Figure 1 displays a bar graph representing the total abundance of each fish species across all sites. The dataset shows that fewer than one-third of the species dominate the total population. This uneven distribution may suggest an ecological imbalance — where dominant species could represent prey or schooling fish, while the less common species may include predators or habitat specialists.

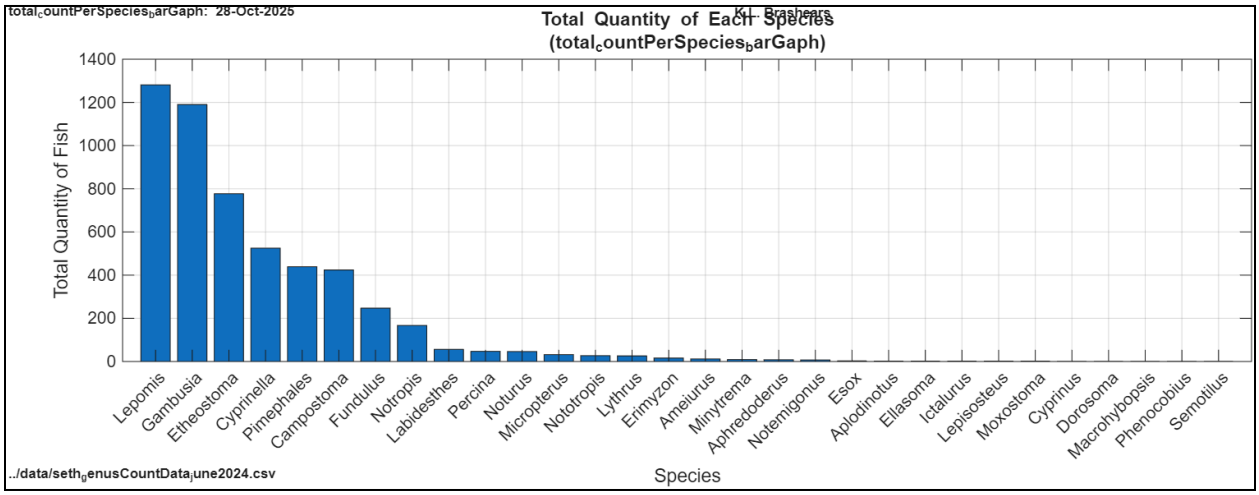


Figure 1: Total Quantity of Species

Figure 2 shows both the total fish population and the number of species recorded at each sampling site. This visualization highlights potential imbalances between population size and species richness, helping to identify locations where diversity may be disproportionately low or high relative to abundance.

