

INTRODUCTION

- The red alga *Agarophyton vermiculophyllum* (AV) is an invasive species along the U.S. east coast in the northern hemisphere.
- AV has invaded many soft-sediment estuarine habitats, and has **increased habitat structural complexity**.
- This alga provides **refuge** and **shelter** for many macroinvertebrates in estuarine habitats which leads to an increase macroinvertebrate count.
- Macroinvertebrates serve vital roles in estuarine ecology as grazers, predators, and scavengers, and are **staple food source** for ecologically important megafauna.
- QUESTION:** How do macroinvertebrate diversity compare when AV is submerged versus emerged?

METHODS

- Three** study sites: Little Tom's Cove, Quinby, Magotha Road in Eastern Shore, VA (Figure 1).
- Sampled at **submerged and emerged zones**: Little Tom's Cove, Magotha Road (Quinby: only submerged)
- Five quadrat (0.25 m²) replicates per site
- For each quadrat: AV biomass recorded, macroinvertebrates preserved in ethanol

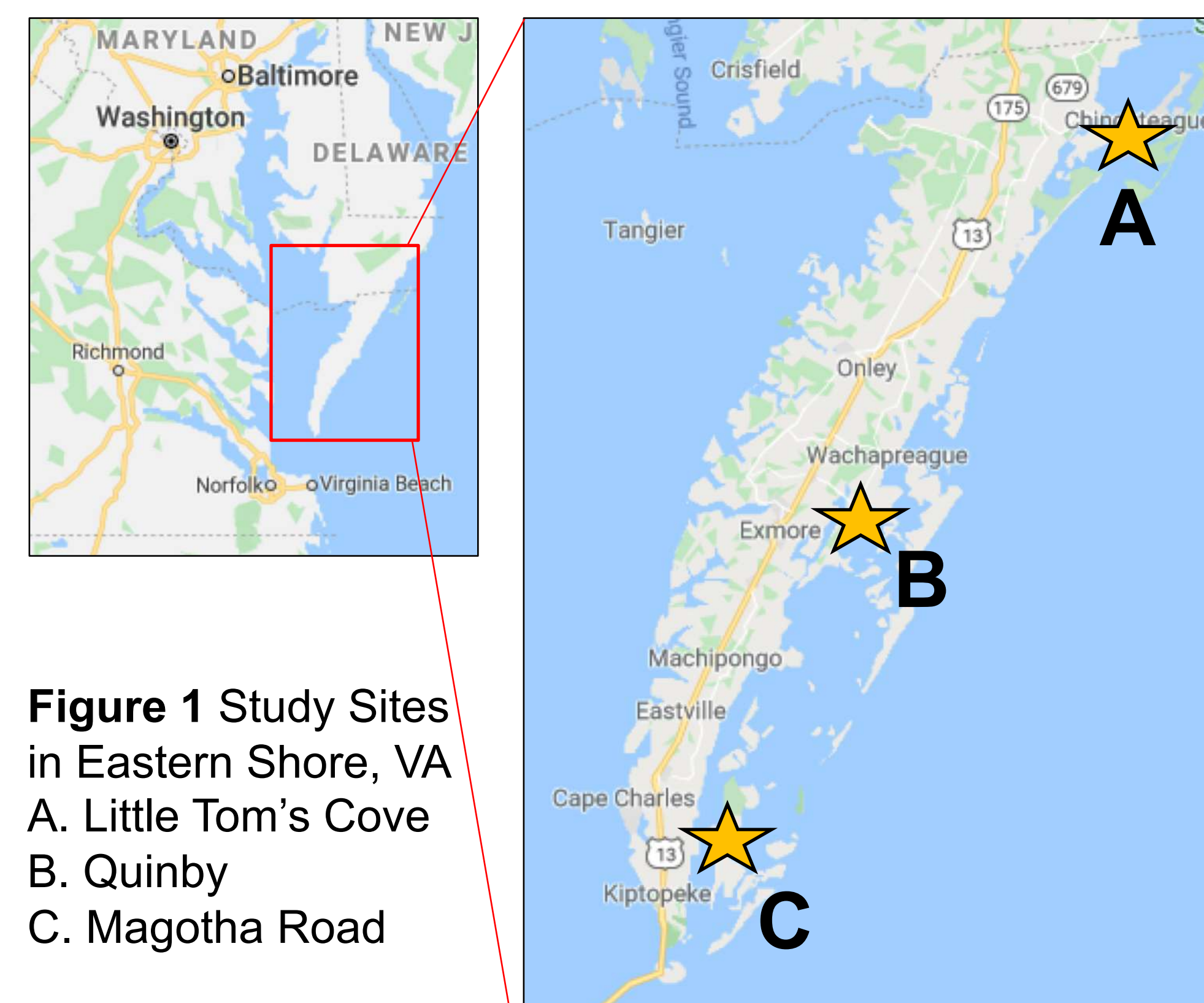


Figure 1 Study Sites in Eastern Shore, VA
A. Little Tom's Cove
B. Quinby
C. Magotha Road

