

Appendix B.

Additional Watershed Characterization Information

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Table B - 1. Level IV ecoregion physiography and geology in the project area

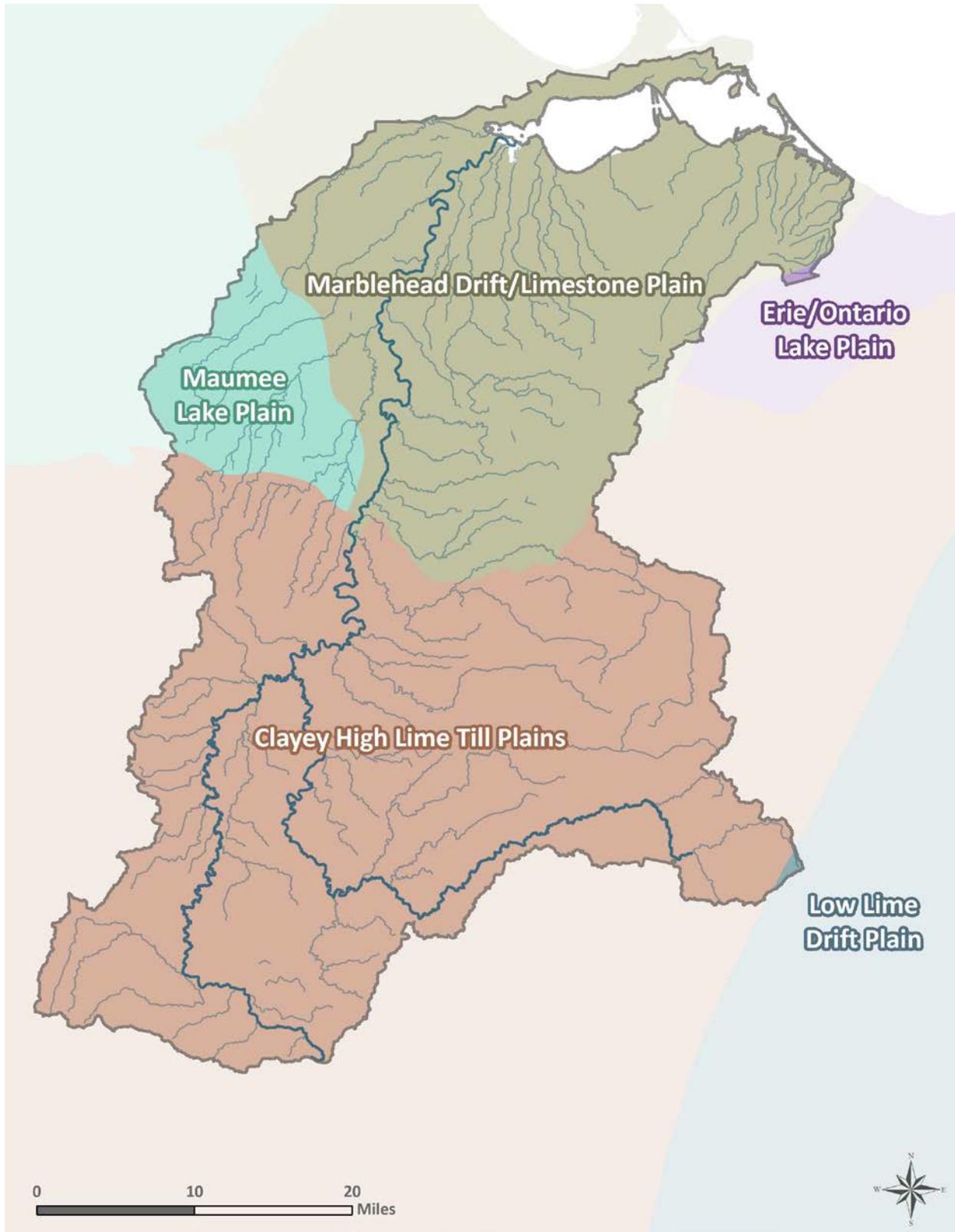
Ecoregion	Physiography	Geology
Clayey, High Lime Till Plains (55a)	Glaciated. Broad nearly level glacial till plain; also basins and end moraines. Low gradient streams.	Clayey, high lime, late-Wisconsinan glacial till, lacustrine deposits, and scattered loess overlie Paleozoic shales, carbonates, and sandstones.
Maumee Lake Plain (57a)	Glaciated. Nearly level to depressional glacial lake plain with paleobeach ridges, limestone ridges, and end moraines. Sluggish, low gradient streams, many with high loads of suspended clay. Channelized streams and ditches with clayey channels are common.	Fine, poorly drained, water-worked glacial till and lacustrine sediment; also coarser end moraine and beach ridge deposits. Occasional outcrops of underlying Silurian and Devonian limestone and dolomite occur.
Marblehead Drift/Limestone Plain (57d)	Glaciated. Mostly a broad lake plain with exposures of carbonate bedrock, end moraines, beach ridges, sand dunes at Cedar Point, marl prairies near Castalia, and sink holes. Streams often flow on carbonate bedrock.	Sometimes thin, fine, poorly drained, water-worked, glacial till and lacustrine sediment; also coarser end moraine and beach ridge deposits. Outcrops of the underlying Silurian and Devonian carbonate bedrock occur.

