Effects of Temperature on Egg Development and Larvae Survival of Shovelnose Sturgeon

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Understanding the developmental biology and thermal requirements of shovelnose sturgeon (*Scaphirhynchus platorynchus*) early life stages has hatchery rearing implications and may increase our ability to manage and protect habitat to ensure their persistence. All fish species have a preferred temperature range for egg incubation within which egg survival is high. Temperatures outside the optimum impede normal cellular functions resulting in abnormality and death. Temperature tolerances of early life stages are more limited than those of older fish, and reproduction and stock recruitment are the most vulnerable phases of sturgeon life history. Temperature ranges tolerated by fish eggs and larvae are related to adult distribution in the wild. The laboratory study we performed was designed to determine the optimal incubation temperature range for development and survival of eggs and larvae, determine threshold temperatures that impede survival, and determine egg developmental rates. We incubated shovelnose sturgeon eggs at 8, 12, 16, 20, 24, and 28 ºC. Developmental rates are discussed and compared to other sturgeon species. Egg development ceased and mortality was 100 percent for eggs incubated at 8 and 28 ºC. Survival was highest at temperature from 12 – 20 ºC and optimal temperature range appears to be between 16 and 20 ºC.