E. coli Success Stories

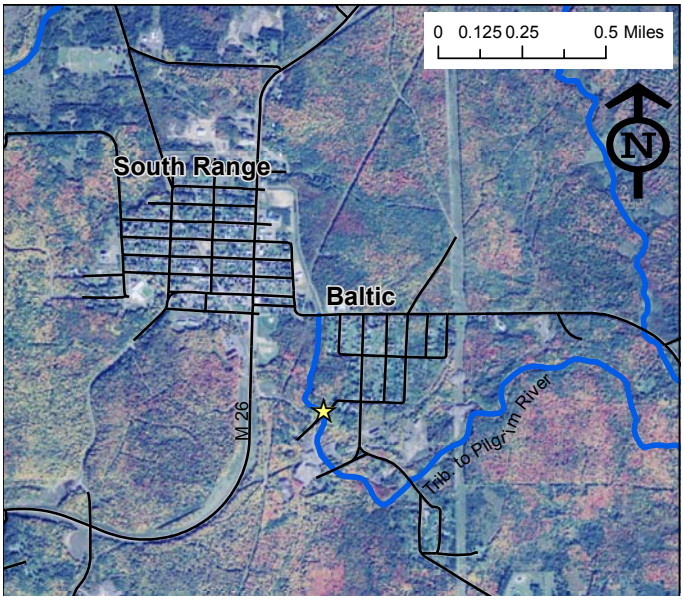

Figure 1. Map of the Baltic, Michigan area. Sampling site is marked with a star.

Success Story – Elimination of Raw Human Sewage Discharges to an Unnamed Tributary to the Pilgrim River, Houghton County

An unnamed tributary to the Pilgrim River in Houghton County, Adams Township was appropriately known to local residents as "the Baltic Sewer" (Taft 1997). Sewage from local residences discharged via straight pipes to hill sides and flowed downhill or seeped into the ground in old mining depressions. Additionally, sewage was also directly entering surface waters via a makeshift collection system that discharged directly to the tributary. Sampling of a discharge pipe just upstream of Laitila Rd contained *E. coli* concentrations greater than 10,000. Downstream of that pipe, the tributary had a geometric mean of 2,160 *E. coli* per 100mL (Kohlhepp 2007). At that time, this tributary (AUID 040201030302-02), was put on the 2008 federal Clean Water Act Section 303(d) List as impaired by *E. coli*, and a Total Maximum Daily Load was scheduled for 2014.

In 1990, Upper Peninsula District staff entered into a compliance agreement with Adams Township that required the township to set up an escrow account to fund construction of a sewer system to eliminate the raw sewage discharges from a population of 1000. The population was scattered in four former mining locations: Atlantic Mine, Trimountain, Painesdale and Baltic. The township had previously been offered a 75% grant for the system by EPA, but were unable to secure the local share due their low median household income/unaffordably high monthly rates that would be needed to repay the loans. The township collected and saved $10 per household per month. These savings were used to reduce monthly sewer rates once the systems were built. Sewer systems/lagoons were constructed sequentially for each location as grant/loan monies became available from US Rural Development Administration, culminating with the construction of the collection system for Baltic in 2011. Connections to the new sewer were made slowly, but finally in September 2013 all raw sewage discharges had been eliminated.

In October 2013 the DEQ collected 5 weeks of *E. coli* samples from the tributary at Laitila Rd at the same location where high *E. coli* was recorded previously. The results showed that the total and partial body contact WQS are being met in the tributary (Table 1). This water body was listed as fully attaining the total and partial body contact WQS in the 2014 Integrated Report and no TMDL was needed, thanks to the efforts of Adams Township, many MDEQ employees, and the Western UP District Health Department.

Table 1. MDEQ E. coli data collected after illicit connections and failing septics were remedied.

		Trib to Pilgrim River			**24-hour prior precipitation**
Date		Sample Results	Daily Geometric Mean	30-Day Geometric Mean	
10/3/2013	L	**250**			
	C	**200**			
	R	**340**	**257**		**0.25**
10/9/2013	L	**12**			
	C	**23**			
	R	**16**	**16**		**0**
10/17/2013	L	**64**			
	C	**48**			
	R	**43**	**51**		**trace**
10/24/2013	L	**80**			
	C	**54**			
	R	**50**	**60**		**trace**
10/31/2013	L	**44**			
	C	**70**			
	R	**77**	**62**	**60**	**0.1**

References:

Kohlhepp, G. E., K.; Taft, W. (2007). A Biological Survey of Lake Superior Tributaries from the Keweenaw Peninsula to the Carp River: Baraga, Houghton, Iron, Marquette, and Ontonagon Counties, Michigan. Department of Environmental Quality. Staff Report: MI/DEQ/WB-07/080.

Taft, W. H. (1997). A Biological Survey of the Pilgrim River Downstream of the Historic Baltic Mining District at Painesdale, Trimountain and Baltic, MI, Houghton Cty., MI, July 9-10, 1996. Staff Report: MI/DEQ/SWQ-97/027.