Source: Woods et al. 2011

Table B - 2. Level IV ecoregion soils in the project area

Ecoregion	Common soil series
Clayey, High Lime Till Plains (55a)	Widespread: Blount, Pewamo, Glynwood, Morley. In east: Bennington, Cardington. In west: Del Rey, Eel. On lake plains: Nappanee, Milford.
Maumee Lake Plain (57a)	On water-worked glacial till: Hoytville, Nappanee, Blount, Miamian. On clayey to very clayey lake deposits: Toledo, Latty. On coarser sediments above lacustrine material: Mermill.
Marblehead Drift/Limestone Plain (57d)	On glacial lake sediments: Kibbie, Toledo. On water-worked glacial till: Hoytville, Nappanee, Blount. On or near dolomitic limestone bedrock: Castalia, Milton, Millsdale.

Source: Woods et al. 2011



Source: Woods et al. 2011

Figure B - 1. Level IV ecoregions in the Sandusky basin.

Table B - 3. HSG distribution in the Sandusky Basin

WAU	Watersheds	A	B	C	D	A/D	B/D	C/D	NR
Mills Creek-Frontal Lake Erie (04100011 01)									
01	Sawmill Creek	1%	2%	6%	21%	12%	12%	44%	3%
02	Pipe Creek-Frontal Sandusky Bay	4%	4%	7%	11%	12%	9%	45%	9%
03	Mill Creek	6%	11%	11%	7%	2%	12%	47%	4%
Pickereel Creek-Frontal Sandusky Bay (04100011 02)									
01	Frontal south side of Sandusky Bay	5%	4%	2%	9%	11%	12%	53%	4%
02	Strong Creek	3%	4%	--	15%	2%	15%	61%	<½%
03	Pickereel Creek	7%	9%	3%	21%	4%	7%	47%	1%
04	Raccoon Creek	6%	3%	<½%	11%	5%	11%	60%	4%
05	South Creek	5%	1%	--	8%	14%	14%	45%	2%
Wolf Creek (04100011 10)									
01	East Branch East Branch Wolf Creek	<½%	2%	<½%	5%	<½%	7%	85%	--
02	Town of New Riegel-East Branch Wolf Creek	--	2%	<½%	5%	<½%	6%	87%	<½%
03	Snuff Creek-East Branch Wolf Creek	<½%	5%	2%	15%	<½%	31%	43%	3%
04	Wolf Creek	<½%	3%	2%	8%	1%	10%	77%	<½%
Rock Creek-Sandusky River (04100011 11)									
01	Rock Creek	--	9%	<½%	15%	--	7%	69%	<½%
02	Morrison Creek	--	9%	<½%	10%	--	3%	78%	<½%
03	Willow Creek-Sandusky River	--	11%	2%	11%	--	18%	56%	2%
04	Sugar Creek	--	13%	<½%	13%	--	10%	63%	--
05	Spicer Creek-Sandusky River	1%	18%	1%	16%	<½%	31%	32%	1%
Green Creek (04100011 12)									
01	Westerhouse Ditch	--	2%	2%	7%	--	4%	86%	--
02	Beaver Creek	1%	4%	1%	13%	--	5%	76%	--
03	Green Creek	8%	9%	<½%	7%	18%	27%	30%	1%
Muskellunge Creek-Sandusky River (04100011 13)									
01	Muskellunge Creek	2%	5%	2%	7%	3%	11%	71%	1%
02	Indian Creek-Sandusky River	2%	12%	--	5%	3%	45%	30%	2%
03	mouth Sandusky River	2%	5%	1%	<½%	6%	28%	50%	9%
Muddy Creek-Frontal Sandusky Bay (04100011 14)									
01	Gries Ditch	7%	8%	--	1%	7%	5%	72%	--
02	Town of Helena-Muddy Creek	2%	3%	5%	7%	2%	6%	75%	1%
03	Little Muddy Creek	3%	3%	--	3%	3%	7%	78%	1%
04	Town of Lindsey-Muddy Creek	4%	3%	--	8%	1%	8%	75%	3%
05	North Side Sandusky Bay Frontal	3%	--	2%	25%	1%	--	61%	9%

