Interactions Between Bull Trout and Lake Trout for Simulated Cover Habitat

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Population-level declines of bull trout (*Salvelinus confluentus*) have been observed following establishment of lake trout in lake ecosystems. The mechanism responsible for these declines is unknown; however, competitive interactions between these two species of char may occur at one or more ontogenetic stages. Cover habitat in lakes (e.g., interstices of rocky substrate) may allow detection of food resources while providing protection from predators for juvenile bull and lake trout. We examined use of simulated cover habitat in the laboratory to determine if bull trout and lake trout behavior reflects cover use in the presence of conspecifics, and if bull trout and lake trout alter behavior in the presence of heterospecifics. Behavioral observations were made to determine if fish were 1) using cover, 2) stationary on the bottom of the tank, 3) stationary in the water column, or 4) swimming. In the presence of conspecifics, on average bull trout used cover habitat 38 percent of the time, were stationary on the bottom 33 percent, swam 15 percent, and were stationary in the water column 9 percent. In the presence of conspecifics, on average lake trout used cover habitat 2 percent of the time, were stationary on the bottom < 1 percent, swam 38 percent, and were stationary in the water column 58 percent. Neither bull trout nor lake trout responded differently in the presence of heterospecifics. Bull trout and lake trout had essentially opposite behavioral responses in the presence of simulated cover habitat. Therefore, these data provide no support for the hypothesis that these species compete for cover habitat.