

A solution for invasive carp in Minnesota

Peter W. Sorensen
University of Minnesota

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**Will Minnesota do something to stop
invasive carp?**

Failing to act **now is making a choice.**

Bigheaded (Invasive) Carp in the Mississippi River

- 1960s: Introduced in Arkansas from Asia
- Spreading north, breeding and producing young
- Over 1 million eggs per female, once breeding it is too late—it just takes a few fish
- Destroy river ecosystems and fisheries
- No solution except prevention

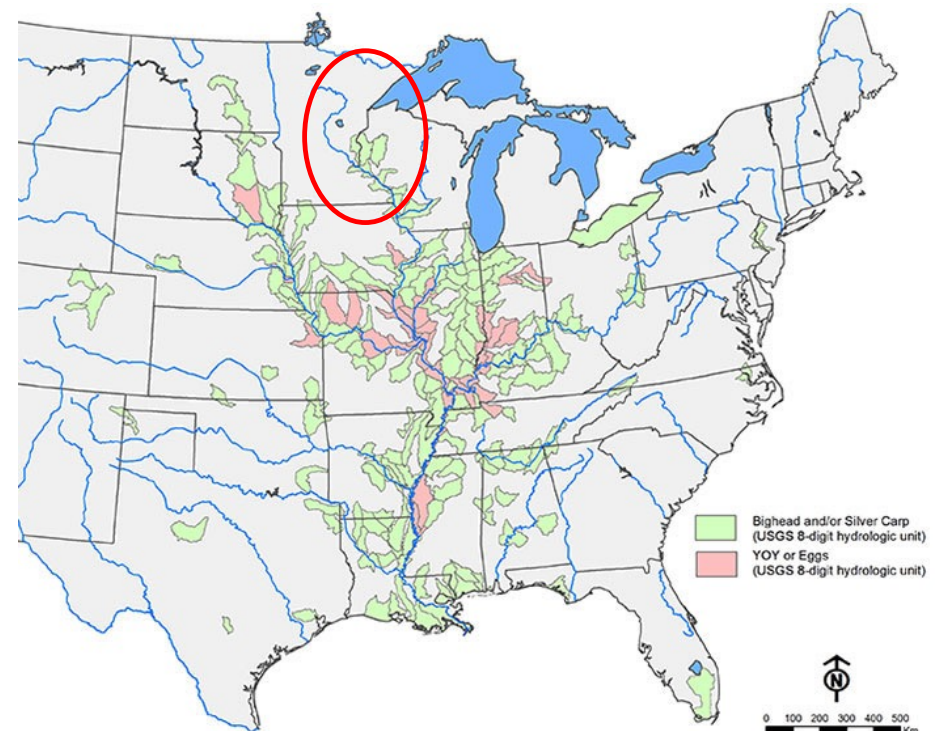
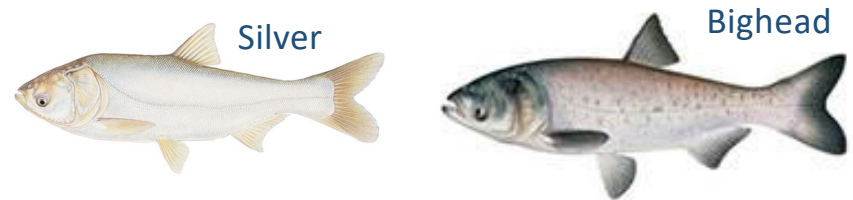
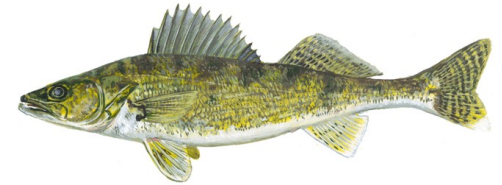


Photo from: www.asiancarp.us
Data Sources: U.S. Geological Survey and Illinois Dept. of Natural Resources

