Abstracts of the Wildlife and Fisheries Poster Session

A Suitable Diet, Feed Concentration, and Culture System for Rearing Endangered Juvenile Northern Riffleshell

Rachel A. Mair, *U.S. Fish and Wildlife Service, 400 East Main St., White Sulphur Springs, WV 24986*

Catherine M. Gatenby, *U.S. Fish and Wildlife Service, 400 East Main St., White Sulphur Springs, WV 24986*

Richard J. Neves, *Department of Fisheries and Wildlife, Virginia Tech University, Blacksburg, VA 24061*

Abstract: Three 60-d experiments were conducted to improve culture methods for endangered juvenile northern riffleshell (*Epioblasma t. rangiana*) at White Sulphur Springs National Fish Hatchery (WSSNFH), West Virginia. The first experiment evaluated the effect of food concentration on growth (shell length, SL) and survival of juvenile (<1 mo) northern riffleshell. Juveniles were fed a live algae diet at three concentration treatments: 30,000, 90,000, and 150,000 cells/mL. Mean shell length and survival were significantly higher ($P<0.005$) for juveniles fed 30,000 cells/mL than other treatments. The effect of three diet treatments on growth and survival of northern riffleshell juveniles (<1 mo) was evaluated as well. Diet treatments included WSSNFH live algae mix and two preserved commercial diets from Reed Mariculture: Shellfish Diet, and Phytofeast. Juveniles reared on the WSSNFH live algal diet had significantly greater growth (mean SL = 3.1mm, $P<0.0001$) and survival (85%, $P=0.009$) than the other two diet treatments (2.6 and 2.4 mm growth, respectively; and 79% and 75% survival, respectively). Growth and survival also were compared among larger juveniles (>5mm) reared in three different culture systems which included a newly designed upwelling culture system at WSSNFH. Growth ($P<0.0001$) and survival ($P<0.05$) were significantly higher in northern riffleshells reared in the WSSNFH upweller system (increase in mean SL = 1.9 mm; survival = 100%) than in the other culture systems (1.3 and 1.0 mm; 91% and 90%, respectively). Following results from these tests, WSSNFH has had repeated success culturing northern riffleshells. We believe other species of federally endangered mussels may be cultured successfully with these techniques.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 63:217