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Ford City/Freeport
Exploratory Data Report
April 2, 2009

EXPLORATORY DATA REPORT/ESTROGENICITY OF SHAD SPECIES

The following are graphs from the Allegheny River Project showing composites of fish samples taken from both Freeport and Ford City locations. All graphs display sample dilution vs. calculated mean estrogenicity index. The dilutions are displayed as integers based on the multiplication factor for the particular dilution. For example, the least dilute sample was 1/4000 and is displayed as 4000; the strongest sample concentration is 1/100 and is displayed as 100.

Our hypothesis will test whether or not the locations have different mean estrogenicity indexes, and it was predicted that Freeport will have higher estrogenicity indexes due to higher amounts of Combined Sewer Overflows (CSOs) and Sanitary Sewer Overflows (SSOs).

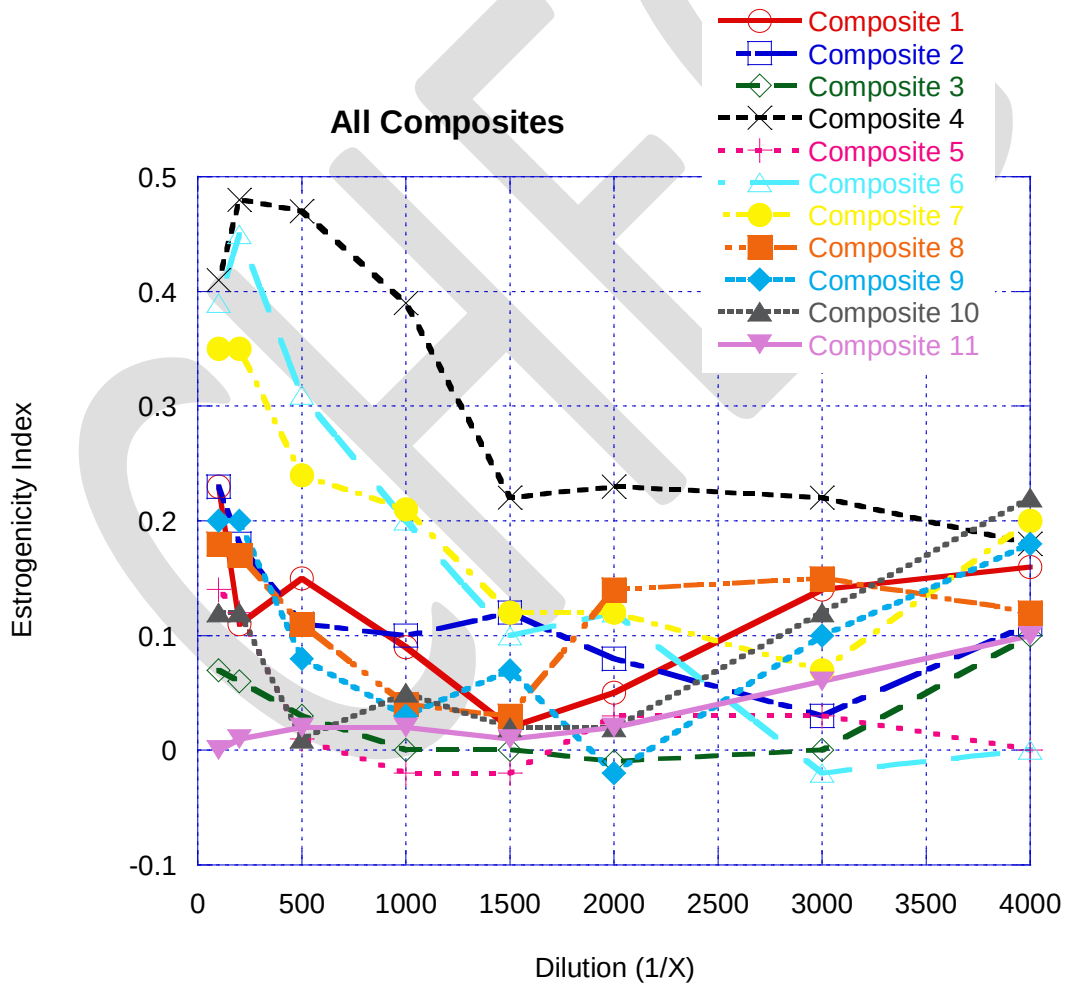

Figure 1: All Composites. This graph shows all composite data from both the Freeport and Ford City locations.