Notes

NR = not reported; WAU = watershed assessment unit.

A double dash (--) indicates that an HSG was not present in the watershed. **Bolded** values are the largest percentage per WAU.

Values might not sum to 100 percent because of rounding.

Table B - 4. Climate data summary for Fremont, OH (station 332974)

Parameter ^a	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	33.4	35.8	46.5	59.2	71.1	80.6	85.1	82.8	76.6	64	50	37.3
Low	17.7	19.1	27.9	37.9	48.5	58	62.3	60	53.3	41.9	32.8	22.8
Mean	25.55	27.45	37.2	48.55	59.8	69.3	73.7	71.4	64.95	52.95	41.4	30.05
Precipitation	2.25	2	2.71	3.33	3.55	3.81	3.47	3.34	3.16	2.46	2.59	2.59
Snowfall	6.8	5.9	3.4	0.6	0.1	0	0	0	0	0.1	1	5.1

Source: WRCC 2013.

Notes:

Summary of data collected at Sandusky, OH NCDC station 337447 from July 1, 1901 through September 30, 2012.

a. All five parameters are monthly averages. High, low, and mean are in degrees Fahrenheit. Average precipitation is in inches water equivalent. Average snowfall is in inches of snow.

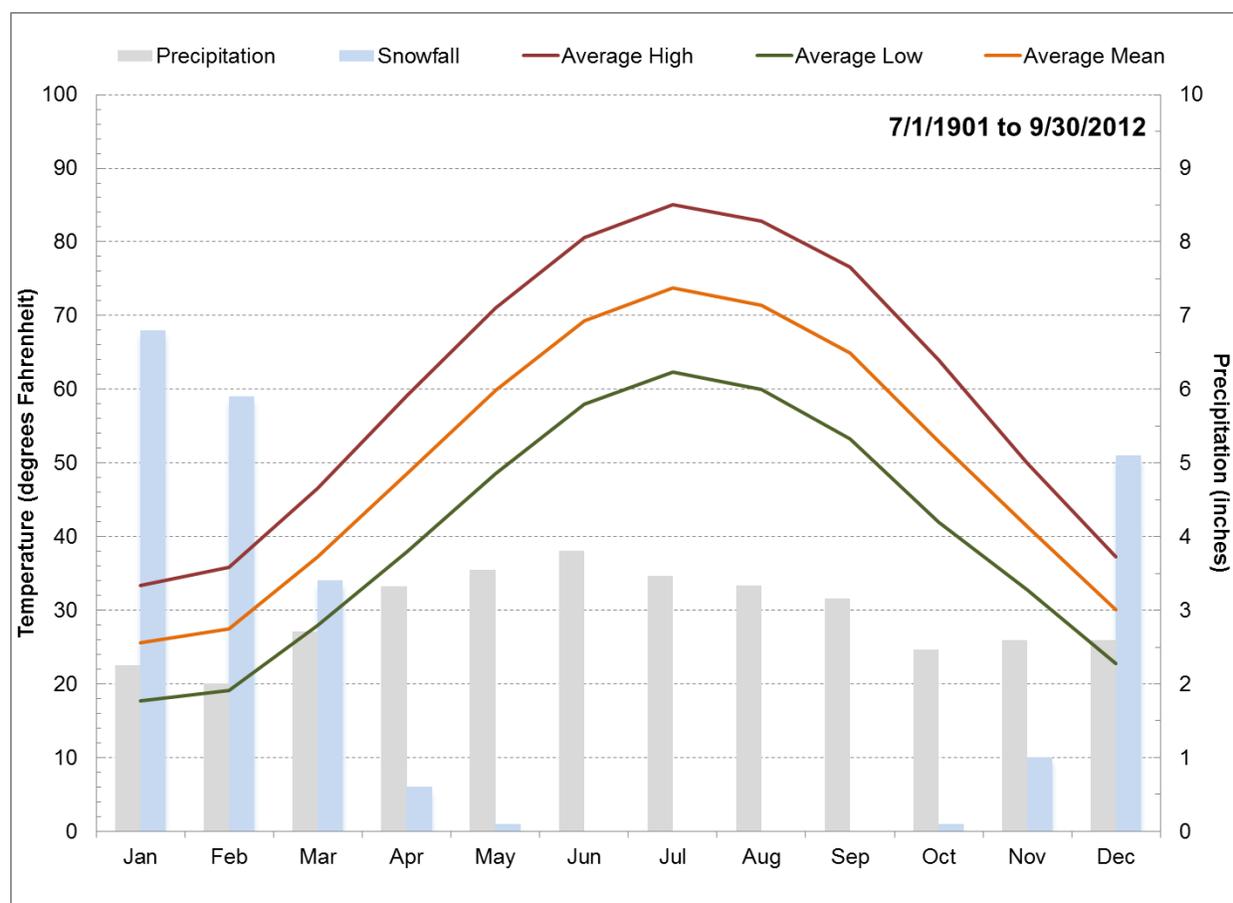


Figure B - 2. Temperature and precipitation summary at Fremont, OH (station 332974).

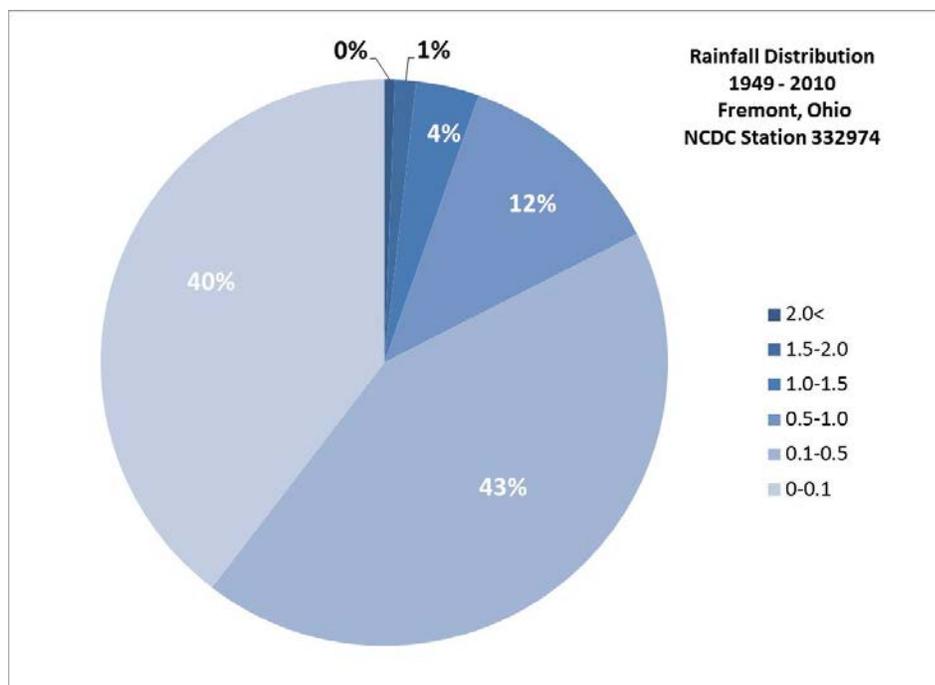


Figure B - 3. Precipitation intensity at Fremont, OH (station 332974).

Table B - 5. Climate data summary for Sandusky, OH (station 337447)

Parameter ^a	Month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	33.4	35.4	44.5	57	68.3	78.4	82.6	81.2	74.3	62.9	49.5	37.5
Low	19.7	21.3	29.5	40	51.1	61.2	65.4	64.1	56.6	45.7	35.3	24.8
Mean	26.55	28.35	37	48.5	59.7	69.8	74	72.65	65.45	54.3	42.4	31.15
Precipitation	2.05	1.86	2.65	3.25	3.4	4.07	3.78	3.33	3.02	2.11	2.57	2.28
Snowfall	7.5	5.8	4.1	0.7	0	0	0	0	0	0	1.2	5.1

Source: WRCC 2013.

