# Appendix for Model 03110102

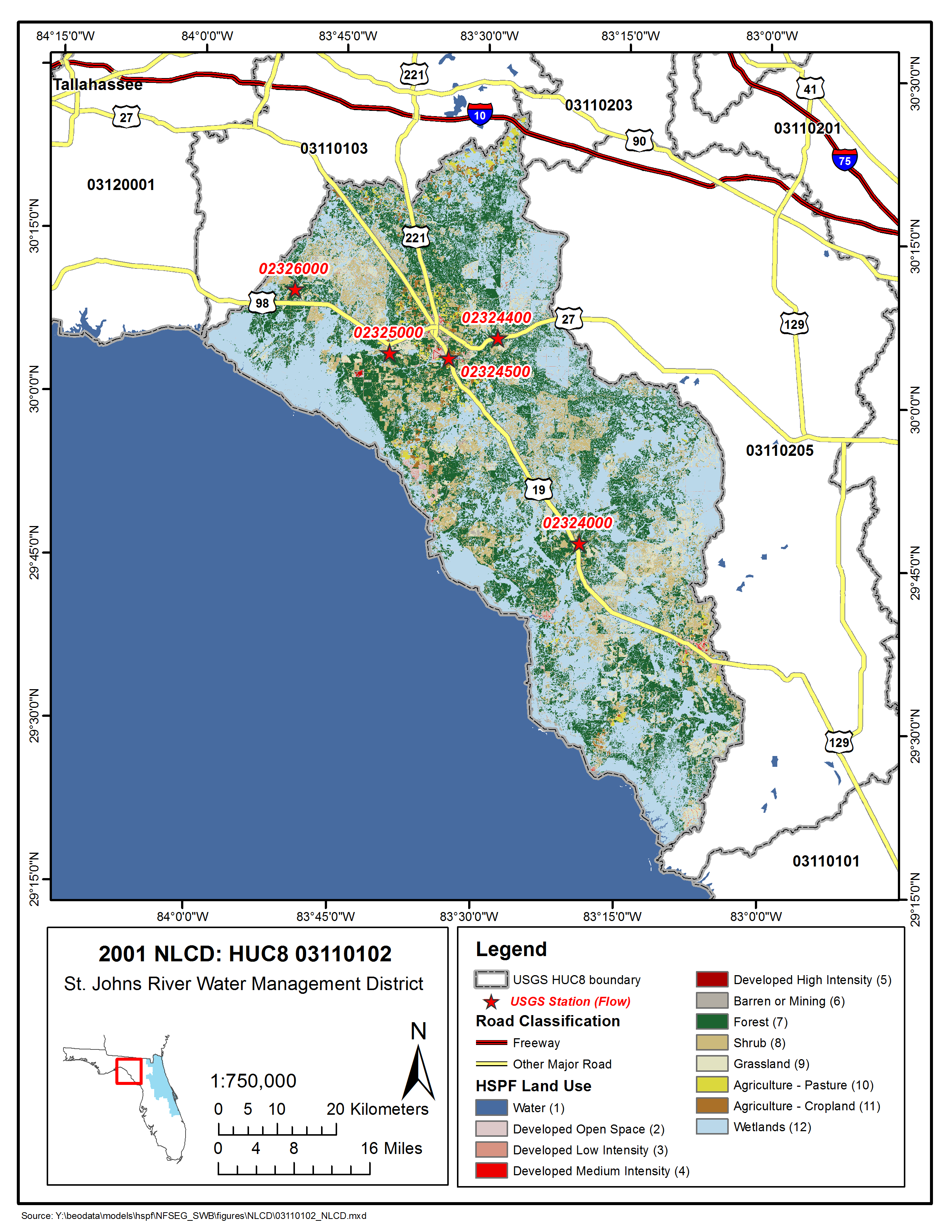


Figure 03110102-1: Land Cover from the National Land Cover Database.

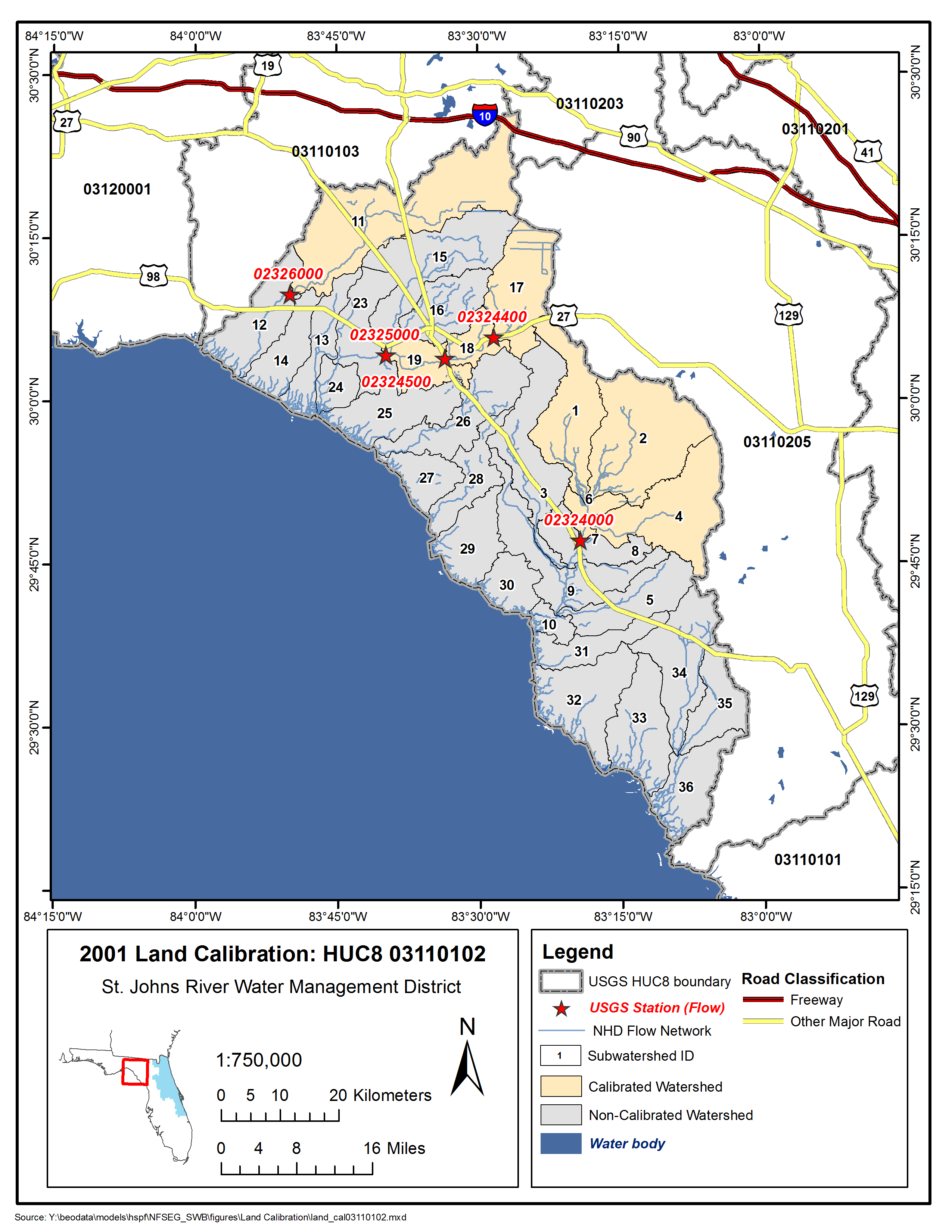


Figure 03110102-2: Calibrated sub-watersheds.

