Appendix

B

STATUS OF WATER QUALITY
SALT CREEK WATERSHED

Table of Contents

Ohio EPA completed a survey of biology, chemistry and habitat in the Salt Creek watershed in 2008. All streams sampled during the survey for biology were designated as warmwater habitat use. Two streams (Kent Run and Buffalo Fork) were recommended to be changed to exceptional warmwater habitat use. Recommended changes are in the process of a rule review. All streams are designated as primary contact recreation Class B waters; that designation was confirmed where samples were taken for recreation use. More information about the watershed is available in *Biological and Water Quality Study of Salt Creek and Selected Tributaries* (Ohio EPA 2010b), which is located online at http://www.epa.ohio.gov/portals/35/documents/SaltCreek_MuskingumTSD2008.pdf. More information regarding the designated uses is available in Appendix C.

B1 Aquatic Life Use Attainment

All sites analyzed for biological attainment were fully attaining goals. Exceptional areas included Kent Run and Buffalo Fork.

Figure B-1 shows the sampling locations with biological data in the watershed. Table B-1 shows the aquatic life use attainment, including biological metric and habitat scores, for each site sampled in the watershed.

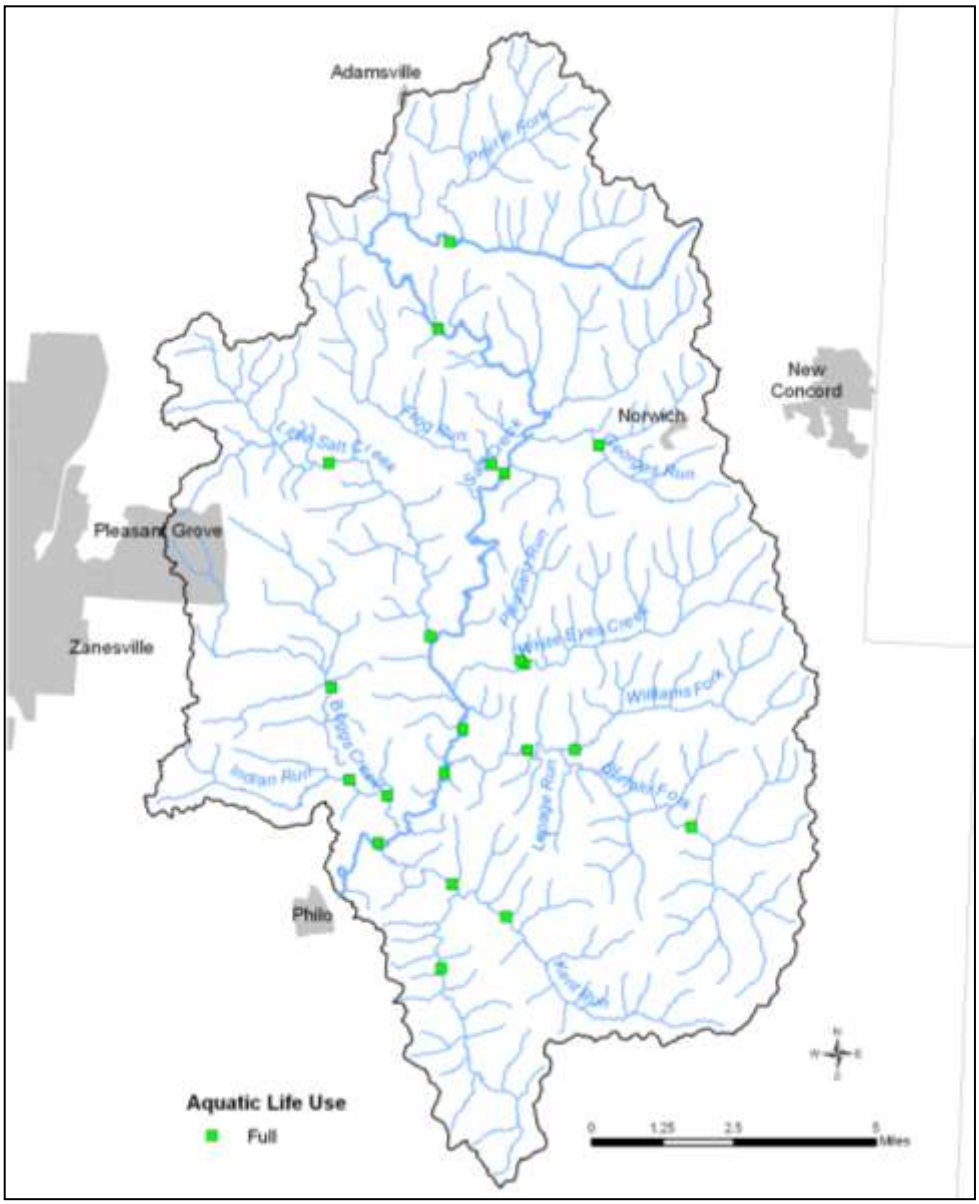

Figure B-1. Aquatic life use attainment in the Salt Creek watershed.

Table B-1. Aquatic life use attainment table for the Salt Creek watershed.

Stream	River Mile	Sampling Type	Eco-region	Aquatic Life Use Designation	Aquatic Life Attainment Status	IBI	MIwb	ICI[a]	Stream Habitat[b]
Salt Creek	25.7	Headwater	WAP	WWH	-	-	-	VG	-
Salt Creek	25.0	Headwater	WAP	WWH	-	-	-	G	-
Salt Creek	23.5	Headwater	WAP	WWH	FULL	50	NA	VG	44 – Fair
Salt Creek	18.3	Wading	WAP	WWH	FULL	40	9.4	VG	50 - Fair
Salt Creek	12.7	Wading	WAP	WWH	FULL	47	10.2	52	71.5 - Good
