

Apr 12th, 8:30 AM - 11:30 AM

# That Water Stinks! Will Changes in Water Quality Alter Blue Crab Response to Pesticides?

Nathan Hammond  
*Louisiana Tech University*

Allen Schaefer  
*Louisiana Tech University*

Sophie Bott  
*Louisiana Tech University*

Jennifer M. Hill  
*Louisiana Tech University*

Follow this and additional works at: <https://digitalcommons.latech.edu/ans-research-symposium>

---

## Recommended Citation

Hammond, Nathan; Schaefer, Allen; Bott, Sophie; and Hill, Jennifer M., "That Water Stinks! Will Changes in Water Quality Alter Blue Crab Response to Pesticides?" (2018). *ANS Research Symposium*. 24.  
<https://digitalcommons.latech.edu/ans-research-symposium/2018/poster-presentations/24>

This Event is brought to you for free and open access by the Conferences and Symposia at Louisiana Tech Digital Commons. It has been accepted for inclusion in ANS Research Symposium by an authorized administrator of Louisiana Tech Digital Commons. For more information, please contact [digitalcommons@latech.edu](mailto:digitalcommons@latech.edu).

## **That Water Stinks! Will Changes in Water Quality Alter Blue Crab Response to Pesticides?**

Nathan Hammond<sup>1</sup>, Allen Schaefer<sup>1</sup>, Sophie Bott<sup>1</sup>, Jennifer M. Hill<sup>2</sup>

<sup>1</sup>Biological Sciences, Louisiana Tech University

<sup>2</sup>Assistant Professor, Biological Sciences, Louisiana Tech University

Every year, over half a billion pounds of pesticides are used in urban and agricultural areas to control pest species and increase crop yields. These chemicals often end up in streams and estuaries where they can impact aquatic non-target organisms. While many studies examine the lethal impacts of pesticides on aquatic organisms, few studies examine the sublethal impacts of pesticides which can impair animal function and impede the animal's ability to forage, find mates, etc. To understand how sub-lethal concentrations of insecticides carbaryl and fipronil impact the behaviors of estuarine organisms, we will conduct behavioral laboratory assays on blue crabs (*Callinectes sapidus*). During these assays, crabs will be fed snails twice over five days to examine the insecticides' impacts on foraging behavior. However, feeding the crabs may cause the water quality to degrade, which could alter the crabs' behavior and potentially compound the impacts of the pesticides. To establish how water quality will be impacted during the blue crab feeding assays, we conducted a preliminary experiment in which we fed blue crabs snails and compared the water quality to crabs which were starved over 5 days (N=3). Comparisons of the water quality showed ammonia levels were significantly higher on day 2 and day 5 for crabs that were fed snails, while nitrite levels differed on day 2, demonstrating that ammonia and nitrite levels increase the day following a feeding. As a result, crabs will be fed snails on day 3 and day 5 of the pesticide laboratory assays to delay the degradation of the water quality as a result of feeding. In future experiments, we will expose blue crabs to sub-lethal levels of carbaryl and fipronil in laboratory assays to establish how the pesticides alter blue crab behaviors.