RESULTS & SUMMARY

SUMMARY OF SPECIES COMPOSITIONS

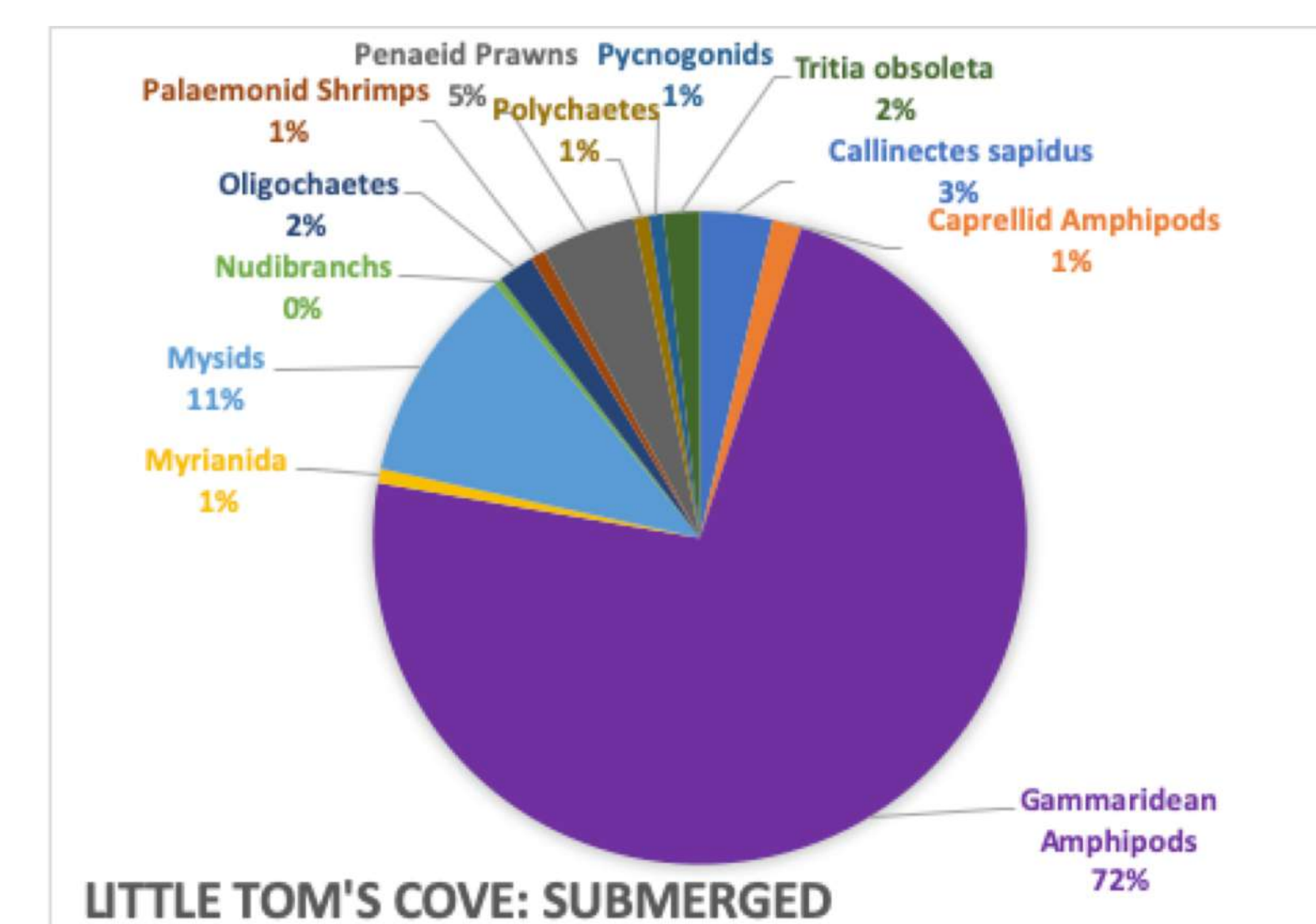


Figure 2 Little Tom's Cove, Submerged: This site had the greatest diversity of macroinvertebrates. The largest of the group, Gammaridean amphipods (gammarids), comprised 72%.

