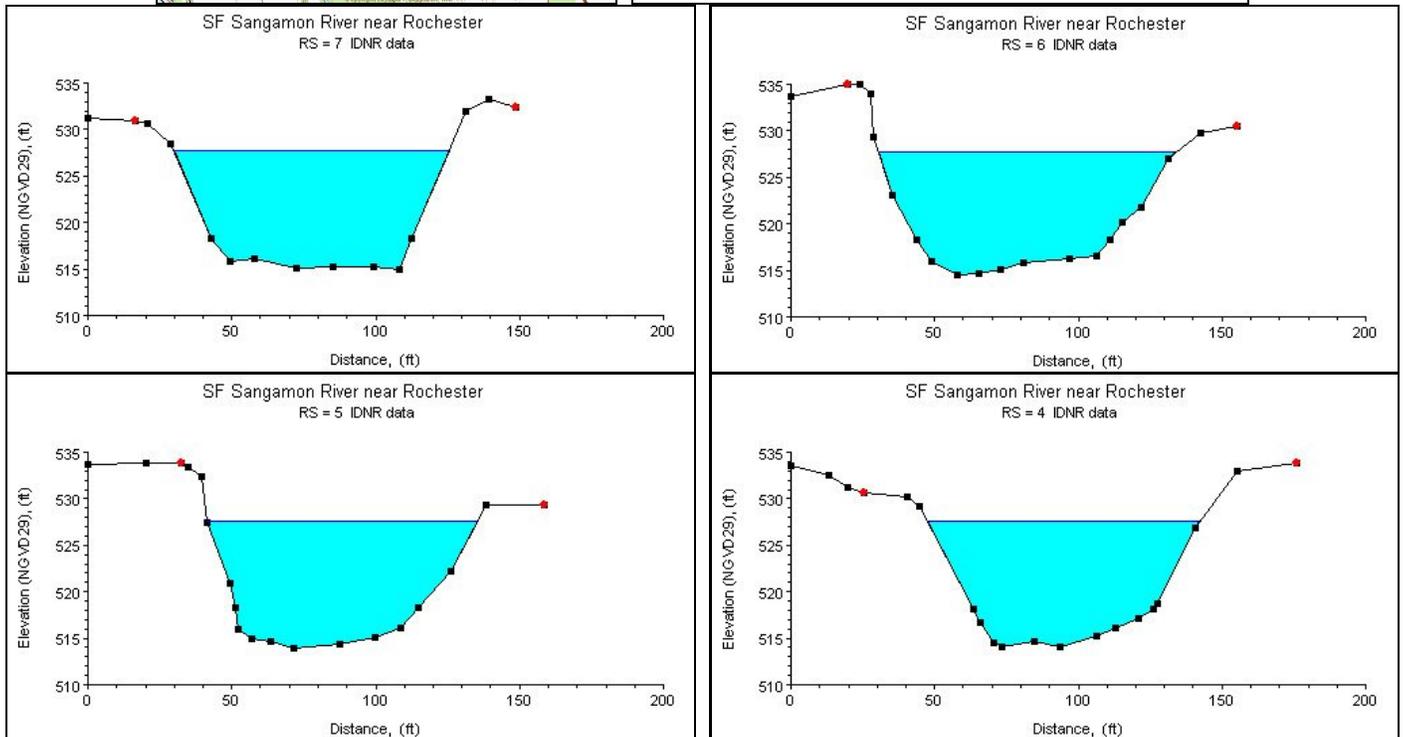
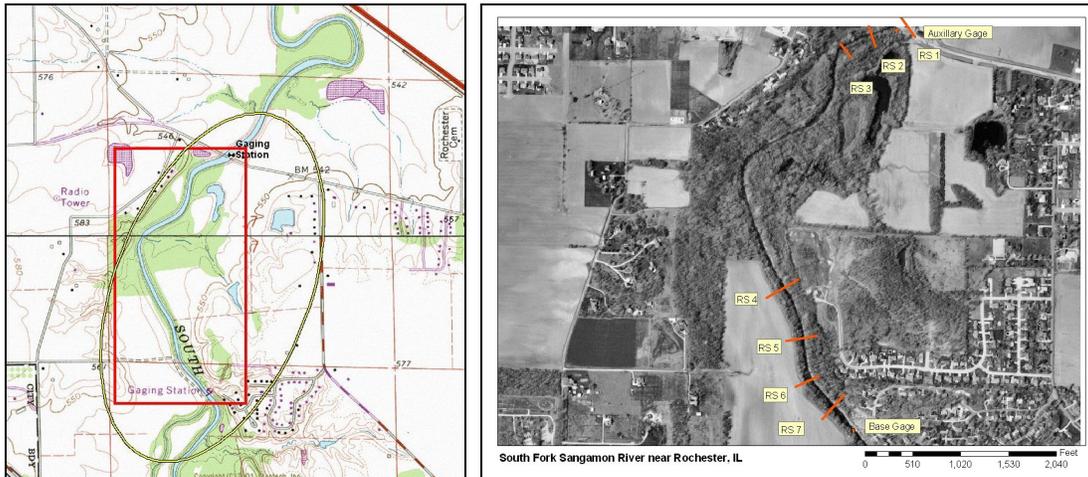


South Fork Sangamon River near Rochester, IL



Study Reach.--The channel reach under consideration is the meandering reach of a natural channel. The study reach selected, approximately 5,540 ft long, is located from Penacock Drive (upstream) to the West Main Street bridge (downstream), as shown in the quadrangle map on the top left. Seven surveyed cross sections (surveyed by the Illinois Department of Natural Resources in January and February 2004) are available for describing channel geometries in the study reach. The channel alignment, approximate variations in channel width and bank conditions, and locations of the surveyed cross sections are shown in the aerial photo on the top right. Cross sections at river stations (RS) 7, 6, 5, and 4 are plotted above.

