

The Hydraulics of the Vianney-Legendre Vertical Slot Fishway and its' Optimization for Successful Upstream Fish Passage



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Rationale: *Historically, fishway hydraulics have been designed to pass salmon species. To date very little data exists on sturgeon passage at fishways. The study site is one very few fishways worldwide to successfully pass a species of sturgeon.*

Description: *The Vianney-Legendre Vertical Slot Fishway allows numerous fish species, including this project's focus species lake sturgeon, to bi-pass a water controlling dam during annual upstream migration. The dam is located adjacent to the Saint-Ours Canal on the Richelieu River near Saint-Ours, Quebec. The site is a recognized National Historic Site of Canada. The fishway hydraulics will be studied over a 4 year period and will include 3 fieldwork seasons, physical laboratory modelling, and computational fluid dynamics modelling. The research will be part of a collaborative study which teams water resource engineers and fish biology students together to better understand the attraction and passage efficiency of the fishway.*

Outcomes :

- *An understanding of how various hydraulic characteristics affect lake sturgeon attraction and passage.*
- *Physical and CFD models to simulate the fishway under various flow conditions.*

Benefits from this research: *Improved site operation conditions resulting in an increase in successful upstream lake sturgeon passage.*



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