



# Making Waves



Volume 13, Issue 3 May-June 2015



## The Asian Carp Chronicle - eDNA Update

By Nick Bloomfield

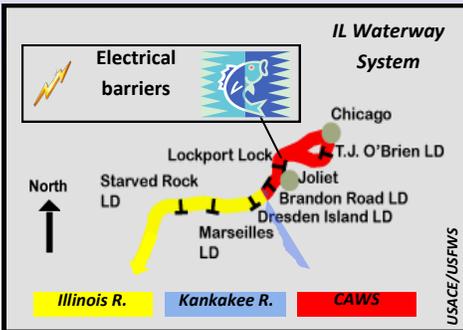


La Crosse FWCO crews were busy on the environmental (e) DNA front throughout much of June. Bill Lamoreaux and I teamed up with staff from the Carterville (IL) FWCO and its new Wilmington (IL) sub-office during the first week of the month to collect water sample at nearly 600 sites in the Chicago metropolitan area.



eDNA water samples are collected in centrifuge tubes

Two weeks later, with the arrival of several new employees (see Page 2) and a mobile laboratory on loan from the Green Bay FWCO, we were collecting and processing 300 water samples from Pools 5A, 6, 8, and 9 of the Upper Mississippi River. Samples collected here in 2014 turned up just one positive finding of Asian carp, so any notable increase here could indicate a population shift from southerly pools. Findings of these analyses will also be posted at the web site listed above when processing is complete.



Later in the week we collected water samples downstream of the fish barriers at Illinois River sites (portions of the Brandon Road, Dresden Island, and Marseilles pools), as well as other locations in the lower Kankakee River.

We had sampled all these sites in April and were now returning to search for evidence that Asian carp may be spawning. While a major spawning event was noted here the following week, we saw Asian carp staging in swift waters of the upper Marseilles Pool and the lower Kankakee River at sites these fish don't typically inhabit. Recent commercial fishing reports also indicated many Asian carp had left the backwaters for the main channel. It will be interesting to see how the results of samples collected here in June differ from those collected in April. Plans also call for us to return here in the fall for post-spawn sampling at the same sites.

The start of the week saw us in many of our familiar Chicago Area Waterway System (CAWS) haunts including the North Shore Channel, Chicago River, Little Calumet River, and Lake Calumet. We looked for genetic (DNA) traces of Asian carp upstream of electrical fish barriers in the Chicago Sanitary & Ship Canal. These sites have been sampled annually since 2009. Results from this CAWS effort will be available online (<http://www.fws.gov/midwest/fisheries/eDNA.html>) when the Whitney Genetics Laboratory finishes processing these samples.

Finally, the La Crosse FWCO now has its own mobile eDNA laboratory trailer with a "beefed-up" generator for increased power and a gooseneck hitch for easier towing. Once our centrifuges arrive, the trailer will be operational. We are also in the process of acquiring a truck to haul this trailer. With these additions, plus a truck-trailer-boat combo acquired in 2014 for just eDNA work, the La Crosse FWCO now has a fully independent eDNA unit capable of sampling anywhere in the Midwest!

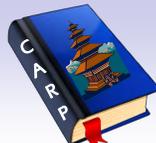


Our mobile eDNA lab

What's Inside?



Welcome Aboard! Page 2



Asian Carp Chronicle Page 3



Citizen Science Page 3

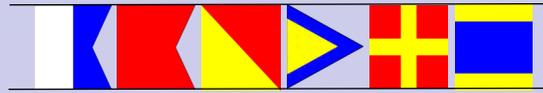


Others Say ... Page 4



Outdoor Fest Page 5

# Welcome Aboard!



The La Crosse FWCO staff has grown considerably in recent weeks to meet its increased work load.

Sara Gardner joined the La Crosse FWCO staff in May as a geographic information system contractor. A native of Rochester, Minnesota (MN), she attended St.



