

Good morning Megan and Peter,

I am sending along information that I would like you to share with the Env. Conference Committee members.

**Invasive Carp:**

On Saturday, May 8, Assistant Commissioner Meier indicated that DNR would pass along some information about activity in the Mississippi River to remove invasive carp. Attached you will find information about the exercise called a modified unified method (MUM) carp removal exercise that was completed with our partners from USGS, USFWS and WI DNR in Pool 8 of the Mississippi River (*see attached factsheet on the MUM exercise for more information*). This was the first a MUM had been attempted in this area of the river/ the Midwest and we had two goals: to see if this type of herding and netting method would work in the Upper Mississippi River and to remove invasive carp from the river.

Information on the MUM exercise:

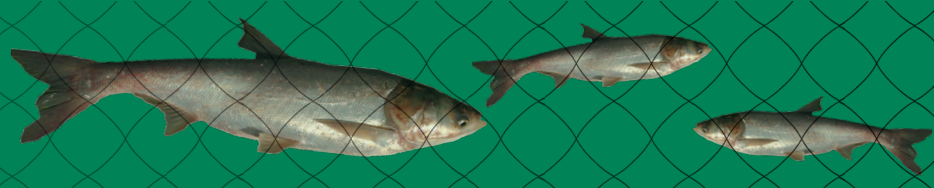
In response to the largest upstream catch of invasive carp in the Upper Mississippi River to date, where 39 silver and 12 grass carp were captured in Pool 8 in March 2020, the MN DNR in collaboration with USGS, USFWS, and WI DNR, initiated an elaborate carp removal project using a new management tool known as the Modified Unified Method (MUM). MN DNR took on the lead facilitating and planning role for the partnership project. The project was jointly managed under the Fisheries Section-FAW and Invasive Species Program-EWR by Ben Larson and Carli Wagner, respectively. Planning for the MUM began in July 2020 and involved weekly internal meetings between project managers and project sponsor, and monthly to bi-monthly meetings with partner agencies. Planning and preparation for the MUM continued until the project occurred April 5 - 9, 2021. Thirty-one silver carp were captured and removed during the five day MUM event. All project partners were very satisfied with the outcome of the project and showed interest in continuing the partnership for future invasive carp management projects on the Mississippi River. All intentions set at the beginning of the project were met and project values were maintained, indicating a highly successful project planning and management process.

**Chronic Wasting Disease:**

During the Tuesday, May 11, hearing Assistant Commissioner Meier indicated that he would share updated CWD maps with the committee. The map that the Assistant Commissioner showed during committee did not include the new CWD area in Beltrami County. I would like committee members to reference the attached "*April 19, CWD Presentation.pdf*" for current maps of new CWD surveillance area.

Thank you for your assistance in sharing the information in this email with members of the conference committee.

Annalee



# “Modified Unified Method” of Carp Capture

## Background

Populations of *Hypophthalmichthys molitrix* (silver carp) and *Hypophthalmichthys nobilis* (bighead carp), (together referred to herein as “bigheaded carp”) have increased exponentially in the greater Mississippi River Basin (Kolar and others, 2007). Detrimental effects on native fish and economically important fisheries have occurred where these filter-feeding fish are abundant (Chick and others, 2020). The Unified Method, a harvest technique developed in China for bigheaded carp in flood plain lakes, uses herding techniques and a variety of nets to drive bigheaded carp and concentrate them into an area where they can be easily harvested (Li and Xu, 1995).

## Adaptation for North America

In China, lakes encompassing thousands of hectares are used as private aquaculture facilities (Chapman and others, 2016), and they are harvested with the Unified Method. Without the constraints of public access and competing interests, Chinese managers can harvest as much as 85 percent of bigheaded carp. A Unified Method effort in China would typically last for 2–3 months. Infrastructure and nets can be left in position as desired because there are no other users of the lake. There are no restrictions on the harvest of nontarget species.

The U.S. Geological Survey (USGS) is adapting the Chinese Unified Method concepts to be consistent with North American financial, societal, and environmental conditions. We have modified these techniques and incorporated modern technology to reduce the time and expense of Unified Methods and to allow them to be used in public waters. Thus, the operations in North America are often described as the “Modified Unified Method” (MUM). The USGS is studying and refining MUM methods to provide stakeholders with efficient, validated, and environmentally friendly methods for carp removal.

## Location and Timing

MUM operations are usually performed in the winter because low water temperatures decrease fish activity, including most jumping. In warm water conditions, silver carp leap over block nets and escape capture. The MUM is usually performed in water bodies with little current that are shallow enough for block nets to reach from top to bottom, but new techniques may be developed for other water bodies.