Notes:

Summary of data collected at Sandusky, OH NCDC station 337447 from January 1, 1936 through August 31, 2012.

a. All five parameters are monthly averages. High, low, and mean are in degrees Fahrenheit. Average precipitation is in inches water equivalent. Average snowfall is in inches of snow.

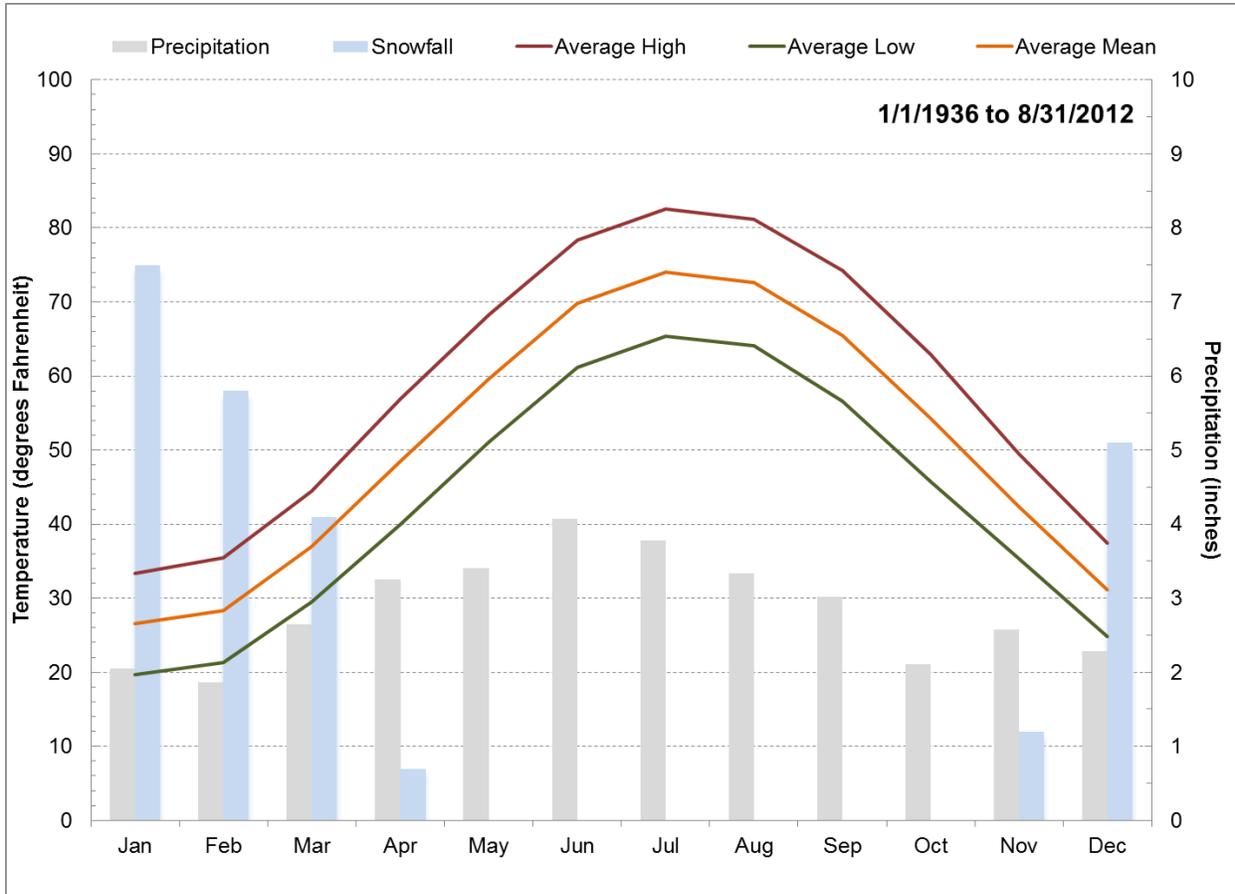


Figure B - 4. Temperature and precipitation summary at Sandusky, OH (station 337447).