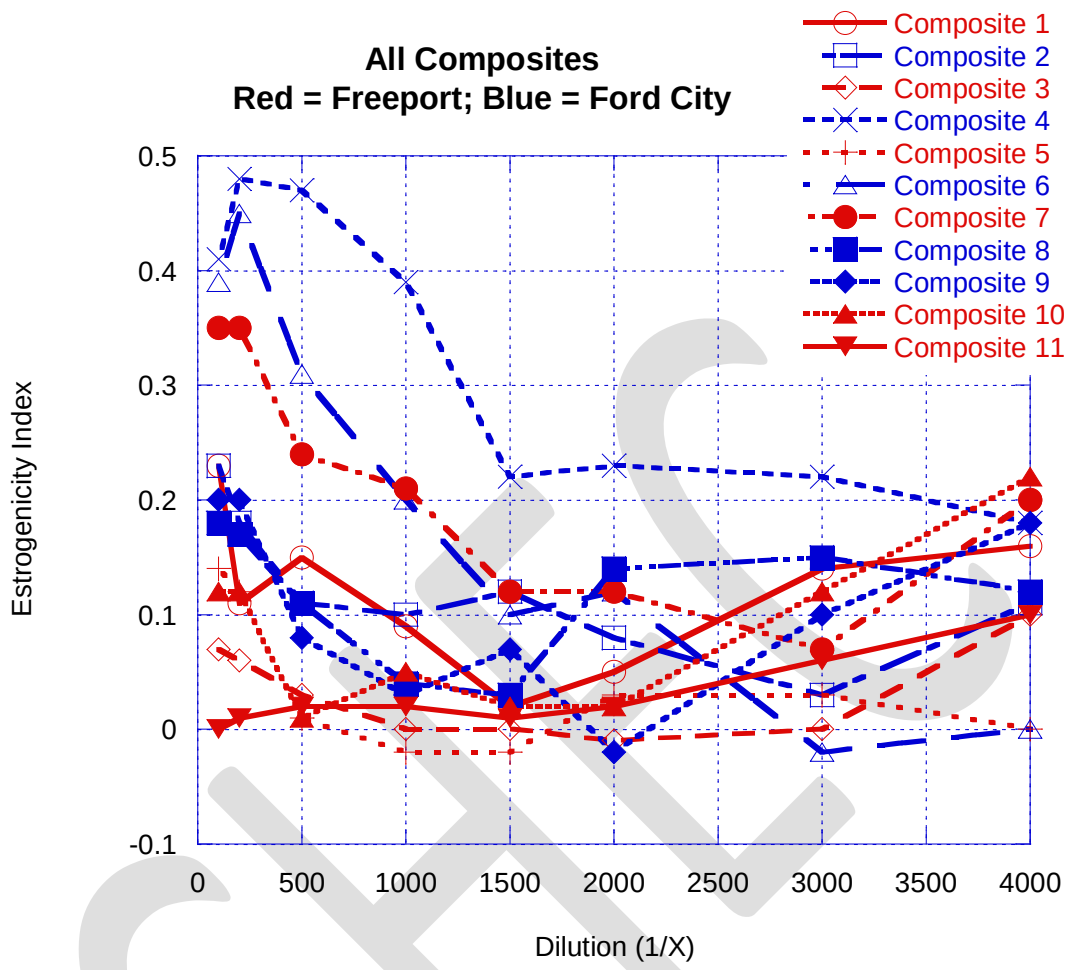

Figure 2: All Composites by Location. This figure shows all composite data separated by location. The red composites are from Freeport and the blue composites are from Ford City. One can see that the Ford City location contains two of the highest estrogenicity values, which goes against what our original prediction.