## Herding Techniques

Block nets are used to create compartments or “cells” from which the fish can be driven. The USGS uses electrofishing boats



Seining of fish has been the typical final step of a MUM operation in the United States. Photograph by USGS.

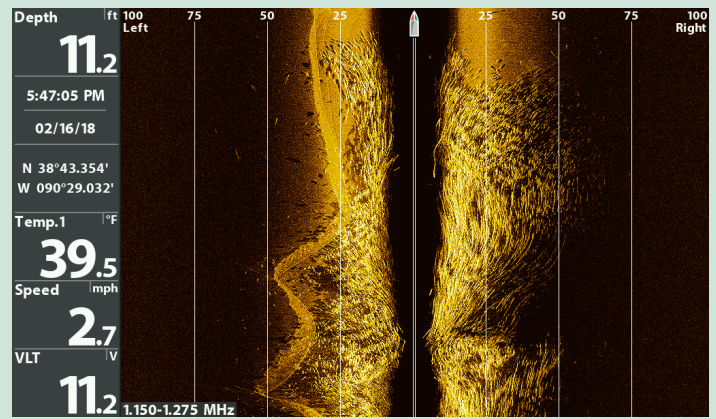
and boats outfitted with underwater speakers to herd carp from each cell. When a cell is cleared, another net is used to close the cell and prevent the fish from returning. This process is repeated one cell at a time, gradually reducing the area available to the carp and concentrating the fish into a harvest area. Native game fish do not seem to respond in the same way, preferring to hide, rather than run, from the sound stimulus. For this reason, few game fish are typically caught.



Harvesting of bigheaded carp using a brailer. Photograph by USGS.

## Adaptations

The USGS uses side-scan sound navigation ranging (sonar) to determine when a cell is cleared and to determine the location of the school of carp when deploying a seine. The use of sonar greatly improves efficiency over traditional Chinese methods. Underwater speakers are not used in China; electricity is sometimes used, but the USGS is developing improved methods for herding fish with electricity. In China, trap nets are used to harvest carp over months, whereas the harvest portion of a MUM operation in North America usually is done by seining the fish after they have been concentrated. A long net is laid around the school of carp and the net is slowly pulled to shore. A MUM harvest can thus sometimes be completed in less than a day. These adaptations have been highly successful. For example, in 2018, the USGS collaborated with the State of Missouri to remove 240,000 pounds of carp from the 300-acre Creve Coeur Lake in St. Louis, Missouri. With these modifications, the method becomes more reasonable for application for bigheaded carp capture in the United States; however, these methods are still new to the United States and additional research is needed to further increase efficiency of MUM operations.



Sidescan image from a boat that has passed over a school of thousands of bigheaded carp concentrated by a MUM operation. The block net retaining the fish is visible to the left of the boat. The dark area in the center is an area not imaged by sidescan. Fish that are moving in the same direction as the boat appear as long lines. Image by USGS.

## References Cited

- Chapman, D.C., Chen, D., Hoover, J.J., Du, H., Phelps, Q.E., Shen, L., Wang, C., Wei, Q., and Zhang, H., 2016, Bigheaded carps of the Yangtze and Mississippi Rivers—Biology, status, and management, in Chen, Y., Chapman, D.C., Jackson, J.R., Chen, D., Li, Z., Killgore, K.J., Phelps, Q., and Eggleston, M.A., eds., *Fishery Resources, Environment, and Conservation in the Mississippi and Yangtze (Changjiang) River Basins*: American Fisheries Society (Bethesda, Maryland), p. 113–126.
- Chick, J.H., Gibson-Reinemer, D.K., Soeken-Gitinger, L.S., and Casper, A.F., 2020, Invasive silver carp is empirically linked to declines of native sport fish in the Upper Mississippi River System: *Biological Invasions*, v. 22, no. 2, p. 723–734.
- Kolar, C.S., Chapman, D.C., Courtenay, W.R., Jr., Housel, C.M., Williams, J.D., and Jennings, D.P., 2007, Bigheaded carps—A biological synopsis and risk assessment: American Fisheries Society (Bethesda, Maryland), Special Publication 33, 204 p.
- Li, S., and Xu, S., 1995, Culture and capture of fish in Chinese reservoirs: Penang, Malaysia, International Development Research Centre, 140 p.

