reach 004 for base flow conditions = | 105 | cfs |
| Target TSS for base flow conditions for reach 004 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 004 = | 3.97 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.77 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 004 = | 681 | mi2 |
| Flow at downstream end of reach 004 for stormwater conditions = | 524 | cfs |
| Target TSS for stormwater conditions for reach 004 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 004 = | 31.1 | tons/day |
| | | |
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.156 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 005 = | 635.31 | mi2 |
| Flow at downstream end of reach 005 for base flow conditions = | 99.3 | cfs |
| Target TSS for base flow conditions for reach 005 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 005 = | 3.75 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.77 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 005 = | 635.31 | mi2 |

| | | |
|---|---|---|
| Flow at downstream end of reach 005 for stormwater conditions = | 490 | cfs |
| Target TSS for stormwater conditions for reach 005 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 005 = | 29.1 | tons/day |
| | | |
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.156 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 006 = | 595.99 | mi2 |
| Flow at downstream end of reach 006 for base flow conditions = | 93.2 | cfs |
| Target TSS for base flow conditions for reach 006 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 006 = | 3.52 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.77 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 006 = | 595.99 | mi2 |
| Flow at downstream end of reach 006 for stormwater conditions = | 461 | cfs |
| Target TSS for stormwater conditions for reach 006 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 006 = | 27.4 | tons/day |

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Table F.3. Allowable Load WHI0024 Calculations

Table F.4. Calcuations for allowable load for Strawberry River at WHI0143h.
drainage area at USGS flow gage = 473 mi2, at USGS flow gage

| Date | Flow at gage (cfs) | Flow (cfs/mi2) | Percent of days flow exceeded | WQ Standard type | WQ Standard (NTU) | Target TSS (mg/L) | Allowable TSS load (lbs/day/mi2) |
|---|---|---|---|---|---|---|---|
| 09/11/95 | 13.34421 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 09/12/95 | 13.34421 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| 11/04/97 | 13.34421 | 2.82E-02 | 99.99% | Base flow | 10 | 14 | 2.13E+00 |
| The rows between 99.98 and 80.24 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 09/23/02 | 73 | 1.54E-01 | 80.24% | Base flow | 10 | 14 | 1.17E+01 |
| 12/08/02 | 73 | 1.54E-01 | 80.24% | Base flow | 10 | 14 | 1.17E+01 |
| 12/12/02 | 73 | 1.54E-01 | 80.24% | Base flow | 10 | 14 | 1.17E+01 |
| The rows between 80.24 and 60.05 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 07/23/93 | 130 | 2.75E-01 | 60.05% | Base flow | 10 | 14 | 2.08E+01 |
| 07/22/94 | 130 | 2.75E-01 | 60.05% | Base flow | 10 | 14 | 2.08E+01 |
| 06/23/02 | 130 | 2.75E-01 | 60.05% | Base flow | 10 | 14 | 2.08E+01 |
| 06/16/40 | 131 | 2.77E-01 | 59.88% | Storm-flow | 17 | 22 | 3.29E+01 |
| 06/17/40 | 131 | 2.77E-01 | 59.88% | Storm-flow | 17 | 22 | 3.29E+01 |
| 12/08/40 | 131 | 2.77E-01 | 59.88% | Storm-flow | 17 | 22 | 3.29E+01 |
| The rows between 59.88 and 30.02 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 05/21/66 | 364 | 7.70E-01 | 30.02% | Storm-flow | 17 | 22 | 9.13E+01 |
| 09/27/77 | 364 | 7.70E-01 | 30.02% | Storm-flow | 17 | 22 | 9.13E+01 |
| 12/26/93 | 364 | 7.70E-01 | 30.02% | Storm-flow | 17 | 22 | 9.13E+01 |
| The rows between 30.02 and 0.03 percent flow exceedances are not shown for the sake of brevity. | | | | | | | |
| 01/25/49 | 38800 | 8.20E+01 | 0.03% | Storm-flow | 17 | 22 | 9.73E+03 |
| 05/27/00 | 39211.46 | 8.29E+01 | 0.03% | Storm-flow | 17 | 22 | 9.84E+03 |
| 12/03/82 | 42000 | 8.88E+01 | 0.03% | Storm-flow | 17 | 22 | 1.05E+04 |

| | | |
|---|---|---|
| Flow per unit area in middle of base flow range (80% exceedance) = | 0.154 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 010 = | 40.02 | mi2 |
| Flow at downstream end of reach 010 for base flow conditions = | 6.2 | cfs |
| Target TSS for base flow conditions for reach 010 = | 14 | mg/L |
| Allowable TSS load for base flow conditions for reach 010 = | 0.233 | tons/day |
| | | |
| Flow in middle of stormwater range (30% exceedance) = | 0.770 | cfs/mi2 |
| Cumulative drainage area at downstream end of reach 010 = | 40.02 | mi2 |
| Flow at downstream end of reach 010 for stormwater conditions = | 30.8 | cfs |
| Target TSS for stormwater conditions for reach 010 = | 22 | mg/L |
| Allowable TSS load for stormwater conditions for reach 010 = | 1.83 | tons/day |