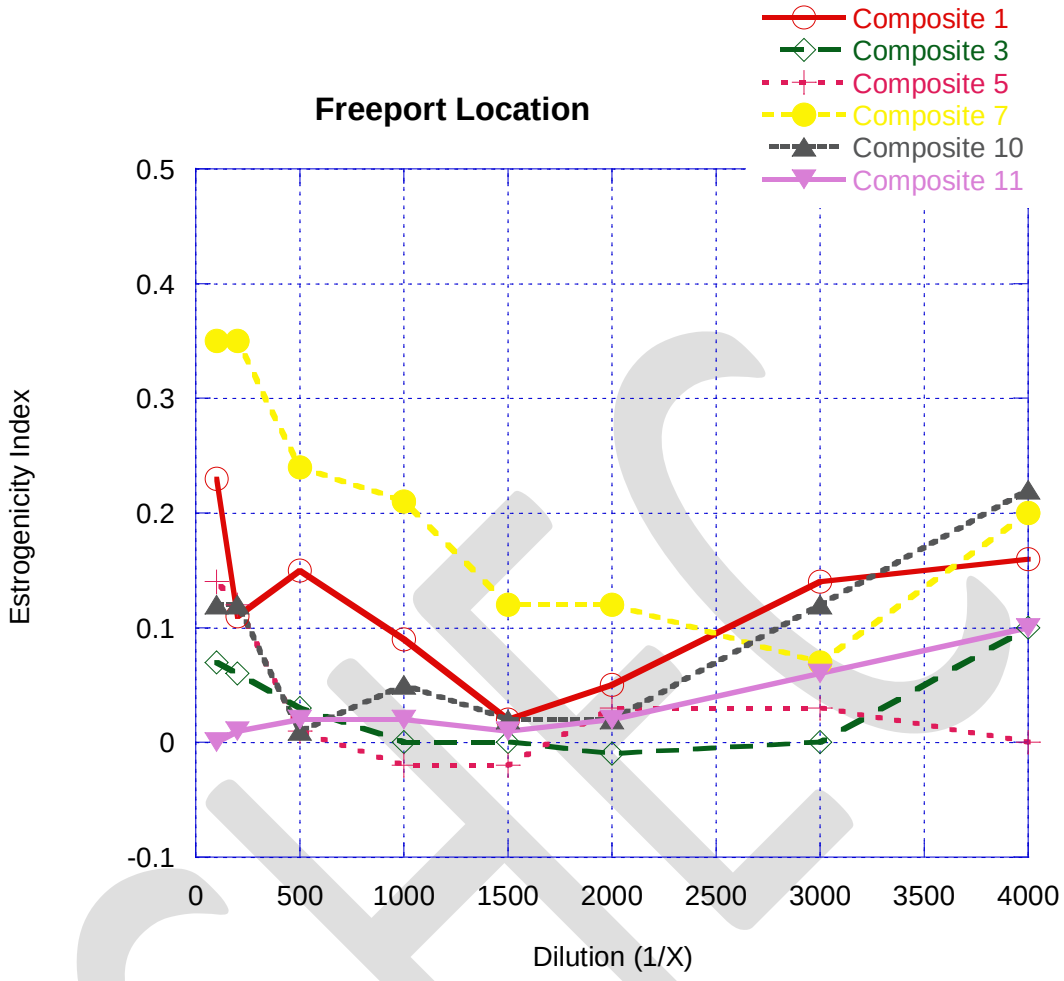

Figure 3: Freeport Location. This graph shows the composites from the Freeport location only.