April 2013

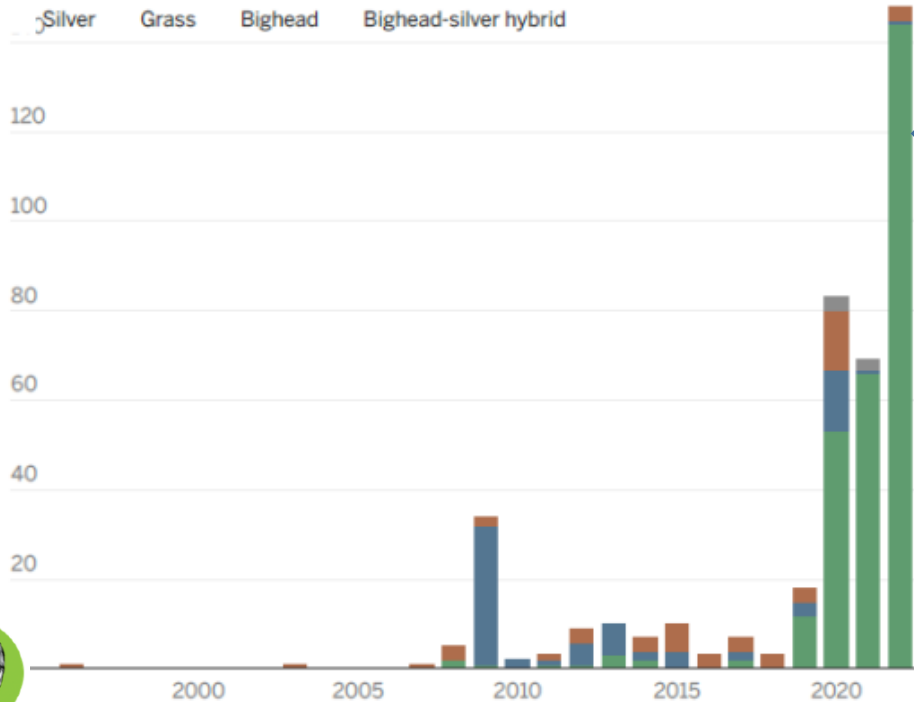
40 years of research: Bigheaded carps outcompete native fish for food, permanently damaging fisheries and waters

- 50% reduction in native gamefish!
- Reduction in boating, big impact on river economy
- Reduced resilience/ biodiversity
- Eutrophication



Why must we act now?

CARP CAUGHT ANNUALLY IN THE MISSISSIPPI RIVER



Bigheaded
carps caught

The number of adult Bigheaded carps entering MN waters from Iowa is increasing exponentially. It is reaching a point of no return in southern waters because reproduction can be expected.



Dennis Anderson
@STRIBDENNIS

Yuqing Liu, Star Tribune • Source: DNR

The proposed plan to save MN waters from invasive carp

- Protects majority of the state (Lake Pepin north)
- Developed by UMN experts with over \$5 million
- Predicted to stop 99% of all invasive carp—and keep carp reproducing
- Will help native fishes
- No other options have been put forward—and no chance for do-overs



Why is Lock & Dam 5 the best and only option—and only now?



The only location in MN that can stop carp:

- No bypasses
- Deterrent can be added to lock
- Its spillway dam is also passable only 0-1 days/yr and can be improved
- Short, fishable pool

LD5 is at the leading edge of carp moving upstream.