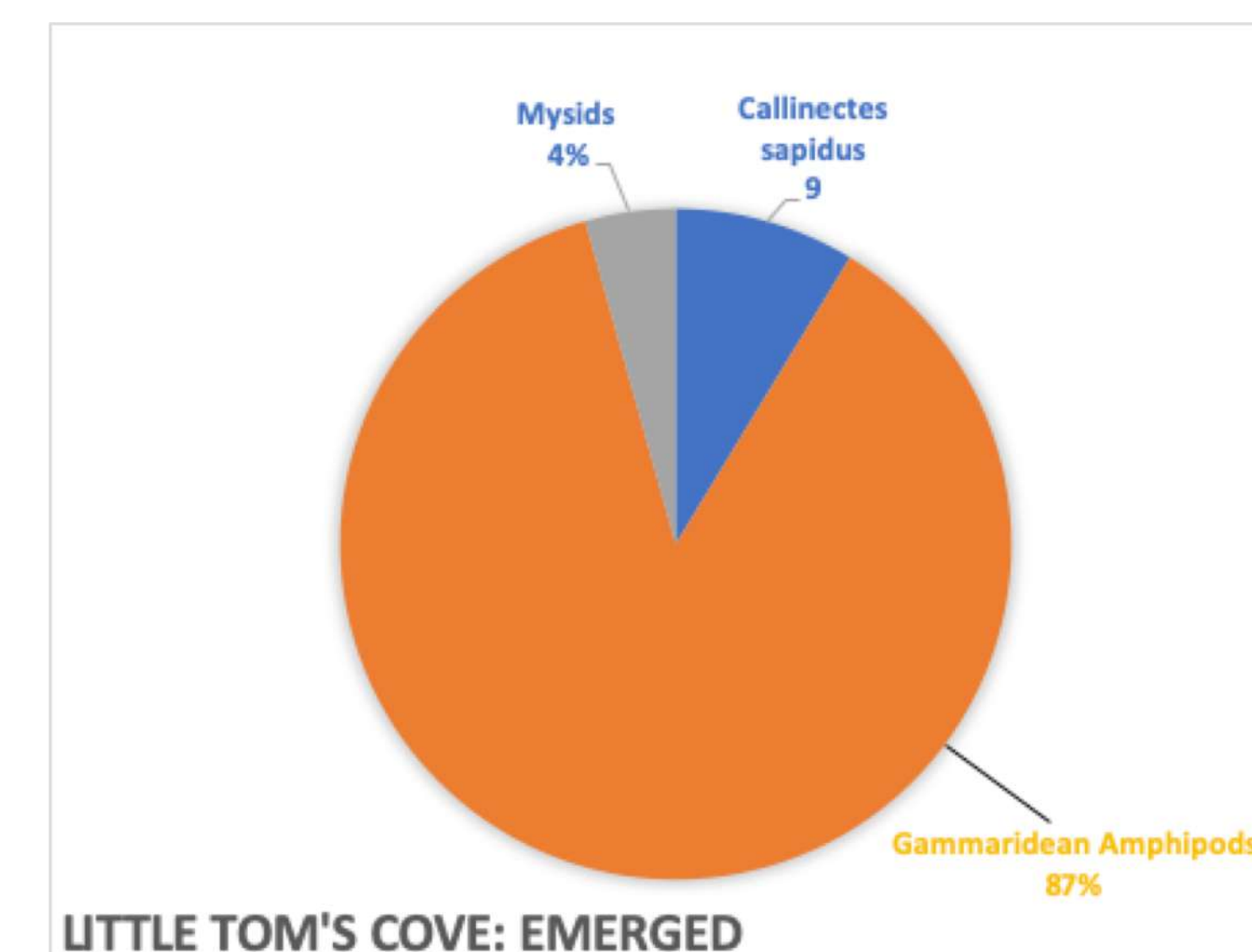


Figure 3 Little Tom's Cove, Emerged: This site had the least macroinvertebrate diversity. Gammarids still remained the largest group, comprising 87% of species collected.

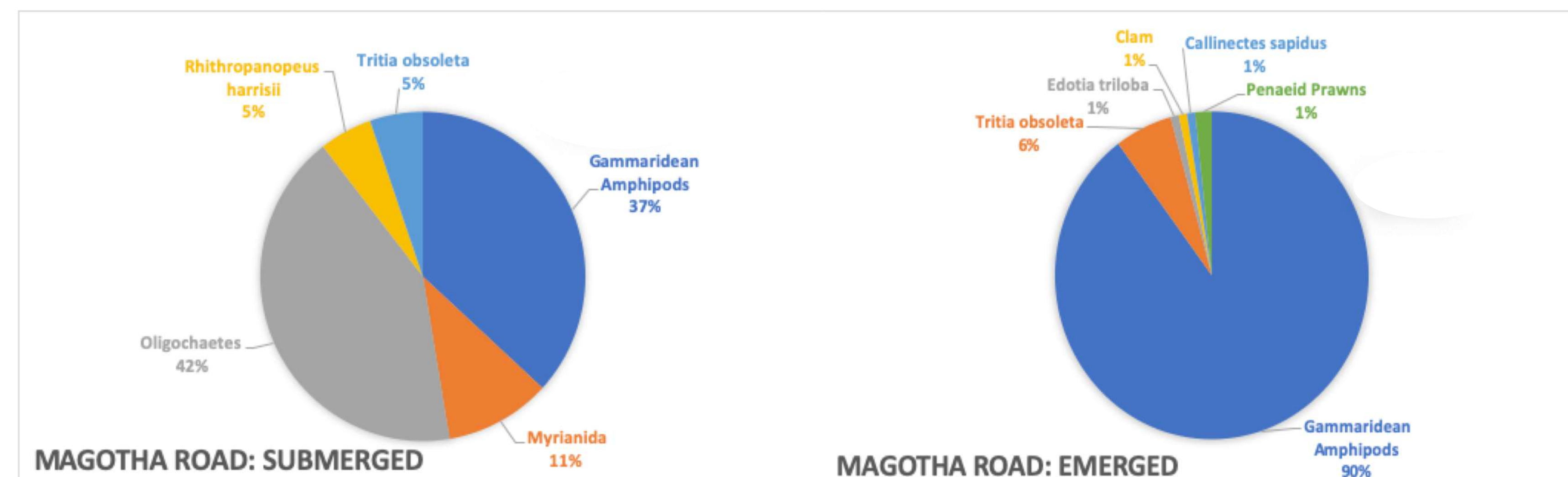


Figure 4 Magotha Road, Submerged: This was the only sampled site with gammarids not comprising the greatest prevalence. Oligochaetes were the greatest (42%).

Figure 5 Magotha Road, Emerged: This site had the highest percentage of gammarids out of any other collected sites at 90%.