Salt Creek	5.6	Wading	WAP	WWH	FULL	46	9.8	40	67.5 - Good
Salt Creek	2.1	Wading	WAP	WWH	FULL	45	9.5	VG	59.0 – M. Good
Manns Fork	4.1	Wading	WAP	WWH	FULL	48	NA	E	81.0 - Excellent
Manns Fork	2.4	Wading	WAP	WWH	FULL	46	NA	VG	71.5 - Good
Kent Run	1.1	Headwater	WAP	EWH – R	FULL	52	NA	E	87.0 - Excellent
Boggs Creek	4.1	Headwater	WAP	WWH	FULL	50	NA	G	58.0 – M. Good
Boggs Creek	1.0	Headwater	WAP	WWH	FULL	52	NA	44	83.5 - Excellent
Indian Run	0.1	Headwater	WAP	WWH	FULL	44	NA	MG[ns]	34.0 - Poor
Buffalo Fork	6.6	Headwater	WAP	EWH - R	FULL	50	NA	VG[ns]	76.5 - Excellent
Buffalo Fork	2.1	Wading	WAP	EWH - R	FULL	50	8.9[ns]	E	68.0 - Good
Buffalo Fork	1.5	Wading	WAP	EWH - R	FULL	52	9.6	E	74.0 - Good
Williams Fork	0.2	Headwater	WAP	WWH	FULL	46	NA	VG	70.0 - Good
White Eyes Creek	1.6	Headwater	WAP	WWH	FULL	48	NA	VG	81.0 - Excellent
Pleasant Run	0.1	Headwater	WAP	WWH	FULL	45	NA	VG	70.5 - Good
Little Salt Creek	5.1	Headwater	WAP	WWH	FULL	40	NA	VG	57.0 – M. Good
Little Salt Creek	0.1	Headwater	WAP	WWH	FULL	52	NA	VG	73.5 - Good
Frog Run	0.1	Headwater	WAP	WWH	FULL	46	NA	G	60.0 - Good
Georges Run	1.6	Headwater	WAP	WWH	FULL	48	NA	E	74.5 - Good
Prairie Fork	0.1	Headwater	WAP	WWH	-	-	-	VG	-

[ns] Non-significant departure from biocriterion (≤4 IBI or ICI units; ≤0.5 MIwb units).
[a] Narrative evaluation used in lieu of ICI (E=Exceptional; VG=Very Good; G=Good; MG=Marginally good; LF= Low fair; HF= High fair; P=Poor; VP=Very poor).
[b] Narrative habitat evaluations are based on QHEI scores as follows: Excellent =75-100, Good = 60-74, MG = Marginally Good = 55-59, Fair = 44-54, Poor = 30-43; Very poor <30.

B1.1 Water and Sediment Chemistry

Water Chemistry

Salt Creek has good water quality with no exceedances of Ohio water quality standards. Some organic herbicides were detected [atrazine, metolachlor and bis(2-ethylhexyl)phthalate (DEHP)].