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TABLE F.5. CALCULATIONS FOR PERCENT REDUCTION FOR STORM-FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION SBR0001)

| | | | |
|---|---|---|---|
| Storm-flow target TSS conc. = | 22 mg/L | Error check for reduction is / is not needed: | ok |
| Percent reduction needed = | 58% | Error check for less or more reduction needed: | ok |

| Category | Date | Observed TSS at SBR0001 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 6/13/1994 | 4 | 0.35 | 52.33% | 7.52 | 3.16 | 41.39 | Yes |
| Storm-flow | 6/18/2003 | 3 | 0.36 | 51.25% | 5.85 | 2.46 | 42.89 | Yes |
| Storm-flow | 6/17/2002 | 2.7 | 0.38 | 49.31% | 5.60 | 2.35 | 45.65 | Yes |
| Storm-flow | 3/19/2001 | 1.3 | 0.39 | 48.81% | 2.74 | 1.15 | 46.35 | Yes |
| Storm-flow | 3/19/2003 | 4.7 | 0.49 | 42.09% | 12.43 | 5.22 | 58.19 | Yes |
| Storm-flow | 4/29/2002 | 2.75 | 0.81 | 28.47% | 12.07 | 5.07 | 96.57 | Yes |
| Storm-flow | 10/3/1995 | 25.5 | 0.82 | 28.10% | 113.41 | 47.63 | 97.84 | Yes |
| Storm-flow | 5/6/1996 | 51.5 | 0.85 | 27.42% | 235.06 | 98.73 | 100.41 | Yes |
| Storm-flow | 1/17/1995 | 1 | 1.19 | 18.97% | 6.44 | 2.70 | 141.61 | Yes |
| Storm-flow | 2/24/2003 | 10.8 | 2.68 | 6.70% | 156.38 | 65.68 | 318.56 | Yes |
| Storm-flow | 4/8/2002 | 225.5 | 3.11 | 5.44% | 3779.42 | 1587.35 | 368.72 | No |
| Storm-flow | 3/12/2002 | 70.8 | 8.08 | 1.68% | 3083.60 | 1295.11 | 958.18 | No |
| Storm-flow | 4/11/1995 | 122 | 11.70 | 0.99% | 7695.89 | 3232.28 | 1387.78 | No |

| | |
|---|---|
| Total number of values = | 13 |
| Allowable % of exceedances = | 20% |
| Allowable no. of exceedances = | 3 |
| No. of exceedances before reductions = | 5 |
| No. of exceedances after reductions = | 3 |

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TABLE F.6. CALCULATIONS FOR PERCENT REDUCTION FOR BASE FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION SBR0001)

Base flow target TSS conc. = 14 mg/L
Percent reduction needed = 0%

Error check for reduction is / is not needed: ok
Error check for less or more reduction needed: ok

| Category | Date | Observed TSS at SBR0001 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Base flow | 8/27/2001 | 16 | 0.05 | 99.69% | 4.31 | 4.31 | 3.77 | No |
| Base flow | 9/12/1994 | 5 | 0.13 | 87.17% | 3.48 | 3.48 | 9.74 | Yes |
| Base flow | 7/18/1995 | 15 | 0.14 | 83.28% | 11.59 | 11.59 | 10.81 | No |
| Base flow | 12/3/2002 | <1 | 0.13 | 86.43% | 0.71 | 0.71 | 9.90 | Yes |
| Base flow | 10/8/1996 | 1.5 | 0.15 | 82.14% | 1.19 | 1.19 | 11.14 | Yes |
| Base flow | 5/1/2001 | 4.7 | 0.16 | 78.84% | 4.07 | 4.07 | 12.12 | Yes |
| Base flow | 11/6/2001 | 2.5 | 0.17 | 76.96% | 2.25 | 2.25 | 12.61 | Yes |
| Base flow | 8/27/2002 | 3.5 | 0.17 | 76.96% | 3.15 | 3.15 | 12.61 | Yes |
| Base flow | 2/20/1996 | 10.5 | 0.22 | 67.53% | 12.29 | 12.29 | 16.38 | Yes |

Total number of values = 9
Allowable % of exceedances = 25%
Allowable no. of exceedances = 3
No. of exceedances before reductions = 2
No. of exceedances after reductions = 2

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TABLE F.7. CALCULATIONS FOR PERCENT REDUCTION FOR STORM-FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION SBR0002)

| | | | |
|---|---|---|---|
| Storm-flow target TSS conc. = | 22 mg/L | Error check for reduction is / is not needed: | ok |
| Percent reduction needed = | 53% | Error check for less or more reduction needed: | ok |

| Category | Date | Observed TSS at SBR0002 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 1/22/2002 | <1 | 3.40E-01 | 53.2% | 1.8 | 0.9 | 40.4 | Yes |
| Storm-flow | 6/13/1994 | 6.5 | 3.49E-01 | 52.3% | 12.2 | 5.7 | 41.4 | Yes |
| Storm-flow | 6/18/2003 | 3.2 | 3.62E-01 | 51.3% | 6.2 | 2.9 | 42.9 | Yes |
| Storm-flow | 6/17/2002 | 1.7 | 3.85E-01 | 49.3% | 3.5 | 1.7 | 45.7 | Yes |
| Storm-flow | 3/19/2001 | <1 | 3.91E-01 | 48.8% | 2.1 | 1.0 | 46.3 | Yes |
| Storm-flow | 3/19/2003 | <1 | 4.90E-01 | 42.1% | 2.6 | 1.2 | 58.2 | Yes |
| Storm-flow | 4/29/2002 | 3.25 | 8.14E-01 | 28.5% | 14.3 | 6.7 | 96.6 | Yes |
| Storm-flow | 10/3/1995 | 4.5 | 8.25E-01 | 28.1% | 20.0 | 9.4 | 97.8 | Yes |
| Storm-flow | 5/6/1996 | 4.5 | 8.46E-01 | 27.4% | 20.5 | 9.7 | 100.4 | Yes |
| Storm-flow | 1/17/1995 | 3 | 1.19E+00 | 19.0% | 19.3 | 9.1 | 141.6 | Yes |
| Storm-flow | 2/24/2003 | 12.8 | 2.68E+00 | 6.7% | 185.3 | 87.1 | 318.6 | Yes |
| Storm-flow | 4/8/2002 | 81.5 | 3.11E+00 | 5.5% | 1366.0 | 642.0 | 368.7 | No |
| Storm-flow | 3/12/2002 | 105 | 8.08E+00 | 1.7% | 4573.1 | 2149.4 | 958.2 | No |
| Storm-flow | 1/24/2002 | 442 | 1.06E+01 | 1.2% | 25348.4 | 11913.8 | 1261.7 | No |
| Storm-flow | 4/11/1995 | 46 | 1.17E+01 | 1.0% | 2901.7 | 1363.8 | 1387.8 | Yes |

| | |
|---|---|
| Total number of values = | 15 |
| Allowable % of exceedances = | 20% |
| Allowable no. of exceedances = | 3 |
| No. of exceedances before reductions = | 4 |
| No. of exceedances after reductions = | 3 |

