



University of
Massachusetts
Amherst

Fish passage at hydropower dams in Wisconsin and concerns with invasive species, disease, and contaminants

Item Type	event;event
Authors	Utrup, N.
Download date	2026-05-11 00:10:50
Link to Item	https://hdl.handle.net/20.500.14394/24742

Midwest Fish Passage and Concerns

Invasive Species, Diseases, and Contaminants



Nick Utrup

U.S. Fish and Wildlife Service

Bloomington, Minnesota

Nick_Utrup@fws.gov



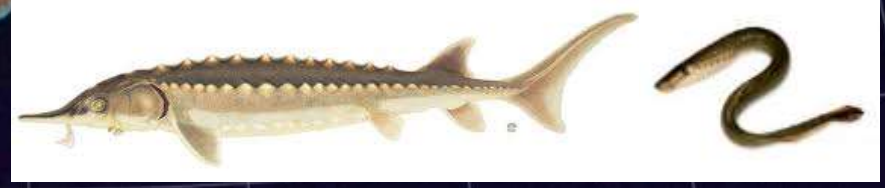
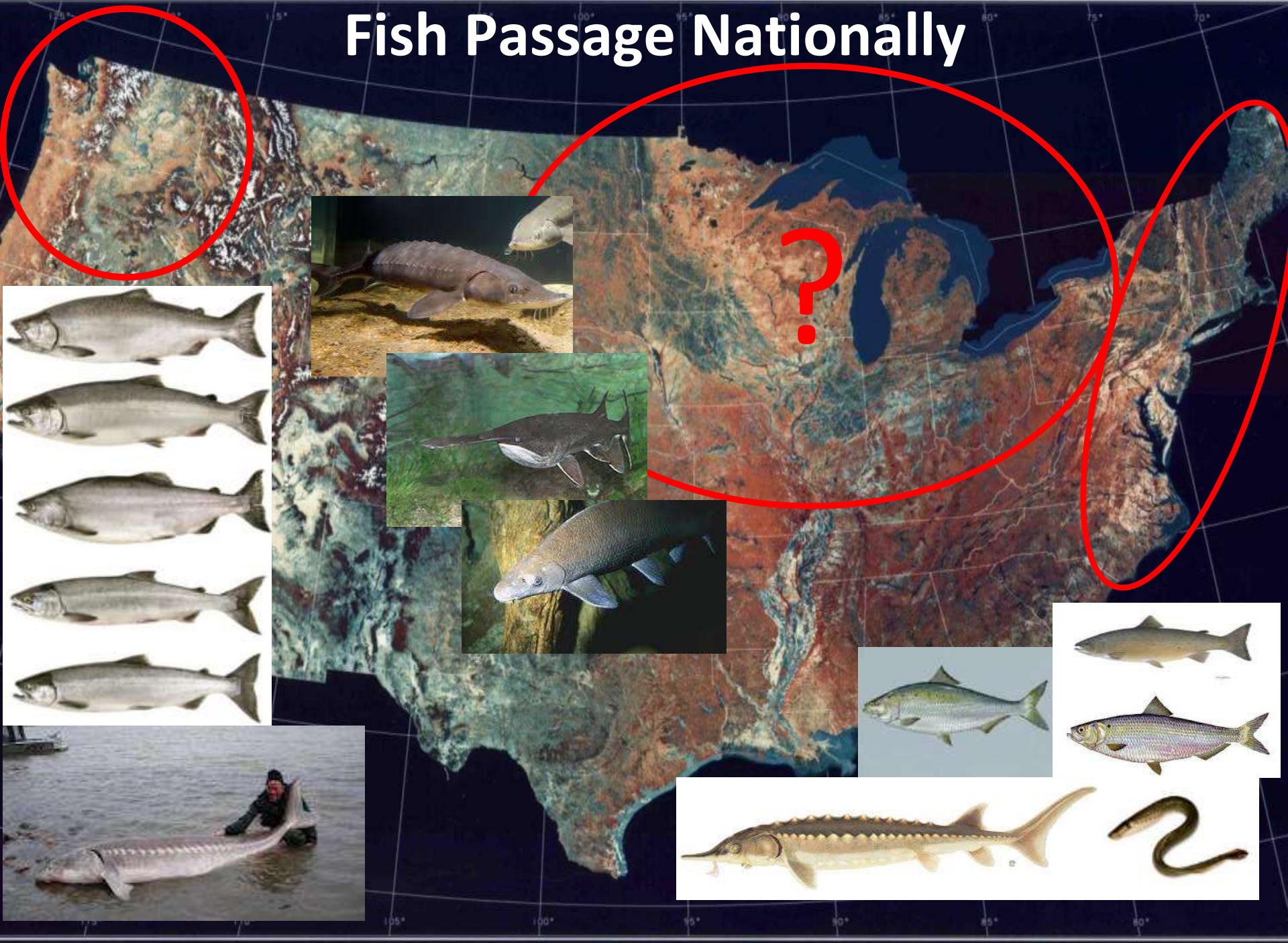
Dams common in Upper Midwest; rivers fragmented