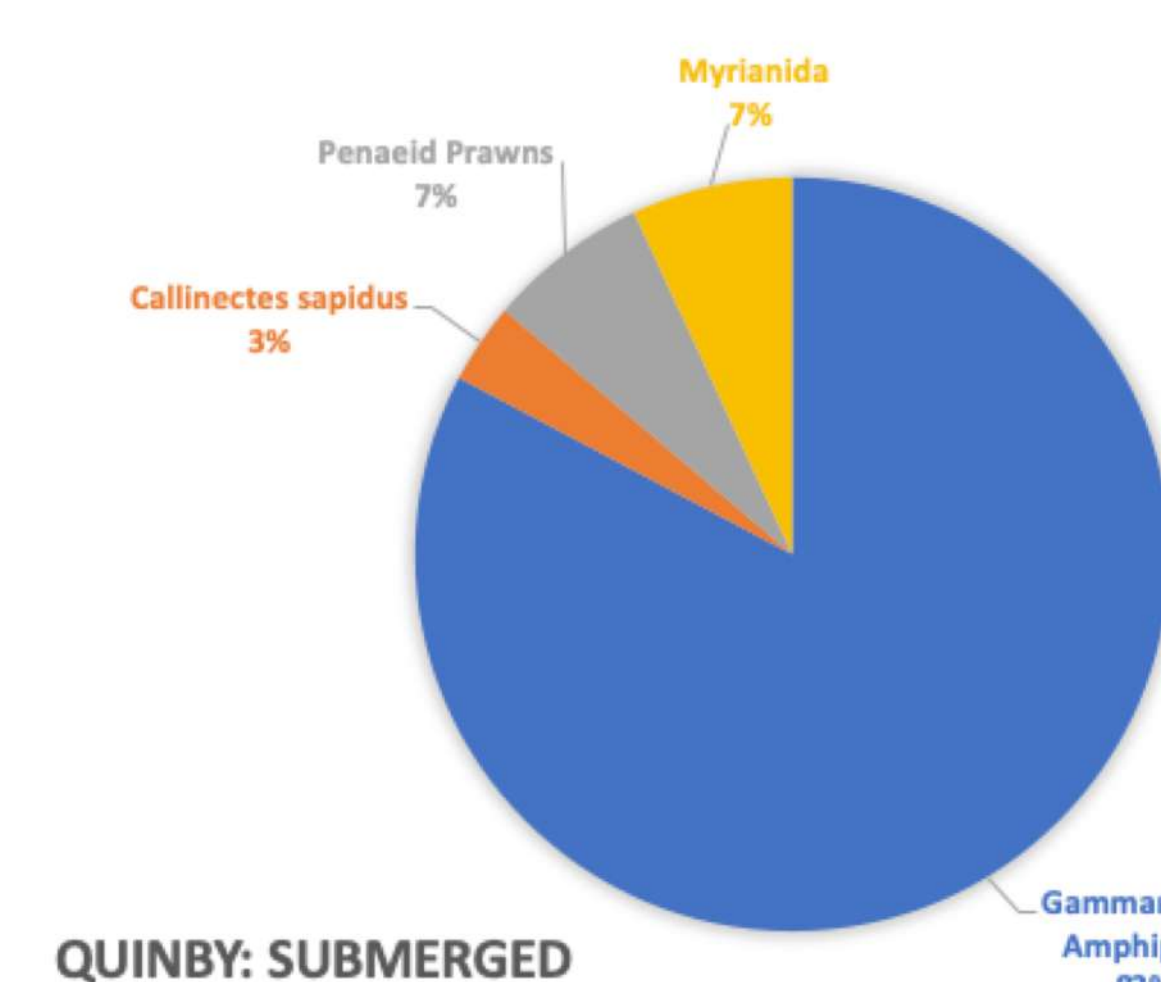
