



Freshwater Sponge Diversity in the Lowcountry of South Carolina

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Genus	Species	Locations	Substrates
<i>Trochospongilla</i>	<i>horrida</i>	Herbert Jessen Boat Ramp, Landing Lane, Low Falls Landing, and Pea Landing	Barnacle, dock side (Plastic and wood), and attached to moss
<i>Trochospongilla</i>	<i>leidyi</i>	Gilligan's Boat Dock, Landing Lane, Low Falls Landing, Cathead Landing, Spiers Landing, Thornley Forest Landing	Dock side (plastic and wood), wooden piling, and metal
<i>Trochospongilla</i>	<i>pennsylvanica</i>	Groton Plantation	Wood
<i>Heteromeyenia</i>	<i>*baileyi</i>	Herbert Jessen Boat Ramp, Cyprus Gardens Boat Landing, Adam's Pond, Pine Landing	Sedge
<i>Heteromeyenia</i>	<i>*latitenta</i>	Pea Landing	Dock side (wood)
<i>Radiospongilla</i>	<i>cerebellata</i>	Richardson's Landing	Dock side (plastic)
<i>Radiospongilla</i>	<i>ryderi</i>	Wadboo Bridge Landing	Vegetation
<i>Spongilla</i>	<i>lacustris</i>	Herbert Jessen Boat ramp	Dock side (plastic), wooden piling
<i>Spongilla</i>	<i>wagneri</i>	Gilligan's Boat Dock	Dock side (plastic)
<i>Spongilla</i>	<i>*argyrosperma</i>	Adam's Pond	Wood
<i>Spongilla</i>	<i>*fragilis</i>	Cyprus Gardens Boat Landing	Dock side (plastic)
<i>Corvospongilla</i>	<i>becki</i>	MacDaddy's Boat Dock, Cyprus Gardens Boat Landing	Dock Side (plastic and wood)

Introduction:

Freshwater sponges were originally reported in South Carolina in a pond near Columbia, SC (Penney, 1933), but no studies to date have conducted broader surveys of this important group.

Goal: Conduct initial surveys of freshwater sponges in the low country of South Carolina to gain a better understanding of the species richness and distribution of this group.



Figure 1: Sponge collection in field. Separation of gemmules.

Methods:

Fieldwork:

The sponges were removed from the substrate using a scraping tool. If gemmules were found within the sponge, they were removed with tweezers and placed in a vial filled with ethanol and labeled with location and sample number. The sponge was then cut with a clean razor into slices and placed in a labeled vial as well.

Lab work:

A 1 cm. x 1 cm. of each sponge sample, cut with a clean razor and gloves, would be put into small sample containers filled with bleach to dissolve the sponge tissue. Once dissolved, using a designated pipet for each sample, the spicules were placed on a slide and looked at under a compound microscope.

