



Note: average level at SF-6 is 1074.42 and at SF-15 is 1076.20 feet MSL (SF-15 approximately at end of line segment shown above).



# Big Rapids Data

July 2013      Average High T 80.276 F  
                  Average Low T 55.1 F

July 2014      Average High T 77.416 F  
                  Average Low T 53.45 F

SF Data --- Avg July 2013 52.916 F  
                  Avg July 2014 51.728 F



**Hydrology**

Segment Inflow (cfs)

Inflow Temperature (°F)

Segment Outflow (cfs)

Accretion Temp. (°F)

**Geometry**

Latitude (degrees)

Dam at Head of Segment

Segment Length (mi)

Upstream Elevation (ft)

Downstream Elevation (ft)

Width's A Term (s/ft<sup>2</sup>)

B Term where  $W = A * Q^{**}B$

Manning's n

**Meteorology**

Air Temperature (°F)

Maximum Air Temp (°F)

Relative Humidity (%)

Wind Speed (mph)

Ground Temperature (°F)

Thermal gradient (j/m<sup>2</sup>/s/C)

Possible Sun (%)

Dust Coefficient

Ground Reflectivity (%)

Solar Radiation (Langley/d)

**Shade**

Total Shade (%)

**Time of Year**

Month/day (mm/dd)

**Intermediate Values**

Day Length (hrs) = 15.020

Slope (ft/100 ft) = 0.195

Width (ft) = 4.818

Depth (ft) = 0.210

**Mean Heat Fluxes at Inflow (j/m<sup>2</sup>/s)**

Convect. = +83.83	Atmos. = +83.33
Conduct. = +13.75	Friction = +0.00
Evapor. = +59.73	Solar = +82.03
Back Rad. = -347.36	Vegetat. = +289.59
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Net = +264.91	

**Optional Shading Variables**

Segment Azimuth (degrees)	<input type="text" value=""/>	
	West Side <b>W</b>	East Side <b>E</b>
Topographic Altitude (degrees)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Height (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Crown (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Offset (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Density (%)	<input type="text" value=""/>	<input type="text" value=""/>

**Model Results - Outflow Temperature**

**Predicted Mean (°F) = 52.66**

**Estimated Maximum (°F) = 59.97**

**Approximate Minimum (°F) = 45.35**

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Mean Equilibrium (°F) = 66.04

Maximum Equilibrium (°F) = 70.04

Minimum Equilibrium (°C) = 16.69

July 2013  
Base

File View Help



**Hydrology**

Segment Inflow (cfs)

Inflow Temperature (°F)

Segment Outflow (cfs)

Accretion Temp. (°F)

**Geometry**

Latitude (degrees)

Dam at Head of Segment

Segment Length (mi)

Upstream Elevation (ft)

Downstream Elevation (ft)

Width's A Term (s/ft<sup>2</sup>)

B Term where  $W = A * Q^{**B}$

Manning's n

**Meteorology**

Air Temperature (°F)

Maximum Air Temp (°F)

Relative Humidity (%)

Wind Speed (mph)

Ground Temperature (°F)

Thermal gradient (j/m<sup>2</sup>/s/C)

Possible Sun (%)

Dust Coefficient

Ground Reflectivity (%)

Solar Radiation (Langley/d)

**Shade**

Total Shade (%)

**Time of Year**

Month/day (mm/dd)

**Intermediate Values**

Day Length (hrs) = 15.020

Slope (ft/100 ft) = 0.195

Width (ft) = 4.673

Depth (ft) = 0.195

**Mean Heat Fluxes at Inflow (j/m<sup>2</sup>/s)**

Convect. = +83.83	Atmos. = +83.33
Conduct. = +13.75	Friction = +0.00
Evapor. = +59.73	Solar = +82.03
Back Rad. = -347.36	Vegetat. = +289.59
-----	
Net = +264.91	

**Optional Shading Variables**

Segment Azimuth (degrees)	<input type="text" value=""/>	
Topographic Altitude (degrees)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Height (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Crown (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Offset (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Density (%)	<input type="text" value=""/>	<input type="text" value=""/>

**Model Results - Outflow Temperature**

**Predicted Mean (°F) = 52.94**

**Estimated Maximum (°F) = 60.42**

**Approximate Minimum (°F) = 45.46**

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Mean Equilibrium (°F) = 66.04