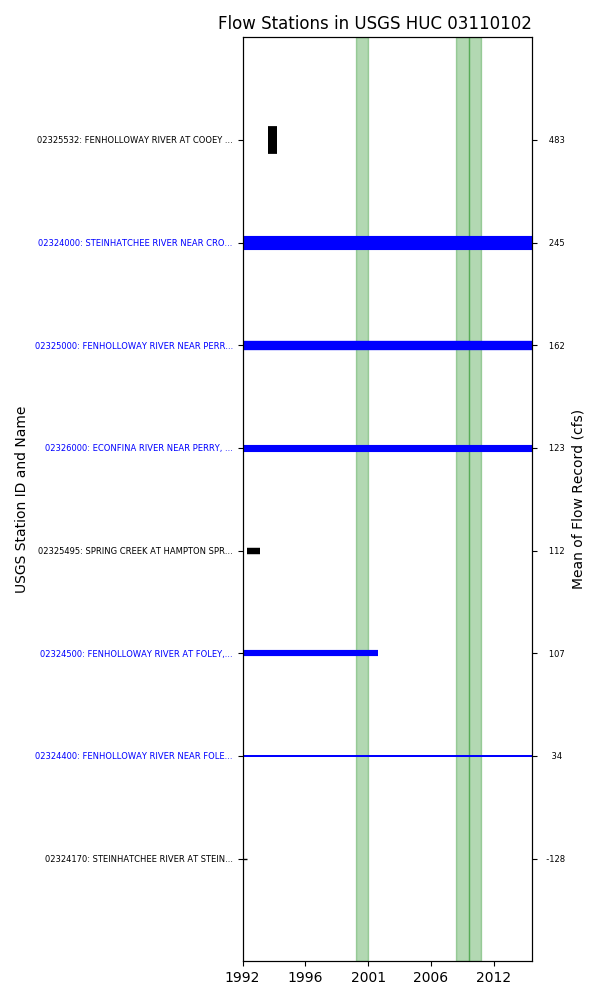


Figure 03110102-3: Station period of record. Blue color identifies gauges used for calibration.

## HSPF Reach 07, USGS Gauge 02324000

Table 03110102-1: Comparison Statistics Between HSPF Reach 07 and USGS Gauge 02324000.

|  |  |
| --- | --- |
| Statistic | Value |
| Bias | -33.52 |
| Standard error | 207.78 |
| Relative bias | -0.14 |
| Relative standard error | 0.54 |
| Nash-Sutcliffe coefficient | 0.71 |
| Coefficient of efficiency | 0.56 |
| Index of agreement | 0.75 |

Table 03110102-2: Hydrologic Indices Between USGS Gauge 02324000 and HSPF Reach 07.

|  |  |  |  |
| --- | --- | --- | --- |
| Hydrologic Index and description (Olden and Poff, 2003) | Observed 02324000 | Simulated Reach 07 | Percent Difference |
| MA1: Mean, all daily flows | 245.40 | 211.94 | -13.63 |
| MA2: Median, all daily flows | 58.00 | 91.45 | 57.67 |
| MA3: CV, all daily flows | 144.36 | 106.38 | -26.31 |
| MA4: CV, log of all daily flows | 153.04 | 122.75 | -19.79 |
| MA5: Mean daily flow / median daily flow | 4.23 | 2.32 | -45.22 |
| MA9: (Q10 - Q90) / median daily flow | 12.27 | 6.28 | -48.80 |
| MA10: (Q20 - Q80) / median daily flow | 6.09 | 3.06 | -49.76 |
| MA11: (Q25 - Q75) / median daily flow | 4.16 | 2.03 | -51.26 |
| MA12: Mean monthly flow, January | 199.80 | 209.88 | 5.05 |
| MA13: Mean monthly flow, February | 331.51 | 286.53 | -13.57 |
| MA14: Mean monthly flow, March | 386.78 | 306.08 | -20.86 |
| MA15: Mean monthly flow, April | 181.40 | 180.94 | -0.25 |
| MA16: Mean monthly flow, May | 92.81 | 85.28 | -8.12 |
| MA17: Mean monthly flow, June | 113.72 | 89.36 | -21.41 |
| MA18: Mean monthly flow, July | 340.83 | 228.92 | -32.83 |
| MA19: Mean monthly flow, August | 466.41 | 366.03 | -21.52 |
| MA20: Mean monthly flow, September | 307.68 | 237.45 | -22.82 |
| MA21: Mean monthly flow, October | 240.31 | 218.89 | -8.91 |
| MA22: Mean monthly flow, November | 74.45 | 89.40 | 20.09 |
| MA23: Mean monthly flow, December | 92.18 | 142.29 | 54.36 |
| ML1: Mean minimum monthly flow, January | 76.06 | 84.52 | 11.12 |
| ML2: Mean minimum monthly flow, February | 154.48 | 156.03 | 1.00 |
| ML3: Mean minimum monthly flow, March | 167.88 | 143.81 | -14.34 |
| ML4: Mean minimum monthly flow, April | 64.75 | 72.28 | 11.63 |
| ML5: Mean minimum monthly flow, May | 29.91 | 39.61 | 32.42 |
| ML6: Mean minimum monthly flow, June | 32.10 | 32.85 | 2.31 |
| ML7: Mean minimum monthly flow, July | 101.65 | 106.48 | 4.75 |
| ML8: Mean minimum monthly flow, August | 212.77 | 189.75 | -10.82 |
| ML9: Mean minimum monthly flow, September | 110.29 | 101.61 | -7.87 |
| ML10: Mean minimum monthly flow, October | 70.70 | 82.60 | 16.83 |
| ML11: Mean minimum monthly flow, November | 37.87 | 47.60 | 25.71 |
| ML12: Mean minimum monthly flow, December | 44.04 | 57.24 | 29.97 |
| ML13: CV of minimum monthly flows | 179.72 | 135.33 | -24.70 |
| ML14: Mean minimum daily flow / mean median annual flow | 0.16 | 0.13 | -14.92 |
| ML15: Mean minimum annual flow / mean annual flow | 0.05 | 0.08 | 50.22 |
| ML16: Median minimum annual flow / median annual flow | 0.13 | 0.10 | -23.33 |
| ML20: Ratio of baseflow volume to total flow volume | 0.55 | 0.61 | 10.63 |
| ML22: Mean annual minimum flow divided by catchment area | 0.09 | 0.15 | 76.46 |
| RA1: Mean of positive changes from one day to next (rise rate) | 59.75 | 32.30 |  |
| RA2: CV, mean of positive changes from one day to next (rise rate) | 245.09 | 273.25 |  |
| RA3: Mean of negative changes from one day to next (fall rate) | 24.04 | 14.28 |  |
| RA4: CV, mean of negative changes from one day to next (fall rate) | 219.55 | 167.02 |  |
| RA5: Ratio of days that are higher than previous day | 0.26 | 0.31 |  |
| RA6: Median of difference in log of flows over two consecutive days of rising | 0.11 | 0.08 |  |
| RA7: Median of difference in log of flows over two consecutive days of falling | 0.08 | 0.06 |  |
| RA8: Number of flow reversals from one day to the next | 69.96 | 63.38 |  |
| RA9: CV, number of flow reversals from one day to the next | 20.36 | 18.78 |  |

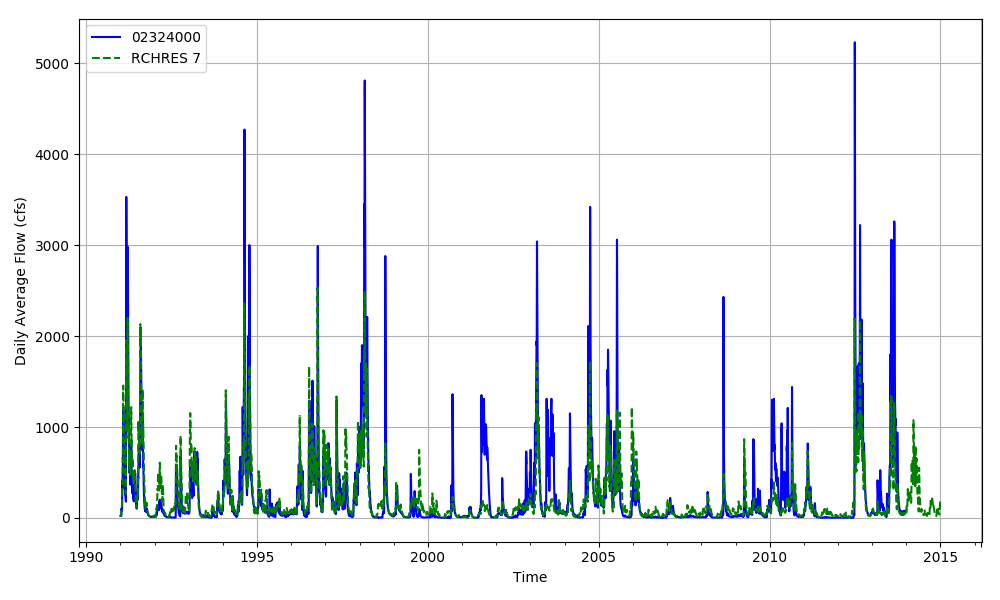


Figure 03110102-4: Daily flow for HSFP reach 07 and USGS station 02324000.

