

**Centennial Honors College
Thomas E. Helm Undergraduate Research Day 2024**

ABSTRACT

Major: Biology

Poster

Faculty Mentor(s): Vaskar Nepal

A larger gape size does not lead to greater body condition in Bowfin

Abigail Roussin

A predator's mouth size determines the maximum size of prey that can be swallowed whole. Some studies have found that individuals with larger relative gape tend to have a higher body condition because they are able to eat larger prey, which generally provide more energy than smaller prey. Our study tests this expectation by considering several indicators of fish health because the previously used metrics based on morphometric data may not be the most indicative of fish health. The effects of variable gape size on the fish were assessed in the gape-limited piscivore, Emerald Bowfin (*Amia ocellicauda*). Bowfin were collected from Pool 19 in the Mississippi River using fyke nets and electrofishing. Our findings did not support the expectation of a positive relationship between gape size and fish health. A morphometric index based on Le Cren's condition factor showed no relationship between relative gape size and fish health. Additionally, organosomatic indicators including hepatosomatic and the mesenteric indices showed little correlation with gape size. Further tests based on the biochemical indices (dry weight of muscle and liver tissue) are being conducted. We conclude that the described relationships between gape and body condition may be species-specific and that morphometric means of body condition may not accurately assess overall health of fishes.