

Introducing an LCCMR funded Minnesota River project and preliminary telemetry discoveries

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LCCMR & ENRTF

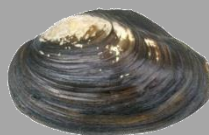
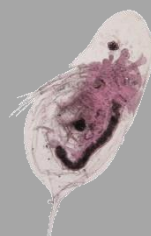
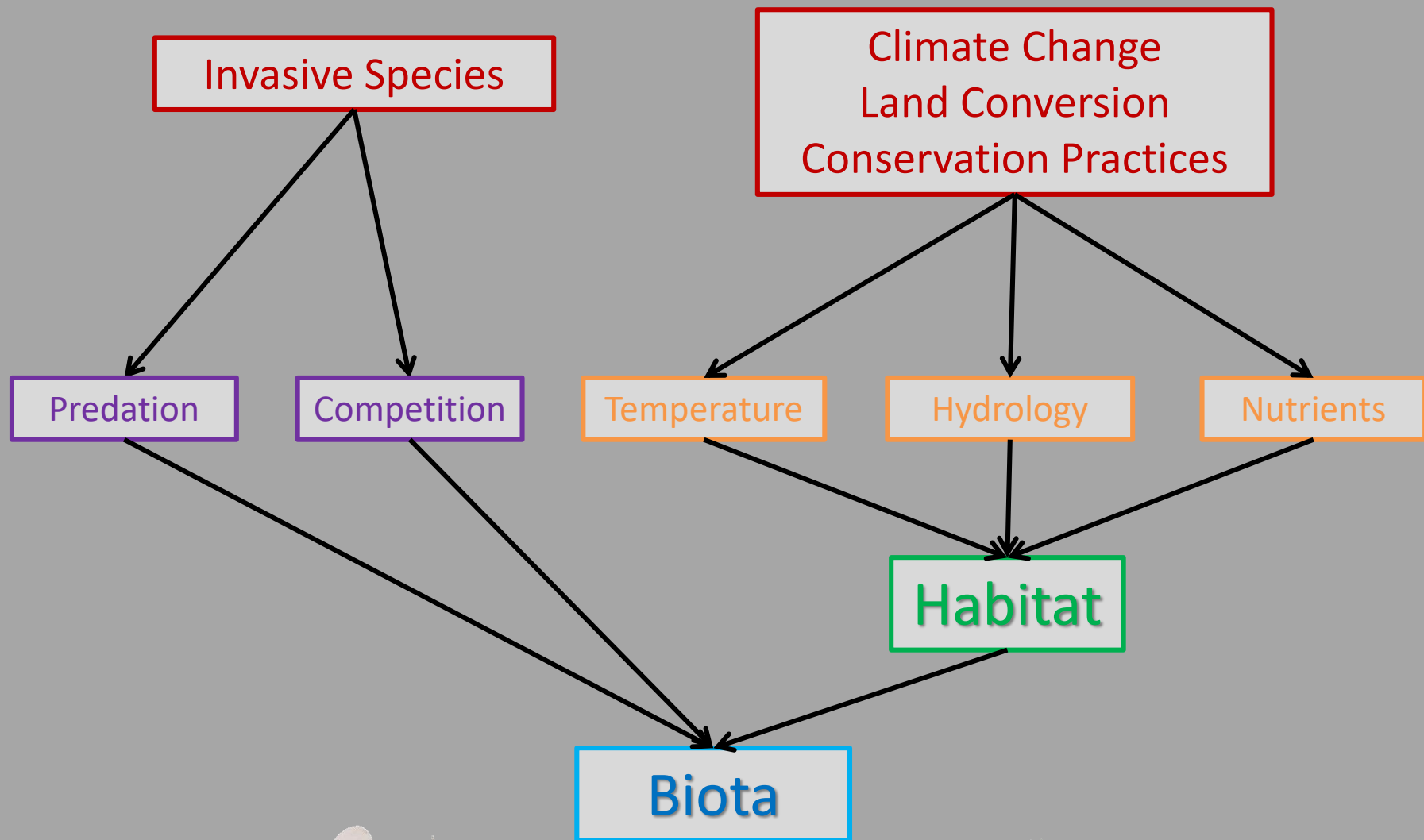
Legislative-Citizen Commission on Minnesota Resources:

Committee whose primary function is to make funding recommendations to the Minnesota legislature for special ENRTF projects, and provide oversight for all funded projects.

