Revision of the 2017 Chippewa River Watershed Total Maximum Daily Load, November 2026

A recent review of the Chippewa River Watershed Total Maximum Daily Load (TMDL; U.S. Environmental Protection Agency [EPA] approval June 7, 2017) discovered the inadvertent omission of the Benson Wastewater Treatment Facility (WWTF; MN0020036) for the *Escherichia coli* (*E. coli*) TMDL developed for the Chippewa River reach 07020005-506. An *E. coli* wasteload allocation (WLA) for the Benson WWTF was calculated and is shown in Table 4.8 of the original TMDL document (Table 1 below), but it was not included in the reach 506 TMDL Table 4.14 (Page 64).

Table 1. Table 4.8 of the Chippewa River Watershed TMDL (2017): Individual WWTF *E. coli* Wasteload Allocation calculations.

City WWTF	A	B	C	A*B*C
	Permit Limit (billion org/100ml)	**Max Permitted Discharge Flow** (mgd)	**Conversion factor**	**Load** (billion org/day)
Benson	126	0.985	0.03785	4.7
Clontarf		0.212		1.01
Danvers		0.189		0.9
Evansville		0.749		3.57
Farwell Kensington		0.570		2.72
Hancock		1.372		6.54
Hoffman		2.5		11.8
Kerkhoven		0.15		0.72
Lowry		0.422		2.01
Millerville		0.254		1.21
Murdock		0.319		1.52
Starbuck		0.35		1.67
Sunburg		0.119		0.57
Urbank		0.080		0.38

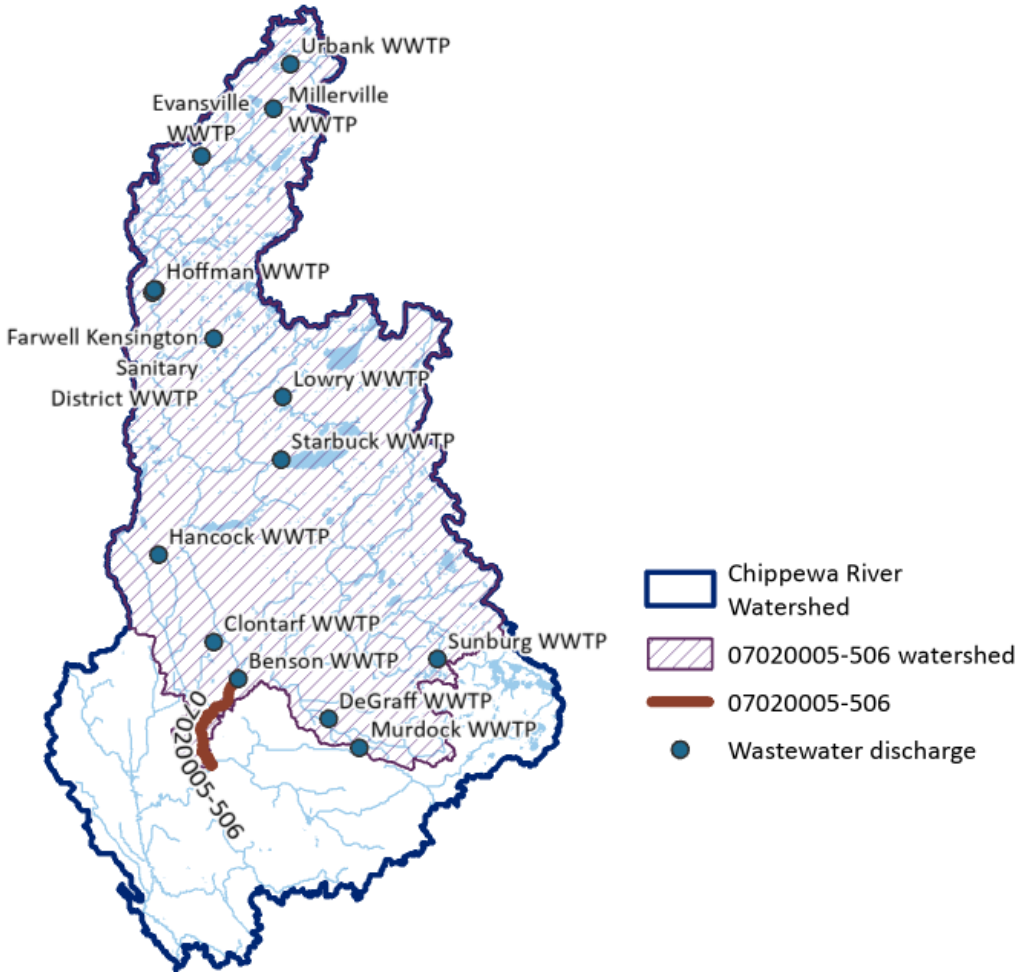
To correct this error, the Minnesota Pollution Control Agency (MPCA) developed this TMDL revision to include the WLA for the Benson WWTF by reducing the load allocation (LA) the commensurate amount to account for addition of the Benson WLA. The basis for the original TMDL report remains the same: water quality standards, pollutant source assessment, and load duration curve approach to TMDL calculations. The approaches to calculating loading capacities, wastewater WLAs, LAs, and margins of safety (MOS) in the original TMDL report (Sections 4.2.1, 4.3.1, 4.4, and 4.5.1 respectively) are unchanged and were used to recalculate the revised TMDL table presented below. The TMDL revision does not change the implementation strategy in Section 8 of the 2017 approved TMDL report.

