

Bait preference and behavior of American lobsters, *Homarus americanus*, to pig hide or pogie bait

This study compares the bait preference and behavioral patterns of American lobsters, *Homarus americanus*, based on the optimal foraging theory. This theory describes how animals choose their diets, and how they can forage most efficiently. For example, lobsters are foraging for the highest quality nutrients that is contained within their prey. Knowing the bait preference of *H. americanus* is not just beneficial for lobster fishermen, and but for the economy, especially in Maine. This could potentially limit their expenses, while sustaining their industry. Due to lack of herring populations, fisherman need to find an alternate bait source, that isn't being overpriced and extremely overfished. Lobsters were presented with two kinds of bait, pig hide (*Sus domesticus*) and menhaden, which is referred to as pogies (*Brevoortia tyrannus*). The behavior patterns of *H. americanus* between pighide and pogie baits were used to determine what bait is preferred, or if preferred at all. To investigate if lobsters had a specific preference in diet, lobster behaviors from an ethogram were observed and total duration (s), total count, and total average duration (s) were analyzed between lobster behaviors. The results demonstrate no significant differences in total duration (s), total count, and total average duration (s) of behaviors when lobsters were presented different bait. The implication of this study is that lobsters did not prefer one bait over the other. The results suggest that there is no effect of pig hide compared to pogies. However, this knowledge suggests that fishermen can substitute the less expensive bait, such as pig hide if needed. In future studies new baits should be tested to give the fishermen community more options of alternate bait sources.

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