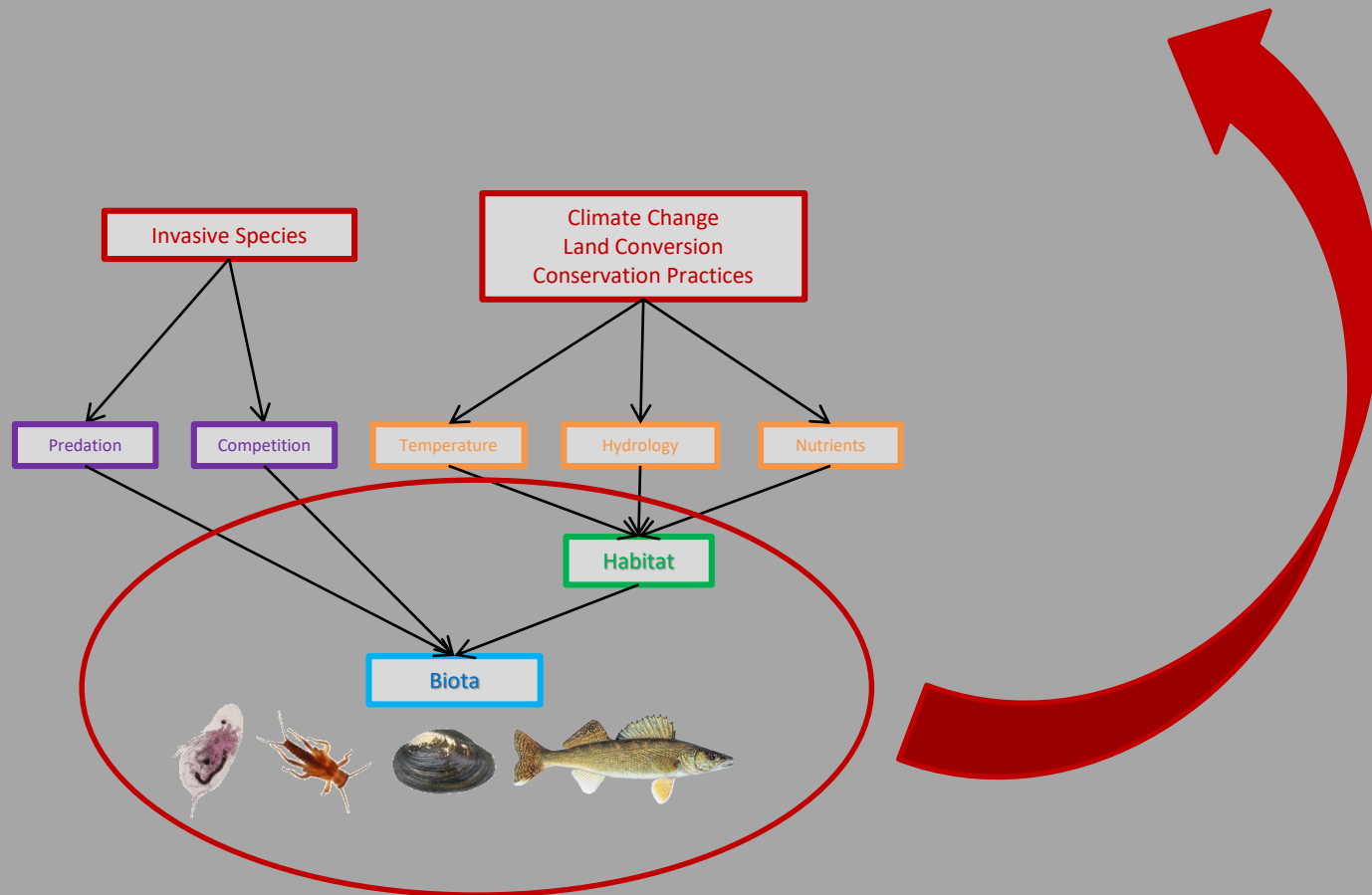
Environment and Natural Resources Trust Fund: *Created to provide a long-term, consistent, and stable source of funding for innovative activities directed at protecting and enhancing Minnesota's environment and natural resources for the benefit of current citizens and future generations. Seven cents from every dollar spent on playing the Minnesota lottery is contributed to the trust fund.*