For more information about this publication, contact:  
Director, USGS Columbia Environmental Research Center  
4200 New Haven Road  
Columbia, MO 65201  
573-875-5399

For additional information, visit: <https://www.usgs.gov/centers/cerc>

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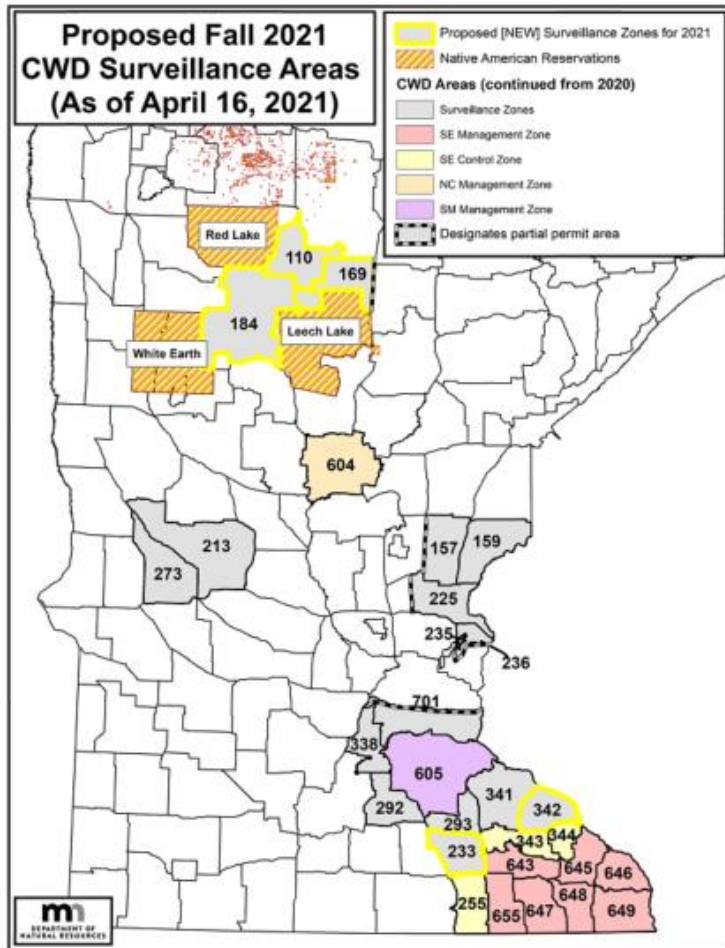
A USGS scientist with a large bigheaded carp. Photograph by USGS.

# 2021 CWD Proposed Surveillance

Dave Olfelt | DNR FAW Director

Michelle Carstensen | *Acting* Wildlife Research Manager

# Proposed CWD Surveillance Areas for 2021



Two permit areas added to South Metro Surveillance Zone since we now have a confirmed positive wild deer in Rochester

If no additional positive deer are detected, Fall 2021 will be the 3<sup>rd</sup> and final year of surveillance in DPA 604.

NEW surveillance area in the Bemidji area

# 2021 Proposed Fall Surveillance Strategy

## Management Zones:

- Mandatory opening weekend sampling
- Voluntary self service sampling stations available to hunters during all seasons
- Dumpsters and quartering stations available during all seasons

## Surveillance Zones:

- Mandatory opening weekend sampling
- Additional voluntary testing at self service sampling stations at wildlife offices or by appointment with local wildlife staff