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TABLE F.8. CALCULATIONS FOR PERCENT REDUCTION FOR BASE FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION SBR0002)

Base flow target TSS conc. = 14 mg/L
Percent reduction needed = 0%

Error check for reduction is / is not needed: ok
Error check for less or more reduction needed: ok

| Category | Date | Observed TSS at SBR0002 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Base flow | 8/27/2001 | 3 | 4.99E-02 | 99.7% | 0.81 | 0.81 | 3.77 | Yes |
| Base flow | 9/12/1994 | 3 | 1.29E-01 | 87.2% | 2.09 | 2.09 | 9.74 | Yes |
| Base flow | 12/3/2002 | <1 | 1.31E-01 | 86.4% | 0.71 | 0.71 | 9.90 | Yes |
| Base flow | 7/18/1995 | 6.5 | 1.43E-01 | 83.3% | 5.02 | 5.02 | 10.81 | Yes |
| Base flow | 10/8/1996 | 3.5 | 1.48E-01 | 82.1% | 2.79 | 2.79 | 11.14 | Yes |
| Base flow | 5/1/2001 | 6.5 | 1.61E-01 | 78.8% | 5.63 | 5.63 | 12.12 | Yes |
| Base flow | 6/19/2001 | | 1.63E-01 | 78.3% | 0.00 | 0.00 | 12.29 | Yes |
| Base flow | 11/6/2001 | <1 | 1.67E-01 | 77.0% | 0.90 | 0.90 | 12.61 | Yes |
| Base flow | 8/27/2002 | 3.2 | 1.67E-01 | 77.0% | 2.88 | 2.88 | 12.61 | Yes |
| Base flow | 2/20/1996 | 2.5 | 2.17E-01 | 67.5% | 2.93 | 2.93 | 16.38 | Yes |

Total number of values = 9
Allowable % of exceedances = 25%
Allowable no. of exceedances = 3
No. of exceedances before reductions = 0
No. of exceedances after reductions = 0

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TABLE F.9. CALCULATIONS FOR PERCENT REDUCTION FOR STORM-FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION WHI0024)

Storm-flow target TSS conc. = 22 mg/L
Percent reduction needed = 50%

Error check for reduction is / is not needed: ok
Error check for less or more reduction needed: ok

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 11/20/1995 | 1 | 2.82E-01 | 59.20% | 1.52 | 0.76 | 33.47 | Yes |
| Storm-flow | 9/24/1996 | 7 | 2.82E-01 | 59.20% | 10.65 | 5.33 | 33.47 | Yes |
| Storm-flow | 10/19/2004 | 25.8 | 2.82E-01 | 59.20% | 39.25 | 19.63 | 33.47 | Yes |
| Storm-flow | 1/28/2003 | 1.3 | 2.90E-01 | 58.31% | 2.03 | 1.02 | 34.36 | Yes |
| Storm-flow | 7/25/1995 | 37 | 3.04E-01 | 56.97% | 60.62 | 30.31 | 36.05 | Yes |
| Storm-flow | 4/22/2003 | 11 | 3.13E-01 | 55.97% | 18.56 | 9.28 | 37.12 | Yes |
| Storm-flow | 10/12/1993 | 2 | 3.15E-01 | 55.76% | 3.40 | 1.70 | 37.37 | Yes |
| Storm-flow | 6/14/1994 | 10.5 | 3.21E-01 | 55.26% | 18.20 | 9.10 | 38.13 | Yes |
| Storm-flow | 12/6/1994 | 5 | 3.26E-01 | 54.83% | 8.78 | 4.39 | 38.62 | Yes |
| Storm-flow | 9/19/1995 | 19 | 3.26E-01 | 54.83% | 33.35 | 16.68 | 38.62 | Yes |
| Storm-flow | 6/11/1991 | 11 | 3.26E-01 | 54.60% | 19.31 | 9.66 | 38.63 | Yes |
| Storm-flow | 1/22/2002 | 1.8 | 3.40E-01 | 53.20% | 3.30 | 1.65 | 40.38 | Yes |
| Storm-flow | 1/21/1997 | 3 | 3.47E-01 | 52.49% | 5.62 | 2.81 | 41.20 | Yes |
| Storm-flow | 6/18/2002 | 9.5 | 3.55E-01 | 51.81% | 18.20 | 9.10 | 42.14 | Yes |
| Storm-flow | 6/27/2000 | 22.5 | 3.69E-01 | 50.71% | 44.77 | 22.38 | 43.77 | Yes |
| Storm-flow | 3/20/2001 | 3.8 | 3.69E-01 | 50.71% | 7.56 | 3.78 | 43.77 | Yes |
| Storm-flow | 5/18/2004 | 6 | 3.69E-01 | 50.71% | 11.94 | 5.97 | 43.77 | Yes |
| Storm-flow | 6/30/2003 | 4 | 3.76E-01 | 49.96% | 8.12 | 4.06 | 44.65 | Yes |
| Storm-flow | 6/17/2002 | 10.5 | 3.85E-01 | 49.31% | 21.79 | 10.89 | 45.65 | Yes |
| Storm-flow | 11/9/1998 | 6 | 3.91E-01 | 48.81% | 12.64 | 6.32 | 46.35 | Yes |
| Storm-flow | 3/19/2001 | 3.3 | 3.91E-01 | 48.81% | 6.95 | 3.48 | 46.35 | Yes |
| Storm-flow | 5/24/1994 | 6.5 | 3.91E-01 | 48.68% | 13.71 | 6.86 | 46.40 | Yes |
| Storm-flow | 4/1/2003 | 3 | 4.06E-01 | 47.79% | 6.57 | 3.28 | 48.16 | Yes |
| Storm-flow | 7/26/1994 | 14 | 4.08E-01 | 47.67% | 30.81 | 15.40 | 48.41 | Yes |
| Storm-flow | 3/28/1995 | 3 | 4.12E-01 | 47.31% | 6.67 | 3.34 | 48.92 | Yes |