The Minnesota River is being impacted by changing land use, climate, invasive species, and conservation efforts





Problem: There are hypothesized and anticipated impacts to the Minnesota River ecosystem (biota and habitat), but we lack the data and understanding to adequately predict and quantify these future impacts



How will



IMPACT



IN THE MINNESOTA RIVER ECOSYSTEM?

How will



IMPACT



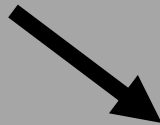
IN THE MINNESOTA RIVER ECOSYSTEM?

**WE WILL NEVER KNOW, UNLESS WE
ACCELERATE EFFORTS TO COLLECT
BASELINE DATA NOW!**

The MNDNR was awarded funds from the ENRTF to address this problem with four specific project activities



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**Activity 1: Accelerate collection of baseline
Minnesota River lower trophic data**

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Activity 2: Quantify physical habitat characteristics of the Minnesota River

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**Activity 3: Inventory Minnesota River backwater
fish communities**

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Activity 4: Evaluate population dynamics, movement, and habitat use of Shovelnose Sturgeon (and Paddlefish) in the Minnesota River

Changes Continue!



- 1 Grass Carp captured Dec. 2015
- 1 Bighead Carp captured Feb. 2016
- Zebra Mussels discovered summer 2016



- New buffer laws

Accomplishments

Activity 1: Accelerate collection of baseline Minnesota River lower trophic data

Collected samples during August, September and October at 7 sites



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Zooplankton samples were processed by Jodie Hirsch at MN DNR

Phytoplankton were processed by BSA Environmental Services



Activity 3: Inventory Minnesota River backwater fish communities

Sampled 4 backwaters during fall 2016



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Aged BLC and WHC from Mack Lake



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Sampled 4 backwaters during fall 2016

Aged BLC and WHC from Mack Lake

8 more backwaters to be sampled during 2017-2018



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Established stationary acoustic receiver array



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Implanted SLS and PAD with acoustic transmitters

