Description and Characterization of Pectoral Fin Curl in Pallid Sturgeon

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Softening of the fins, most easily observed as pectoral fin curl, and scutes has been observed in numerous species of sturgeon around the world with an unknown etiology. Pectoral fin curl of hatchery reared pallid sturgeon (*Scaphirhychus albus*) has been observed at the Bozeman Fish Technology Center (BFTC) for four successive years. Other facilities rearing sturgeon of the same genetic lot have not observed pectoral fin curl. Rearing conditions are similar among the hatcheries except for water source. BFTC uses spring water compared to surface water at the other facilities. Comparison of shovelnose sturgeon reared in the wild versus the BFTC indicated large differences in whole-body macro-mineral concentrations. Water source may play a role in the severity and prevalence of fin curl. The relationship between water source/quality and fin quality is not understood. To evaluate this relationship, morphologically normal pallid sturgeon reared in surface water at two different hatcheries were compared to abnormal pallid sturgeon (curled pectoral fins) reared in spring/well water at the BFTC. Comparisons were made by 1) histological analysis to observe fin structure during early development, 2) proximate and mineral analysis to identify possible mineral/compositional differences, and 3) radiographs to compare mineral density and distribution.