FISHPASS

GIIGOOK MAH-JOWAG

October 2019

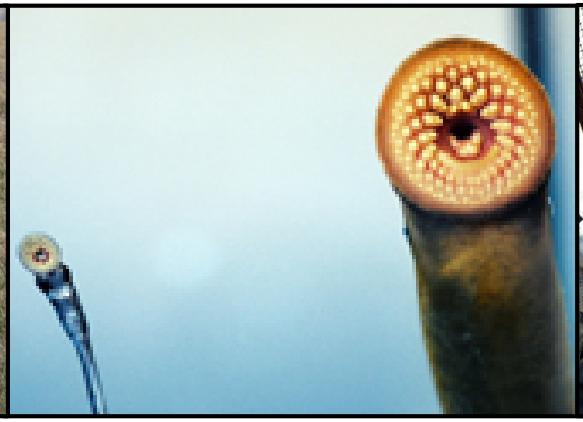
FishPass Overview

Daniel Zielinski, Computational Engineer
Andrew Muir, Science Director

http://www.glfc.org/fishpass.php

GLFC & Sea Lamprey Control

*GLFC is a 1955 treaty organization between Canada and the United States (www.glfc.int) charged with **sea lamprey control** and maintaining **healthy sustainable fisheries** in the Great Lakes*


Sea Lamprey Biology

- Attach to prey fish and feed on blood and other bodily fluids
- A single sea lamprey is capable of killing 40 pounds of fish
- Migrates up rivers and streams to spawn and females can lay ~100,000 eggs

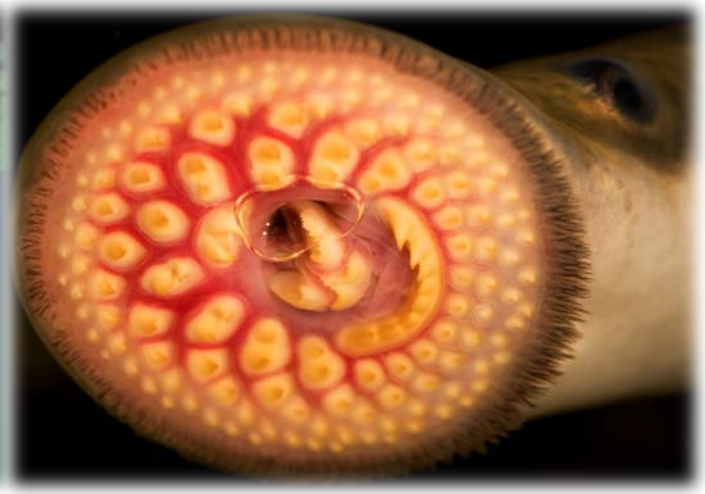
Sea Lamprey Control

- Barriers used to deny access to spawning grounds and lampricide used to kill larvae
- Efforts have reduced population by over 90% of historic peak

What is FishPass

An innovative project to **enhance fish passage and connectivity** between the Boardman (Ottaway) River and Lake Michigan **while removing invasive or non-desirable fishes** through controlled sorting





Why Boardman?

- Selected via decision analysis among 12 sites
- Boardman River IT was seeking a solution to fish passage and sea lamprey control at Union Street Dam
- Union Street Dam is in disrepair and requires significant repair/replacement
- Aligns with Boardman River Restoration timeline



What will FishPass Do?

- **Replace** deteriorating Union Street Dam with an improved barrier featuring a fish-sorting channel and a nature-like river channel

- Optimize various sorting technologies and techniques **below a barrier** to maximize efficiency of passing desirable fishes and removing invasive fishes

- **Develop** into a living laboratory with a strong education & outreach center

- **Convert** to permanent selective fishway completing the Boardman River Restoration Project

FishPass = Barrier with selective capacity

FishPass Design

Existing Conditions

Proposed Conditions

90% FishPass Design

Environmental Improvements

Revitalized tree canopy

- Remove overgrown and invasive vegetation
- Net increase of 62 native trees
- Renewed riparian vegetation
- Erosion resistant shorelines