Manually tracked implanted fish

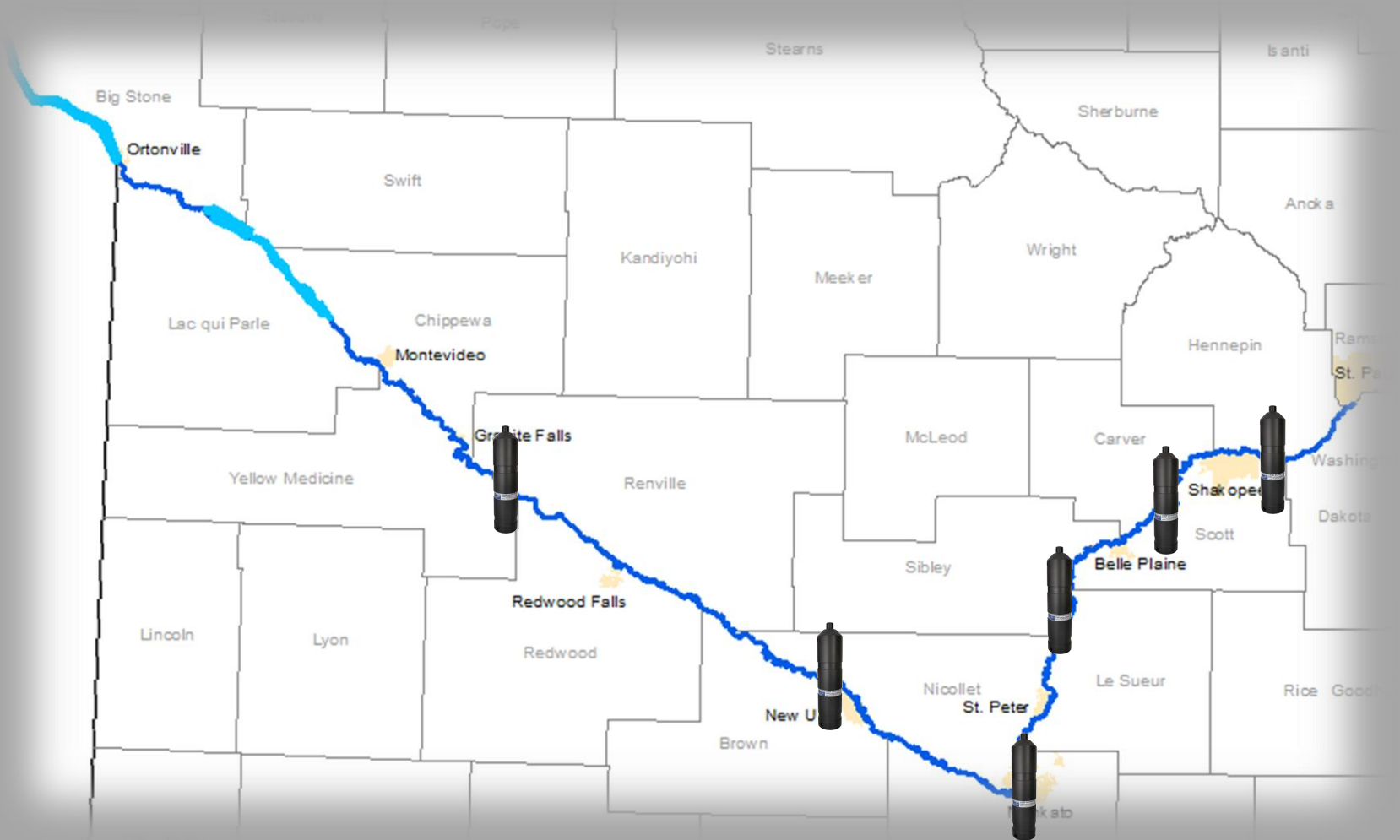


Acoustic Telemetry



Stationary Receivers

Uploaded each of 6 receivers at least once



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Pool 2

1 Paddlefish
1 Common Carp
1 White Bass
2 S. Buffalo
5 B. Buffalo

MNR

1 Shovelnose
Sturgeon

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1 White Bass

2 S. Buffalo

5 B. Buffalo

MNR

1 Shovelnose
Sturgeon

4-1





4-2

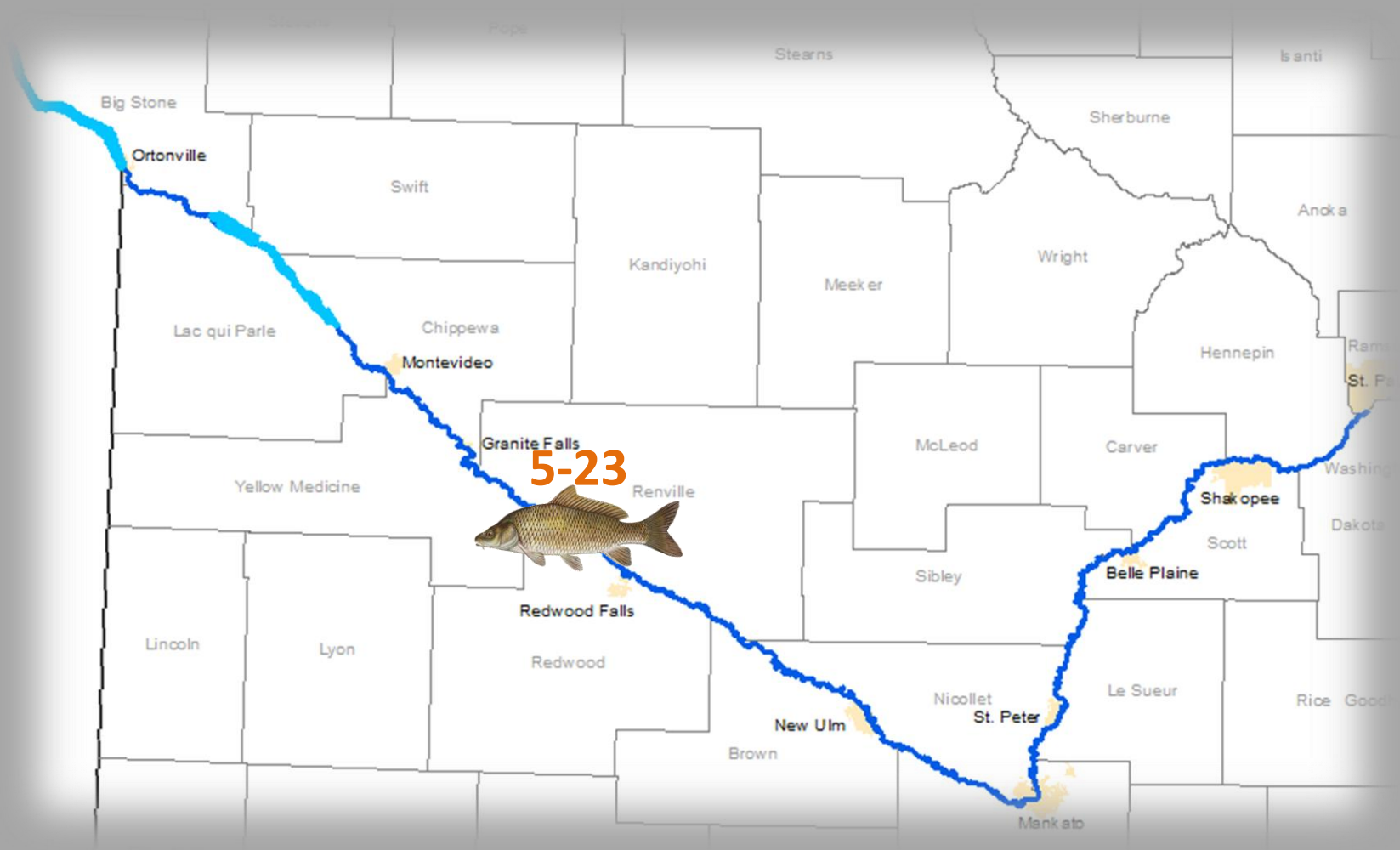




4-14















Most recent detection by Joel Stiras VR2

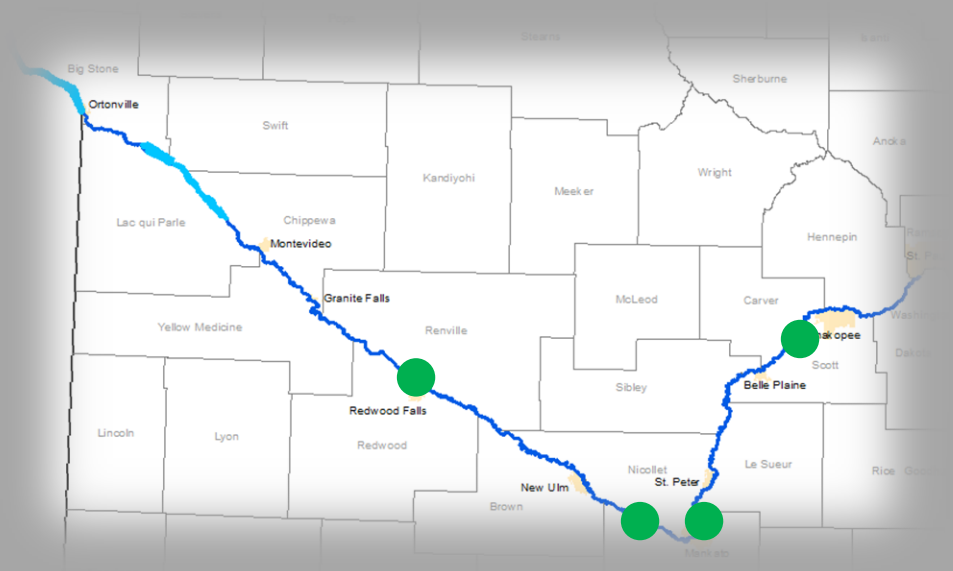






Shovelnose Sturgeon Telemetry