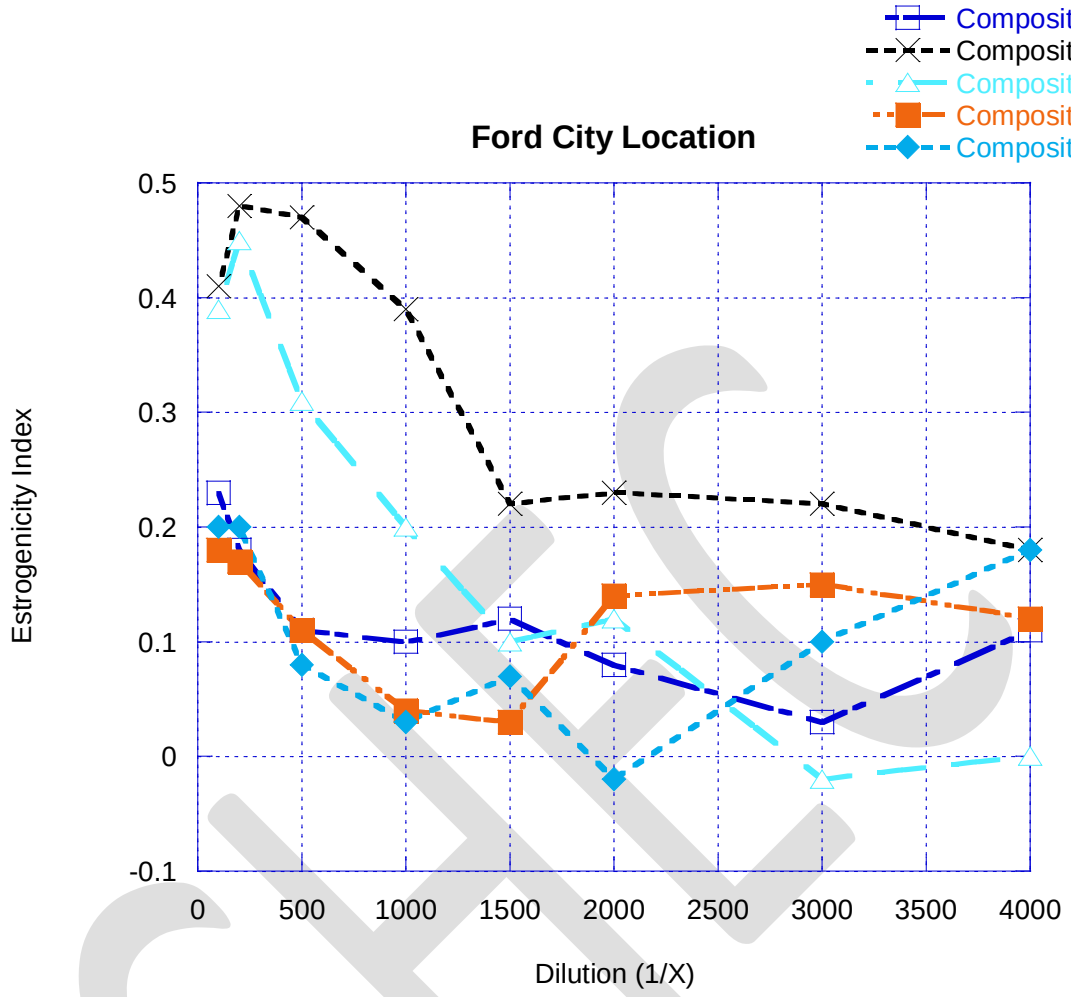

Figure 4: Ford City Location. This graph shows the composites from the Ford City location only. Composites 4 and 6 appear to be possible outliers. Statistical analysis should explore the extent to which these two composites influence the results.

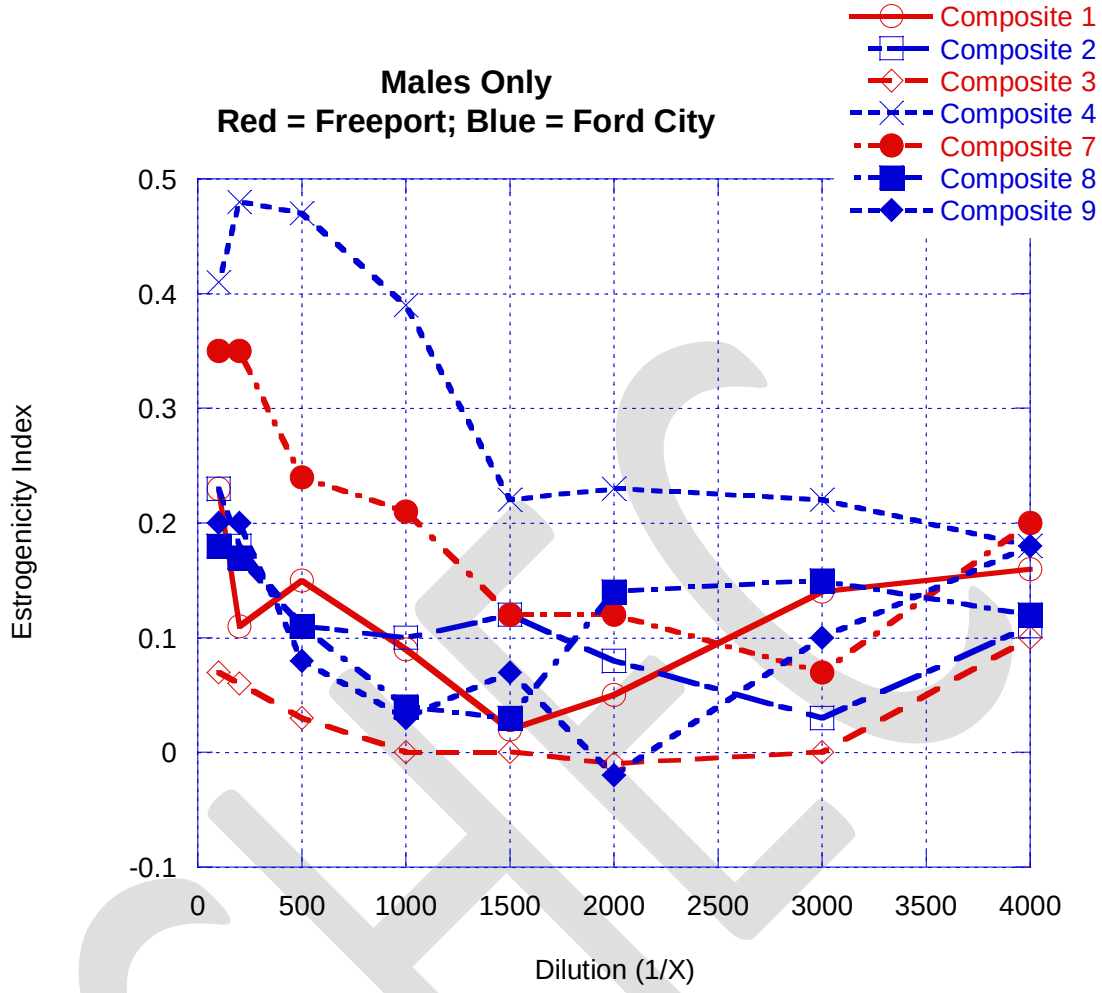

Figure 5: Males Only. This graph shows the male composites by location. The red composites are from Freeport and the blue composites are from Ford City. It appears that there may be some statistical interactions.