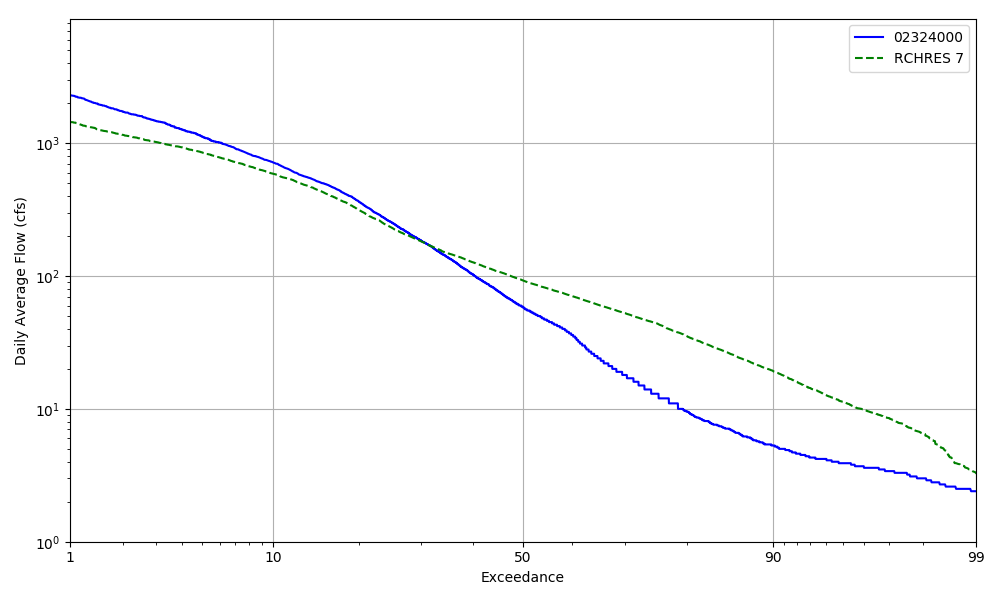


Figure 03110102-5: Daily exceedance for HSFP reach 07 and USGS station 02324000.

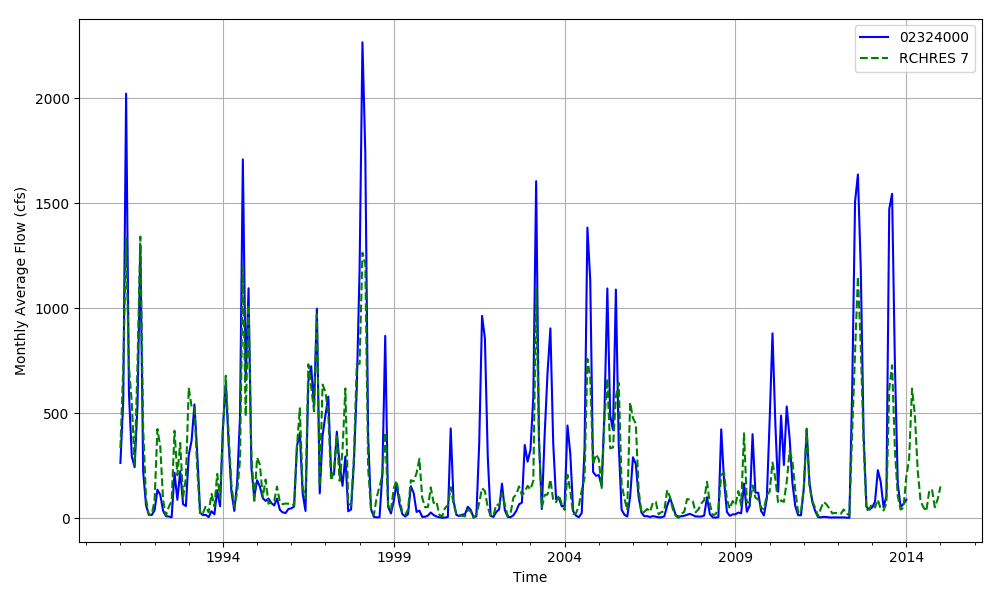


Figure 03110102-6: Monthly flow for HSFP reach 07 and USGS station 02324000.

## HSPF Reach 11, USGS Gauge 02326000

Table 03110102-3: Comparison Statistics Between HSPF Reach 11 and USGS Gauge 02326000.

|  |  |
| --- | --- |
| Statistic | Value |
| Bias | 0.76 |
| Standard error | 81.26 |
| Relative bias | 0.01 |
| Relative standard error | 0.49 |
| Nash-Sutcliffe coefficient | 0.76 |
| Coefficient of efficiency | 0.55 |
| Index of agreement | 0.76 |

Table 03110102-4: Hydrologic Indices Between USGS Gauge 02326000 and HSPF Reach 11.

|  |  |  |  |
| --- | --- | --- | --- |
| Hydrologic Index and description (Olden and Poff, 2003) | Observed 02326000 | Simulated Reach 11 | Percent Difference |
| MA1: Mean, all daily flows | 130.33 | 131.49 | 0.89 |
| MA2: Median, all daily flows | 50.00 | 70.31 | 40.61 |
| MA3: CV, all daily flows | 106.44 | 98.26 | -7.68 |
| MA4: CV, log of all daily flows | 122.55 | 105.72 | -13.73 |
| MA5: Mean daily flow / median daily flow | 2.61 | 1.87 | -28.25 |
| MA9: (Q10 - Q90) / median daily flow | 6.55 | 4.37 | -33.36 |
| MA10: (Q20 - Q80) / median daily flow | 3.64 | 2.25 | -38.10 |
| MA11: (Q25 - Q75) / median daily flow | 2.70 | 1.56 | -42.33 |
| MA12: Mean monthly flow, January | 94.04 | 151.59 | 61.20 |
| MA13: Mean monthly flow, February | 162.13 | 195.74 | 20.73 |
| MA14: Mean monthly flow, March | 227.33 | 259.17 | 14.01 |
| MA15: Mean monthly flow, April | 158.37 | 136.33 | -13.91 |
| MA16: Mean monthly flow, May | 79.66 | 57.06 | -28.38 |
| MA17: Mean monthly flow, June | 66.13 | 69.96 | 5.78 |
| MA18: Mean monthly flow, July | 135.21 | 114.14 | -15.58 |
| MA19: Mean monthly flow, August | 170.78 | 154.37 | -9.61 |
| MA20: Mean monthly flow, September | 127.80 | 101.70 | -20.42 |
| MA21: Mean monthly flow, October | 130.94 | 117.85 | -10.00 |
| MA22: Mean monthly flow, November | 68.86 | 60.30 | -12.42 |
| MA23: Mean monthly flow, December | 59.44 | 76.65 | 28.95 |
| ML1: Mean minimum monthly flow, January | 52.67 | 62.68 | 19.01 |
| ML2: Mean minimum monthly flow, February | 97.42 | 110.03 | 12.94 |
| ML3: Mean minimum monthly flow, March | 120.85 | 122.55 | 1.41 |
| ML4: Mean minimum monthly flow, April | 75.60 | 59.92 | -20.74 |
| ML5: Mean minimum monthly flow, May | 46.13 | 25.96 | -43.74 |
| ML6: Mean minimum monthly flow, June | 29.25 | 26.74 | -8.59 |
| ML7: Mean minimum monthly flow, July | 63.75 | 66.39 | 4.14 |
| ML8: Mean minimum monthly flow, August | 82.80 | 84.23 | 1.72 |
| ML9: Mean minimum monthly flow, September | 57.81 | 59.24 | 2.47 |
| ML10: Mean minimum monthly flow, October | 57.66 | 44.50 | -22.83 |
| ML11: Mean minimum monthly flow, November | 44.80 | 35.41 | -20.95 |
| ML12: Mean minimum monthly flow, December | 41.83 | 37.99 | -9.17 |
| ML13: CV of minimum monthly flows | 123.72 | 119.78 | -3.18 |
| ML14: Mean minimum daily flow / mean median annual flow | 0.21 | 0.11 | -48.05 |
| ML15: Mean minimum annual flow / mean annual flow | 0.13 | 0.07 | -43.23 |
| ML16: Median minimum annual flow / median annual flow | 0.18 | 0.07 | -63.68 |
| ML20: Ratio of baseflow volume to total flow volume | 0.64 | 0.63 | -0.93 |
| ML22: Mean annual minimum flow divided by catchment area | 4347.97 | 4347.93 | -0.00 |
| RA1: Mean of positive changes from one day to next (rise rate) | 18.12 | 18.73 |  |
| RA2: CV, mean of positive changes from one day to next (rise rate) | 247.75 | 317.28 |  |
| RA3: Mean of negative changes from one day to next (fall rate) | 8.13 | 8.54 |  |
| RA4: CV, mean of negative changes from one day to next (fall rate) | 161.28 | 204.36 |  |
| RA5: Ratio of days that are higher than previous day | 0.25 | 0.31 |  |
| RA6: Median of difference in log of flows over two consecutive days of rising | 0.07 | 0.07 |  |
| RA7: Median of difference in log of flows over two consecutive days of falling | 0.05 | 0.06 |  |
| RA8: Number of flow reversals from one day to the next | 48.22 | 58.61 |  |
| RA9: CV, number of flow reversals from one day to the next | 30.01 | 25.63 |  |