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 11/2/1993 | 2 | 4.14E-01 | 47.17% | 4.47 | 2.23 | 49.16 | Yes |
| Storm-flow | 3/12/1991 | 2 | 4.27E-01 | 46.14% | 4.61 | 2.30 | 50.67 | Yes |
| Storm-flow | 12/9/2003 | 11 | 4.34E-01 | 45.67% | 25.75 | 12.87 | 51.49 | Yes |
| Storm-flow | 12/14/2004 | 5.8 | 4.34E-01 | 45.67% | 13.58 | 6.79 | 51.49 | Yes |
| Storm-flow | 4/29/1997 | 3 | 4.56E-01 | 44.33% | 7.37 | 3.69 | 54.07 | Yes |
| Storm-flow | 3/19/2003 | 7.7 | 4.90E-01 | 42.09% | 20.37 | 10.18 | 58.19 | Yes |
| Storm-flow | 5/12/1992 | 6 | 5.05E-01 | 41.29% | 16.35 | 8.17 | 59.95 | Yes |
| Storm-flow | 6/9/1992 | 22 | 5.07E-01 | 41.19% | 60.20 | 30.10 | 60.20 | Yes |
| Storm-flow | 1/30/1996 | 6 | 5.21E-01 | 40.32% | 16.85 | 8.43 | 61.79 | Yes |
| Storm-flow | 7/7/1992 | 64 | 5.29E-01 | 39.84% | 182.42 | 91.21 | 62.71 | No |
| Storm-flow | 2/12/1991 | 5 | 5.35E-01 | 39.55% | 14.42 | 7.21 | 63.46 | Yes |
| Storm-flow | 9/25/2001 | 5.7 | 5.43E-01 | 39.19% | 16.68 | 8.34 | 64.37 | Yes |
| Storm-flow | 10/29/1996 | 12 | 5.64E-01 | 38.11% | 36.51 | 18.26 | 66.94 | Yes |
| Storm-flow | 10/20/1998 | 15 | 5.64E-01 | 38.11% | 45.64 | 22.82 | 66.94 | Yes |
| Storm-flow | 1/25/2005 | 4.5 | 5.64E-01 | 38.11% | 13.69 | 6.85 | 66.94 | Yes |
| Storm-flow | 3/8/2005 | 6 | 5.64E-01 | 38.11% | 18.26 | 9.13 | 66.94 | Yes |
| Storm-flow | 1/2/2002 | 5 | 5.71E-01 | 37.76% | 15.39 | 7.70 | 67.72 | Yes |
| Storm-flow | 8/5/2003 | 46.2 | 6.26E-01 | 35.35% | 155.92 | 77.96 | 74.25 | No |
| Storm-flow | 5/27/1997 | 173 | 6.29E-01 | 35.14% | 587.16 | 293.58 | 74.67 | No |
| Storm-flow | 6/1/1993 | 12 | 6.45E-01 | 34.51% | 41.73 | 20.86 | 76.50 | Yes |
| Storm-flow | 3/23/1999 | 8 | 6.51E-01 | 34.29% | 28.09 | 14.04 | 77.24 | Yes |
| Storm-flow | 1/16/2001 | 7 | 6.51E-01 | 34.29% | 24.58 | 12.29 | 77.24 | Yes |
| Storm-flow | 2/17/2004 | 2.5 | 6.73E-01 | 33.37% | 9.07 | 4.54 | 79.82 | Yes |
| Storm-flow | 9/9/2003 | 28.2 | 6.81E-01 | 33.09% | 103.53 | 51.76 | 80.77 | Yes |
| Storm-flow | 3/17/1992 | 3 | 6.83E-01 | 33.00% | 11.05 | 5.52 | 81.02 | Yes |
| Storm-flow | 12/11/2001 | 14.3 | 7.51E-01 | 30.63% | 57.88 | 28.94 | 89.05 | Yes |
| Storm-flow | 5/27/2003 | 21.5 | 7.59E-01 | 30.38% | 88.00 | 44.00 | 90.05 | Yes |
| Storm-flow | 11/7/2000 | 8.5 | 7.81E-01 | 29.52% | 35.81 | 17.91 | 92.69 | Yes |
| Storm-flow | 4/29/2002 | 41.25 | 8.14E-01 | 28.47% | 181.07 | 90.53 | 96.57 | Yes |
| Storm-flow | 4/26/1994 | 5 | 8.25E-01 | 28.18% | 22.23 | 11.12 | 97.82 | Yes |
| Storm-flow | 5/16/1995 | 15 | 8.25E-01 | 28.10% | 66.71 | 33.35 | 97.84 | Yes |