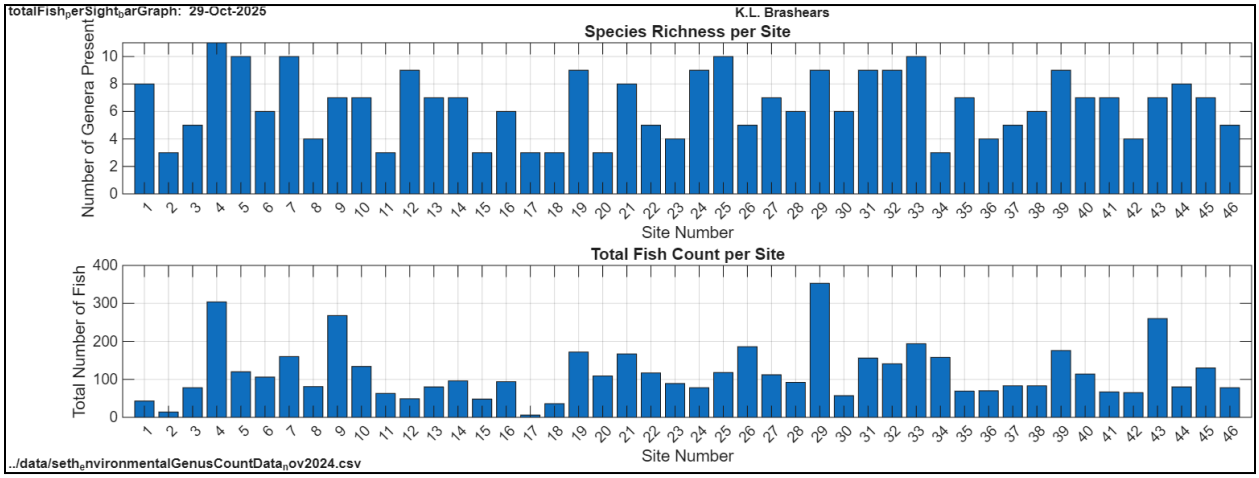


Figure 3 presents the same data as Figure 2 but sorted in descending order. This makes it easier to identify which sites are particularly hospitable or stressed, based on their combined population and species counts.

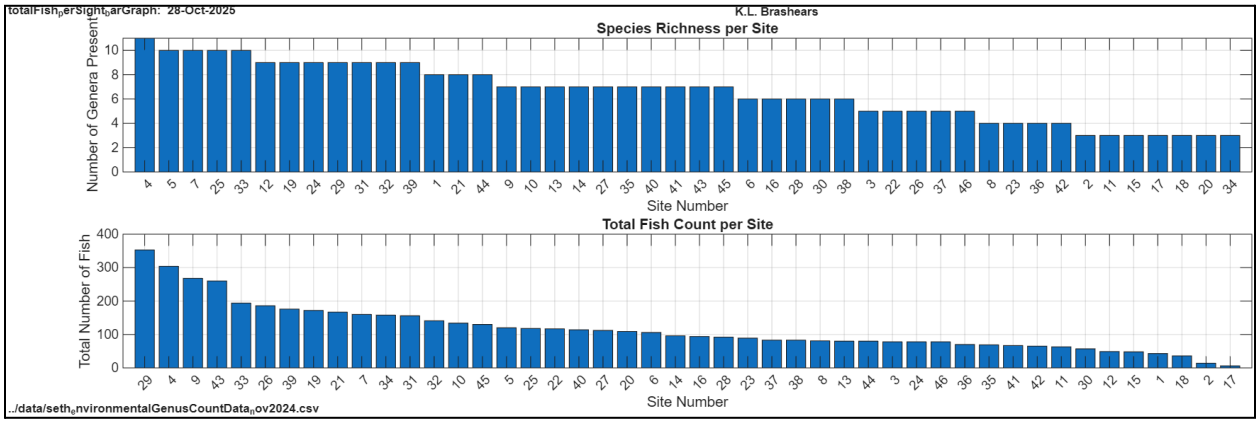


Figure 3: Total Species and Population of Each Site

Figure 4 provides a correlation heatmap showing relationships between environmental site attributes and total fish population and species richness. This visualization quickly identifies which environmental variables are most strongly associated with fish community metrics and may serve as predictors in future modeling.

