



## EPIBIOTIC DIATOM ASSEMBLAGES ON TEXAS FRESHWATER TURTLES

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Turtles (Testudines) often host epibiotic floral and faunal communities on their shells. A major component of these communities are diatoms: single-celled, golden-brown algae with a cell wall comprised of opaline silica. Turtle ecology varies across age, sex, and species, and the basibiont habitat conditions provided by their shells vary accordingly. Diatoms have specific environmental sensitivities and are used as bioindicators of water quality and other abiotic conditions. This study evaluates the degree to which epiphytic diatom assemblages vary across turtle sizes, sexes, and/or species. Turtles were caught using dip nets, basking traps, and hoop net traps in the upper Guadalupe River in June 2021. Diatom samples were scrubbed from the entire carapace of each turtle as well as rocks collected at the study site to provide environmental reference points. The diatom valves were cleaned using hydrogen peroxide and plated for light microscopy at 1000x magnification with oil immersion. Up to 200 valves were counted per sample; diatoms were identified to genus level. Non-metric multidimensional scaling was used to create 2-dimension ordination of the observed relative abundance data of assemblages found on rocks, Texas cooters (*Pseudemys texana*), stinkpots (*Sternotherus odoratus*), and Cagle's map turtles (*Graptemys caglei*). ANOVA testing showed significant differences in assemblage between turtles and environmental substrate (rocks), as well as between Texas cooters and stinkpots. No significant differences were found between sexes. Linear correlation showed a significant relationship between log-corrected turtle mass and NMS axes 1 and 2. These results imply that diatom assemblage differs in correlation with turtle size and species, supporting the potential of turtle ecology studies based on carapacial diatom assemblages.