Table F.9. Storm-flow percent reductions
WHI0024

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 7/22/2003 | 73.2 | 8.37E-01 | 27.70% | 330.50 | 165.25 | 99.33 | No |
| Storm-flow | 3/16/1993 | 4 | 8.41E-01 | 27.57% | 18.15 | 9.08 | 99.83 | Yes |
| Storm-flow | 12/15/1998 | 5 | 8.68E-01 | 26.79% | 23.41 | 11.70 | 102.99 | Yes |
| Storm-flow | 1/20/2004 | 7.5 | 9.11E-01 | 25.57% | 36.87 | 18.43 | 108.14 | Yes |
| Storm-flow | 4/13/1993 | 7 | 9.81E-01 | 23.62% | 37.03 | 18.52 | 116.39 | Yes |
| Storm-flow | 3/25/1997 | 10.5 | 9.98E-01 | 23.19% | 56.53 | 28.26 | 118.44 | Yes |
| Storm-flow | 3/4/2003 | 4 | 1.01E+00 | 22.95% | 21.71 | 10.85 | 119.40 | Yes |
| Storm-flow | 2/25/1992 | 3 | 1.02E+00 | 22.64% | 16.45 | 8.23 | 120.65 | Yes |
| Storm-flow | 2/12/2002 | 11 | 1.02E+00 | 22.59% | 60.45 | 30.23 | 120.90 | Yes |
| Storm-flow | 11/5/1991 | 20 | 1.04E+00 | 22.14% | 112.42 | 56.21 | 123.66 | Yes |
| Storm-flow | 11/19/1996 | 17.5 | 1.09E+00 | 21.22% | 102.40 | 51.20 | 128.74 | Yes |
| Storm-flow | 8/4/1992 | 12 | 1.11E+00 | 20.74% | 71.56 | 35.78 | 131.19 | Yes |
| Storm-flow | 1/21/1992 | 4 | 1.13E+00 | 20.33% | 24.31 | 12.15 | 133.69 | Yes |
| Storm-flow | 1/27/1998 | 4.5 | 1.13E+00 | 20.31% | 27.39 | 13.69 | 133.89 | Yes |
| Storm-flow | 5/12/1998 | 64.5 | 1.13E+00 | 20.31% | 392.53 | 196.27 | 133.89 | No |
| Storm-flow | 1/17/1995 | 9 | 1.19E+00 | 18.97% | 57.93 | 28.97 | 141.61 | Yes |
| Storm-flow | 5/7/1991 | 9 | 1.30E+00 | 17.00% | 63.31 | 31.66 | 154.76 | Yes |
| Storm-flow | 2/29/2000 | 52 | 1.39E+00 | 15.80% | 389.49 | 194.74 | 164.78 | No |
| Storm-flow | 3/22/1994 | 9.5 | 1.43E+00 | 15.23% | 73.22 | 36.61 | 169.56 | Yes |
| Storm-flow | 12/17/1996 | 30 | 1.48E+00 | 14.63% | 238.75 | 119.37 | 175.08 | Yes |
| Storm-flow | 12/14/1999 | 56 | 1.48E+00 | 14.63% | 445.66 | 222.83 | 175.08 | No |
| Storm-flow | 5/21/2002 | 28.5 | 1.48E+00 | 14.49% | 228.11 | 114.05 | 176.08 | Yes |
| Storm-flow | 1/26/1993 | 13 | 1.56E+00 | 13.57% | 109.68 | 54.84 | 185.62 | Yes |
| Storm-flow | 2/18/1997 | 10.5 | 1.65E+00 | 12.83% | 93.39 | 46.70 | 195.68 | Yes |
| Storm-flow | 4/9/1991 | 30 | 1.68E+00 | 12.51% | 272.61 | 136.30 | 199.91 | Yes |
| Storm-flow | 6/13/1995 | 31.5 | 1.82E+00 | 11.14% | 309.67 | 154.84 | 216.28 | Yes |
| Storm-flow | 4/7/1998 | 10.5 | 1.82E+00 | 11.14% | 103.22 | 51.61 | 216.28 | Yes |
| Storm-flow | 2/15/2005 | 37.8 | 1.91E+00 | 10.47% | 389.30 | 194.65 | 226.58 | Yes |
| Storm-flow | 3/5/1996 | 3 | 2.02E+00 | 9.73% | 32.65 | 16.33 | 239.45 | Yes |
| Storm-flow | 10/9/1990 | 188 | 2.18E+00 | 8.83% | 2207.78 | 1103.89 | 258.36 | No |
| Storm-flow | 2/13/2001 | 8.2 | 2.19E+00 | 8.77% | 96.93 | 48.46 | 260.05 | Yes |