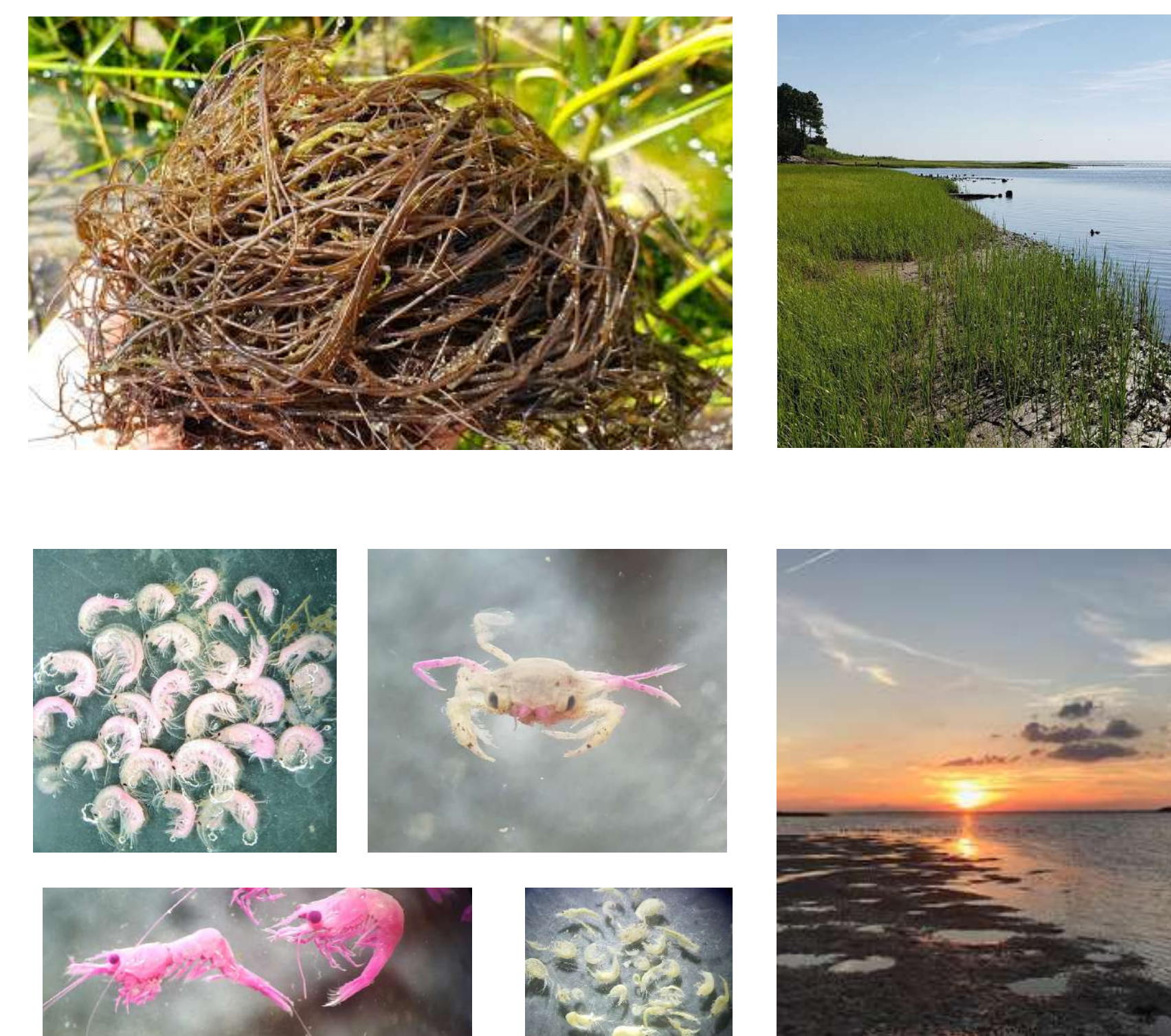