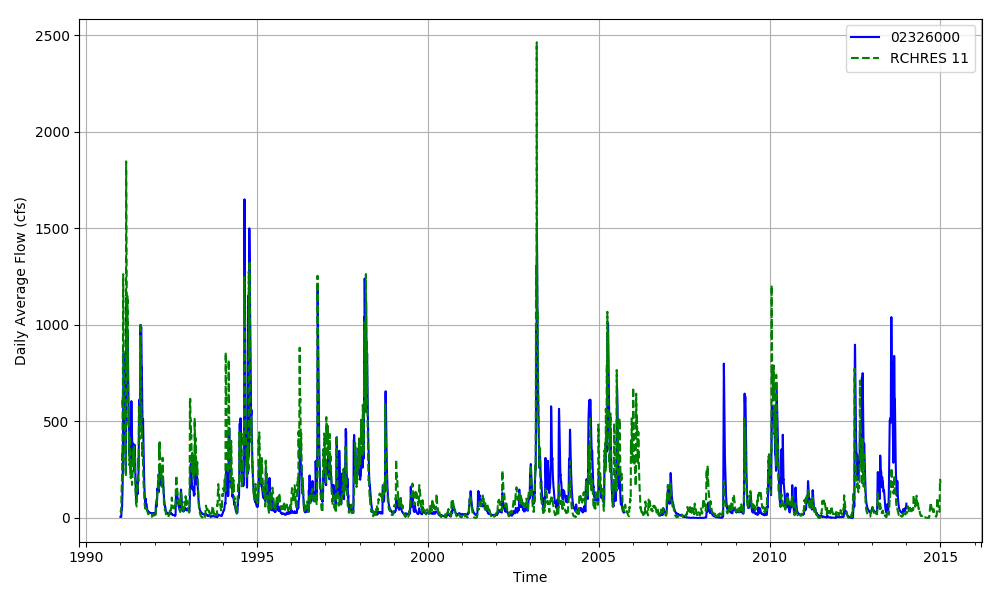


Figure 03110102-7: Daily flow for HSFP reach 11 and USGS station 02326000.

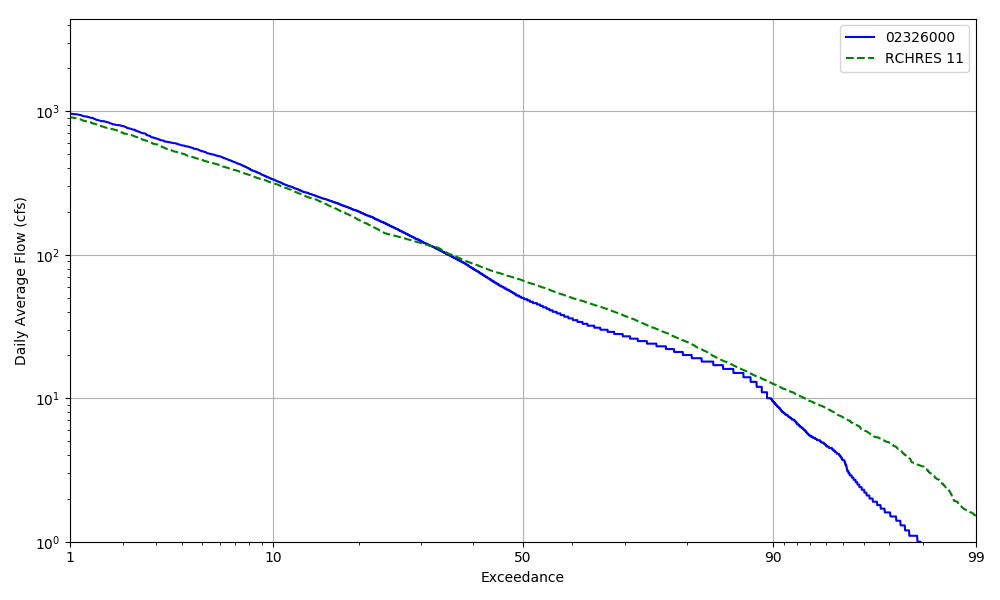


Figure 03110102-8: Daily exceedance for HSFP reach 11 and USGS station 02326000.

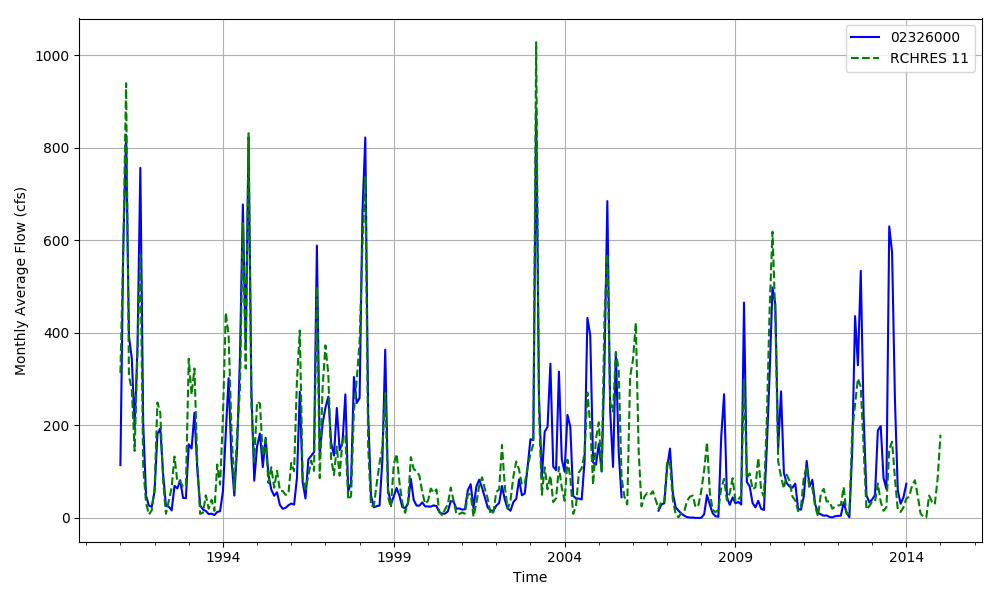


Figure 03110102-9: Monthly flow for HSFP reach 11 and USGS station 02326000.