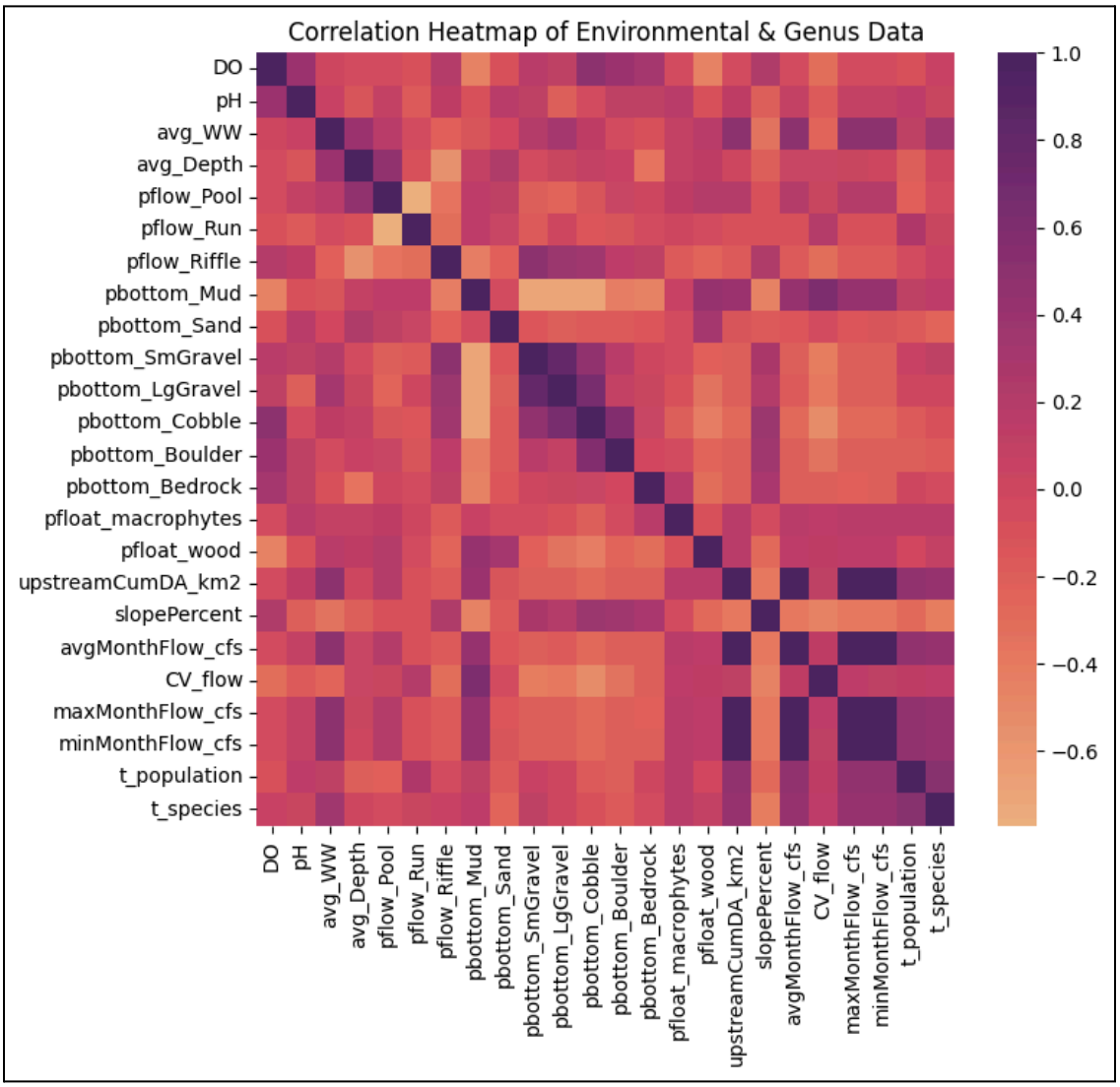


Figure 4: Correlation heatmap of site attributes, Total species, and population

Figure 5 presents the same correlations as Figure 4 but as a bar plot, emphasizing the strength and direction (positive or negative) of each relationship. This view helps reveal attributes where species richness and total population show contrasting or inverse correlations.