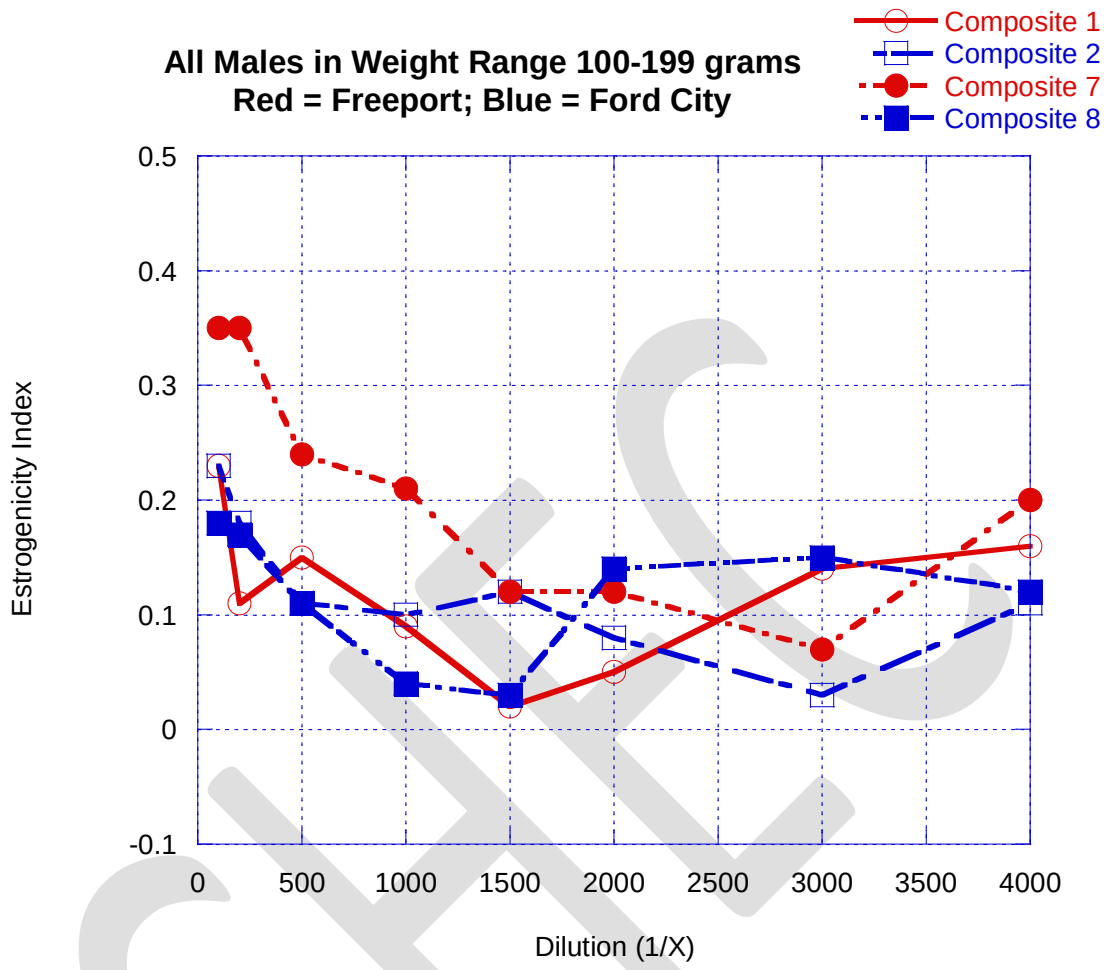

Figure 6: All Males in Weight Range 100-199 grams. This graph shows the male composites in weight range 100-199 grams, by location. The red composites are from Freeport and the blue composites are from Ford City. It appears that there may be some statistical interactions here.

