

Title of Abstract: Evaluation of Lake Sturgeon Passed through the Whooshh Fish Transport System

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Abstract Body: The development of biologically efficient and cost effective fish passage technologies that can be applied at a wide range of hydropower projects with a variety of fish species has been a major challenge for project owners and resource agencies. A new technology that has garnered considerable interest for fish passage applications is a fish transport tube developed by Whooshh Innovations. The Whooshh system uses a pressure differential to move fish through air inside a flexible tube, using a nominal amount of water for lubrication. This technology is currently being investigated primarily for upstream passage of adult salmonids, but other applications with additional species are also being considered. In particular, there are nine sturgeon species that occur in North America, most of which have been impacted by dams that limit their upstream and downstream movements to varying degrees. To examine the potential for the Whooshh system as a sturgeon passage technology, we evaluated the ability of lake sturgeon to be successfully introduced into and pass through a Whooshh tube and whether passed fish suffered any discernable external injuries or mortality. Testing was conducted with 40 sturgeon ranging in length from 635 to 1,016 mm that were gill-netted from Legend Lake in Keshena, Wisconsin. Twenty fish were passed through the Whooshh system and 20 were used as controls. All were assessed for external injuries after passage through the Whooshh tube and collection from a receiving pool (treatment fish) or direct placement into and recovery from the receiving pool (control fish). There was no indication of external injury to treatment fish caused by passage through the Whooshh system and no mortalities occurred for treatment or control fish. Based on these results, the Whooshh system appears to have potential as a method for passing sturgeon upstream or downstream at dams. Presenting Author