*Sara Gardner*

Mary's University (SMU) in Winona (MN) where she earned a Bachelor's degree in Environmental Biology as well as a Master's degree in Geographic Information Science with an emphasis in natural resource management. Sarah worked for three years in a variety of roles at SMU's GeoSpatial Services conducting climate change vulnerability and natural resource condition assessments for the National Park Service. Her role at the FWCO will be to create reference maps for the Service's National Fish Passage Program and assess the condition of riparian corridors within the Driftless Area of the upper Midwest.

Tyler Harris joined the La Crosse FWCO staff in June as a biological science technician. A native of Green Bay, Wisconsin, he enlisted in the U.S. Army after high



*Tyler Harris*

school graduation and was assigned to the 82<sup>nd</sup> Airborne Division as a paratrooper. Tyler was deployed three times over a four-year period in support of Operation Enduring Freedom. Following his military discharge, he attended the University of Wisconsin-Milwaukee where he took classes at the Great Lakes WATER Institute while earning a Bachelor of Science degree in Biological Sciences. Tyler joins other members of our office who regularly conduct Asian carp surveillance activities. Meanwhile, he enjoys fishing, kayaking, video games, and cooking in his free time.

Bailey Ketelsen joined the La Crosse FWCO staff in June as a biological science technician. She hales from the foothills of western South Dakota



*Bailey Ketelsen*

(SD) where she grew up on a cattle ranch. Since her graduation from Augustana College (SD), Bailey has worked for South Dakota Game, Fish & Parks as a creel clerk, fisheries technician, and hatchery technician. Before her recent move to La Crosse, she initiated studies of trout redds (spawning beds) in streams of the Black Hills region, worked with the finescale dace (an endangered species in SD), and helped maintain the McNenny State Fish Hatchery in Spearfish. Bailey is excited to return to field work (now with Asian carp) and more importantly, to be closer to Lambeau Field.

Taylor Meives joined the U.S. Fish & Wildlife Service in June as an administrative technician for the Midwest Fisheries Center.

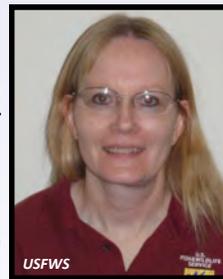


*Taylor Meives*

He earlier served in the U.S. Army as a chemical, nuclear, biological, and radiological defense specialist: six years in Texas (Ft. Hood) and one year in Tikrit and Bagdad, Iraq where he was part of a specialized team trained to use sophisticated equipment to detect biological threats. Taylor has now been in the Army Reserve for 9 years and is part of a hazardous materials decontamination team. For the past six years, he has been an administrator for the Army Reserve unit in Onalaska, processing personnel and travel actions. Taylor looks forward to using his skills to benefit all Midwest Fisheries Center employees.



Sandy Turner joined the U.S. Fish & Wildlife Service in June as an administrative technician for the Midwest Fisheries Center. She grew up with a love of the outdoors in Wabeno,



*Sandy Turner*

Wisconsin, in the midst of the Nicolet National Forest. After earning an Associate Degree in Accounting, Sandy joined the U.S. Air Force. She served her country for 24 years, at sites across the nation and abroad, in a variety of finance and accounting roles while earning an Associate Degree in Financial Management. After military service, Sandy moved with her family to Holmen where she worked in bookkeeping and tax preparation while earning a Bachelor's Degree in Accounting. Happy to be back in the federal system, Sandy feels as if she has come home after a long vacation.

Travis Vicker joined the La Crosse FWCO staff in June as a biological science technician. A graduate of Winona State University (MN) with a Bachelor of Science in Environmental



*Travis Viker*

Biology, he has held several positions with the MN Department of Natural Resources including that of a watercraft inspector at Upper Mississippi River boat landings and a creel clerk at the Lanesboro Area Fisheries Office. Travis spent last year with the U.S. Forest Service at Umpqua National Forest in Oregon where he worked as a volunteer fish technician and as a member of a Wildland Firefighting Hand Crew. With lots of fisheries experience, Travis should be another great addition to the La Crosse FWCO as he focuses his primary efforts on Asian carp surveillance and monitoring in the upper Midwest.

WELCOME ABOARD, ONE AND ALL!