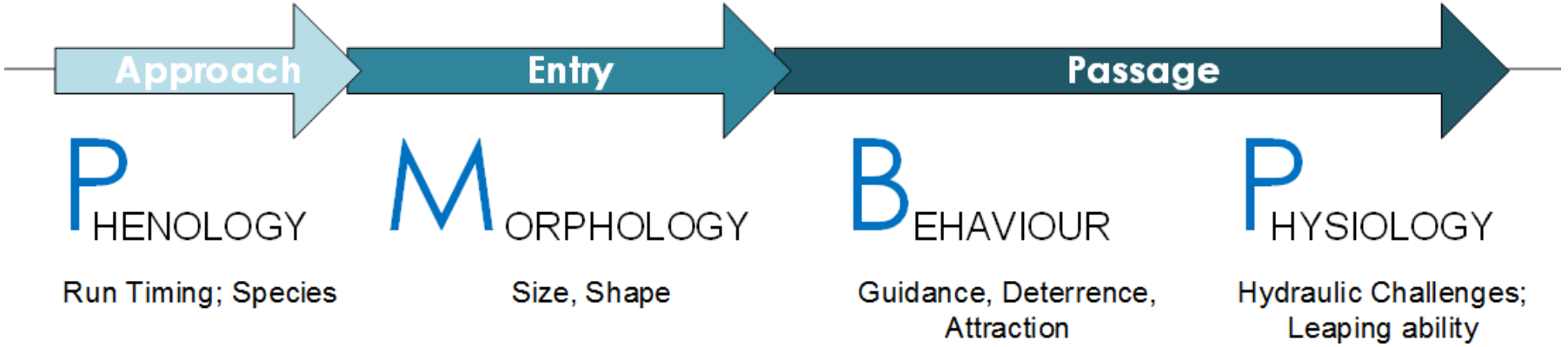
Water quality

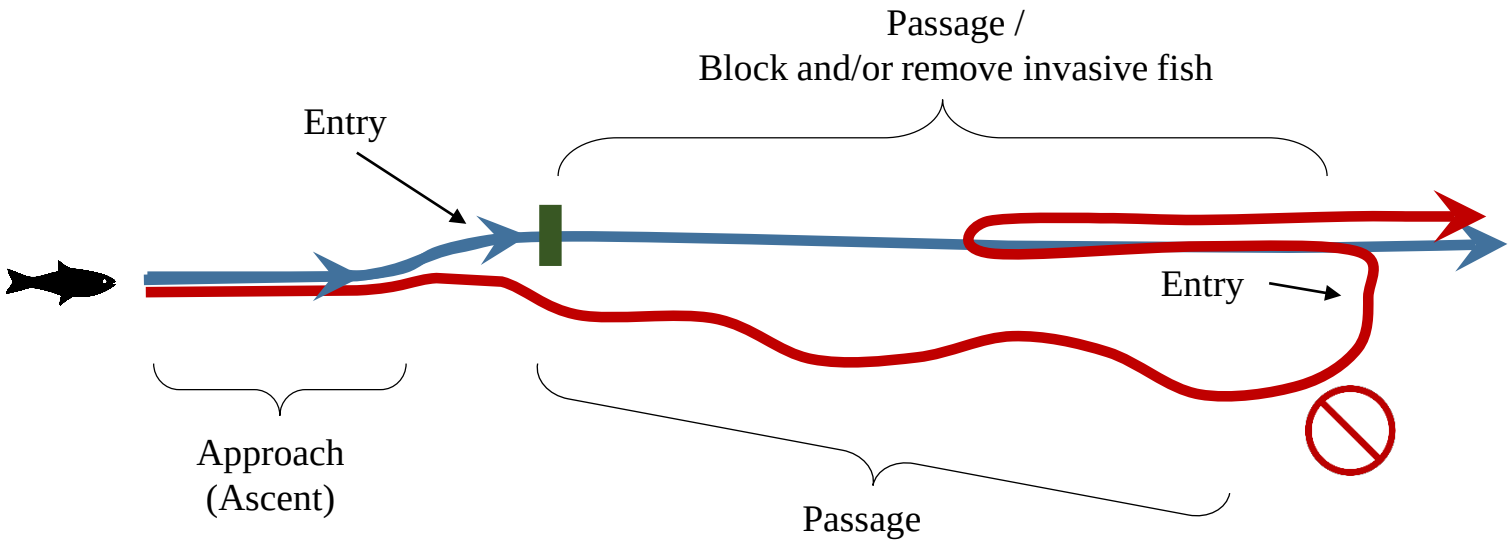
- Stabilized water levels
- Improved instream habitat

Improved stormwater management

- Permeable pavers
- Green roof on Research and Education building
- 1.5 acres drain into three raingardens

Research Plan - Eco-engineering approach



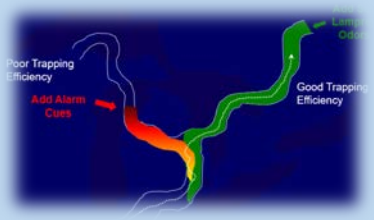


Sorting will occur during each stage: approach, entry, and passage

Research Plan - Eco-engineering approach

Approach → Entry → Passage

PHENOLOGY	MORPHOLOGY	BEHAVIOUR	PHYSIOLOGY
Run Timing; Species	Size, Shape	Guidance, Deterrence, Attraction	Hydraulic Challenges; Leaping ability



Project Oversight

FishPass Advisory Board

Core members (voting) and Science team (non-voting)

Charter:

1) Provide guidance to project leaders to coordinate project activities (**Core**);
2) Manage facility usage schedule (**Core**);
3) Formulate and implement both an annual and long-term research program for FishPass in accordance with the Research Plan (**Sci. team**);
4) Annually review project assessment data and evaluate project efficacy with respect to social, economic, and biotic project metrics (**Core & Sci. team**).

Contact us

- Andrew Muir, Science Director (amuir@glfc.org; 734-669-3016)
- Dan Zielinski, Computational Engineer (dzielinski@usgs.gov)
- Marc Gaden, Communications Director and Legislative Liaison (marc@glfc.org)

http://www.glfc.org/fishpass.php

FISH PASS
GIIGOOK MAH-JOWAG