## HSPF Reach 18, USGS Gauge 02324400

Table 03110102-5: Comparison Statistics Between HSPF Reach 18 and USGS Gauge 02324400.

|  |  |
| --- | --- |
| Statistic | Value |
| Bias | 29.07 |
| Standard error | 59.31 |
| Relative bias | 0.82 |
| Relative standard error | 0.98 |
| Nash-Sutcliffe coefficient | 0.05 |
| Coefficient of efficiency | -0.01 |
| Index of agreement | 0.56 |

Table 03110102-6: Hydrologic Indices Between USGS Gauge 02324400 and HSPF Reach 18.

|  |  |  |  |
| --- | --- | --- | --- |
| Hydrologic Index and description (Olden and Poff, 2003) | Observed 02324400 | Simulated Reach 18 | Percent Difference |
| MA1: Mean, all daily flows | 35.33 | 64.56 | 82.74 |
| MA2: Median, all daily flows | 7.10 | 31.05 | 337.37 |
| MA3: CV, all daily flows | 138.17 | 102.26 | -25.99 |
| MA4: CV, log of all daily flows | 153.94 | 114.77 | -25.44 |
| MA5: Mean daily flow / median daily flow | 4.98 | 2.08 | -58.22 |
| MA9: (Q10 - Q90) / median daily flow | 13.57 | 5.26 | -61.27 |
| MA10: (Q20 - Q80) / median daily flow | 6.76 | 2.77 | -59.05 |
| MA11: (Q25 - Q75) / median daily flow | 5.04 | 1.93 | -61.78 |
| MA12: Mean monthly flow, January | 27.31 | 70.36 | 157.66 |
| MA13: Mean monthly flow, February | 47.00 | 93.34 | 98.60 |
| MA14: Mean monthly flow, March | 71.69 | 111.89 | 56.08 |
| MA15: Mean monthly flow, April | 36.06 | 59.35 | 64.59 |
| MA16: Mean monthly flow, May | 16.92 | 25.97 | 53.48 |
| MA17: Mean monthly flow, June | 19.47 | 33.43 | 71.75 |
| MA18: Mean monthly flow, July | 38.18 | 59.57 | 56.04 |
| MA19: Mean monthly flow, August | 58.46 | 94.89 | 62.30 |
| MA20: Mean monthly flow, September | 39.53 | 58.19 | 47.21 |
| MA21: Mean monthly flow, October | 31.12 | 63.45 | 103.92 |
| MA22: Mean monthly flow, November | 11.21 | 29.51 | 163.19 |
| MA23: Mean monthly flow, December | 11.03 | 43.52 | 294.71 |
| ML1: Mean minimum monthly flow, January | 8.88 | 27.25 | 206.97 |
| ML2: Mean minimum monthly flow, February | 21.77 | 50.33 | 131.14 |
| ML3: Mean minimum monthly flow, March | 29.29 | 51.17 | 74.73 |
| ML4: Mean minimum monthly flow, April | 15.73 | 24.78 | 57.51 |
| ML5: Mean minimum monthly flow, May | 6.31 | 12.20 | 93.41 |
| ML6: Mean minimum monthly flow, June | 4.64 | 11.59 | 149.76 |
| ML7: Mean minimum monthly flow, July | 13.18 | 31.46 | 138.73 |
| ML8: Mean minimum monthly flow, August | 22.18 | 50.22 | 126.44 |
| ML9: Mean minimum monthly flow, September | 11.78 | 31.89 | 170.72 |
| ML10: Mean minimum monthly flow, October | 8.64 | 23.30 | 169.65 |
| ML11: Mean minimum monthly flow, November | 6.55 | 16.16 | 146.87 |
| ML12: Mean minimum monthly flow, December | 5.27 | 18.02 | 242.09 |
| ML13: CV of minimum monthly flows | 188.35 | 131.33 | -30.27 |
| ML14: Mean minimum daily flow / mean median annual flow | 0.22 | 0.10 | -52.00 |
| ML15: Mean minimum annual flow / mean annual flow | 0.07 | 0.07 | 4.50 |
| ML16: Median minimum annual flow / median annual flow | 0.13 | 0.07 | -42.91 |
| ML20: Ratio of baseflow volume to total flow volume | 0.54 | 0.60 | 10.06 |
| ML22: Mean annual minimum flow divided by catchment area | 0.01 | 0.05 | 311.73 |
| RA1: Mean of positive changes from one day to next (rise rate) | 10.32 | 11.24 |  |
| RA2: CV, mean of positive changes from one day to next (rise rate) | 320.10 | 268.95 |  |
| RA3: Mean of negative changes from one day to next (fall rate) | 3.62 | 4.22 |  |
| RA4: CV, mean of negative changes from one day to next (fall rate) | 242.32 | 171.99 |  |
| RA5: Ratio of days that are higher than previous day | 0.22 | 0.27 |  |
| RA6: Median of difference in log of flows over two consecutive days of rising | 0.11 | 0.10 |  |
| RA7: Median of difference in log of flows over two consecutive days of falling | 0.08 | 0.06 |  |
| RA8: Number of flow reversals from one day to the next | 68.33 | 68.42 |  |
| RA9: CV, number of flow reversals from one day to the next | 25.49 | 22.28 |  |

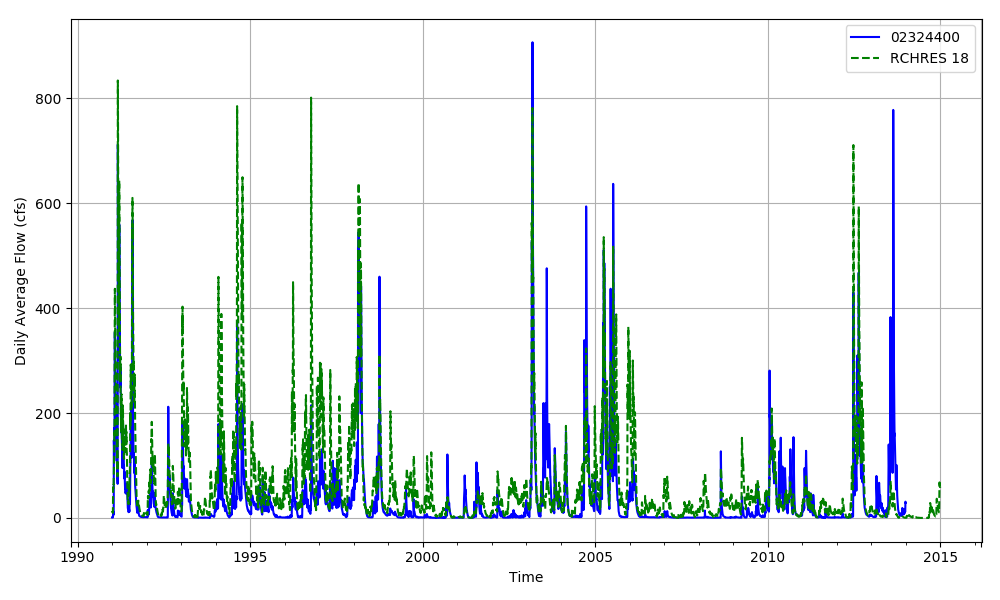


Figure 03110102-10: Daily flow for HSFP reach 18 and USGS station 02324400.

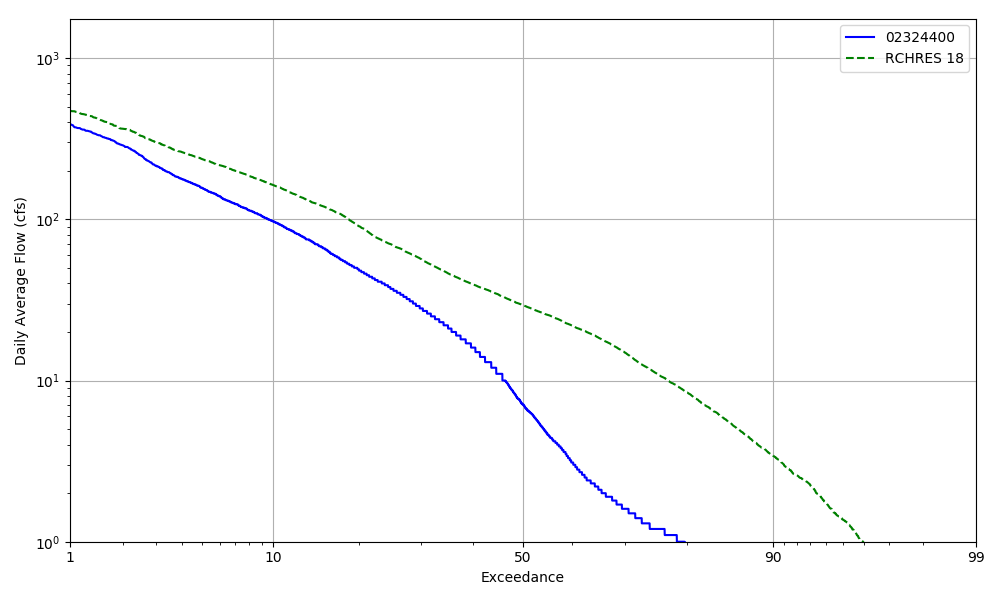


Figure 03110102-11: Daily exceedance for HSFP reach 18 and USGS station 02324400.