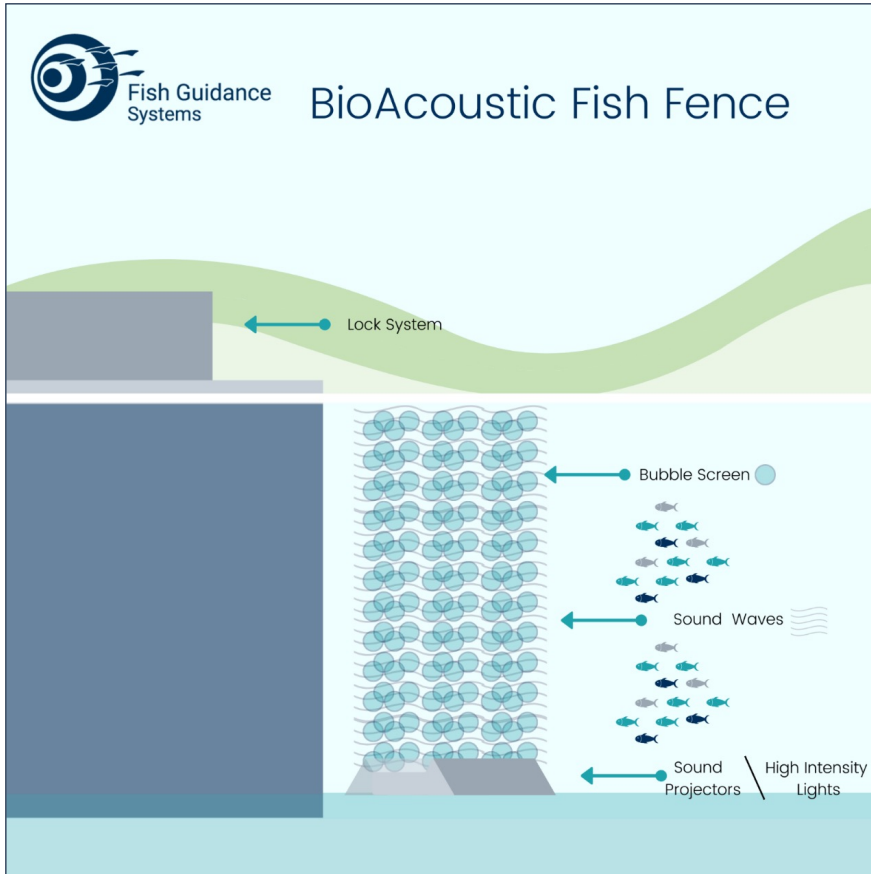
THE PLAN:

Stop carp passage while strategically removing them



1. Add a carp deterrent to the lock
2. Remove carp below and above
3. Adjust spillway gates
4. Active management by DNR

1. Add a sonic carp deterrent to the navigational lock at LD5



Acoustic deterrents are promising: Carp are more sensitive to sound than many native fish



Tests of the **Bioacoustic Fish Fence (BAFF)** in U of MN lab: **98% effective**

A BAFF is being tested by USFWS at Barkley Lock, KY with favorable results



2. Remove carp above and below LD5 systematically using the Modified Unified Method

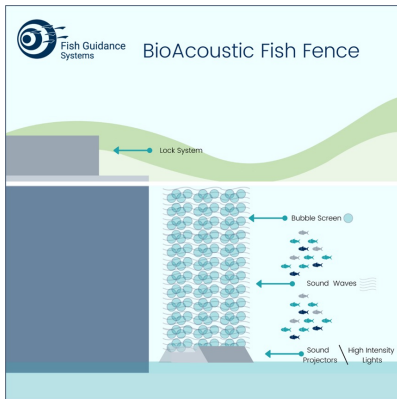
- Take from Pools 5 and 5A
- Target adult Bigheaded Carp using sound to herd them into nets
- Removal = Key additive step



3. Work with US Army Corps of Engineers to adjust spillway gates at LD5 to balance/accelerate flows across the dam, further reducing carp passage to 1%



Combining all three strategies will be 99% effective



= 99%

Only by using all 3 approaches together right now can we prevent Bigheaded Carp from establishing and reproducing in MN waters above LD5

Lessons learned from battling invasive species in MN waters inform this recommendation

1. There is **no fix** for invasive species **once established**
2. **Preventing** adults from establishing and reproducing is the **only** reasonable approach
3. Success requires **preventing most—not all—adults** from establishing
4. There is **no single solution**: multiple control measures are required
5. **Delaying action to develop a more perfect solution means we'll be too late** to stop the establishment of Bigheaded Carp in MN waters



Peter Sorensen, Professor UofMN, Founder of MAISRC, 35 years of experience with AIS, 200+ publications

This plan to save MN waters from invasive carp is:

- **Reasonable:** adaptable, flexible, practical
- **Validated** by the scientific community and USACE
- **Doable** as confirmed by Barr Engineering Co.'s feasibility and cost analysis
- Permits can be obtained quickly and easily
- **Cost effective:** approximately \$17 million—if not implemented, MN will ultimately pay \$2 million/year *every year* for carp control/disposal + \$1 million for research
- **Time critical:** **Work must be funded and begin in 2023** to have a good chance of succeeding (before the carp reproduce)

Thank you.