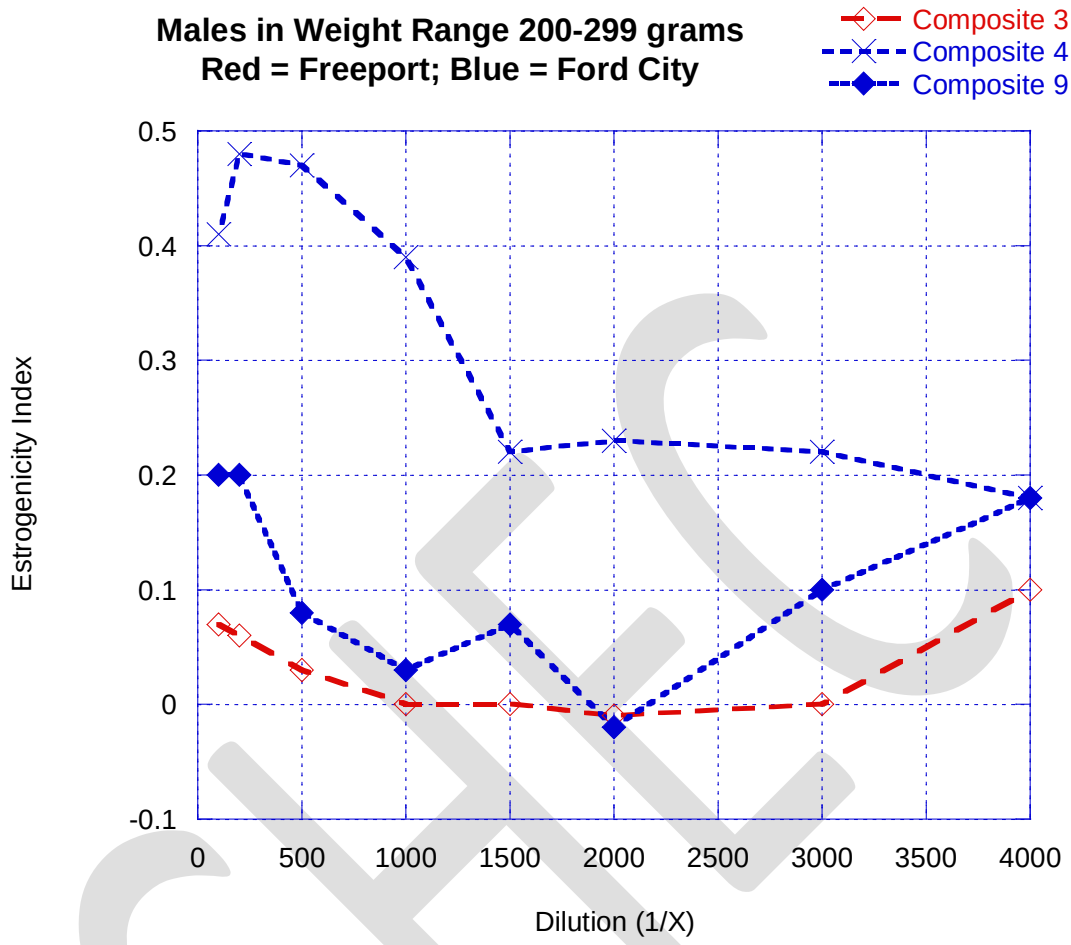

Figure 7: Males in Weight Range 200-299 grams. This graph shows the male composites, by location. The red composites are from Freeport and the blue composites are from Ford City.