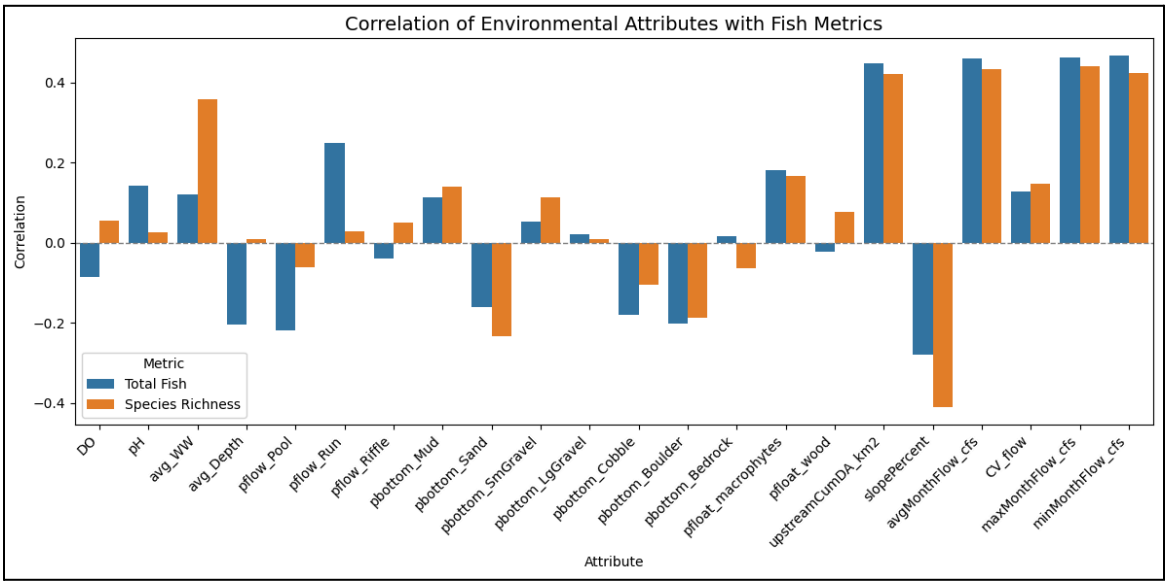
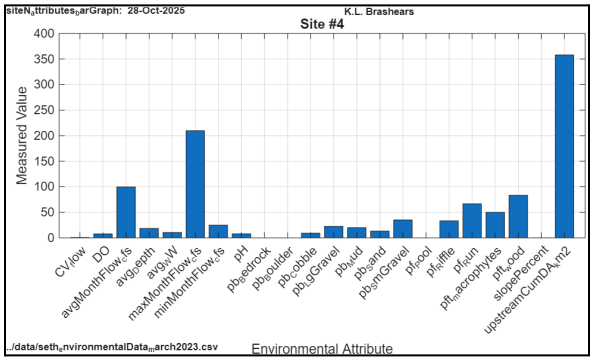


Figure 5: Correlation bar plot of site attributes, Total species, and population

Figures 6 through 8 display environmental attribute distributions for the three sites with the highest overall fish populations and species counts (Sites #4, #29, and #33). These comparisons highlight which site-level factors may contribute to more favorable ecological conditions.



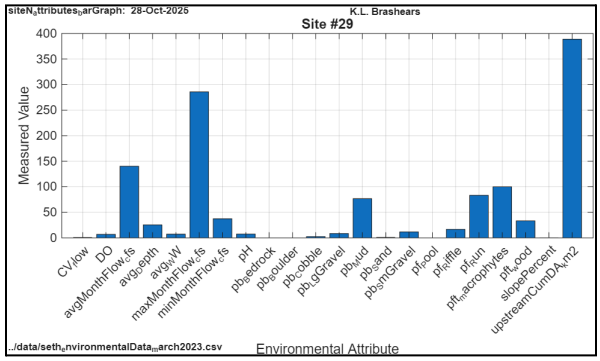


Figure 6: Site #4 attributes bar graph **Figure 7: Site #29 attributes bar graph**

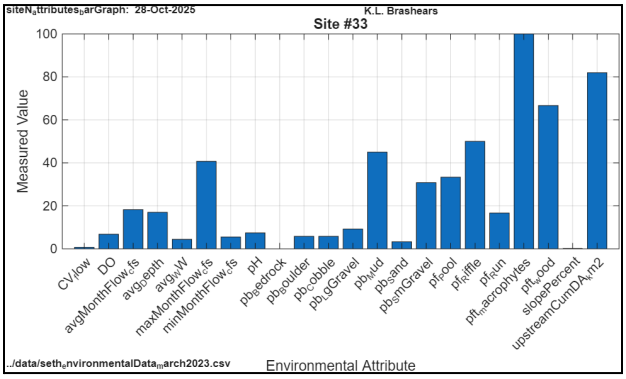


Figure 8: Site #33 attributes bar graph

Figures 9 through 11 plot total fish population and species richness against individual environmental attributes. Each includes a line of best fit to reveal general trends and outliers. For instance, in Figure 11, the attribute pbottom_Bedrock shows a strong negative correlation with total population—except for one outlier (Site #43), suggesting a potentially unique ecological condition worth further investigation.