Major upsurge in fish passage interest/efforts in last 25 years



Kilbourn Hydroelectric Dam, Wisconsin River, WI

Fish Passage Nationally



Why is Fish Passage needed in Midwest?

- There are many native fish species in the Midwest that would benefit from fish passage
 - Lake Sturgeon – Travel more than 125 miles
 - Paddlefish – Travel more than 200 miles
 - Suckers, catfish, etc - Some travel more than 100 miles
- Freshwater mussels would also benefit from improved fish passage
 - Use fish as a host during their life cycle
 - Rely on fish for dispersal (genetic mixing)

Increasingly important role of dams: stopping AIS



Keokuk Dam, Mississippi River, IA/IL

Wisconsin DNR




Challenge: provide effective fish passage for native fishes while continuing to block invasive species

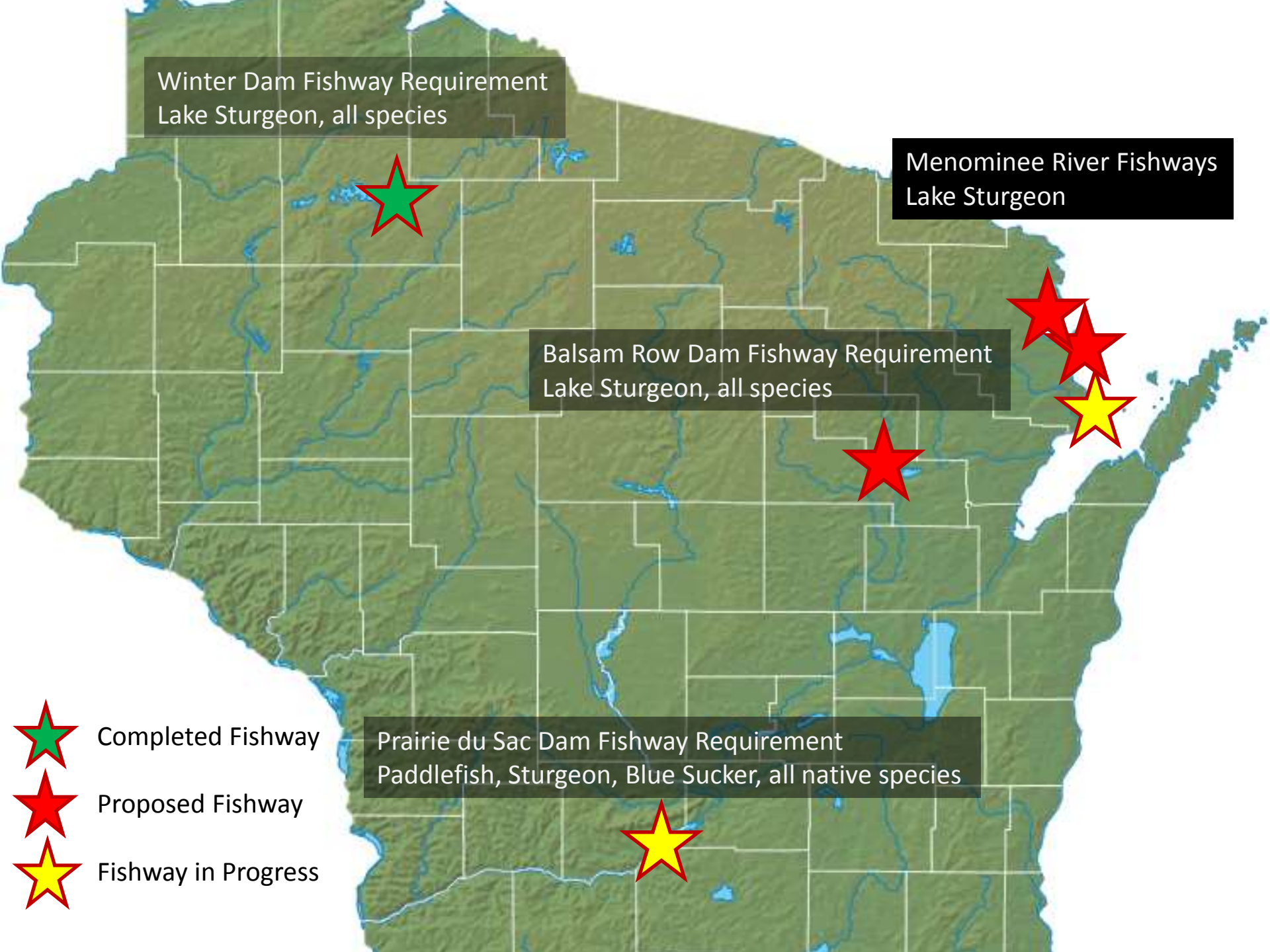
Winter Dam Fishway Requirement
Lake Sturgeon, all species