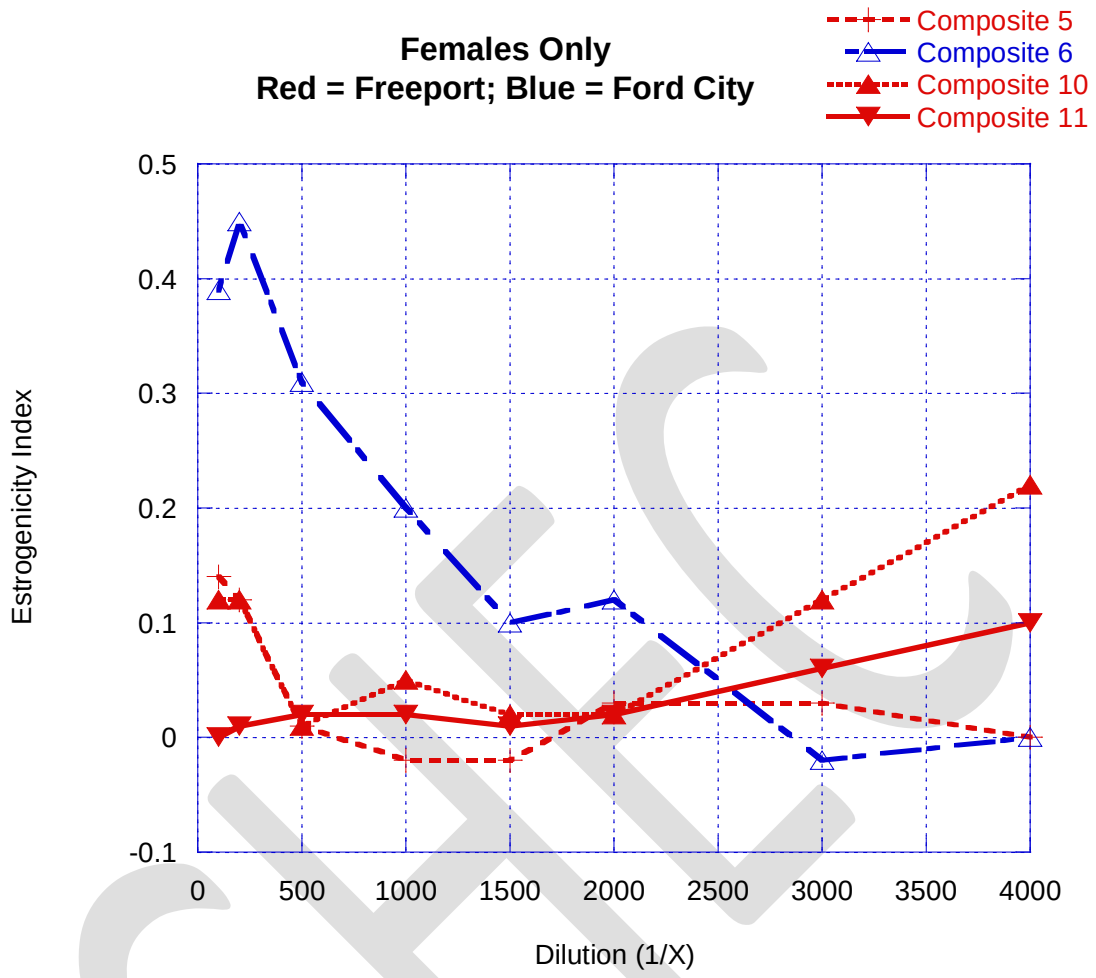

Figure 8: Females Only. This graph shows the female composites by location. The red composites are from Freeport and the blue composites are from Ford City. It appears that there may be some statistical interactions.