The De Graff WWTF permit (MNG585398) was issued after the 2017 TMDL report was approved, and an *E. coli* WLA modification to the 2017 *E. coli* TMDL was completed with the DeGraff WWTF permit issuance in 2018. The De Graff WWTF WLA and modified loading capacity are reflected in the modified TMDL table below.

The following information enhances the reasonable assurance in Section 6 of the approved TMDL: The MPCA has awarded over $17M to counties in the Chippewa River Watershed for low interest loans for Subsurface Sewage Treatment System (SSTS) upgrades since 2010. Since 2017, approximately 2,000 SSTS replacements have occurred in the Chippewa River Watershed including 150 in Swift County where reach 506 is located. The Lower Chippewa (including reach 506) is prioritized for implementation efforts in the Chippewa River Comprehensive Watershed Management Plan: August 2024. The Projects, Practices, and Support Action Table for the Lower Chippewa includes focus on soil health practices, bacteria management practices, and structural practices. Approval of the comprehensive watershed management plan in 2024 means funding is available for these implementation efforts, which will help reduce pathogen delivery to the Chippewa River.

The revised TMDL table in this memo replaces Table 4.14 in Section 4.7 of the 2017 approved TMDL report. Table 4.14 includes all the *E. coli* TMDLs addressed by the 2017 Chippewa River Watershed TMDL but the only change to the table is the inclusion of the Benson WWTF and De Graff WWTF WLAs to reach 506, in addition to the expanded loading capacity of reach 506 that was part of the De Graff WWTF 2018 permit issuance.

Figure 1. Map of WWTFs in the Chippewa River WID 506 watershed.



Original 2017 approved and revised TMDL report table

Chippewa River E Br Chippewa River to Shakopee Creek (07020005-506) *E. coli* TMDL

Original 2017 approved TMDL

Table 4.14. *E. coli* loading capacities and allocations for stream reaches.