Menominee River Fishways
Lake Sturgeon

Balsam Row Dam Fishway Requirement
Lake Sturgeon, all species

Prairie du Sac Dam Fishway Requirement
Paddlefish, Sturgeon, Blue Sucker, all native species

-  Completed Fishway
-  Proposed Fishway
-  Fishway in Progress



Great Lakes Fish Passage

Menominee River

- **Invasive Species**

- Sea Lamprey, Rudd, Ruffe, White Perch, Goby, Asian Carp

- **Diseases of Concern**

- Viral Hemorrhagic Septicemia Virus

- **Contaminate Transport**

- Polychlorinated biphenyls (PCB's)

Menominee River

Madison



Benefits of Sturgeon Passage on the Menominee River



■ Currently Available

- 2.75 miles of river
- Approx. 240 acres of habitat
- Currently produces few fish

■ Passage at lower two dams

- Would open 21 miles of river
- Approx. 1,700 acres of habitat

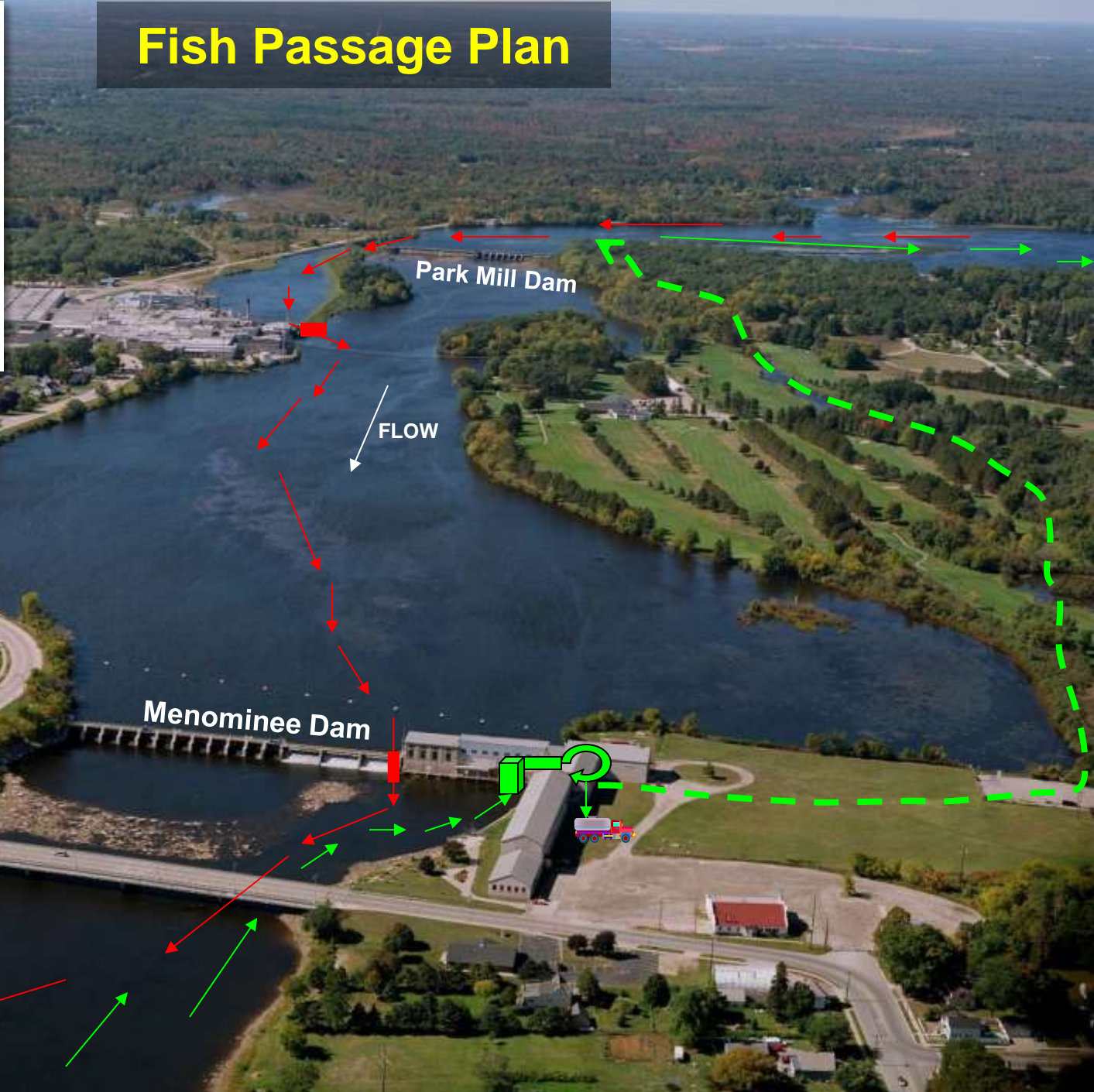
■ Passage throughout historical range

- Would open 87 miles of river
- Approx. 5,000 acres of habitat

Menominee River Fish Passage



Fish Passage Plan



Photos by Ulrich Holmbeck - Bird's Eye Animation

Fishway Operation Agreement




- **Identifies roles and responsibilities of stakeholders**
 - Implementation Team (IT) responsibilities
 - N.E.W. Hydro responsibilities
- **Set guidelines for cost of operation**
 - 2% of annual electric revenue will be used for operation of fishway, including sorting activities
- **Limits liability for fish sorting and handling**
 - N.E.W. Hydro employees will not participate in sorting activities
 - The IT will be responsible for conducting sorting