Table F.9. Storm-flow percent reductions
WHI0024

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 2/23/1993 | 32 | 2.22E+00 | 8.59% | 383.09 | 191.54 | 263.37 | Yes |
| Storm-flow | 1/15/1991 | 24 | 2.35E+00 | 7.96% | 303.74 | 151.87 | 278.42 | Yes |
| Storm-flow | 5/30/2000 | 106.5 | 2.47E+00 | 7.41% | 1420.90 | 710.45 | 293.52 | No |
| Storm-flow | 2/24/2003 | 54.5 | 2.68E+00 | 6.70% | 789.15 | 394.58 | 318.56 | No |
| Storm-flow | 4/16/2002 | 39 | 2.71E+00 | 6.62% | 569.16 | 284.58 | 321.07 | Yes |
| Storm-flow | 11/15/1994 | 19 | 2.71E+00 | 6.57% | 277.95 | 138.98 | 321.84 | Yes |
| Storm-flow | 12/18/1990 | 44 | 2.96E+00 | 5.79% | 702.33 | 351.17 | 351.17 | Yes |
| Storm-flow | 4/8/2002 | 20.8 | 3.11E+00 | 5.44% | 348.61 | 174.31 | 368.72 | Yes |
| Storm-flow | 12/14/1993 | 40 | 3.17E+00 | 5.31% | 684.09 | 342.04 | 376.25 | Yes |
| Storm-flow | 3/10/1998 | 107.5 | 3.36E+00 | 4.98% | 1950.07 | 975.04 | 399.08 | No |
| Storm-flow | 2/17/1998 | 92 | 3.91E+00 | 4.10% | 1938.08 | 969.04 | 463.45 | No |
| Storm-flow | 11/23/1992 | 334 | 3.95E+00 | 4.02% | 7121.13 | 3560.57 | 469.06 | No |
| Storm-flow | 1/25/1994 | 196 | 5.64E+00 | 2.57% | 5966.62 | 2983.31 | 669.72 | No |
| Storm-flow | 4/6/1999 | 223 | 7.10E+00 | 1.95% | 8534.21 | 4267.10 | 841.94 | No |
| Storm-flow | 12/19/1995 | 102 | 7.49E+00 | 1.84% | 4118.41 | 2059.21 | 888.28 | No |
| Storm-flow | 2/22/1994 | 209 | 7.53E+00 | 1.82% | 8483.15 | 4241.58 | 892.96 | No |
| Storm-flow | 3/19/2002 | 158.3 | 7.65E+00 | 1.79% | 6533.57 | 3266.78 | 908.01 | No |
| Storm-flow | 3/12/2002 | 155.5 | 8.08E+00 | 1.68% | 6772.59 | 3386.29 | 958.18 | No |
| Storm-flow | 11/30/2004 | 102 | 8.90E+00 | 1.55% | 4894.34 | 2447.17 | 1055.64 | No |
| Storm-flow | 4/21/1992 | 137 | 1.06E+01 | 1.16% | 7856.87 | 3928.43 | 1261.69 | No |
| Storm-flow | 1/24/2002 | 610 | 1.06E+01 | 1.16% | 34983.13 | 17491.57 | 1261.69 | No |
| Storm-flow | 4/11/1995 | 43 | 1.17E+01 | 0.99% | 2712.49 | 1356.24 | 1387.78 | Yes |

| | |
|---|---|
| Total number of values = | 109 |
| Allowable % of exceedances = | 20% |
| Allowable no. of exceedances = | 22 |
| No. of exceedances before reductions = | 38 |
| No. of exceedances after reductions = | 22 |

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Table F.9. Storm-flow percent reductions
WHI0024

TABLE F.10. CALCULATIONS FOR PERCENT REDUCTION FOR BASE FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION WHI0024)

Base flow target TSS conc. = 14 mg/L
Percent reduction needed = 0%

Error check for reduction is / is not needed: ok
Error check for less or more reduction needed: ok

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Base flow | 9/19/2000 | 8.5 | 3.26E-02 | 99.94% | 1.49 | 1.49 | 2.46 | Yes |
| Base flow | 8/22/2000 | 7.5 | 3.69E-02 | 99.89% | 1.49 | 1.49 | 2.79 | Yes |
| Base flow | 9/28/2004 | 5.5 | 4.12E-02 | 99.85% | 1.22 | 1.22 | 3.11 | Yes |
| Base flow | 8/28/2001 | 13.5 | 4.99E-02 | 99.69% | 3.63 | 3.63 | 3.77 | Yes |
| Base flow | 8/28/2001 | 12.8 | 4.99E-02 | 99.69% | 3.45 | 3.45 | 3.77 | Yes |
| Base flow | 10/21/1997 | 7 | 5.86E-02 | 99.46% | 2.21 | 2.21 | 4.42 | Yes |
| Base flow | 7/24/2001 | 9.8 | 6.51E-02 | 99.27% | 3.44 | 3.44 | 4.92 | Yes |
| Base flow | 1/25/2000 | 2 | 6.73E-02 | 99.18% | 0.73 | 0.73 | 5.08 | Yes |
| Base flow | 10/17/2000 | 6 | 8.03E-02 | 98.61% | 2.60 | 2.60 | 6.06 | Yes |
| Base flow | 7/20/1999 | 11 | 8.25E-02 | 98.45% | 4.89 | 4.89 | 6.23 | Yes |
| Base flow | 8/20/1996 | 12.5 | 8.68E-02 | 98.06% | 5.85 | 5.85 | 6.55 | Yes |
| Base flow | 8/22/1995 | 16.5 | 8.90E-02 | 97.78% | 7.92 | 7.92 | 6.72 | No |
| Base flow | 9/21/1999 | 14 | 9.11E-02 | 97.47% | 6.88 | 6.88 | 6.88 | Yes |
| Base flow | 10/10/1995 | 6.5 | 9.55E-02 | 96.47% | 3.35 | 3.35 | 7.21 | Yes |
| Base flow | 11/16/1999 | 4.5 | 9.55E-02 | 96.47% | 2.32 | 2.32 | 7.21 | Yes |
| Base flow | 10/11/1994 | 3.5 | 9.77E-02 | 95.96% | 1.84 | 1.84 | 7.37 | Yes |
| Base flow | 6/26/2001 | 12.3 | 9.77E-02 | 95.96% | 6.48 | 6.48 | 7.37 | Yes |
| Base flow | 7/29/1997 | 13.5 | 9.98E-02 | 95.63% | 7.27 | 7.27 | 7.54 | Yes |
| Base flow | 6/29/2004 | 14 | 9.98E-02 | 95.63% | 7.54 | 7.54 | 7.54 | Yes |
| Base flow | 6/25/1996 | 12.5 | 1.04E-01 | 94.78% | 7.02 | 7.02 | 7.86 | Yes |
| Base flow | 10/7/2003 | 4.8 | 1.09E-01 | 93.78% | 2.81 | 2.81 | 8.19 | Yes |
| Base flow | 10/1/1991 | 5 | 1.10E-01 | 93.40% | 2.96 | 2.96 | 8.30 | Yes |
| Base flow | 11/4/2003 | 7.2 | 1.13E-01 | 92.21% | 4.38 | 4.38 | 8.52 | Yes |
| Base flow | 10/8/2002 | 6.75 | 1.16E-01 | 91.13% | 4.23 | 4.23 | 8.78 | Yes |