E. coli						
Chippewa River E Br Chippewa River to Shakopee Creek AUID# 07020005-506		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		5,112.0	2,163.5	1,089.2	518.4	224.5
Margin of Safety		511.2	216.4	108.9	51.8	22.5
Wasteload Allocation						
Permitted Wastewater Treatment Facilities	Clontarf	1.01	1.01	1.01	1.01	1.01
	Evansville	3.57	3.57	3.57	3.57	3.57
	Farwell/Kensington	2.72	2.72	2.72	2.72	2.72
	Hancock	6.54	6.54	6.54	6.54	6.54
	Hoffman	11.8	11.8	11.8	11.8	11.8
	Lowry	2.01	2.01	2.01	2.01	2.01
	Millerville	1.21	1.21	1.21	1.21	1.21
	Murdock	1.52	1.52	1.52	1.52	1.52
	Starbuck	1.67	1.67	1.67	1.67	1.67
	Sunburg	0.57	0.57	0.57	0.57	0.57
	Urbank	0.38	0.38	0.38	0.38	0.38
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		4,567.8	1,914.1	947.3	433.6	169
E. coli						
Cottonwood Creek T120 R41W S21, west line to Chippewa River AUID# 07020005-511		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		525.5	192.4	91.1	46.0	19.0
Margin of Safety		52.3	19.2	9.1	4.6	1.9
Wasteload Allocation						
City of Danvers Wastewater Treatment Facility		0.9	0.9	0.9	0.9	0.9
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		472.3	172.3	81.1	40.5	16.2
E. coli						
East Branch Chippewa River		**FLOW ZONE**				

Headwaters (Amelia Lake 61-0064-00) to Mud Creek AUID# 07020005-515		Very High	High	Mid	Low	Very Low
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		826.0	336.7	173.8	88.4	37.0
Margin of Safety		82.6	33.7	17.4	8.8	3.7
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		*	*	*	*	*
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		743.4	303	156.4	79.6	33.3
E. coli						
South Mud Creek T121 R39W S2, south line to East Branch Chippewa River AUID# 07020005-518		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		420.5	175.3	87.2	40.9	20.1
Margin of Safety		42.1	17.5	8.7	4.1	2.0
Wasteload Allocation						
City of Murdock Wastewater Treatment Facility		1.52	1.52	1.52	1.52	1.52
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		376.9	156.3	77	35.3	16.6
E. coli						
Outlet Creek Lake Minnewaska to Lake Emily AUID# 07020005-523		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		359.3	110.4	38.7	18.1	7.2
Margin of Safety		35.9	11.0	3.9	1.8	0.7
Wasteload Allocation						
Permitted Wastewater Treatment Facilities	Lowry	2.01	2.01	2.01	2.01	2.01
	Starbuck	1.67	1.67	1.67	1.67	1.67
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		319.7	95.7	31.1	12.6	2.8
E. coli						
North Mud Creek CD 15 to East Branch Chippewa River AUID# 07020005-554		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		553.8	222.9	104.8	50.9	22.9
Margin of Safety		55.4	22.3	10.5	5.1	2.3
Wasteload Allocation						

City of Sunburg Wastewater Treatment Facility	0.57	0.57	0.57	0.57	0.57
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	497.8	200	93.7	45.2	20
E. coli					
Shakopee Creek Swan Lake to Shakopee Lake AUID# 07020005-557	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	617.4	235.6	98.0	36.2	9.8
Margin of Safety	61.7	23.6	9.8	3.6	1.0
Wasteload Allocation					
City of Kerkhoven Wastewater Treatment Facility	0.72	0.72	0.72	0.72	0.72
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	555	211.3	87.5	31.9	8.1
E. coli					
County Ditch 3 County Ditch 7 to Chippewa River AUID# 07020005-579	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	397.6	154.9	78.0	39.6	17.1
Margin of Safety	39.8	15.5	7.8	4.0	1.7
Wasteload Allocation					
City of Kerkhoven Wastewater Treatment Facility	0.72	0.72	0.72	0.72	0.72
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	357.1	138.7	69.5	34.9	14.7
E. coli					
Tributary to Chippewa River Unnamed creek to Chippewa River AUID# 07020005-584	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	124.5	45.5	21.3	10.6	4.4
Margin of Safety	12.5	4.6	2.1	1.1	0.4
Wasteload Allocation					
Permitted Wastewater Treatment Facilities	*	*	*	*	*
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	112	40.9	19.2	9.5	4
E. coli					

