

T. Pashia and D. Penning. Department of Biology and Environmental Health, Missouri Southern State University. **PRELIMINARY ASSEMBLY OF A COMPLIANT SENSOR CAPABLE OF WITHSTANDING CATASTROPHIC DAMAGE: MEASURING HIGH BITE FORCES IN SNAPPING TURTLES.** Body size plays an integral role in all aspects of an organism's life. Larger organisms are typically less vulnerable to predation due to their absolute size and performance capacity. Smaller organisms are more vulnerable to predation because a greater range of predators can eat them and their performance is typically less than that seen in adult individuals. Across the diversity of vertebrates, bite force has been shown to have important ecological and evolutionary consequences. For many turtles, strong bites are used both in predation and defense. In the common snapping turtle (*Chelydra serpentina*), high bite forces are associated with defensive behavior. Despite the importance of this behavior, very few studies have quantified the bite performance of turtles. Here, we describe our design for a bite force sensor capable of withstanding catastrophic damage while maintaining sensitivity. Our goal was to build a prototype sensor to be implemented in the summer of 2017 on snapping turtles in order to explore the proximate determinants of bite force during this powerful defensive behavior.