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Base flow | 9/23/1997 | 17 | 1.19E-01 | 90.27% | 10.94 | 10.94 | 9.01 | No |
| Base flow | 9/22/1998 | 12.5 | 1.19E-01 | 90.27% | 8.05 | 8.05 | 9.01 | Yes |
| Base flow | 10/30/2001 | 3.2 | 1.23E-01 | 89.26% | 2.12 | 2.12 | 9.26 | Yes |
| Base flow | 8/13/1991 | 20 | 1.25E-01 | 88.57% | 13.45 | 13.45 | 9.42 | No |
| Base flow | 8/24/1993 | 14 | 1.25E-01 | 88.57% | 9.42 | 9.42 | 9.42 | Yes |
| Base flow | 7/7/1998 | 11 | 1.26E-01 | 88.30% | 7.47 | 7.47 | 9.50 | Yes |
| Base flow | 9/7/1993 | 12 | 1.29E-01 | 87.17% | 8.35 | 8.35 | 9.74 | Yes |
| Base flow | 9/27/1994 | 5.5 | 1.29E-01 | 87.17% | 3.83 | 3.83 | 9.74 | Yes |
| Base flow | 8/18/1998 | 14 | 1.30E-01 | 86.79% | 9.83 | 9.83 | 9.83 | Yes |
| Base flow | 10/12/1999 | 9 | 1.30E-01 | 86.79% | 6.32 | 6.32 | 9.83 | Yes |
| Base flow | 9/10/2002 | 7 | 1.31E-01 | 86.43% | 4.95 | 4.95 | 9.90 | Yes |
| Base flow | 12/3/2002 | <1 | 1.31E-01 | 86.43% | 0.71 | 0.71 | 9.90 | Yes |
| Base flow | 11/13/2001 | 2.5 | 1.33E-01 | 85.81% | 1.80 | 1.80 | 10.06 | Yes |
| Base flow | 5/28/1996 | 12.5 | 1.37E-01 | 85.03% | 9.22 | 9.22 | 10.32 | Yes |
| Base flow | 11/12/2002 | 3 | 1.37E-01 | 84.71% | 2.22 | 2.22 | 10.38 | Yes |
| Base flow | 11/18/1997 | <1 | 1.39E-01 | 84.39% | 0.75 | 0.75 | 10.49 | Yes |
| Base flow | 6/15/1999 | 36.5 | 1.39E-01 | 84.39% | 27.34 | 27.34 | 10.49 | No |
| Base flow | 2/23/1999 | 6.5 | 1.43E-01 | 83.28% | 5.02 | 5.02 | 10.81 | Yes |
| Base flow | 8/24/1999 | 21.5 | 1.43E-01 | 83.28% | 16.61 | 16.61 | 10.81 | No |
| Base flow | 9/11/1990 | 24 | 1.50E-01 | 81.30% | 19.43 | 19.43 | 11.33 | No |
| Base flow | 6/16/1998 | 12 | 1.54E-01 | 80.51% | 9.97 | 9.97 | 11.63 | Yes |
| Base flow | 8/19/1997 | 18 | 1.58E-01 | 79.33% | 15.38 | 15.38 | 11.96 | No |
| Base flow | 5/1/2001 | 11.2 | 1.61E-01 | 78.84% | 9.70 | 9.70 | 12.12 | Yes |
| Base flow | 10/27/1992 | 8 | 1.61E-01 | 78.59% | 6.93 | 6.93 | 12.13 | Yes |
| Base flow | 6/19/2001 | 17.25 | 1.63E-01 | 78.34% | 15.14 | 15.14 | 12.29 | No |
| Base flow | 9/10/1991 | 14 | 1.65E-01 | 77.47% | 12.45 | 12.45 | 12.45 | Yes |
| Base flow | 7/30/1996 | 240 | 1.65E-01 | 77.18% | 213.47 | 213.47 | 12.45 | No |
| Base flow | 11/6/2001 | 3.8 | 1.67E-01 | 76.96% | 3.42 | 3.42 | 12.61 | Yes |
| Base flow | 6/24/1997 | 10.5 | 1.67E-01 | 76.73% | 9.46 | 9.46 | 12.62 | Yes |
| Base flow | 8/26/2002 | 8.8 | 1.71E-01 | 75.97% | 8.13 | 8.13 | 12.93 | Yes |