Trappers Run Creek Strandness Lake to Pelican Lake AUID# 07020005-628	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	134.2	54.8	29.3	14.4	6.0
Margin of Safety	13.4	5.5	2.9	1.4	0.6
Wasteload Allocation					
City of Lowry Wastewater Treatment Facility	2.01	2.01	2.01	2.01	2.01
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	118.8	47.3	24.4	11	3.4
E. coli					
Little Chippewa River Unnamed creek to County Ditch 2 AUID# 07020005-713	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	352.7	143.5	77.2	36.9	14.6
Margin of Safety	35.3	14.4	7.7	3.7	1.5
Wasteload Allocation					
Permitted Wastewater Treatment Facilities	*	*	*	*	*
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	317.4	129.1	69.5	33.2	13.1
E. coli					
Huse Creek Headwaters to Norway Lake AUID# 07020005-917	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	10.0	4.0	1.8	0.9	0.4
Margin of Safety	1.0	0.4	0.2	0.09	0.04
Wasteload Allocation					
Permitted Wastewater Treatment Facilities	*	*	*	*	*
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	9	3.6	1.6	0.8	0.36

*None located within watershed

Revised TMDL to include Benson and De Graff WWTFs

Table 4.14. *E. coli* loading capacities and allocations for stream reaches.
Changes to the TMDL table are highlighted in yellow.

E. coli						
Chippewa River E Br Chippewa River to Shakopee Creek AUID# 07020005-506		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		5,113.4	2,164.9	1,090.6	519.8	225.9
Margin of Safety		511.2	216.4	108.9	51.8	22.5
Wasteload Allocation						
Permitted Wastewater Treatment Facilities	Benson	4.7	4.7	4.7	4.7	4.7
	Clontarf	1.01	1.01	1.01	1.01	1.01
	De Graff	1.38	1.38	1.38	1.38	1.38
	Evansville	3.57	3.57	3.57	3.57	3.57
	Farwell/Kensington	2.72	2.72	2.72	2.72	2.72
	Hancock	6.54	6.54	6.54	6.54	6.54
	Hoffman	11.8	11.8	11.8	11.8	11.8
	Lowry	2.01	2.01	2.01	2.01	2.01
	Millerville	1.21	1.21	1.21	1.21	1.21
	Murdock	1.52	1.52	1.52	1.52	1.52
	Starbuck	1.67	1.67	1.67	1.67	1.67
	Sunburg	0.57	0.57	0.57	0.57	0.57
	Urbank	0.38	0.38	0.38	0.38	0.38
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		4,563.1	1,909.4	942.6	428.9	164.3
E. coli						
Cottonwood Creek T120 R41W S21, west line to Chippewa River AUID# 07020005-511		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		525.5	192.4	91.1	46.0	19.0
Margin of Safety		52.3	19.2	9.1	4.6	1.9
Wasteload Allocation						
City of Danvers Wastewater Treatment Facility		0.9	0.9	0.9	0.9	0.9
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		472.3	172.3	81.1	40.5	16.2
E. coli						
East Branch Chippewa River		**FLOW ZONE**				

Headwaters (Amelia Lake 61-0064-00) to Mud Creek AUID# 07020005-515		Very High	High	Mid	Low	Very Low
		E. coli (billion organisms per day)				
Average Daily Loading Capacity		826.0	336.7	173.8	88.4	37.0
Margin of Safety		82.6	33.7	17.4	8.8	3.7
Wasteload Allocation						
Permitted Wastewater Treatment Facilities		*	*	*	*	*
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		743.4	303	156.4	79.6	33.3
E. coli						
South Mud Creek T121 R39W S2, south line to East Branch Chippewa River AUID# 07020005-518		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		420.5	175.3	87.2	40.9	20.1
Margin of Safety		42.1	17.5	8.7	4.1	2.0
Wasteload Allocation						
City of Murdock Wastewater Treatment Facility		1.52	1.52	1.52	1.52	1.52
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		376.9	156.3	77	35.3	16.6
E. coli						
Outlet Creek Lake Minnewaska to Lake Emily AUID# 07020005-523		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		359.3	110.4	38.7	18.1	7.2
Margin of Safety		35.9	11.0	3.9	1.8	0.7
Wasteload Allocation						
Permitted Wastewater Treatment Facilities	Lowry	2.01	2.01	2.01	2.01	2.01
	Starbuck	1.67	1.67	1.67	1.67	1.67
Livestock facilities requiring NPDES permits		0	0	0	0	0
"Straight Pipe" Septic Systems		0	0	0	0	0
Load Allocation		319.7	95.7	31.1	12.6	2.8
E. coli						
North Mud Creek CD 15 to East Branch Chippewa River AUID# 07020005-554		**FLOW ZONE**				
		Very High	**High**	**Mid**	**Low**	**Very Low**
		***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity		553.8	222.9	104.8	50.9	22.9
Margin of Safety		55.4	22.3	10.5	5.1	2.3
Wasteload Allocation						