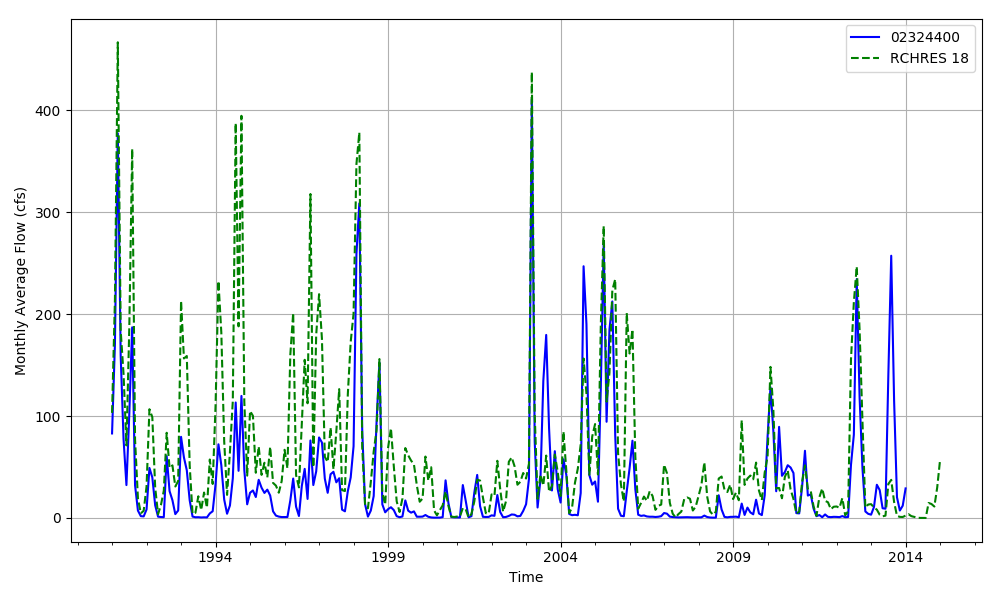


Figure 03110102-12: Monthly flow for HSFP reach 18 and USGS station 02324400.

## HSPF Reach 19, USGS Gauge 02324500

Table 03110102-7: Comparison Statistics Between HSPF Reach 19 and USGS Gauge 02324500.

|  |  |
| --- | --- |
| Statistic | Value |
| Bias | -8.41 |
| Standard error | 63.71 |
| Relative bias | -0.07 |
| Relative standard error | 0.79 |
| Nash-Sutcliffe coefficient | 0.38 |
| Coefficient of efficiency | 0.06 |
| Index of agreement | 0.65 |

Table 03110102-8: Hydrologic Indices Between USGS Gauge 02324500 and HSPF Reach 19.

|  |  |  |  |
| --- | --- | --- | --- |
| Hydrologic Index and description (Olden and Poff, 2003) | Observed 02324500 | Simulated Reach 19 | Percent Difference |
| MA1: Mean, all daily flows | 117.48 | 108.38 | -7.75 |
| MA2: Median, all daily flows | 83.00 | 61.44 | -25.98 |
| MA3: CV, all daily flows | 50.67 | 95.92 | 89.29 |
| MA4: CV, log of all daily flows | 49.23 | 100.00 | 103.12 |
| MA5: Mean daily flow / median daily flow | 1.42 | 1.76 | 24.63 |
| MA9: (Q10 - Q90) / median daily flow | 1.58 | 4.14 | 162.39 |
| MA10: (Q20 - Q80) / median daily flow | 0.88 | 2.36 | 168.65 |
| MA11: (Q25 - Q75) / median daily flow | 0.61 | 1.79 | 191.94 |
| MA12: Mean monthly flow, January | 112.81 | 128.44 | 13.85 |
| MA13: Mean monthly flow, February | 153.59 | 168.41 | 9.65 |
| MA14: Mean monthly flow, March | 181.96 | 185.06 | 1.70 |
| MA15: Mean monthly flow, April | 122.28 | 97.83 | -20.00 |
| MA16: Mean monthly flow, May | 94.31 | 46.26 | -50.95 |
| MA17: Mean monthly flow, June | 85.08 | 44.66 | -47.52 |
| MA18: Mean monthly flow, July | 103.76 | 96.05 | -7.42 |
| MA19: Mean monthly flow, August | 136.42 | 172.20 | 26.22 |
| MA20: Mean monthly flow, September | 102.22 | 97.52 | -4.60 |
| MA21: Mean monthly flow, October | 114.05 | 126.56 | 10.98 |
| MA22: Mean monthly flow, November | 76.60 | 42.83 | -44.08 |
| MA23: Mean monthly flow, December | 83.82 | 63.01 | -24.82 |
| ML1: Mean minimum monthly flow, January | 76.50 | 48.11 | -37.11 |
| ML2: Mean minimum monthly flow, February | 103.08 | 93.11 | -9.67 |
| ML3: Mean minimum monthly flow, March | 114.17 | 76.86 | -32.68 |
| ML4: Mean minimum monthly flow, April | 89.17 | 41.56 | -53.39 |
| ML5: Mean minimum monthly flow, May | 74.50 | 24.20 | -67.51 |
| ML6: Mean minimum monthly flow, June | 71.25 | 20.53 | -71.19 |
| ML7: Mean minimum monthly flow, July | 71.08 | 50.90 | -28.40 |
| ML8: Mean minimum monthly flow, August | 92.17 | 87.06 | -5.54 |
| ML9: Mean minimum monthly flow, September | 68.67 | 57.43 | -16.36 |
| ML10: Mean minimum monthly flow, October | 78.91 | 46.27 | -41.37 |
| ML11: Mean minimum monthly flow, November | 77.30 | 24.67 | -68.09 |
| ML12: Mean minimum monthly flow, December | 78.00 | 41.29 | -47.06 |
| ML13: CV of minimum monthly flows | 48.22 | 111.75 | 131.74 |
| ML14: Mean minimum daily flow / mean median annual flow | 0.55 | 0.10 | -81.88 |
| ML15: Mean minimum annual flow / mean annual flow | 0.48 | 0.07 | -85.53 |
| ML16: Median minimum annual flow / median annual flow | 0.55 | 0.06 | -88.50 |
| ML20: Ratio of baseflow volume to total flow volume | 0.83 | 0.63 | -23.97 |
| ML22: Mean annual minimum flow divided by catchment area | 0.52 | 0.09 | -83.12 |
| RA1: Mean of positive changes from one day to next (rise rate) | 9.24 | 16.20 |  |
| RA2: CV, mean of positive changes from one day to next (rise rate) | 222.09 | 249.50 |  |
| RA3: Mean of negative changes from one day to next (fall rate) | 6.26 | 6.66 |  |
| RA4: CV, mean of negative changes from one day to next (fall rate) | 132.11 | 148.00 |  |
| RA5: Ratio of days that are higher than previous day | 0.36 | 0.29 |  |
| RA6: Median of difference in log of flows over two consecutive days of rising | 0.04 | 0.09 |  |
| RA7: Median of difference in log of flows over two consecutive days of falling | 0.03 | 0.06 |  |
| RA8: Number of flow reversals from one day to the next | 126.83 | 65.08 |  |
| RA9: CV, number of flow reversals from one day to the next | 26.65 | 11.17 |  |

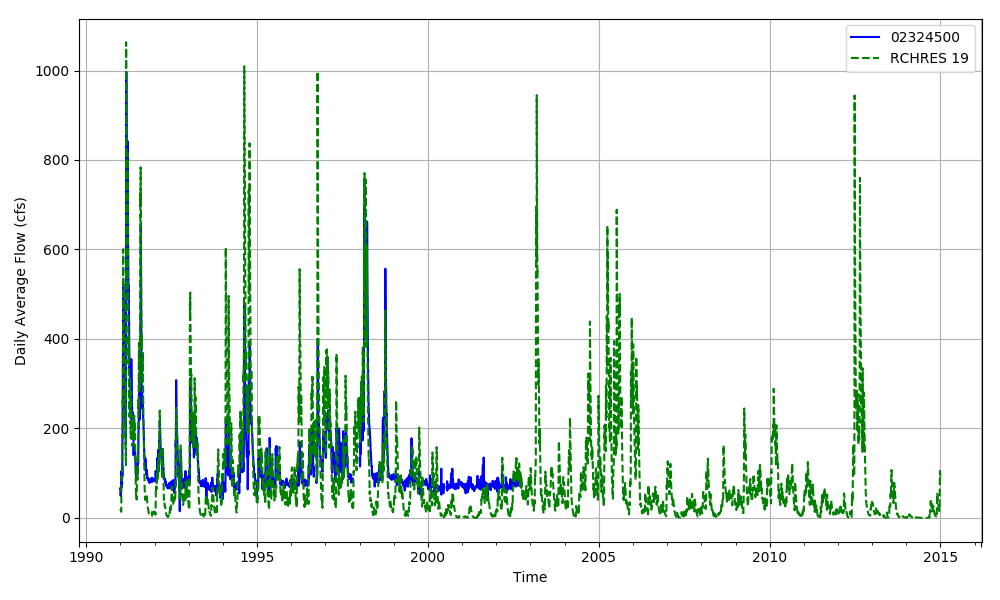


Figure 03110102-13: Daily flow for HSFP reach 19 and USGS station 02324500.