Sediment Chemistry

Sediment samples were collected from two locations in the Salt Creek study area by the Ohio EPA during July 28, 2008. All organic chemicals were reported as not detected. Metals and nutrients were all are below reference concentrations.

B2 Recreation Use Attainment

Bacteria impairment was common throughout the watershed. Twenty of twenty-three sites were shown to be impaired by 2008 sampling. Figure B-2 shows geometric means at each sampled site. Sites represented by green circles were attaining water quality standards. Probable sources include failing home sewage treatment systems (HSTS), agricultural uses such as improper manure management and unrestricted cattle access to streams. Sources identified for individual sites are shown in Table B-2. All sites were primary contact recreation class B.

Table B-2. Recreation use attainment table for the Salt Creek watershed.

Location	River Mile	Geometric Mean	Attainment Status	Source(s) of Bacteria[1]
Salt Creek	25.7	657	NON	A, UCA
Salt Creek	24.95	7397	NON	A, UCA
Salt Creek	23.43	690	NON	A
Salt Creek	18.3	684	NON	A
Salt Creek	12.91	567	NON	A, SD
Salt Creek	5.6	352	NON	A, SD
Salt Creek	1.1	163	NON	A SD
Prairie Fork	0.1	1596	NON	A
Georges Run	1.63	786	NON	A
Frog Run	0.36	1612	NON	A
Little Salt Creek	5.08	408	NON	A, SD
Little Salt Creek	0.11	576	NON	A, SD
White Eyes Creek	1.67	310	NON	A, SD
Buffalo Fork	6.55	242	NON	A, SD
Buffalo Fork	2.13	207	NON	A, SD
Buffalo Fork	0.7	629	NON	A, SD
Williams Fork	0.2	487	NON	A SD
Boggs Creek	4.04	1455	NON	A, UCA, SD
Boggs Creek	0.9	1168	NON	A, SD
Manns Fork	4.2	139	FULL	
Manns Fork	2.31	373	NON	A, SD
Kent Run	0.6	56	FULL	
UT Manns Fork	0.18	116	FULL	

[1] *A – Agricultural practices such as inadequate manure management.*
UCA – Unrestricted cattle access to stream.
SD - Sewage discharges in unsewered areas with inadequate or failing home sewage treatment systems.