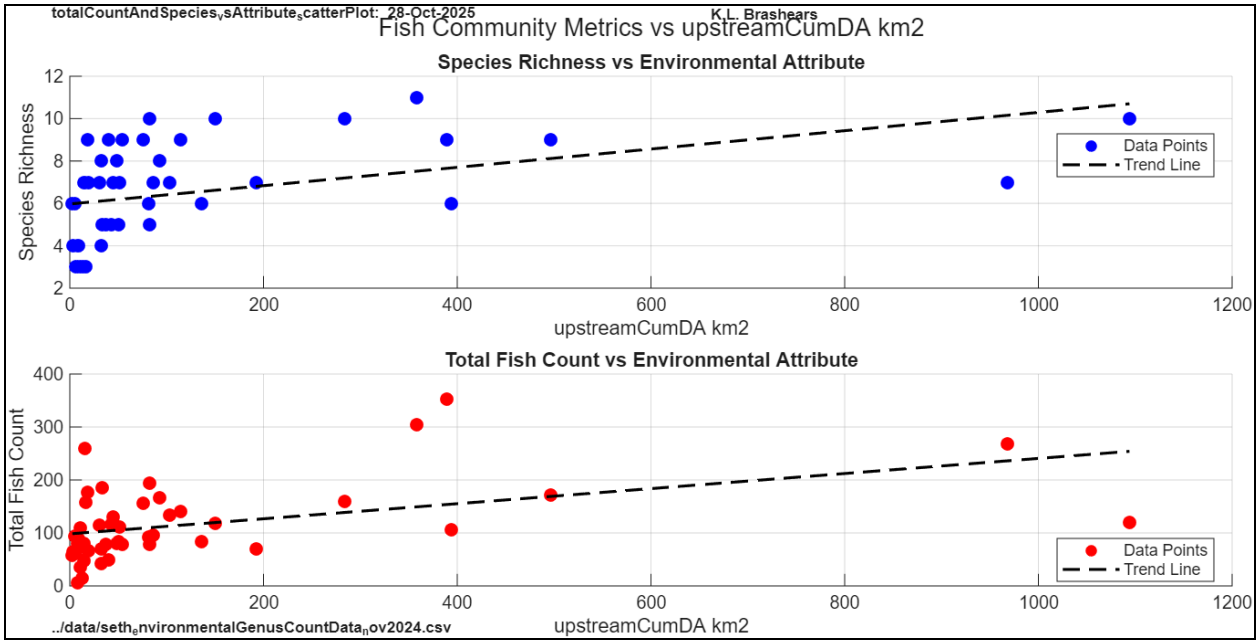


Figure 9: Total Population and Species vs upstreamCumDA_km2

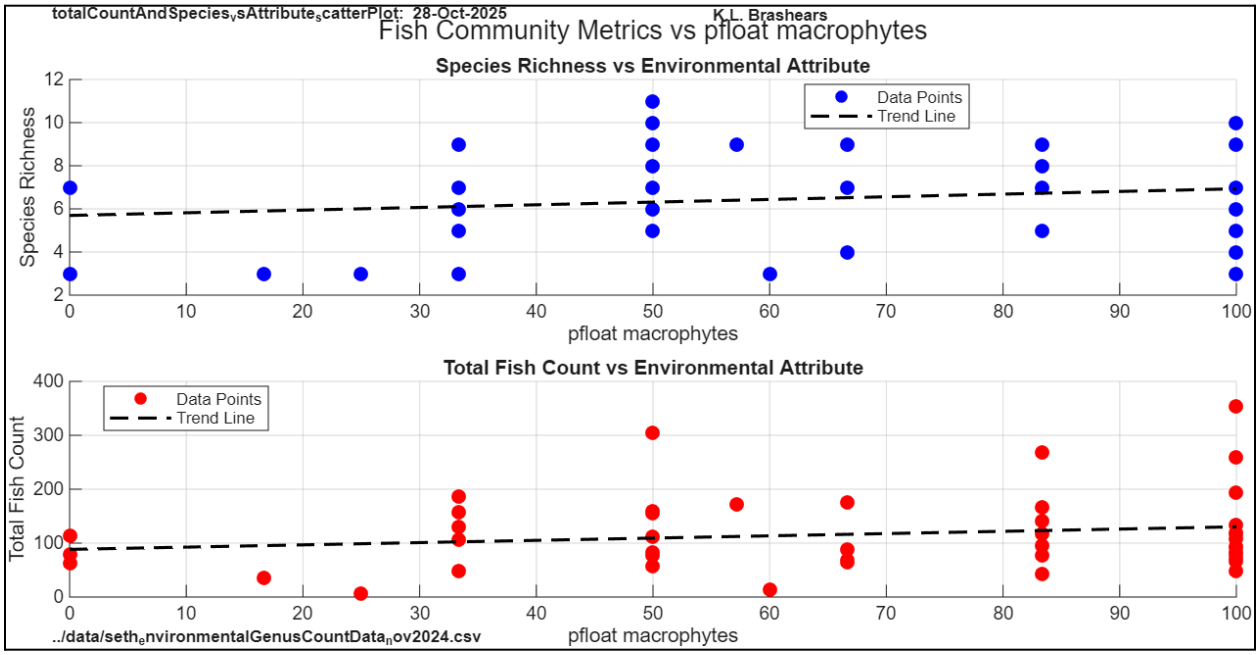