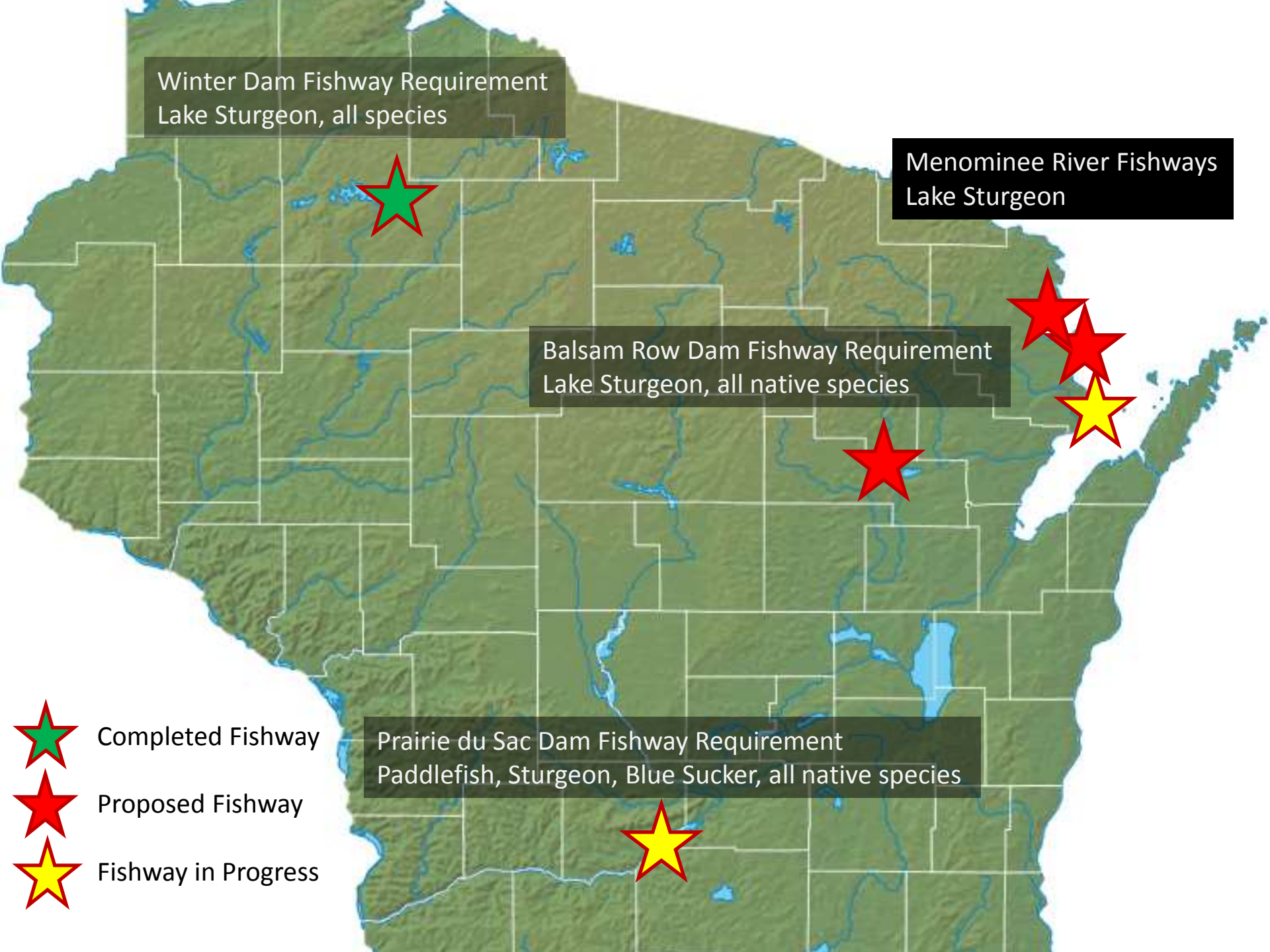
Winter Dam Fishway Requirement
Lake Sturgeon, all species

Menominee River Fishways
Lake Sturgeon

Balsam Row Dam Fishway Requirement
Lake Sturgeon, all native species

Prairie du Sac Dam Fishway Requirement
Paddlefish, Sturgeon, Blue Sucker, all native species