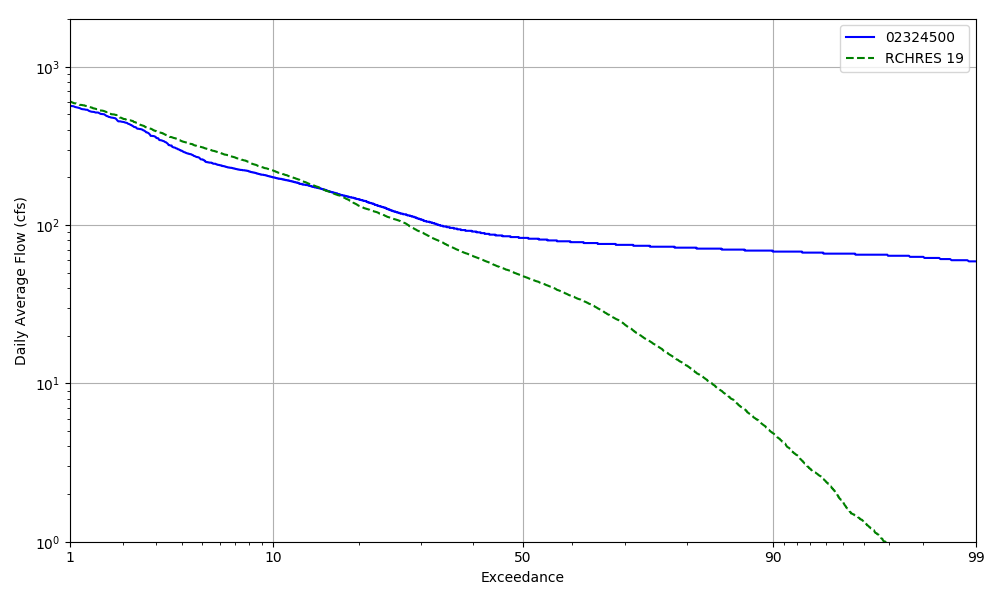


Figure 03110102-14: Daily exceedance for HSFP reach 19 and USGS station 02324500.

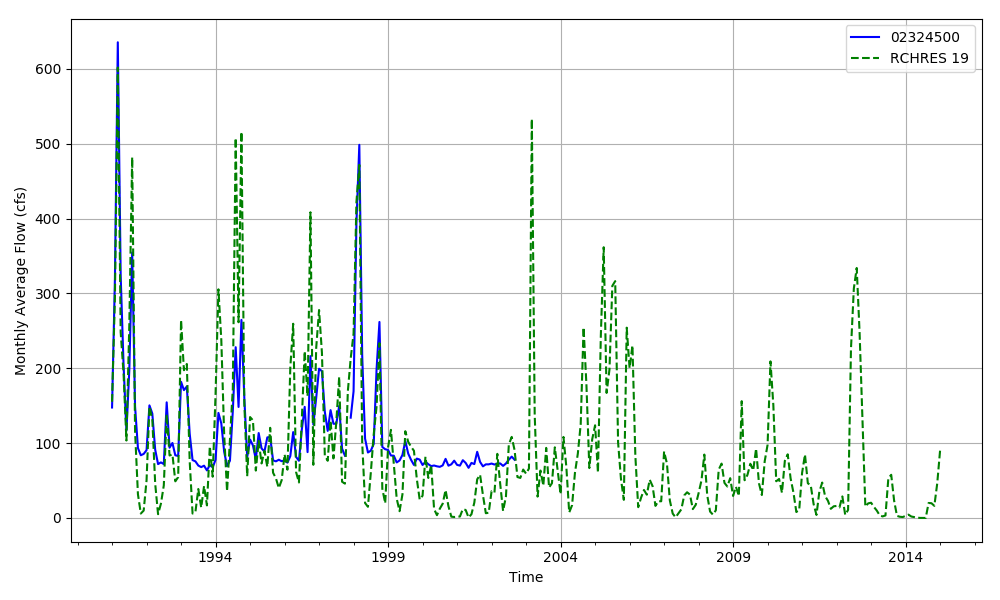


Figure 03110102-15: Monthly flow for HSFP reach 19 and USGS station 02324500.

## HSPF Reach 20, USGS Gauge 02325000

Table 03110102-9: Comparison Statistics Between HSPF Reach 20 and USGS Gauge 02325000.

|  |  |
| --- | --- |
| Statistic | Value |
| Bias | -49.71 |
| Standard error | 85.51 |
| Relative bias | -0.30 |
| Relative standard error | 0.82 |
| Nash-Sutcliffe coefficient | 0.33 |
| Coefficient of efficiency | 0.09 |
| Index of agreement | 0.63 |

Table 03110102-10: Hydrologic Indices Between USGS Gauge 02325000 and HSPF Reach 20.

|  |  |  |  |
| --- | --- | --- | --- |
| Hydrologic Index and description (Olden and Poff, 2003) | Observed 02325000 | Simulated Reach 20 | Percent Difference |
| MA1: Mean, all daily flows | 164.99 | 115.70 | -29.87 |
| MA2: Median, all daily flows | 124.00 | 70.74 | -42.95 |
| MA3: CV, all daily flows | 49.09 | 89.45 | 82.23 |
| MA4: CV, log of all daily flows | 55.25 | 94.92 | 71.81 |
| MA5: Mean daily flow / median daily flow | 1.33 | 1.64 | 22.93 |
| MA9: (Q10 - Q90) / median daily flow | 1.83 | 3.70 | 101.92 |
| MA10: (Q20 - Q80) / median daily flow | 0.97 | 2.18 | 125.13 |
| MA11: (Q25 - Q75) / median daily flow | 0.73 | 1.70 | 133.69 |
| MA12: Mean monthly flow, January | 150.40 | 122.76 | -18.38 |
| MA13: Mean monthly flow, February | 182.24 | 151.46 | -16.89 |
| MA14: Mean monthly flow, March | 214.28 | 179.29 | -16.33 |
| MA15: Mean monthly flow, April | 174.06 | 106.11 | -39.04 |
| MA16: Mean monthly flow, May | 128.70 | 51.75 | -59.79 |
| MA17: Mean monthly flow, June | 120.67 | 71.57 | -40.69 |
| MA18: Mean monthly flow, July | 158.83 | 117.45 | -26.06 |
| MA19: Mean monthly flow, August | 202.12 | 170.90 | -15.44 |
| MA20: Mean monthly flow, September | 173.66 | 115.13 | -33.70 |
| MA21: Mean monthly flow, October | 162.19 | 112.19 | -30.83 |
| MA22: Mean monthly flow, November | 121.90 | 59.05 | -51.56 |
| MA23: Mean monthly flow, December | 116.60 | 74.24 | -36.33 |
| ML1: Mean minimum monthly flow, January | 109.33 | 47.90 | -56.19 |
| ML2: Mean minimum monthly flow, February | 136.52 | 82.66 | -39.45 |
| ML3: Mean minimum monthly flow, March | 157.39 | 85.31 | -45.80 |
| ML4: Mean minimum monthly flow, April | 138.00 | 48.35 | -64.96 |
| ML5: Mean minimum monthly flow, May | 105.96 | 23.97 | -77.38 |
| ML6: Mean minimum monthly flow, June | 95.30 | 26.01 | -72.71 |
| ML7: Mean minimum monthly flow, July | 116.26 | 68.28 | -41.27 |
| ML8: Mean minimum monthly flow, August | 144.87 | 95.77 | -33.89 |
| ML9: Mean minimum monthly flow, September | 121.65 | 65.59 | -46.08 |
| ML10: Mean minimum monthly flow, October | 121.57 | 45.30 | -62.74 |
| ML11: Mean minimum monthly flow, November | 109.96 | 32.69 | -70.27 |
| ML12: Mean minimum monthly flow, December | 101.87 | 35.22 | -65.43 |
| ML13: CV of minimum monthly flows | 48.81 | 108.63 | 122.56 |
| ML14: Mean minimum daily flow / mean median annual flow | 0.60 | 0.11 | -80.82 |
| ML15: Mean minimum annual flow / mean annual flow | 0.51 | 0.08 | -83.99 |
| ML16: Median minimum annual flow / median annual flow | 0.63 | 0.08 | -87.23 |
| ML20: Ratio of baseflow volume to total flow volume | 0.85 | 0.63 | -25.75 |
| ML22: Mean annual minimum flow divided by catchment area | 0.77 | 0.10 | -87.43 |
| RA1: Mean of positive changes from one day to next (rise rate) | 11.85 | 20.83 |  |
| RA2: CV, mean of positive changes from one day to next (rise rate) | 195.89 | 240.28 |  |
| RA3: Mean of negative changes from one day to next (fall rate) | 6.03 | 7.30 |  |
| RA4: CV, mean of negative changes from one day to next (fall rate) | 132.46 | 180.81 |  |
| RA5: Ratio of days that are higher than previous day | 0.30 | 0.26 |  |
| RA6: Median of difference in log of flows over two consecutive days of rising | 0.03 | 0.11 |  |
| RA7: Median of difference in log of flows over two consecutive days of falling | 0.02 | 0.07 |  |
| RA8: Number of flow reversals from one day to the next | 97.29 | 71.29 |  |
| RA9: CV, number of flow reversals from one day to the next | 26.50 | 20.30 |  |

