

Table S3. PCoA environmental and demographic variable correlation coefficients

Factors <sup>1</sup>	Human Fecal Oligotypes				Non-Fecal Oligotypes			
	All Samples <sup>2</sup>	August	January	May	All Samples <sup>1</sup>	August	January	May
Sample Period	0.09***	n/a	n/a	n/a	0.13***	n/a	n/a	n/a
Temperature Profile <sup>3</sup>	0.04*	0.07	0.08	0.02	0.39***	0.29***	0.36***	0.52***
Longitude	0.02	0.01	0.05	0.03	0.04*	0.01	0.06	0.17*
Sample Type	0.03*	0.03	0.01	0.04	0.03*	0.01	0.01	0.05
Sewer System	0.03*	0.02	0.04	0.04	0.06***	0.06**	0.05*	0.11**
Population Size	0.01	0.03	0.00	0.02	0.00	0.01	0.00	0.00
Obesity %	0.06**	0.06	0.08	0.11*	0.02	0.02	0.02	0.06
Median Age	0.03*	0.09*	0.01	0.04	0.00	0.00	0.03	0.00
Biological Oxygen Demand <sup>4</sup>	0.00	n/a	n/a	n/a	0.05*	n/a	n/a	n/a
Daily Average Flow	0.03	n/a	n/a	n/a	0.00	n/a	n/a	n/a
Total Nitrogen	0.05	n/a	n/a	n/a	0.03	n/a	n/a	n/a
Total Phosphorus	0.02	n/a	n/a	n/a	0.04	n/a	n/a	n/a
Total Suspended Solids	0.04	n/a	n/a	n/a	0.01	n/a	n/a	n/a

1. Significance level \*\*\* p<0.001, \*\* p<0.01, \*p<0.05

2. All sample periods were included together for this analysis.

3. The temperature profile of a city was calculated from the previous 30-year average high and low temperatures for each of the three sewage collection days for a city. See SI Materials and Methods for details.

4. Some samples do not include measurements for the environmental variables beginning with Biological oxygen demand. Correlation analyses were conducted separately for each environmental variable with missing data so that only those samples with measurements for that variable were included. The total number of samples (out of 207 total) included in each analysis was Biological oxygen demand – 124, Daily average flow – 179, Total nitrogen – 78, Total phosphorus – 80, and Total suspended solids – 159.