# The Asian Carp Chronicle - 2015 UMR Update

By Kyle Mosel

The annual Asian carp field season on the Upper Mississippi River (UMR) got off to a brisk start in late-winter (March 18) this year.

The first couple of weeks were spent redeploying an array of acoustic receivers maintained by our office to monitor movements of tagged Asian carp in the 375-mile reach of river from Fountain City, Wisconsin (Pool 5A) to Koekuk, Iowa (Pool 19). This equipment is part of a larger network of receivers that are deployed at other sites in the UMR, the Illinois River, and the Ohio River and which are maintained by other natural resource agencies.

We placed some of our acoustic receivers on U.S. Coast Guard navigation buoys anchored in the main channel of the river to monitor large-scale movement events. Other receivers were placed in five U.S. Army Corps of Engineers lock chambers (UMR Locks 14-18) to determine if tagged fish were using any of these structures to transit past the co-located dam. Additional receivers were also submerged on bridge piers spanning four UMR tributaries (the Wapsipicinon River in Pool 14, the Rock River in Pool 16, the Iowa River in Pool 18, and the Skunk River in Pool 19) to determine if and when tagged Asian carp use these rivers.

Meanwhile, we also retrieved several receivers that had been left in place in certain backwaters of Pool 17 and Pool 19 since last year to determine if and when tagged Asian carp used these sites during the winter. Data were downloaded from and new batteries were placed in these receivers before they were redeployed to continue operating throughout the remainder of the 2015 field season.

Once all of the receivers maintained by our office were in place for the year, staff from several other Service offices (Columbia (MO) FWCO, Ashland (WI) FWCO, and Upper

Mississippi River National Wildlife and Fish Refuge-La Crosse District Office) joined us for a week in April to help capture and implant acoustic transmitters in 64 more Asian carp from UMR Pools 17 and 18.

In six hours of netting effort we captured more than one ton of Asian carp with several individuals approaching 70 pounds. In two days we tagged and released 33 bighead carp, 25 silver carp, and 6 hybrid (bighead x silver) carp. Since 2013, this brings the total number of Asian carp we have tagged in the UMR to 150.

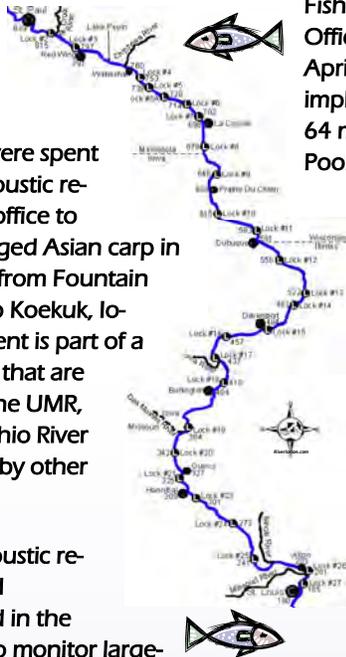
We are also ramping up efforts on several other UMR Asian carp projects this year. For example, manual tracking of acoustic tagged Asian carp is conducted on a monthly basis to locate sites in Pools 17-19 where Asian carp congregate. A point-transect method is used here to survey nearly 200 river miles over a 3-day period as we listen for active transmitters. This information should help in selecting new locations to deploy receivers and capture fish to tag.

Surveillance efforts targeting juvenile Asian carp in Pools 18 and 19 have increased as well. A combination of active

and passive sampling gears (e.g., electrofishing and fyke netting, respectively) are used to determine if adult Asian carp are reproducing here and whether or not any of their progeny are surviving. This work will go on into the fall as we continue to search for juvenile Asian carp.

Our staff is also sampling UMR Pool 8 near La Crosse for larval Asian carp that may recently have hatched from eggs

fertilized in pools further upstream. These collections are made twice a month throughout the summer by towing a fine-mesh ichthyoplankton net through the water for five minutes. The contents of the net are then preserved and will later be sorted in a lab to search for tiny Asian carp. This compliments similar efforts conducted by the MN DNR in pools upstream of here and provides useful information about the growth and abundance of young native fish as well.



e-DNA surveillance continues this year in Pools 5A, 6, 8, & 9.