Figure 10: Total Population and Species vs pfloat_macrophytes

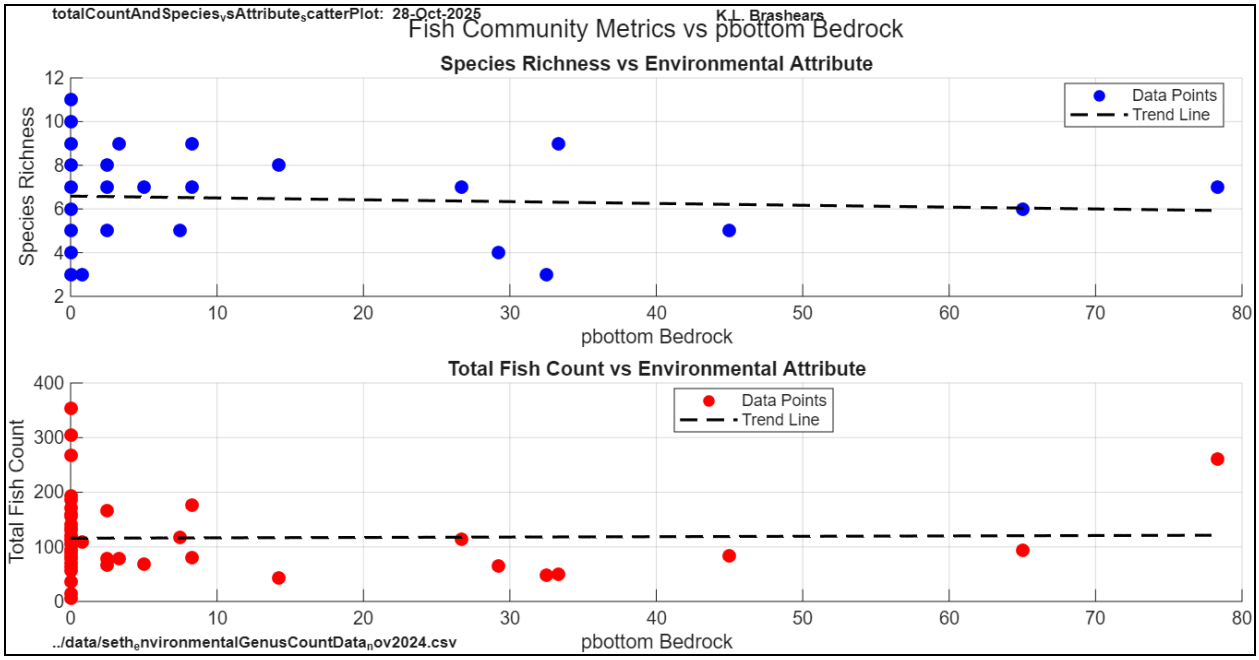


Figure 11: Total Population and Species vs pbottom_Bedrock