-  Completed Fishway
-  Proposed Fishway
-  Fishway in Progress



Mississippi Basin Fish Passage

Wisconsin River

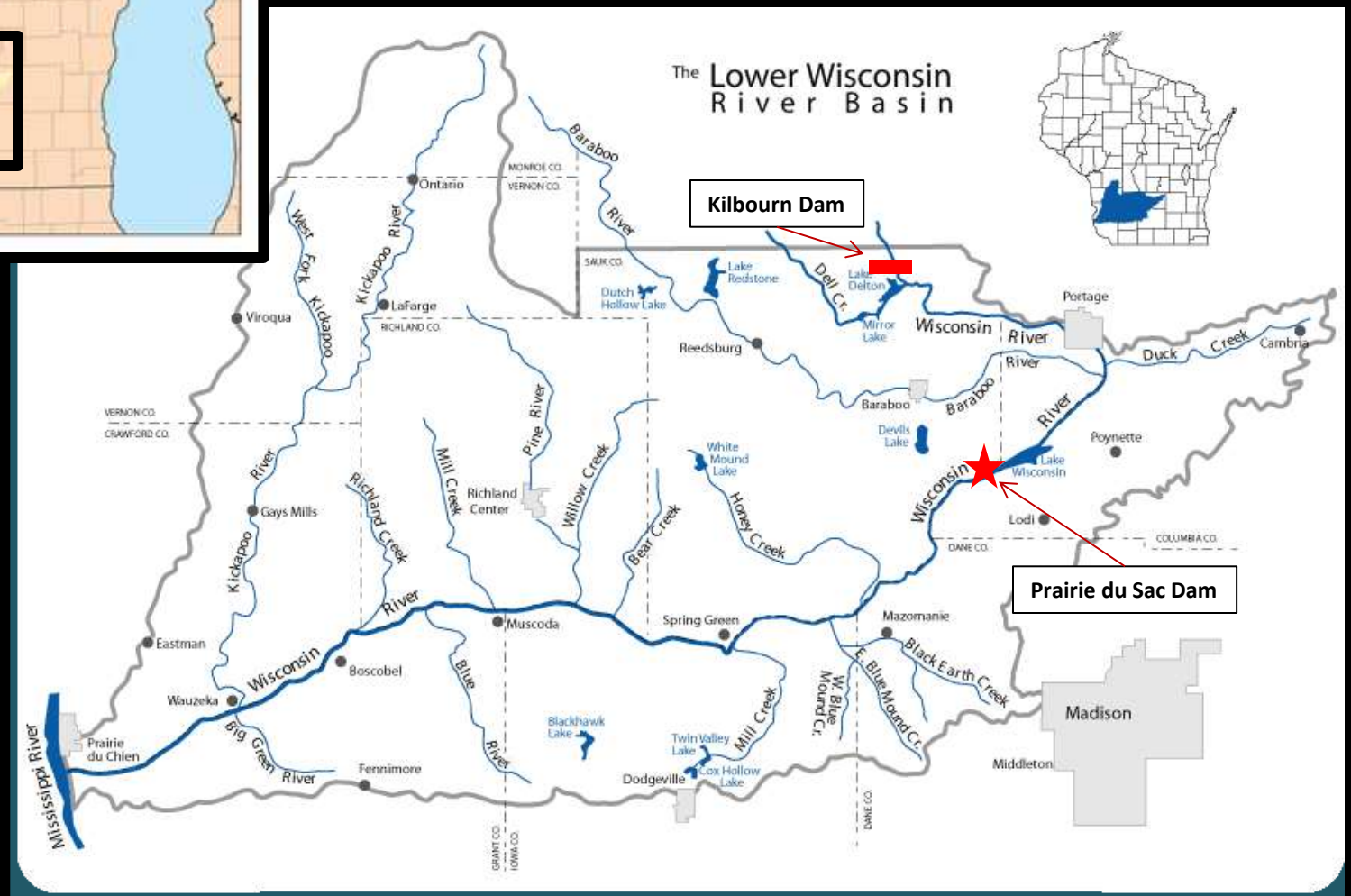
- **Invasive Species**

- Asian Carps (Bighead, Silver, Grass, Black)

