

IMMUNOSUPPRESSION OF NONHOST FISH SPECIES AND ITS EFFECT ON GLOCHIDIAL METAMORPHOSIS. Sheila G. Kirk and James B. Layzer. Tennessee Technological University, Tennessee Cooperative Fishery Research Unit, PO Box 5114, Cookeville, TN 38505.

Intraperitoneal implants of cortisol suspended in liquid cocoa butter were administered to nonhost fish species. Fish were then infested with glochidia of freshwater mussels to determine if transformation would occur on nonhost species after immune system manipulation. Glochidia of *Venustaconcha sima* transformed on orangethroat darters (*Etheostoma spectabile*) after injection of cortisol at concentrations of 0.005, 0.01, 0.02, and 0.04 mg per gram of fish weight. Juvenile mussels were collected from orangethroat darters from experiments conducted between late March and July; but not from experiments conducted from August to February. Creek chubs (*Semotilus atromaculatus*) similarly treated failed to produce juveniles of *V. sima* or *Villosa taeniata*. Banded sculpins (*Cottus carolinae*) transformed glochidia of *V. taeniata* after injections of cortisol at concentrations of 0.005, 0.01, and 0.02 mg/g. Juveniles were collected from experiments that begun in November and June. No juveniles were collected from sham injected fish during any trial. Cortisol-induced immunosuppression facilitates metamorphosis of glochidia on some nonhost fish species; however, a seasonal as well as a species specific effect apparently exists.