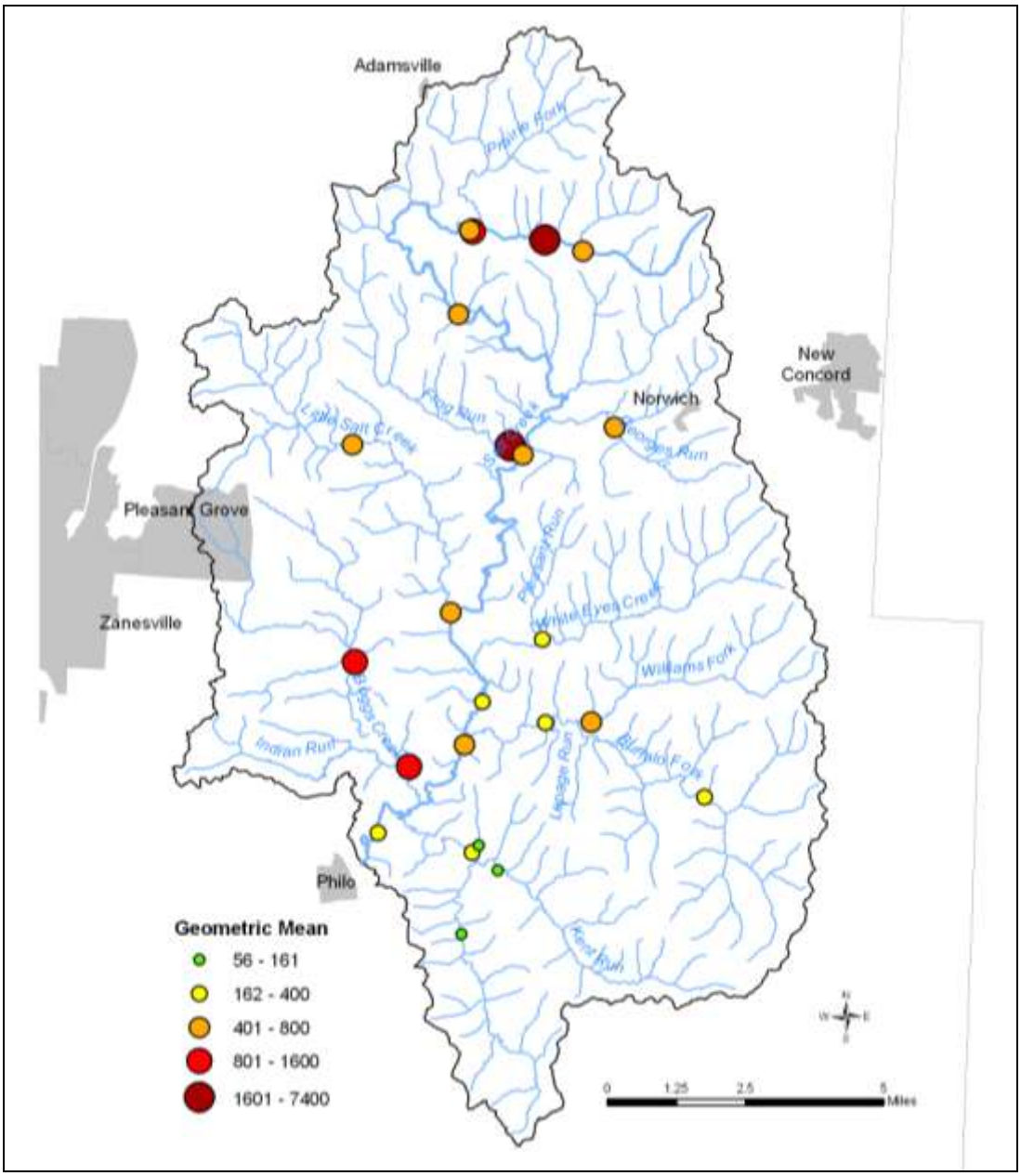

Figure B-2. Geometric means of *E. coli* at sample locations in the Salt Creek watershed.

B3 Public Drinking Water Supply Use Attainment

The Ohio Department of Natural Resources draws drinking water for Blue Rock State Park from Cutler Lake within the park. Table B-3 shows attainment information for Cutler Lake.

Table B-3. Public drinking water supply intakes in the Salt Creek watershed.

Name/Community	Waterbody	Nitrate Watch List	Atrazine Watch List	Impairment (Y/N)
Manns Fork Salt Creek (05040004 06 05)				
Blue Rock State Park	Cutler Lake	No	No	No

B4 Human Health Use Attainment

Three sites in Cutler Lake (Blue Rock State Park) were sampled for fish tissue analysis in 2008. However, there were insufficient fish tissue samples collected to complete an analysis of site attainment or use support for the nested subwatershed. Table B-4 shows human health use attainment information for Cutler Lake.

Table B-4. Human health use attainment table for the Salt Creek watershed.

Waters Sampled	Impairment (Y/N)	Pollutants (Concentration)
Manns Fork (05040004 06 05)		
Cutler Lake	N/A	N/A

B5 Special Conditions of Note

Cutler Lake is located within the 322-acre Blue Rock State Park. The 15-acre lake was constructed in 1938 and is an on-stream impoundment of Manns Fork of Salt Creek, with a maximum depth of 15 feet. The lake has a swimming beach and one boat launch, with no gasoline boat engines are allowed.

Some rare (R) or intolerant (I) fish collected in the Salt Creek watershed were the northern (R) and mountain (R) madtom, the slenderhead darter (R), and Eastern sand darter (R). All these, along with trout-perch, sand shiners, mimic shiners (I), and ghost shiners, were collected in lower Salt Creek (and elsewhere), where abundant, clean, sand and gravel bottoms occurred. Other fish species collected that are sensitive to water pollution included golden redhorse, silver redhorse, smallmouth redhorse, northern hog sucker, silver shiner, rosyface shiner, rainbow darter, logperch, and banded darter (I). Least brook lamprey, partial to cool sandy streams, was collected in two smaller headwater streams. The cold water Southern red belly dace was collected at several headwater stream sample sites, and both the cold water Southern red belly dace and the cold water redside dace were collected in Kent Run. Mottled sculpin, redside dace and Southern red belly dace are indicative of a cold water stream. The rare, cold water and pollution-sensitive fish comprised 17.3 percent of the fish community.