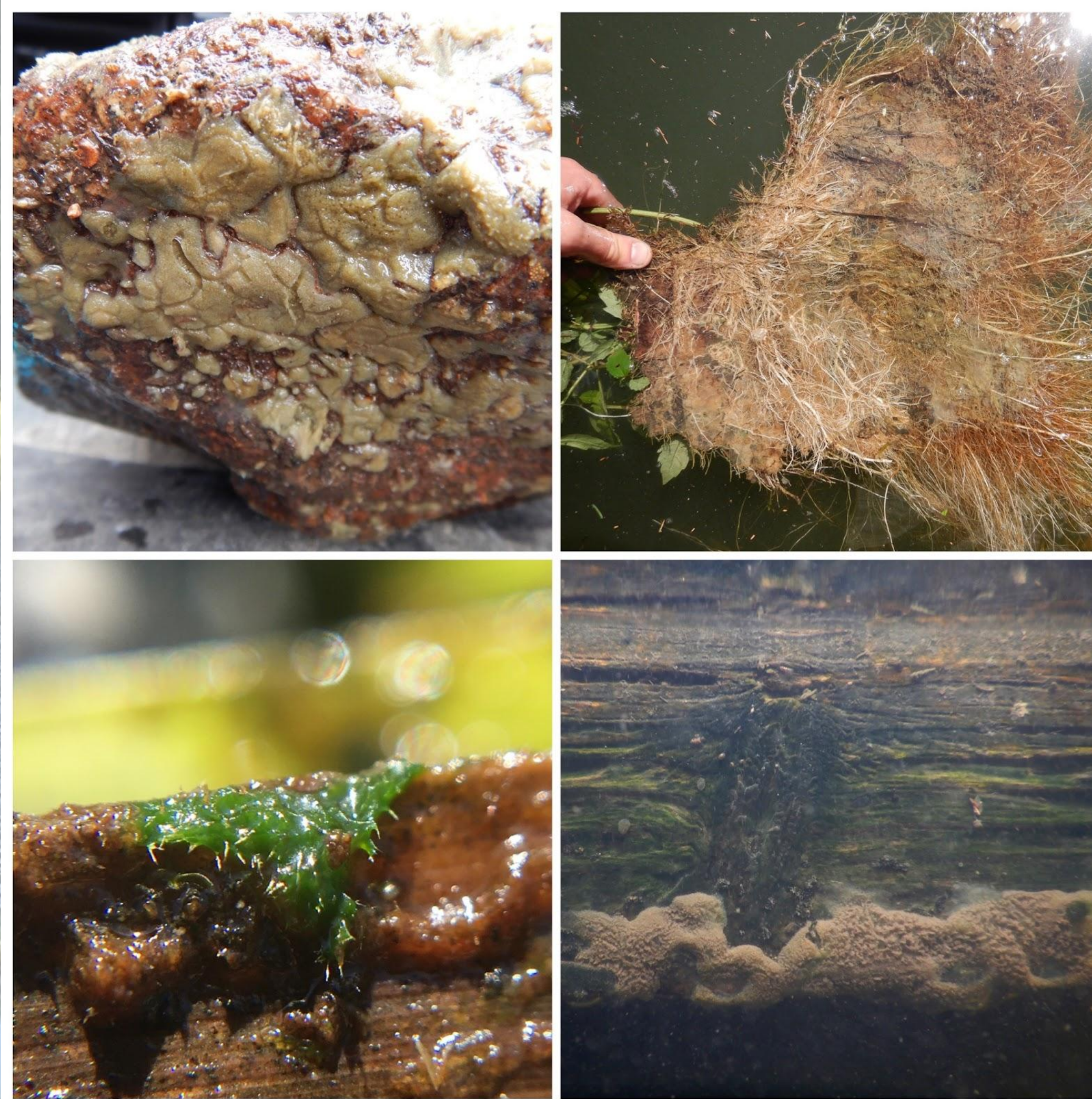


Figure 3: Rock and dock sponge are *horrida*, vegetative sponge is *becki*, and sedge sponge is *baileyi*.



Figure 5: Top left is *baileyi* megascleres and microscleres, Top right is *cerebellata* megascleres and gemmuloscleres, bottom left is *pennsylvanica* megascleres and gemmuloscleres, and bottom right is *becki* megascleres and gemmuloscleres.

Future Research:

Additional collections in Charleston during the summer of 2022 will focus on how sponge communities change over time and the ecology and presence of insect larvae within these sponges.

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Citations:

Manconi, R., & Pronzato, R. (1997). Phylum Porifera. *Hydrobiologia*, 39-83.

Penney, J. (1933). A new fresh-water sponge from South Carolina. *Proceedings of the United States National Museum*, 82, 1-5.