- **Diseases of Concern**

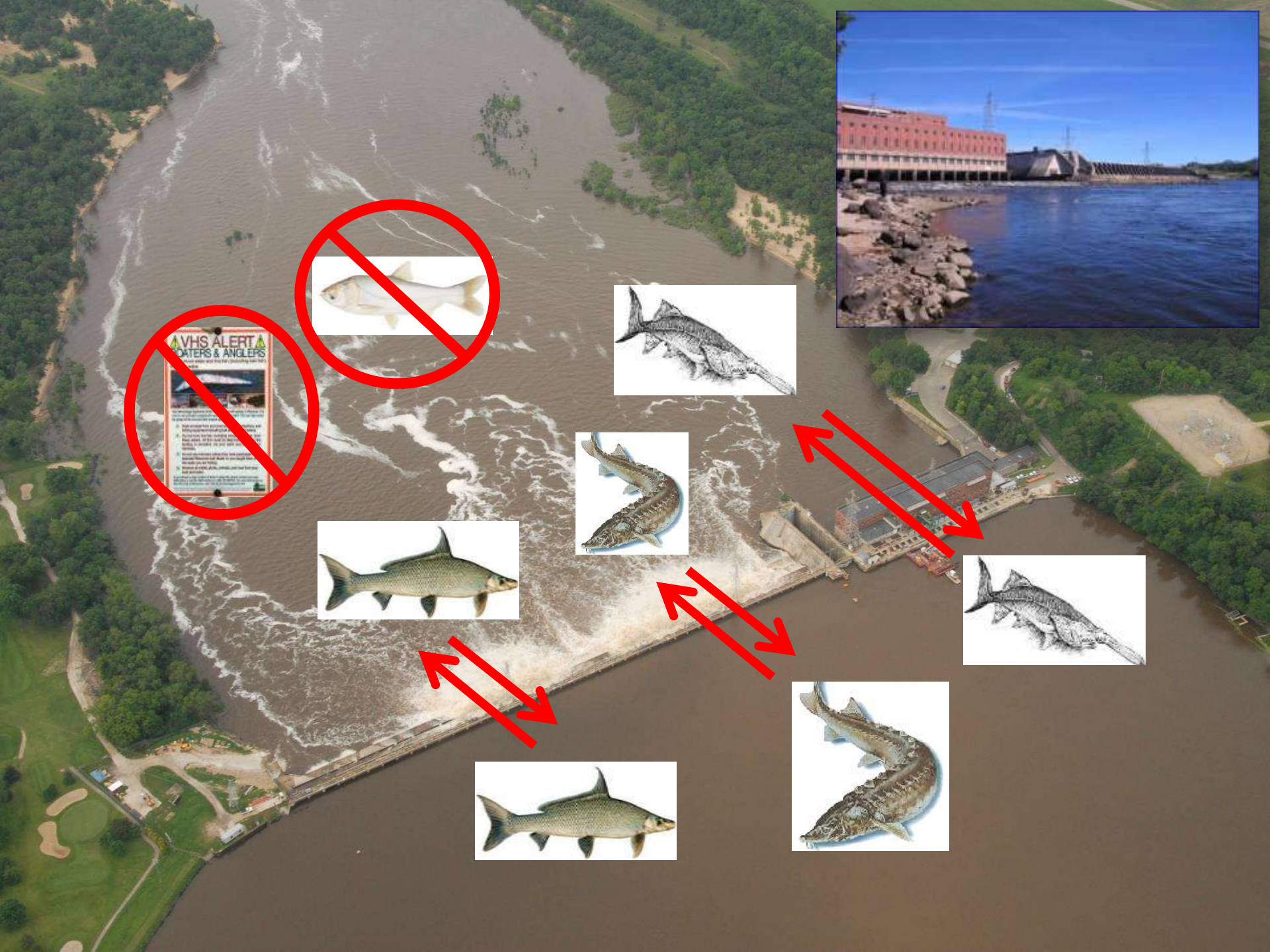
- Viral Hemorrhagic Septicemia Virus

Wisconsin River



Required Fishway at Prairie du Sac Dam

- The licensee is required to provide safe, timely and effective fish passage at the Prairie du Sac Dam.
 - A condition of their FERC license
- The U.S. Fish and Wildlife Service is required to review and approve a final alternative for fish passage.
- Concerns regarding invasive species and disease, such as Asian carp and VHSV
 - U.S. Fish and Wildlife Service is reviewing alternatives with public input.



Why a Fishway at Prairie du Sac?

- First barrier on the Wisconsin River upstream from the Mississippi River, approximately 92 miles upstream.
- The dam is a barrier to the seasonal movement of Federal Trust Species and important migratory fishes, such as paddlefish and sturgeon
 - Also 19 species of fish and 15 taxa of mussels no longer occur upstream of the dam.
- The Prairie du Sac Dam currently acts as a complete barrier to volitional upstream movement of fish.
 - Including volitional upstream movement of AIS

What do we Need in an Alternative?

- An alternative that provides **safe** passage
 - Will not cause significant injury or death to fish passing the dam.
- An alternative that will provide **timely** passage
 - Will function each year during appropriate seasons and for a sufficient period of time when fish are attempting to pass the dam.
 - Will occur within appropriate seasons to avoid or minimize delayed movements and must help fish complete their life cycle.
- An alternative that will provide **effective** passage
 - Will allow native fish to complete their life cycle.
- An alternative that incorporates reasonable precautions to prevent the upstream passage of invasive species and diseases of concern.
- An alternative that complies with all applicable State and Federal laws.

Potential Alternatives for Fish Passage

No Action

Current condition.

No construction or operation of any type of fishway.

No Alternative Selected

Unmediated Fish Passage