## Help Wanted: Citizen Scientists

By Mark Steingraeber



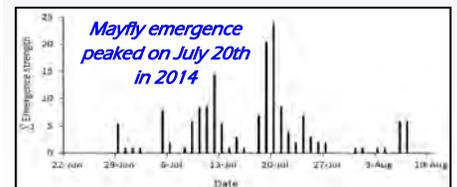
Have you ever wanted to take part in a science investigation?

Medical specialists often seek members of the public to voluntarily participate in trials to determine the effectiveness of new treatments to document health outcomes.

The La Crosse FWCO and several of its partners are likewise seeking help from those who work, commute, reside, or recreate along the Upper Mississippi River to voluntarily participate in efforts to monitor the seasonal pulse of *Old Man River* by observing and reporting mayfly emergence events that occur here throughout the summer.



These observations form the core a citizen-scientist reporting network to document the annual geographic range and relative abundance of burrowing mayflies, sentinels of the river's environmental health.

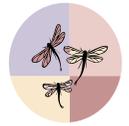


Join the fun & record these events in 2015!

To learn more about becoming a citizen-scientist mayfly emergence observer, visit: [www.usanpn.org/fw/mayflywatch](http://www.usanpn.org/fw/mayflywatch) or [www.fws.gov/midwest/lacrossefisheries/mayfly.html](http://www.fws.gov/midwest/lacrossefisheries/mayfly.html)



## What Others Say ...



### — Feds Recruit Citizen Scientists to Track UMR Phenomenon —

By Chris Hubbuch\*

Federal wildlife officials are asking the public to help count mayflies, the ubiquitous and stinky bugs that swarm the banks of the Mississippi River each summer. The U.S. Fish and Wildlife Service is recruiting “citizen scientists” to gather field data in an effort to better predict the annual emergence, when millions of the insects hatch and take to the air.

The agency has partnered with the USA-National Phenology Network, a partnership of federal agencies, universities and nonprofit organizations based in Arizona that monitors the influences of climate on the life cycles of plants, animals and the landscape. “It’s things like



when do plants put on their leaves, or when do their leaves change color; when do birds migrate,” said Theresa Crimmins, partnership and outreach coordinator for USA-NPN.

USA-NPN has developed a website and smart phone apps – dubbed Nature’s Notebook – that allow volunteers to gather and submit field observations on everything from feeding habits of the Acadian flycatcher to the blooming of Yoshino cherry trees. Using this relatively new technology, regular folks with just a little training can record standardized observations that are uploaded to public databases available to scientists like Mark Steingraeber, a fishery biologist with the U.S. Fish and Wildlife Service in Onalaska.



The approach serves a two-fold purpose, said Cindy Samples, chief visitor services manager for the Upper Mississippi River National Wildlife and Fish Refuge: gathering data and getting people out on the 240,000-acre refuge. “We want to connect people to nature,” she said. “What better way than some critter people wonder about?”

#### ‘Hatch, Mate, Die’

Mayfly hatches are a common – and at times apocalyptic – phenomenon on the Upper Mississippi River. Swarms show up on radar. A well-lit gas station near the river can quickly become a seething mass of the winged creatures. Last year they were even blamed for a three-car crash in Pepin County.

The insects spend most of their lives as larvae, burrowed in the mud of the riverbed. Once mature, they emerge with wings and fly upstream in a mass mating ritual.



Winona, MN workshop

Service staff held three Mayfly Watch workshops during June to inform citizen-scientists how to report mayfly emergence events on the UMR National Wildlife and Fish Refuge.

They have no mouth and only hours to live. “Hatch, mate, die,” Samples said. “That’s it.”

Steingraeber said much of what is known about the Mississippi River species, known as *Hexagenia bilineata*, is a result of research by the late Cal Fremling, a professor of biology at Winona State University. When Fremling began his research in the 1950s, Steingraeber said, mayflies were so abundant there was talk of eradicating them. His research helped head that off.

