

**MS Project**  
**Department of Environmental Science and Policy**  
**College of Science**  
**George Mason University**

**Candidate:** Richard Brown

**Presentation Date and Time:** April 26, 2024 at 2:00pm

**Presentation Location:** Johnson Center Room E (334)

**Title:** Temporal trends in lionfish catch per unit effort (CPUE) transition from stable to increasing following reduced removals in 2020

**Project Director:** Dr. T. Reid Nelson

**Committee:** Dr. Esther C. Peters and Dr. Diego Valderrama

**ABSTRACT**

Since their introduction, lionfish have negatively impacted ecosystems in the western Atlantic. Eradication of lionfish is unobtainable, but removals have mitigated adverse impacts of high-density populations. To employ adaptive management, understanding population responses to variable regimes is critical. Therefore, to determine population responses to removals within the Sapodilla Cayes Marine Reserve, I modeled temporal trends in lionfish relative abundance using catch per unit effort (CPUE). Reduced removals in 2020 corresponded with a significant breakpoint where CPUE transitioned from relatively stable to increasing. These results indicate removal programs must employ high levels of sustained effort to control lionfish populations.