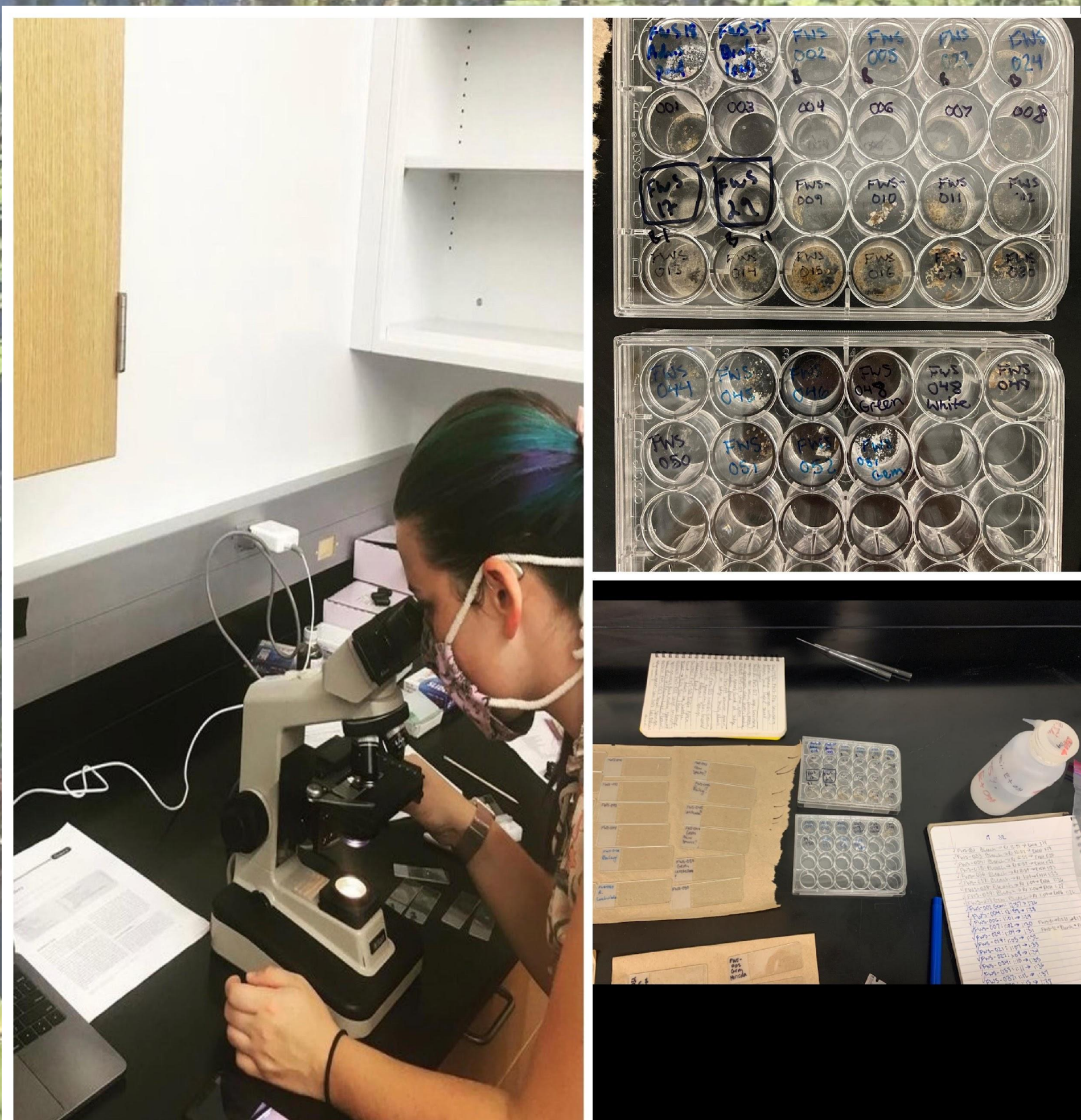


Figure 2: Dissolving sponge tissue in bleach. Spicules under microscope.

