Experiments on Tolerance of Incubating Walleye Eggs to Temperature Fluctuations

James C. Schneider
Institute for Fisheries Research
212 Museums Annex Building
Ann Arbor, Michigan 48109-1084

James Copeland and Martha Wolgamood
Wolf Lake State Fish Hatchery
34270 C.R. 652
Mattawan, Michigan 49071

Abstract.—Eggs of walleyes Stizostedion vitreum incubating under hatchery conditions were subjected to one of five temperature fluctuations compared to normal rearing temperatures: -8.8°C on days 3-6, -9.3°C on days 7-10, +13.6°C on days 7-8, +20.2°C on days 7-8, or -9.4°C followed by +21.1°C on days 7-10. The maximum rate of temperature change was 2.5°C/hr. We found that eye-up rates remained at approximately 70% for all control and test lots. Swim-up rates of approximately 90% for the control and the first three temperature variations were reduced to 42% and 13.6% for the last two temperature variations (>20°C). We conclude that temperature fluctuations great enough to directly affect incubating walleye eggs are unlikely to occur in hatcheries or on natural spawning grounds.