“He really keyed in on the fact that these mayflies are good indicators of water quality,” Steingraeber said. “They don’t bite. They don’t sting. They’re great fish food.”

Over the years, Steingraeber has been a go-to source for people interested in the flies – from brides planning riverside ceremonies to photographers and filmmakers from around the world who want to document the annual swarms. Every year they ask, when should we show up?



A mayfly photo shoot.

Generally he tells them the Fourth of July – plus or minus 10 days, but an early hatch in 2008 prompted him to wonder if there was a better way to forecast the big hatch. He found a model developed at the Oak Ridge National Laboratory that relies on cumulative growing-degree days to predict when they will emerge. Steingraeber said the model was accurate to within one day in three years, but in others it was off. He hopes data provided by citizen scientists will help him refine the model.

#### Rise of the Citizen Scientist



Citizen scientists aren’t new. Fremling relied on tow boat pilots and lock and dam operators for some of his data.

“The concept of citizen science has been around for centuries, if not longer,” Crimmins said. “People who weren’t formally trained were the first citizen scientists,” Crimmins said. But there’s been exponential growth in the opportunities in the past decade, Crimmins said.

Researchers have become more sophisticated in how to best use volunteers, and advancing technology has made data collection easier. Last year volunteers reported more than 3.1 million bird observations through eBird, an online data collection program launched by the Cornell Lab of Ornithology in 2002.

Continued on Page 5

\* This article was originally published in the La Crosse Tribune on June 18, 2015; it is reprinted here by permission of the La Crosse Tribune.



### Continued from Page 4

Nature's Notebook was launched in 2009 in response to a report by the Intergovernmental Report on Climate Change. Crimmins said changes in plant and animal life cycles is one of the simplest ways to document how species are responding to climate change. More than 15,000 people have registered with the site; about a third have submitted observations.

Sue Anderson had never considered herself a citizen scientist, but on a whim she attended a meeting on the mayfly watch in Winona and decided to give it a try. A retired teacher, Anderson said she first encountered mayflies when she moved to Winona in the 1970s. Now she's got the app on her phone and has alerted a friend who lives on the river to call her as soon as she sees one.

"It sounds like fun," she said. "I'm excited."

Crimmins said data gathered by citizen scientists is used increasingly by land managers and policy makers who need to make decisions on timing.



A recent project run by the University of Minnesota (U of M) enlisted 40 volunteers in an effort to study how best to keep leaves out of Twin Cities lakes. U of M scientist Chris Buyarski hypothesized that – since phosphorous-based fertilizers are illegal in Minnesota – the water was being polluted by nutrients from decaying leaves that washed into storm sewers.

Buyarski had residents track their boulevard trees, documenting leaf out, flowering, leaf coloring and leaf fall, among other variables. His hope is that the city could eventually use that data to put street sweepers in neighborhoods once the leaves have fallen.



Steingraeber said there are practical applications for mayfly prediction too. Last year – during a particularly thick emergence – he got calls from transportation officials, who've used everything from street sweepers to snowplows to remove insect carcasses from the roadway. "It really slicks things up," said Mike Dougherty, a spokesman for the Minnesota Department of Transportation.

While crews can turn off lights that attract the insects on key stretches of freeway, Dougherty said that also presents a hazard. Having an accurate hatch prediction would minimize the amount of time the lights were off. "It would be helpful to make sure we've got folks on point," he said.



C. Fremling

So when will the mayflies hatch this year?

"It's a little bit too early to tell," Steingraeber said.

Accumulating mayflies halt traffic on the Mississippi River bridge in Winona (MN) on July 8, 1966.



*Editor's Note: A large, synchronous mayfly emergence occurred over much of a 350-mile reach of the UMR on July 3-4, 2015.*

# 7th Annual Youth Outdoor Fest

Saturday July 11, 2015  
Veterans Freedom Park  
10:00am - 2:00pm



City of LaCrosse  
Parks, Recreation, & Forestry

CityofLaCrosse.org/Parks  
or call 608-789-7533

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