People **DO NOT** intervene in the process.

A water driven process that is completely open to the volitional upstream and downstream movement of fish and is only restricted by the surrounding physical environment (e.g., fishway structure, stream channel limitations, flow dynamics).

Passive Fishway

Method for the volitional movement of fish upstream or downstream of a barrier.

Alternatives

Fish Ladder

or

Vertical Slot

or

Nature-like Channel

or

Denil

or

Alaska Steeppass

Barrier Removal

Removal of an artificial barrier to upstream and downstream fish movement.

Alternatives

Natural River Channel

Human Mediated Fish Passage

People **DO** intervene in the process.

A human dependent process that is both restricted by the surrounding physical environment (e.g., fishway structure, stream channel characteristics, flow dynamics) **AND** restricted by the management of humans (e.g., physical sorting of fish, manual human operation of fishway gates and controls, trucking of fish).

Active Fishway

Method for the volitional movement or attraction of fish into a trap or other mechanism allowing for appropriate human intervention (e.g., physical sorting of fish).

Alternatives

Fish Trap and Transport

Active Capture

Method for the non-volitional capture of fish using traditional or non-traditional fishing gear (e.g., nets, electrofishing, etc..) allowing for appropriate human intervention (e.g., physical sorting of fish).

Alternatives

Fish Capture and Transport

Winter Dam Fishway
No Sorting Needed



Menominee River Fishways
Sorting Required at Lowermost Dam
Only Sturgeon to be Passed




Balsam Row Dam Fishway
Sorting may be Needed




Prairie du Sac Dam Fishway
Sorting Required to Comply with State Law
Focus on Target Species



 No Concerns

 Great Lakes Concerns
Sea Lamprey, VHS, PCBs

 Mississippi River Concerns
Asian Carp, VHS

Acknowledgments

- Wisconsin DNR
- Michigan DNR
- Eagle Creek Renewable Energy
- U.S. Fish and Wildlife Service
- River Alliance of Wisconsin
- U.S. Forest Service



Questions?