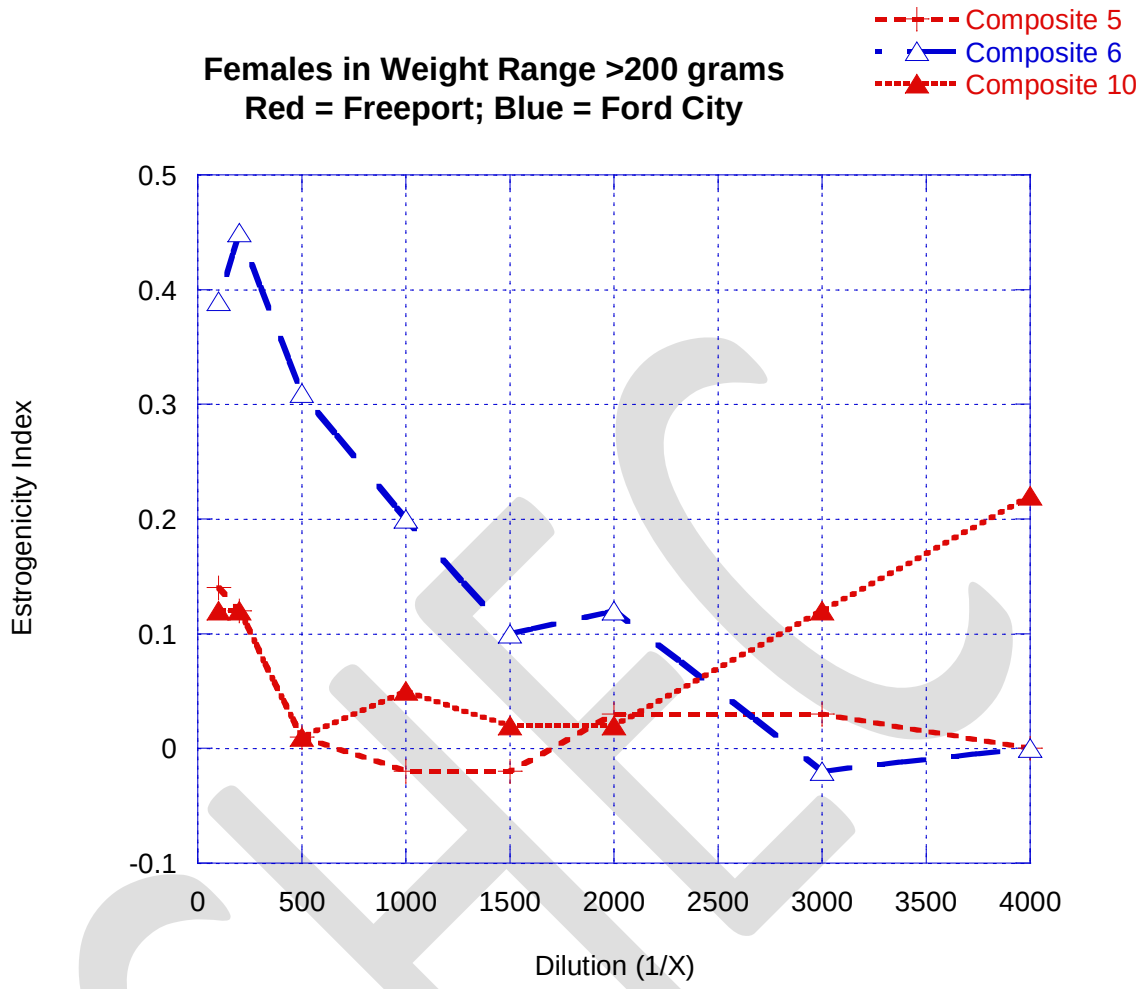

Figure 9: Females in Weight Range >2 00 grams by Location. This graph shows the female composites in weight range > 200 grams, by location. The red composites are from Freeport and the blue composites are from Ford City. It appears that there may be some statistical interactions here.

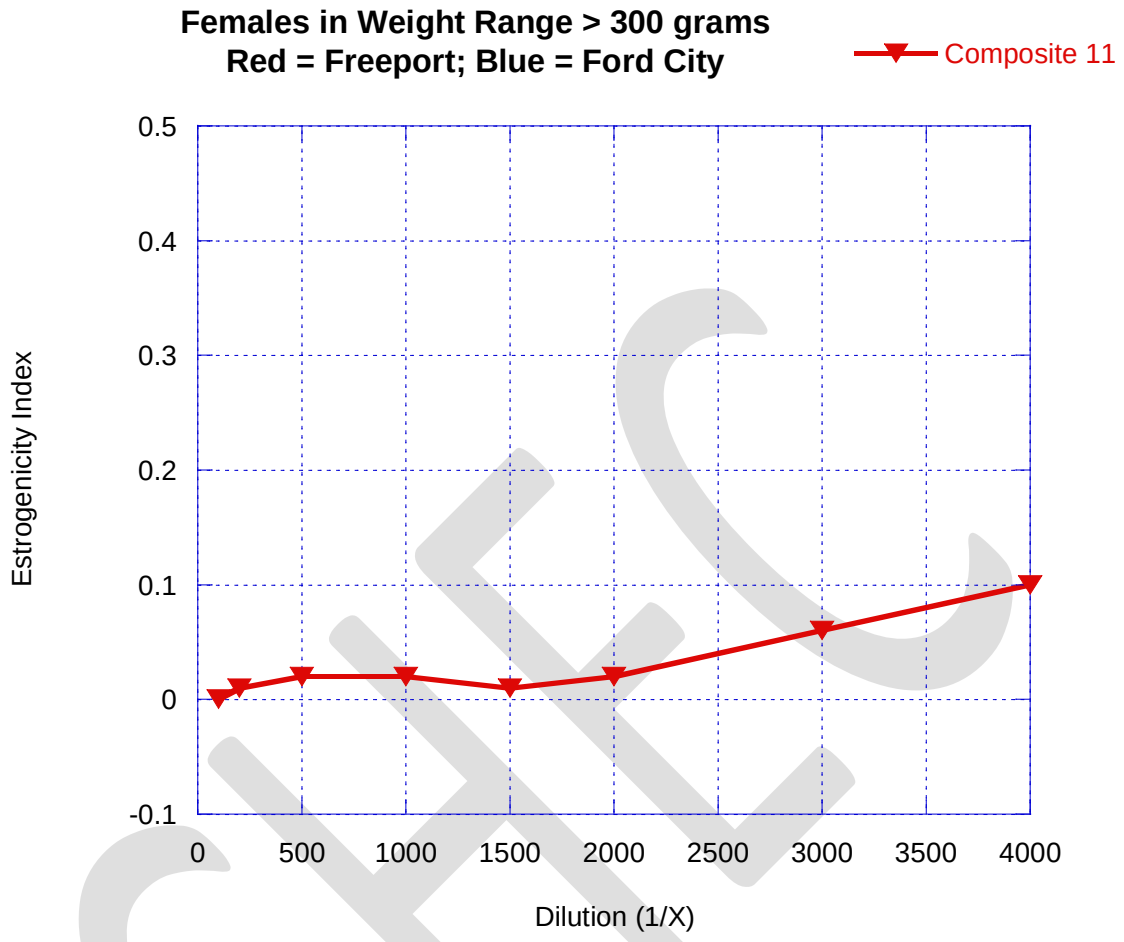

Figure 10: Female in Weight Range > 300 grams. This graph shows the female composite in weight range > 300 grams, by location. There is only one composite in this category and it is from Freeport.