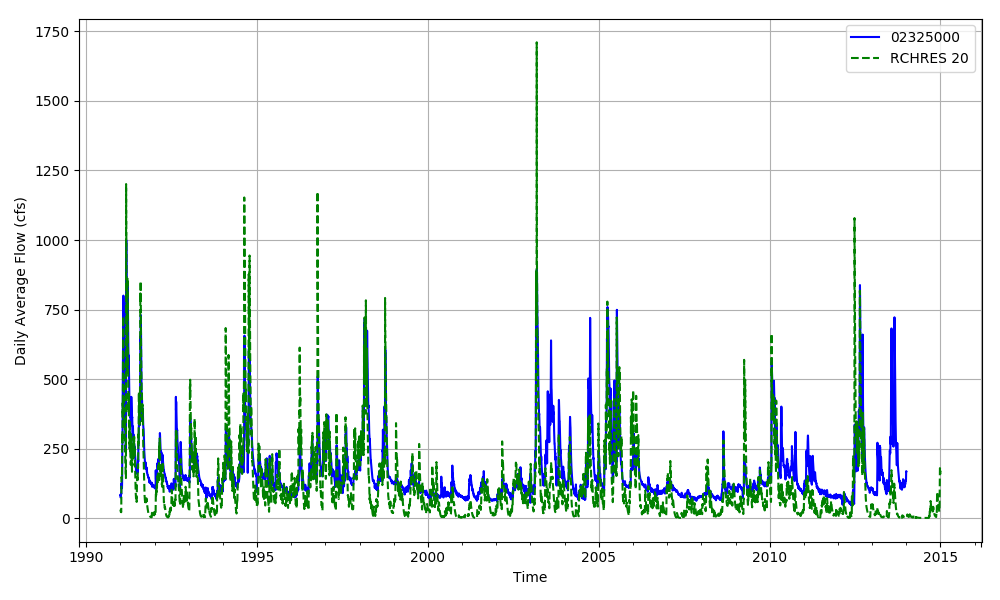


Figure 03110102-16: Daily flow for HSFP reach 20 and USGS station 02325000.

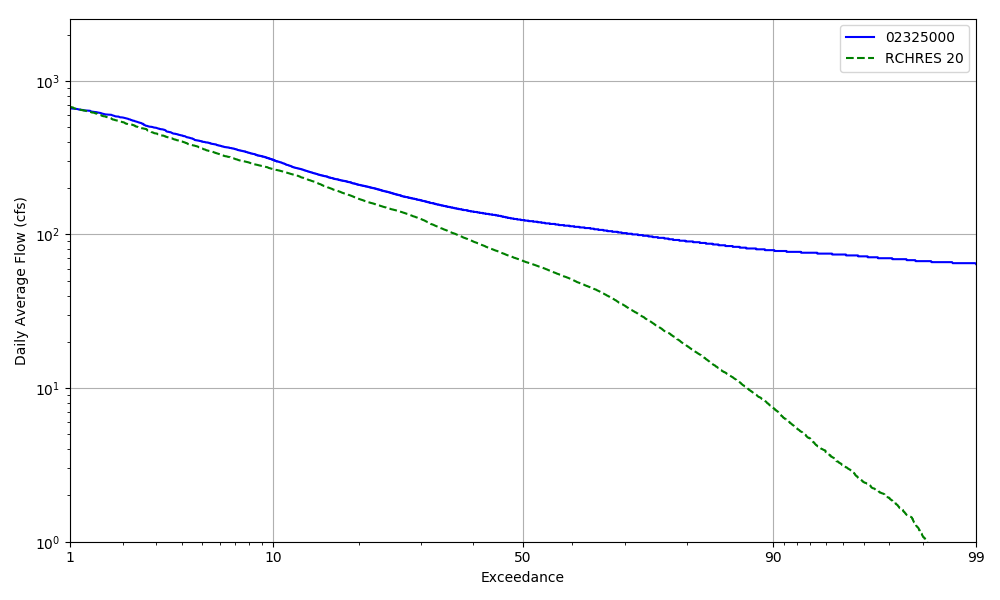


Figure 03110102-17: Daily exceedance for HSFP reach 20 and USGS station 02325000.

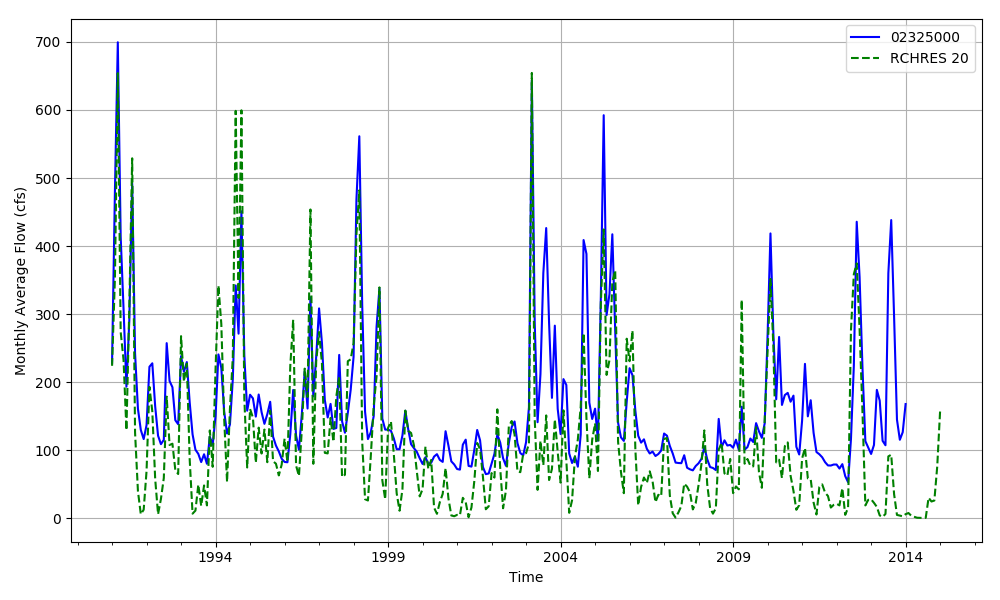


Figure 03110102-18: Monthly flow for HSFP reach 20 and USGS station 02325000.