Table F.10. Base flow percent reductions
WHI0024

| Category | Date | Observed TSS at WHI0024 (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Base flow | 7/9/2002 | 15.5 | 1.73E-01 | 75.52% | 14.49 | 14.49 | 13.09 | No |
| Base flow | 8/13/2002 | 11.5 | 1.86E-01 | 72.91% | 11.54 | 11.54 | 14.05 | Yes |
| Base flow | 2/14/1995 | 1.5 | 1.93E-01 | 71.55% | 1.56 | 1.56 | 14.58 | Yes |
| Base flow | 7/9/1991 | 13 | 1.95E-01 | 71.37% | 13.64 | 13.64 | 14.69 | Yes |
| Base flow | 9/1/1992 | 16 | 2.01E-01 | 70.30% | 17.33 | 17.33 | 15.16 | No |
| Base flow | 8/9/1994 | 10.5 | 2.01E-01 | 70.30% | 11.37 | 11.37 | 15.16 | Yes |
| Base flow | 8/16/2004 | 13.3 | 2.08E-01 | 68.98% | 14.94 | 14.94 | 15.73 | Yes |
| Base flow | 7/27/2004 | 17 | 2.11E-01 | 68.72% | 19.30 | 19.30 | 15.89 | No |
| Base flow | 2/13/1996 | 2 | 2.15E-01 | 68.00% | 2.32 | 2.32 | 16.22 | Yes |
| Base flow | 5/11/1999 | 11 | 2.15E-01 | 68.00% | 12.74 | 12.74 | 16.22 | Yes |
| Base flow | 8/1/2000 | 13 | 2.17E-01 | 67.53% | 15.21 | 15.21 | 16.38 | Yes |
| Base flow | 3/16/2004 | 6.2 | 2.17E-01 | 67.53% | 7.26 | 7.26 | 16.38 | Yes |
| Base flow | 12/17/2002 | 3.3 | 2.33E-01 | 65.40% | 4.14 | 4.14 | 17.56 | Yes |
| Base flow | 7/6/1993 | 13 | 2.35E-01 | 65.09% | 16.45 | 16.45 | 17.72 | Yes |
| Base flow | 12/30/1997 | 1.5 | 2.39E-01 | 64.59% | 1.93 | 1.93 | 18.02 | Yes |
| Base flow | 3/21/2000 | 7 | 2.39E-01 | 64.59% | 9.01 | 9.01 | 18.02 | Yes |
| Base flow | 4/17/2001 | 8 | 2.39E-01 | 64.59% | 10.30 | 10.30 | 18.02 | Yes |
| Base flow | 9/22/1992 | 153 | 2.58E-01 | 62.07% | 212.82 | 212.82 | 19.47 | No |
| Base flow | 1/19/1999 | 6 | 2.60E-01 | 61.59% | 8.43 | 8.43 | 19.66 | Yes |
| Base flow | 12/18/2000 | 2 | 2.60E-01 | 61.59% | 2.81 | 2.81 | 19.66 | Yes |
| Base flow | 5/22/2001 | 18 | 2.60E-01 | 61.59% | 25.28 | 25.28 | 19.66 | No |

| | |
|---|---|
| Total number of values = | 75 |
| Allowable % of exceedances = | 25% |
| Allowable no. of exceedances = | 19 |
| No. of exceedances before reductions = | 14 |
| No. of exceedances after reductions = | 14 |

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Table F.10. Base flow percent reductions
WHI0024

TABLE F.11. CALCULATIONS FOR PERCENT REDUCTION FOR STORM-FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION WHI0143h)

Storm-flow target TSS conc. = 22 mg/L
Percent reduction needed = 0%

Error check for reduction is / is not needed: ok
Error check for less or more reduction needed: ok

| Category | Date | Observed TSS at WHI0143h (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Storm-flow | 1/22/2002 | 1.3 | 3.40E-01 | 53.2% | 2.4 | 2.4 | 40.4 | Yes |
| Storm-flow | 6/18/2003 | 2.5 | 3.62E-01 | 51.3% | 4.9 | 4.9 | 42.9 | Yes |
| Storm-flow | 6/17/2002 | 1 | 3.85E-01 | 49.3% | 2.1 | 2.1 | 45.7 | Yes |
| Storm-flow | 3/19/2001 | <1 | 3.91E-01 | 48.8% | 2.1 | 2.1 | 46.3 | Yes |
| Storm-flow | 3/19/2003 | 1 | 4.90E-01 | 42.1% | 2.6 | 2.6 | 58.2 | Yes |
| Storm-flow | 4/29/2002 | 4.25 | 8.14E-01 | 28.5% | 18.7 | 18.7 | 96.6 | Yes |
| Storm-flow | 2/24/2003 | 16 | 2.68E+00 | 6.7% | 231.7 | 231.7 | 318.6 | Yes |
| Storm-flow | 4/8/2002 | 68 | 3.11E+00 | 5.5% | 1139.7 | 1139.7 | 368.7 | No |
| Storm-flow | 3/12/2002 | 13 | 8.08E+00 | 1.7% | 566.2 | 566.2 | 958.2 | Yes |
| Storm-flow | 1/24/2002 | 49 | 1.06E+01 | 1.2% | 2810.1 | 2810.1 | 1261.7 | No |

Total number of values = 10
Allowable % of exceedances = 20%
Allowable no. of exceedances = 2
No. of exceedances before reductions = 2
No. of exceedances after reductions = 2

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TABLE F.12. CALCULATIONS FOR PERCENT REDUCTION FOR BASE FLOW CONDITIONS
FOR STRAWBERRY RIVER (STATION WHI143h)

Base flow target TSS conc. = 14 mg/L
Percent reduction needed = 0%

Error check for reduction is / is not needed: ok
Error check for less or more reduction needed: ok

| Category | Date | Observed TSS at WHI0143h (mg/L) | Flow per unit area on sampling day (cfs/mi2) | Percent exceedance for flow on sampling day | Current TSS load (lbs/day)/mi2 | Reduced TSS load (lbs/day)/mi2 | Allowable TSS load (lbs/day)/mi2 | Reduced load less than or equal to allow. load? |
|---|---|---|---|---|---|---|---|---|
| Base flow | 8/27/2001 | 4.7 | 4.99E-02 | 99.7% | 1.27 | 1.27 | 3.77 | Yes |
| Base flow | 12/3/2002 | 2.5 | 1.31E-01 | 86.4% | 1.77 | 1.77 | 9.90 | Yes |
| Base flow | 5/1/2001 | 3.8 | 1.61E-01 | 78.8% | 3.29 | 3.29 | 12.12 | Yes |
| Base flow | 6/19/2001 | 5.5 | 1.63E-01 | 78.3% | 4.83 | 4.83 | 12.29 | Yes |
| Base flow | 11/6/2001 | 2 | 1.67E-01 | 77.0% | 1.80 | 1.80 | 12.61 | Yes |
| Base flow | 8/26/2002 | 3.2 | 1.71E-01 | 76.0% | 2.96 | 2.96 | 12.93 | Yes |

| | |
|---|---|
| Total number of values = | 6 |
| Allowable % of exceedances = | 25% |
| Allowable no. of exceedances = | 2 |
| No. of exceedances before reductions = | 0 |
| No. of exceedances after reductions = | 0 |

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