Bait and the susceptibility of American lobsters *(Homarus americanus)* to epizootic shell disease

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Abstract

Shell disease (SD), has been observed in lobster populations for almost a hundred years but recently rates of an epizootic form of shell disease (ESD) have increased in the southern New England area. A large proportion of fish in the diet of American lobsters (*Homarus americanus*) has been linked to increased rates of SD. Therefore, the use of fish as lobster bait may be linked to increased ESD rates in lobsters. Lobsters from the western portion of Martha's Vineyard, Massachusetts (41ºN 71ºW) were randomly divided into three groups of 16 and exposed to dietary treatments (100% herring, 48% crab, 48%, blue mussel and 4% plant matter, or 50% herring, 24% crab, 24% mussel, 2% plant matter) to determine if lobster tissue $\delta^{15}N$ levels reflected diet. The results of the feeding experiment confirmed that differences in diet are observed in the $\delta^{15}N$ levels of lobster muscle tissue. The $\delta^{15}N$ levels of tissue samples from 175 wild lobsters with varying degrees of ESD were unrelated to ESD severity but did indicate lobsters were eating large amounts of fish (bait). This result does not support the speculation that fish used as bait is contributing to ESD outbreaks in portions the southern New England area.

Key words: Diet, $\delta^{15}N$