City of Sunburg Wastewater Treatment Facility	0.57	0.57	0.57	0.57	0.57
Livestock facilities requiring NPDES permits	0	0	0	0	0
“Straight Pipe” Septic Systems	0	0	0	0	0
Load Allocation	497.8	200	93.7	45.2	20
E. coli					
Shakopee Creek Swan Lake to Shakopee Lake AUID# 07020005-557	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	617.4	235.6	98.0	36.2	9.8
Margin of Safety	61.7	23.6	9.8	3.6	1.0
Wasteload Allocation					
City of Kerkhoven Wastewater Treatment Facility	0.72	0.72	0.72	0.72	0.72
Livestock facilities requiring NPDES permits	0	0	0	0	0
“Straight Pipe” Septic Systems	0	0	0	0	0
Load Allocation	555	211.3	87.5	31.9	8.1
E. coli					
County Ditch 3 County Ditch 7 to Chippewa River AUID# 07020005-579	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	397.6	154.9	78.0	39.6	17.1
Margin of Safety	39.8	15.5	7.8	4.0	1.7
Wasteload Allocation					
City of Kerkhoven Wastewater Treatment Facility	0.72	0.72	0.72	0.72	0.72
Livestock facilities requiring NPDES permits	0	0	0	0	0
“Straight Pipe” Septic Systems	0	0	0	0	0
Load Allocation	357.1	138.7	69.5	34.9	14.7
E. coli					
Tributary to Chippewa River Unnamed creek to Chippewa River AUID# 07020005-584	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	124.5	45.5	21.3	10.6	4.4
Margin of Safety	12.5	4.6	2.1	1.1	0.4
Wasteload Allocation					
Permitted Wastewater Treatment Facilities	*	*	*	*	*
Livestock facilities requiring NPDES permits	0	0	0	0	0
“Straight Pipe” Septic Systems	0	0	0	0	0
Load Allocation	112	40.9	19.2	9.5	4
E. coli					

Trappers Run Creek Strandness Lake to Pelican Lake AUID# 07020005-628	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	134.2	54.8	29.3	14.4	6.0
Margin of Safety	13.4	5.5	2.9	1.4	0.6
Wasteload Allocation					
City of Lowry Wastewater Treatment Facility	2.01	2.01	2.01	2.01	2.01
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	118.8	47.3	24.4	11	3.4
E. coli					
Little Chippewa River Unnamed creek to County Ditch 2 AUID# 07020005-713	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	352.7	143.5	77.2	36.9	14.6
Margin of Safety	35.3	14.4	7.7	3.7	1.5
Wasteload Allocation					
Permitted Wastewater Treatment Facilities	*	*	*	*	*
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	317.4	129.1	69.5	33.2	13.1
E. coli					
Huse Creek Headwaters to Norway Lake AUID# 07020005-917	**FLOW ZONE**				
	Very High	**High**	**Mid**	**Low**	**Very Low**
	***E. coli* (billion organisms per day)**				
Average Daily Loading Capacity	10.0	4.0	1.8	0.9	0.4
Margin of Safety	1.0	0.4	0.2	0.09	0.04
Wasteload Allocation					
Permitted Wastewater Treatment Facilities	*	*	*	*	*
Livestock facilities requiring NPDES permits	0	0	0	0	0
"Straight Pipe" Septic Systems	0	0	0	0	0
Load Allocation	9	3.6	1.6	0.8	0.36

*None located within watershed