Gage Location.--Lat 39°44'32", long 89°34'02", in NE1/4 NW1/4 sec.20, T.15N., R.4W., Sangamon County, Hydrologic Unit 07130007, on right bank at city of Springfield dam, 100 ft downstream from Horse Creek, 1.7 mi southwest of Rochester, and at river mi 7.4. The auxiliary gage is located at lat 39(45' 14", long 89(33' 56", in NE1/4NW1/4 sec.17,

T.15 N., R.4 W., Sangamon County, Hydrologic Unit 07130007, on the right bank, 1.3 mi downstream from Horse Creek, 1.5 mi west of Rochester. The USGS streamgage station number for the base gage is 05576000.

Drainage Area.--867 sq mi.

Gage Datum and Elevations of Reference Points.--This is a slope station site where the auxiliary gage is located 1.3 mi downstream from the base station on the upstream side of the bridge on West Main Street. Datum of both base and auxiliary gages is 511.30 ft. A wire-weight gage (WWG) is mounted on the handrail of the pump house platform at the base gage, and a WWG is attached to the upstream side of West Main Street bridge at the auxiliary gage. All elevations are in NGVD 1929 convention.

Stage, Discharge Measurements, and Computed n-Values.--Stage and discharge data suitable for n-value analysis were retrieved from measured discharge and corresponding water-surface elevations at the base and auxiliary gages. Discharge measurements were made using the conventional current-meter method. Discharges corresponding to a stage above 15 ft at the auxiliary gage were not used because of concerns over varying degrees by backwater effects, caused by the combination of the bridge opening at the auxiliary gage, the flood plains downstream and at the gage, and low water-surface slopes. Only in-channel flows were selected for the present study. The computed n-values are listed in the following table. Whenever possible, the computed n--values are associated with a photo taken at the time of the measurement. The photos are arranged from low stage to high stage in order to illustrate contributing factors of n-values at a particular stage.

Date of Observation	Discharge (ft ³ /s)	Average Cross Section Area (ft ²)	Hydraulic Radius (ft)	Mean Velocity (ft/s)	Slope	Coefficient of Roughness <i>n</i>
3/25/2003	123.0	191.7	2.87	0.65	0.000091	0.042
12/17/2003	229.0	275.3	3.78	0.84	0.000099	0.041
10/22/2001	252.0	279.7	3.83	0.91	0.000100	0.039
4/5/2001	269.0	309.4	4.14	0.88	0.000099	0.042
1/16/2002	291.0	269.9	3.72	1.09	0.000110	0.033
3/8/1999	342.0	385.9	4.87	0.90	0.000084	0.042
4/1/1997	367.0	356.8	4.60	1.04	0.000090	0.036
3/26/1996	575.0	414.9	5.13	1.40	0.000122	0.033
2/19/1998	603.0	481.8	5.71	1.26	0.000079	0.032
4/19/1995	756.0	540.9	6.20	1.41	0.000106	0.035
2/13/2002	805.0	516.6	6.01	1.57	0.000115	0.032
8/19/1998	851.0	588.1	6.59	1.46	0.000110	0.036
6/28/2002	871.0	559.8	6.36	1.57	0.000121	0.034
5/10/1999	1170.0	725.1	7.61	1.63	0.000120	0.037
6/15/1994	1470.0	788.7	8.05	1.88	0.000100	0.030
6/11/1993	1800.0	928.6	8.92	1.96	0.000102	0.032
5/12/1995	2010.0	1083.7	9.61	1.88	0.000095	0.034



05576000 South Fork Sangamon River near Rochester, IL
Low flow, looking Downstream 07/21/04



05576000 South Fork Sangamon River near Rochester, IL
Low flow, looking Downstream at channel from gage 07/21/04



05576000 South Fork Sangamon River near Rochester, IL
Low flow, looking downstream 7/11/2007



05576000 South Fork Sangamon River near Rochester, IL
Low flow, looking upstream 7/11/2007



05576000 South Fork Sangamon River near Rochester, IL
Looking Downstream from bridge



05576000 South Fork Sangamon River near Rochester, IL
Looking Downstream from base gage



05576000 South Fork Sangamon River near Rochester, IL
Looking Upstream from bridge



05576000 South Fork Sangamon River near Rochester, IL
Looking Downstream

0419/95
n = 0.035

Description of Channel.--This channel is natural affected by urban areas. The streambed consists of rock, concrete rubble, and mixtures of sand and silt/clay. Tall vegetation grows on top of the banks and on the flood plains on both sides of the channel. From upstream (base gage) to downstream, cross sections are generally in trapezoidal shape but becoming narrower and deeper in downstream direction. The bottom width varies from approximately 60 ft at the upstream end to 40 ft at the downstream end; top width varies from approximately 100 ft upstream to 120 ft downstream. Bank height varies from 15 ft upstream to 20 ft downstream. The study reach is subject to the accumulation of debris. The study reach can be described as a meandering reach containing a nearly 90-degree bend.

Floods.--Maximum discharge, 20,300 ft³/s, Apr. 14, 1994, gage height, 32.40 ft; maximum gage height, 33.65 ft, May 13, 2002, discharge 14,100 ft³/s.

Estimated n-Values using Cowan's Approach.--0.033 - 0.055