Intraguild Predation between exotic *Echinogammarus ischnus* and native *Gammarus fasciatus* in Western Basin Lake Erie.

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There is evidence that the exotic amphipod *E. ischnus* is displacing native *G. fasciatus* in Lake Erie zebra mussel habitats. However, in macrophyte beds *G. fasciatus* is the dominant amphipod. Intraguild predation (predation among potential competitors) is a common interaction among amphipods and seems to be an important factor explaining the replacement of indigenous amphipod species by introduced species. We conducted laboratory experiments to determine the rate of intraguild predation between *G. fasciatus* and *E. ischnus*. We used mussel egesta or macrophytes as food because in previous growth experiments where each species was incubated separately, *G. fasciatus* grew larger under a mussel egesta diet than with macrophytes while E. ishnus showed the opposite pattern. Pairs of amphipods were incubated in 400 ml plastic cups containing 250 mls of filtered lake water and a 1x1 cm piece of plastic netting as a substrate and ad libidum food conditions. We had all interspecific combinations among males, females and juveniles (9 different treatments in each diet) with 20 replicates per treatment. Daily inspections for moulting, survival, or predation were conducted for 11 days. We observed mutual predation between *G. fasciatus* and *E. ischnus* but this was differentially in favor of *G. fasciatus* preying on *E. ischnus*. Overall predation rates were lower in treatments with macrophytes. Macrophytes may have provided additional refuge for the amphipods. In both species predation by males was greater than predation by females and juveniles. *Gammarus fasciatus* males paired with *E. ischnus* juveniles showed significantly higher predation rates (Fisher probability test, $p<0.001$) in both diets. *Gammarus fasciatus* males also preyed heavily upon *E. ishcnus* females, however this significance was detected only in treatments with zebra mussel egesta ($p<0.001$). The results only explain the displacement of *G. fasciatus* by *E. ishcnus* in zebra mussel habitat when combined with results from fish predation experiments. In laboratory experiments, yellow perch selectively consumed *E. ischnus* in macrophytes and *G. fasciatus* in zebra mussel colonies. Therefore higher fish predation on *G. fasciatus* in zebra mussel colonies may decrease the effect of intraguild predation on *E. ischnus*. In the macrophyte habitat, however, higher fish predation on *E. ischnus* and the aggressive behavior of *G. fasciatus* may favor the native species.