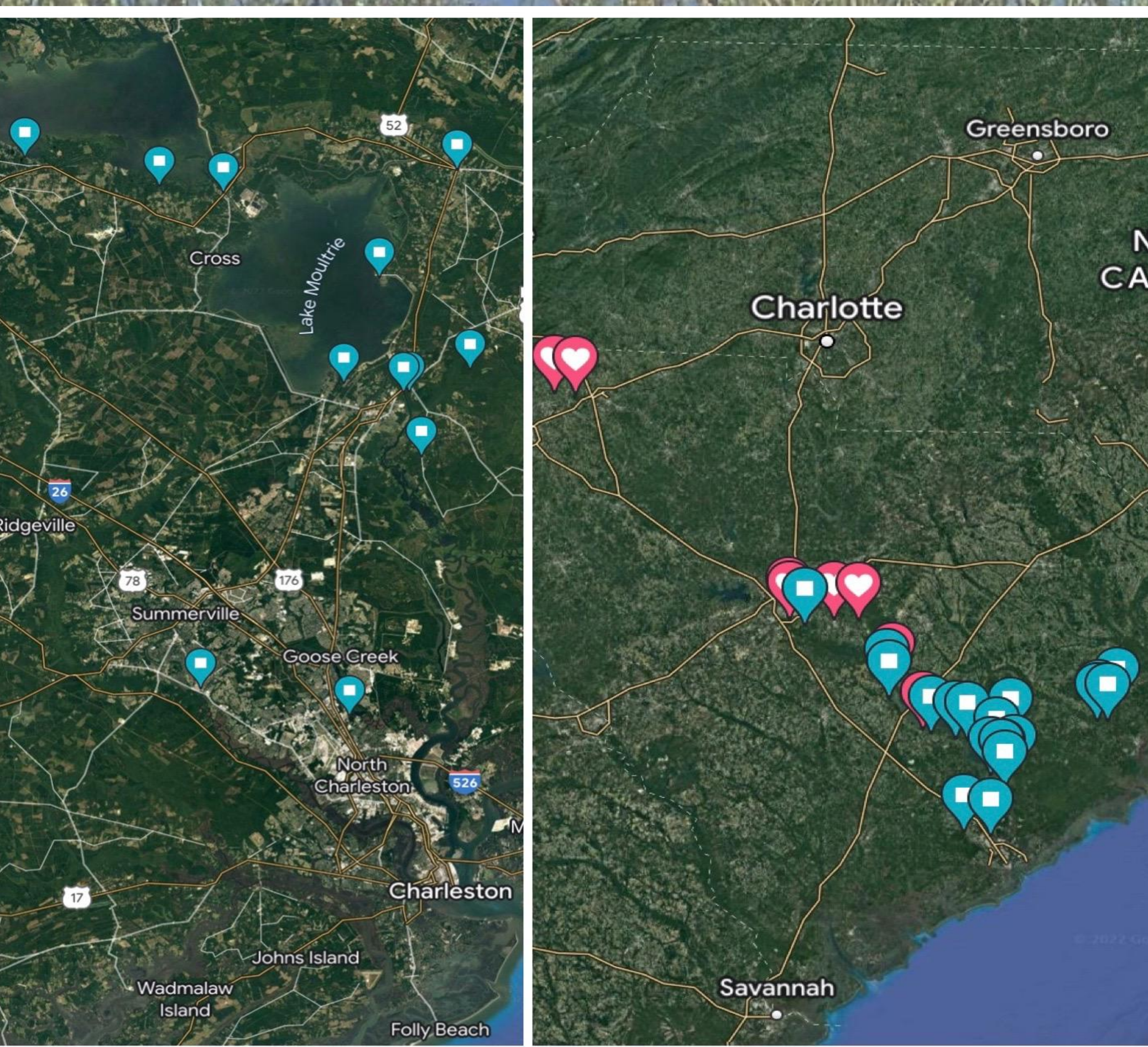


Figure 4: Map of Sponge Sites: Heart=no sponges found. Square=Sponges found. Charleston map of sites with sponges

Conclusion:

There were a total of 13 identified species and five genera of freshwater sponge collected. This was the largest collection of freshwater sponge species ever found in the state of SC. In addition, there were 1-4 possibly new species discovered. There were at most three different species found at one site location.