

# Transmission of white sturgeon iridovirus in Kootenai River white sturgeon *Acipenser transmontanus*

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**ABSTRACT:** It is thought that white sturgeon iridovirus (WSIV) is transmitted vertically from adult white sturgeon *Acipenser transmontanus* to progeny, and that wild adults are carriers of this virus. Based on this assumption, egg disinfection trials were initiated using wild Kootenai River white sturgeon. Over 2 consecutive years, post-fertilized eggs were disinfected with iodine at concentrations ranging from 0 to 400 ppm. Eggs were incubated and progeny were reared on either de-chlorinated municipal or Kootenai River water. Juvenile sturgeon (mean weight 3.0 g) from these treatment groups were then subjected to a density stress (15 or 20 g l<sup>-1</sup>) to manifest WSIV disease in individuals harboring the virus. In Year 1, mortality in all groups ranged from 6 to 37% and the use of municipal water was shown to significantly improve survival. However, WSIV infection was not detected in fish from any of the treatment groups or controls, and therefore did not contribute to the observed mortality. In Year 2, all treatment and control groups reared on Kootenai River water tested positive for WSIV infection and exhibited mortality ranging from 59 to 94%, but fish from groups reared on municipal water did not test positive for WSIV infection. This shows that that vertical transmission did not occur in this study. Horizontal transmission played a significant role in WSIV infection, but the lack of infection in Year 1 suggests a cyclic occurrence of the virus in the Kootenai River system. Although survival tended to be better in iodine-treated groups, the effects of iodine treatment in relation to WSIV transmission remain unknown. An important finding is that not all wild white sturgeon broodstock yield WSIV-positive progeny.

**KEY WORDS:** Sturgeon · White sturgeon iridovirus · WSIV · Transmission · Egg disinfection