Identification of Blood Plasma Factors for Assessment of Stress and Health in Pallid Sturgeon

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Pallid sturgeon recovery efforts require the capture of wild broodstock for hatchery propagation. Capture, transport, handling, assessment of spawning readiness, and spawning are all stressful events and these potentially cumulative stresses can contribute to poor egg quality, reduced spawning success and occasional mortality of wild broodstock. The overall goal of this study was to identify and determine which blood parameters are the most appropriate physiological indicators for the assessment of stress load and health status of pallid sturgeon. Subadult pallid sturgeon (5 yrs old) maintained at the Bozeman Fish Technology Center were subjected to a severe confinement stress with repeated handling for 12 hours (n=17). Blood was collected from the caudal vasculature from each individual at time 0 (at removal from tank), 6, and 12 hours. Blood was collected from control fish (maintained in an undisturbed tank, captured with a net, and blood collected immediately; n=5) at time 0, 6, and 12 hours. Plasma from unstressed and stressed pallid sturgeon was screened using gas chromatographymass spectrometry (glucocorticoid screen), a blood

chemistry analyzer (electrolytes, glucose, lactate, liver enzymes, plasma proteins), and enzyme immunoassay (catecholamines) to identify blood parameters that may serve as indicators of stress in pallid sturgeon.