Figure 6 Quinby: only submerged was sampled due to high tides. Gammarids were most prevalent (83%)



RESULTS & SUMMARY

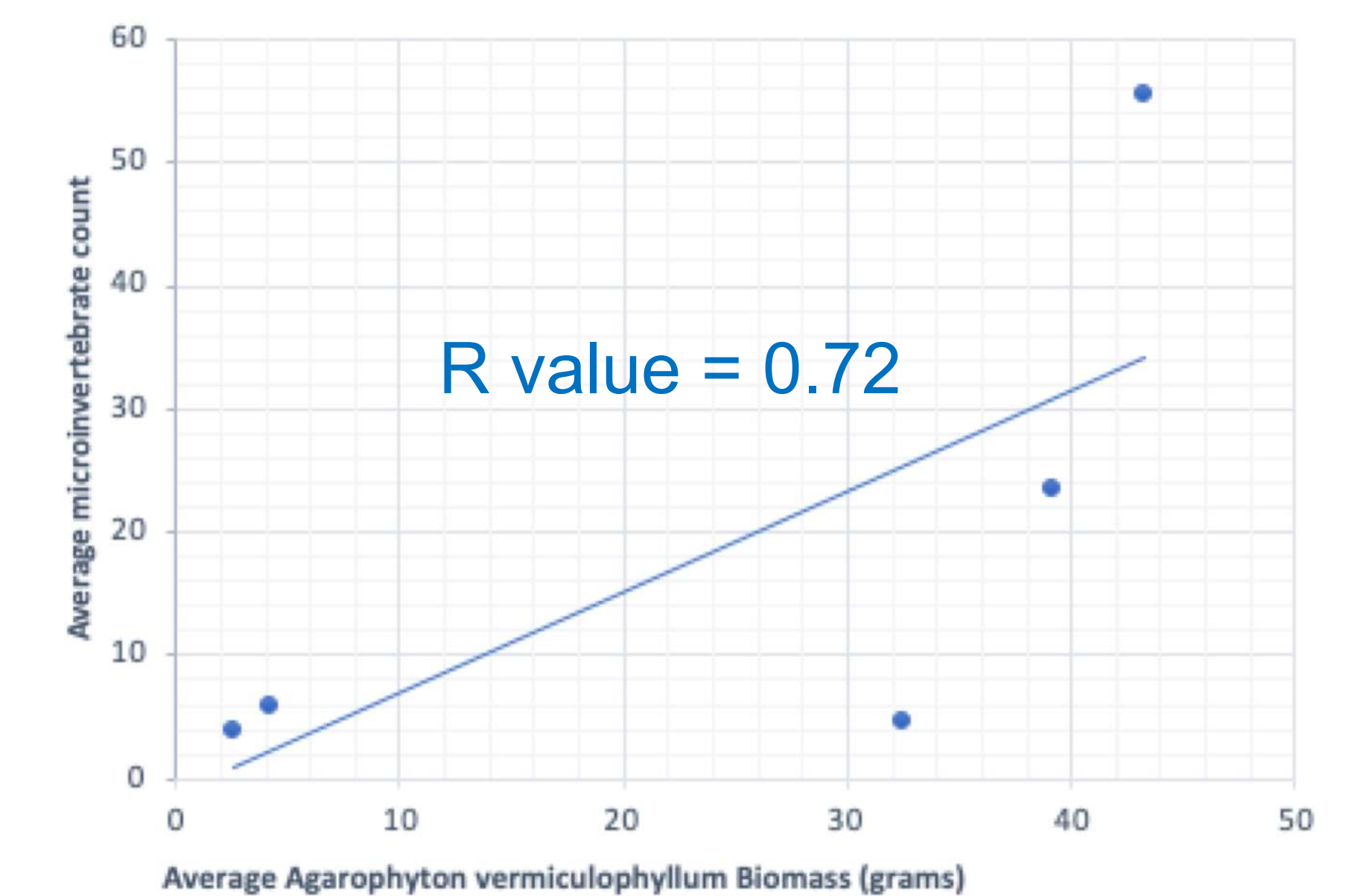


Figure 7 Correlation between the average *A. vermiculophyllum* biomass (grams) and average macroinvertebrate count.