## West Central Zone:

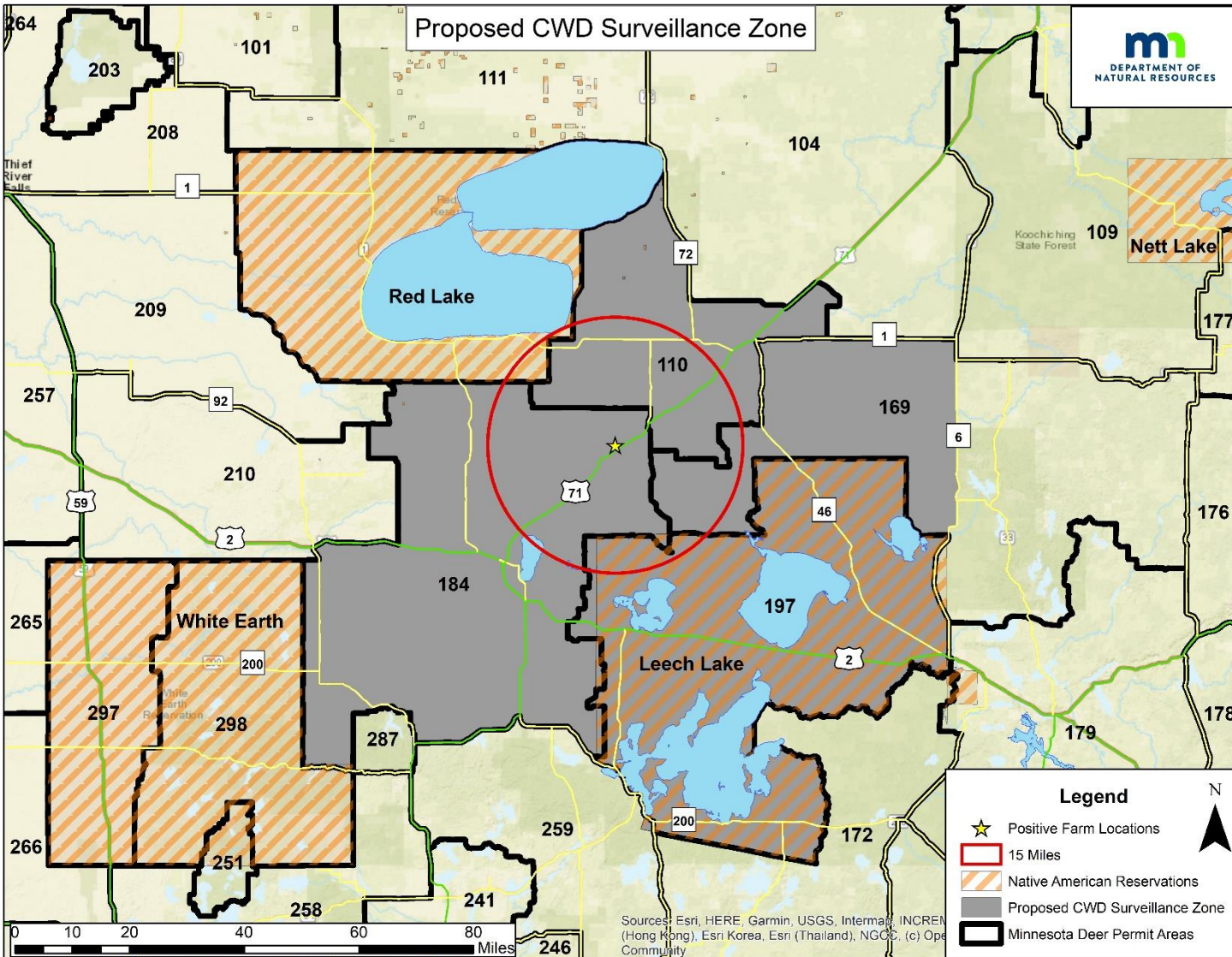
- Continue “risk-based sampling approach”

## All CWD Zones in the State:

- Work with meat processors and taxidermists that have interest to help collect samples for reimbursement by DNR



# Addition - Beltrami County Surveillance



- Conduct mandatory surveillance opening weekend of firearm season
  - Total Cost: \$175,890
  - 95 staff slots
  - 2,145 samples
- No sampling in last 5 years
- Met with tribal biologists

Surveillance Zones	Proposed Sampling	Anticipated Samples/Points (Mandatory & Supplemental) <sup>1</sup>	Staff slots for Opening Weekends	Costs estimate
West Central Surveillance Zone	Point-based system	1,255 points	Local staff	\$50,000-75,000
East Central Surveillance Zone	Mandatory opening weekend of firearm season	Goal = 1,800 samples Expected: 3,130	139	\$256,660
South Metro Surveillance Zone (+2 NEW DPA's)	Mandatory opening weekend of firearm season	Goal = 1,800 samples Expected: 2,439	108	\$199,998
Beltrami Surveillance Zone	Mandatory opening weekend of firearm season	Goal = 1,800 samples Expected: 2,145	95	\$175,890
North Central Management Zone	Mandatory opening weekend of firearm season; Voluntary otherwise	2,315 samples	62	\$237,358
South Metro Management Zone	Mandatory opening weekends of A and B firearm season; Voluntary otherwise	1,609 samples	37	\$172,082
Southeast Control and Management Zones	Mandatory opening weekends of A and B firearm season; Voluntary otherwise	8,230 samples	219	\$846,928
Meat Processors and Taxidermists	Driven by vendor interest and participation	1,500 - 3,000 samples	WHP	\$15,000 - \$45,000
<b>Totals</b>		<b>19,868</b>	<b>660 Staff Slots</b>	<b>Low = \$1,953,916</b> <b>High = \$2,008,916</b>
<i>Fixed Cost:</i> Dumpsters				\$250,000
<i>Fixed Cost:</i> Post Season Culling				\$600,000
<b><i>New Total:</i></b>				<b>Low = \$2,803,916</b> <b>High = \$2,858,916</b>

- 2021 cost estimate \$1,152,901 higher than fall 2020





# Thank You!

**Michelle Carstensen**

*Michelle.Carstensen@state.mn.us*

**Dave Olfelt**

*Dave.olfelt@state.mn.us*