Maximum Equilibrium (°F) = 70.04

Minimum Equilibrium (°C) = 16.69

July 2013  
With Q

Avg diff = 0.16 C

SSTEMP Version 2.0.8

File View Help

### Hydrology

Segment Inflow (cfs)

Inflow Temperature (°F)

Segment Outflow (cfs)

Accretion Temp. (°F)

### Geometry

Latitude (degrees)

Dam at Head of Segment

Segment Length (mi)

Upstream Elevation (ft)

Downstream Elevation (ft)

Width's A Term (s/ft²)

B Term where  $W = A * Q ** B$

Manning's n

### Meteorology

Air Temperature (°F)

Maximum Air Temp (°F)

Relative Humidity (%)

Wind Speed (mph)

Ground Temperature (°F)

Thermal gradient (j/m²/s/C)

Possible Sun (%)

Dust Coefficient

Ground Reflectivity (%)

Solar Radiation (Langley/d)

### Shade

Total Shade (%)

### Time of Year

Month/day (mm/dd)

### Intermediate Values

Day Length (hrs) = 14.996

Slope (ft/100 ft) = 0.195

Width (ft) = 4.818

Depth (ft) = 0.210

### Mean Heat Fluxes at Inflow (j/m²/s)

Convect. = +73.15	Atmos. = +81.14
Conduct. = +13.75	Friction = +0.00
Evapor. = +42.25	Solar = +82.34
Back Rad. = -347.36	Vegetat. = +284.67
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Net = +229.96	

### Optional Shading Variables

Segment Azimuth (degrees)

	West Side <sup>W</sup>	East Side <sup>E</sup>
Topographic Altitude (degrees)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Height (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Crown (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Offset (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Density (%)	<input type="text" value=""/>	<input type="text" value=""/>

### Model Results - Outflow Temperature

**Predicted Mean (°F) = 52.28**

**Estimated Maximum (°F) = 59.29**

**Approximate Minimum (°F) = 45.27**

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Mean Equilibrium (°F) = 64.18

Maximum Equilibrium (°F) = 68.33

Minimum Equilibrium (°C) = 15.57

July 2014  
Base

File View Help



**Hydrology**

Segment Inflow (cfs)

Inflow Temperature (°F)

Segment Outflow (cfs)

Accretion Temp. (°F)

**Geometry**

Latitude (degrees)

Dam at Head of Segment

Segment Length (mi)

Upstream Elevation (ft)

Downstream Elevation (ft)

Width's A Term (s/ft²)

B Term where  $W = A * Q^{**B}$

Manning's n

**Meteorology**

Air Temperature (°F)

Maximum Air Temp (°F)

Relative Humidity (%)

Wind Speed (mph)

Ground Temperature (°F)

Thermal gradient (j/m²/s/C)

Possible Sun (%)

Dust Coefficient

Ground Reflectivity (%)

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Solar Radiation (Langley/d)

**Shade**

Total Shade (%)

**Time of Year**

Month/day (mm/dd)

**Intermediate Values**

Day Length (hrs) = 14.996

Slope (ft/100 ft) = 0.195

Width (ft) = 4.673

Depth (ft) = 0.195

**Mean Heat Fluxes at Inflow (j/m²/s)**

Convect. = +73.15	Atmos. = +81.14
Conduct. = +13.75	Friction = +0.00
Evapor. = +42.25	Solar = +82.34
Back Rad. = -347.36	Vegetat. = +284.67
-----	
Net = +229.96	

**Optional Shading Variables**

Segment Azimuth (degrees)

	W / E	
	West Side	East Side
Topographic Altitude (degrees)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Height (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Crown (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Offset (ft)	<input type="text" value=""/>	<input type="text" value=""/>
Vegetation Density (%)	<input type="text" value=""/>	<input type="text" value=""/>

**Model Results - Outflow Temperature**

**Predicted Mean (°F) = 52.52**

**Estimated Maximum (°F) = 59.69**

**Approximate Minimum (°F) = 45.36**

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Mean Equilibrium (°F) = 64.18

Maximum Equilibrium (°F) = 68.33

Minimum Equilibrium (°C) = 15.57

July 2013  
With Q

Avg diff = 0.13 C