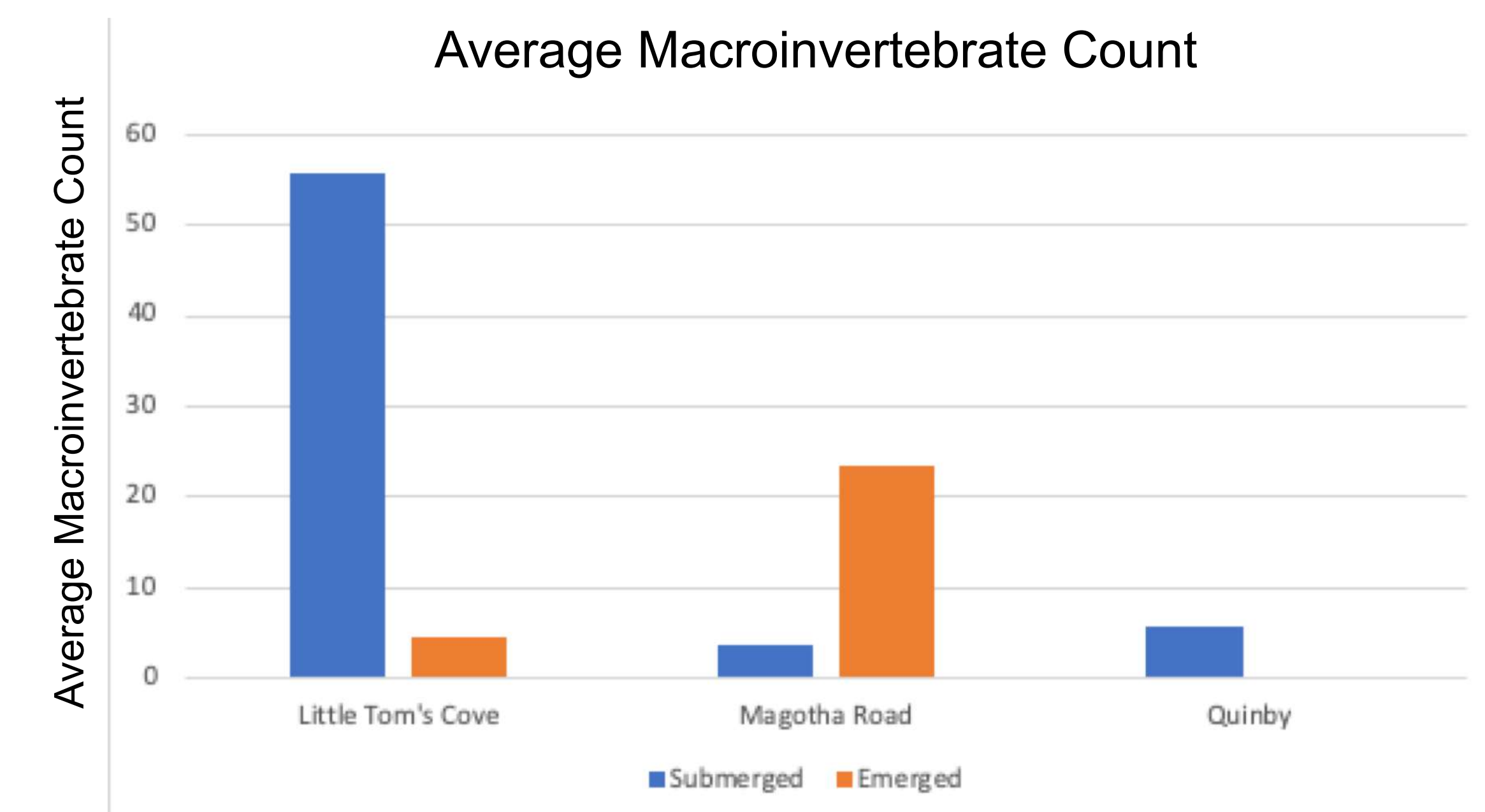


Figure 8 Across all sites, there was no significant evidence that there is a greater abundance of macroinvertebrates found in submerged than emerged zones. Although this might be true, more samples should be collected to fully determine differences between submerged and emerged habitats.

- Gammaridean amphipods were **the most abundant group of macroinvertebrates**, except in Magotha Road submerged.
- Gammarids are **difficult to identify morphologically**; **DNA barcoding** is necessary to identify gammarids on the species level.
- Macroinvertebrate diversity can be used **as an indicator** of estuarine ecosystem health, especially the systems that are facing rapid change.

ACKNOWLEDGEMENTS

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