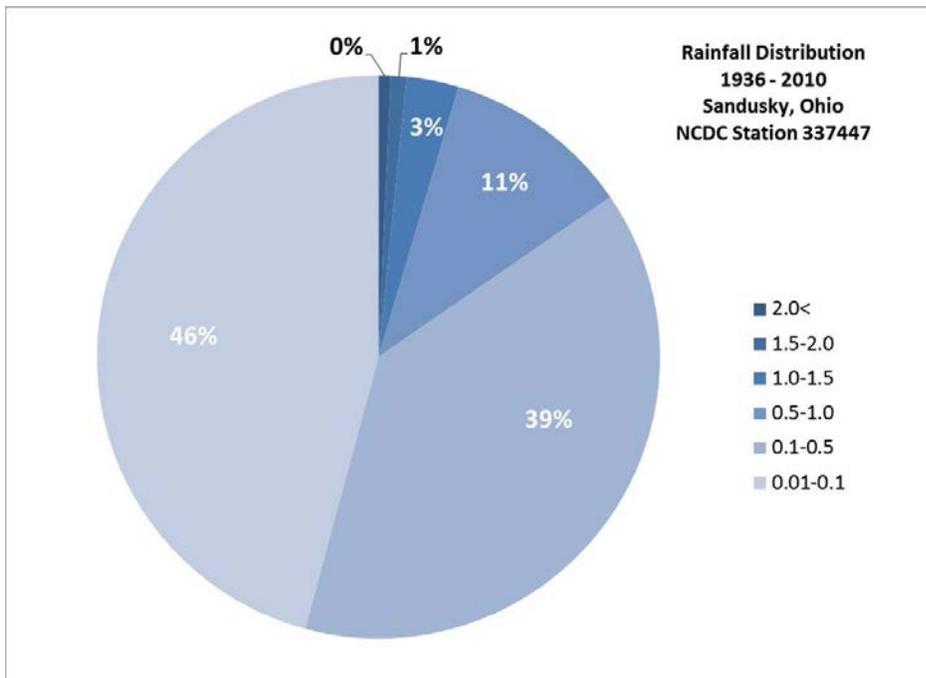


Figure B - 5. Precipitation intensity at Sandusky, OH (station 337447).

Table B - 6. Populations of select counties and municipalities in the Sandusky Basin

Location	Population in 2000	Population in 2010	Population change
Crawford County	46,966	43,784	-6.8%
Chatfield (village)	218	189	-13.3%
Bucyrus (city)	13,224	12,362	-6.5%
New Washington	987	967	-2.0%
Erie County	79,551	77,079	-3.1%
Bay View (village)	692	632	-8.7%
Bellevue (city) ^a	8,193	8,202	+0.1%
Castalia (village)	935	852	-8.9%
Sandusky (city)	27,844	25,793	-7.4%
Sandusky County	61,792	60,944	-1.4%
Clyde (city)	6,064	6,325	+4.3%
Fremont (city)	17,375	16,734	-3.7%
Helena (village)	236	224	-5.1%
Lindsey (village)	504	446	-11.5%
Seneca County	58,683	56,745	-3.3%
Bettsville (village)	784	661	-15.7%
Bloomville (village)	1,045	956	-8.5%
Fostoria (city) ^b	13,931	13,441	-3.5%
Green Springs (village) ^c	1,247	1,368	+9.7%
New Riegel (village)	226	249	+10.2%
Republic (village)	614	549	-10.6%
Tiffin	18,135	17,963	-0.9%
Wyandot County	22,908	22,615	-1.3%
Carey (village)	3,901	3,674	-5.8%
Harpster (village)	203	204	+0.5%
Nevada (village)	814	760	-6.6%
Sycamore (village)	914	861	-5.8%
Upper Sandusky (city)	6,533	6,596	+1.0%

Source: USCB 2013.

Notes:

Small portions of the following counties are located in the Sandusky Basin but are not presented in this table: Hardin, Huron, Marion, Ottawa, Richland, and Wood

a. The city of Bellevue is partially in both Erie and Sandusky counties.

b. The city of Fostoria is partially in Hancock, Seneca, and Wood counties.

c. The village of Green Springs is partially in both Sandusky and Seneca counties.