- 26 implanted in Fall 2016 at 4 sites
 - North Redwood (9)
 - Judson (9)
 - Mankato (7)
 - Chaska (1)
- Sites were spaced along 170 river miles
- Actively tracked with a Vemco VR100 during subsequent trips



Judson 9-21



Judson 10-12



Judson 10-19



Judson 10-28



Judson 11-29



North Redwood 8-29-16



North Redwood 8-30-16



North Redwood 9-12-16



North Redwood 10-7-16



54 river miles downstream in 25 days

North Redwood 10-20-16



North Redwood 10-27-16

53223



53221



53220



53225



53224

53226



North Redwood 11-28-16



North Redwood 3-27-17



Paddlefish Telemetry

Implanted 4 Paddlefish at St. Peter during summer 2016

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Tracked during three subsequent trips in the fall

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Fish moved very little and began congregating by the end of October

St. Peter
8-31



St. Peter 9-13



St. Peter
10-28



53215

53216

53217

53218

St. Peter 12-1



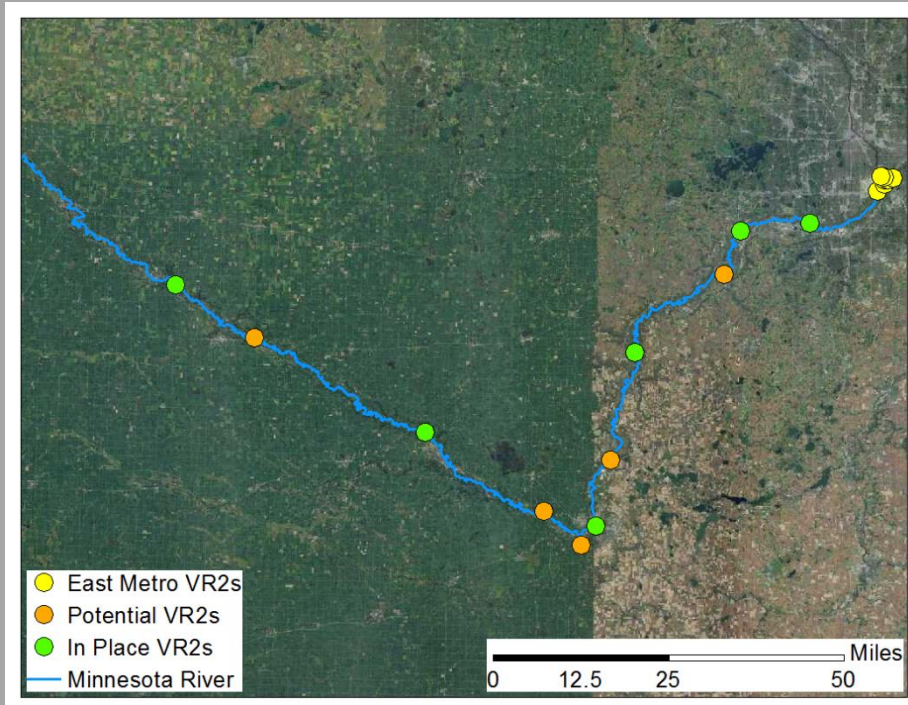
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Future Directions



- Install five more stationary receivers (orange) during low water conditions
- Continue uploading VR2 data
- Continue active tracking of PAD and SLS
- Implant 10 additional SLS with acoustic transmitters