



CARP MARKING—Fish researchers from the DNR and Iowa State University combine forces to clip fins in order to mark a study sample of Clear Lake carp.



Clear Lake Carp Roundup

New Tools Give Biologists an Edge Over 20 Tons of Carp

STORY AND PHOTOS BY LOWELL WASHBURN

If you're a card-carrying member of Carp Haters Inc., don't worry about it. You've got plenty of company and, in this particular case, your emotions are completely justified.

Although common carp were introduced in the 1800s with the very best intentions, few blunders have had greater negative consequences to aquatic ecosystems and native sport fisheries. Carp uproot and destroy valuable aquatic plant communities, reduce water clarity,

out-compete and displace native game and forage fish, and drastically contribute to increased phosphorus levels. But let's skip all the sugar and tell it like it is. When it comes to American waters, the common carp is just plain evil—period.

As is the case with most natural resource agencies, the DNR has been battling carp for decades. Fisheries workers have installed mechanical barriers to restrict carp movement, poisoned lakes and fish nurseries,



implemented large scale in-house netting campaigns, and have recruited commercial fishermen to harvest adult populations. To date, each and every effort has failed. Most have failed spectacularly.

But this dismal picture may be changing. At Clear Lake in Cerro Gordo County, the combined results of recent efforts involving DNR fisheries biologists and Iowa State University researchers offers the first rays of hope in the ongoing Carp Wars.

“Clear Lake is north central Iowa’s largest natural lake and most important fishery,” says DNR Fisheries Biologist Scott Grummer. “But the lake does have issues such as water clarity, nutrient loading, zebra mussels, and, of course, common carp.”

Work has begun on a \$9 million lake restoration project that includes high profile activities such as

watershed enhancement and the dredging of the west end’s “Little Clear Lake.”

“We’re also looking at single biological issues such as the control and impacts of things like zebra mussels and carp,” says Grummer. First they needed to figure out the lake’s carp population. “Our first step was to team up with researchers from Iowa State University and implement a mark and recapture study.” Then Ralph Mahn, a commercial fisherman from Harper’s Ferry, was contracted to aid in the project. His crew captured a significant sample of around 6,500 adult carp during the springs of 2007 and 2008.

Following capture, each carp was permanently marked by removing a single swim fin, says Grummer. Commercial netters were paid market value for the fish. What happened next was nothing short of amazing.



FAR LEFT: DNR and ISU researchers search for marked carp during a 20-ton seine haul conducted at Clear Lake last November. FAR LEFT BOTTOM: Ralph Mahn of Harper's Ferry and his commercial net crew lays out seine nets. LEFT: ISU fish researcher, Eric Katzenmeyer weighs an 18-pound carp. BELOW: Researchers clip fins to mark a sample population used to help determine the overall carp population in Clear Lake, which is 180 pounds of carp per surface acre of lake.



Instead of loading the despised fish onto trucks for immediate shipment to New York City fish patty factories, net crews collected their money, then released each and every adult carp back into Clear Lake. To say this novel approach raised eyebrows and provided spirited conversation at Main Street coffee shops would be an understatement.

Although initially regarded as controversial by some, the fin-clipped carp ultimately provided the information biologists needed to estimate the population. In late November, Mahn returned to Clear Lake and successfully netted more than 20 tons of adult carp. Once corralled, fish researchers examined each fish for missing fins. As biologists recorded the number of fin-clipped fish recaptured, they were able to compare “control” fish with total numbers netted to determine lake populations.

But on this go-round, “control” carp weren’t as fortunate as before. This time, instead of being released back into Clear Lake, the unwelcome bottom feeders were trucked to New York City markets and converted to those famous frozen fish patties.

“What we discovered through the effort was that Clear Lake is currently supporting a carp population of around 180 pounds per surface acre, and that those fish average around 11 pounds in weight,” says Grummer.

During the 1990s, carp population estimates ran as high as 400 pounds per acre at Clear Lake. And as numbers have shown a steady reduction over the past decade, biologists are cautiously optimistic they may be on to something.

“What we’re learning is that you have to come in hard and fast to have an impact,” says Grummer. “In most





CLEARING UP CLEAR LAKE—Within days of carp removal, the waters of Ventura Marsh, separated from Clear Lake by Highway S-14 become crystal clear while the untreated waters of Clear Lake remain turbid and algae laden. Phosphorus, the nutrient most responsible for algae growth, is stored in lake sediment. Carp, a bottom dwelling fish, stir up sediment which not only increases turbidity, but releases stored phosphorus making it available for algae production. Researchers are removing carp from the main lake for better water quality and angling.

CLOCKWISE FROM BELOW: Mike Britt of Owatonna, Minn (below) displays walleye and yellow bass caught while wading at the Clear Lake Island. In addition to taking his limit, Britt caught and released several walleye. Despite residing in The Land of 10,000 Lakes, Britt makes frequent excursions to Clear Lake. "I usually have my best success here during spring and summer," says Britt. "I also do a lot of fishing in Minnesota and my friends give me grief over coming down here to fish. I just tell them, 'That's OK. You guys just stay up here and I'll keep going down to Clear Lake and catching fish.'" Twenty-five of 27 anglers on the island that day caught fish, and most took limits of walleye. RIGHT: Commercial fisherman, Ralph Mahn of Harper's Ferry, hauls in carp. His commercial net crew has assisted in the ongoing carp study, capturing over 20-tons.



cases, even large-scale efforts like commercial fishing is just harvesting the surplus and not reducing the population."

"Research shows that to affect a carp population you need to come quickly and physically remove at least 50 percent of the fish," Grummer says. "If you have a population of 400 pounds of rough fish per acre it won't work to take half of them over five or 10 years. That's just farming the lake for fish. But take out half of them in a short period of time and carp begin to suffer."

But large-scale netting is only a single component. Stifling reproduction is key to long term success.

"There aren't many predators out there that can take a 10- or 11-pound carp. You need nets to physically remove that segment of the population," says Grummer. "But once you begin to have a significant impact on adults,

you need to aggressively work at the other end to thwart reproduction among survivors. Young carp need to be suppressed by predators. Simply removing big fish with nets is not a cure. To be successful, you need to impact reproduction. Having enough predator fish to suppress carp recruitment is critical to success."

Regardless of where they occur, all thriving carp populations need a "point of origin." At Clear Lake, this is Ventura Marsh. Located at the lake's west end, this 450-acre wetland provides an ideal spawning ground for rough fish. Carp have had such a devastating impact on aquatic ecology that Ventura Marsh no longer functions as a true wetland. Instead of clarifying and cleansing the water of pollutants before entering Clear Lake, the marsh actually contributes to the lake's nutrient loading. During some years, Ventura Marsh actually dumps more phosphorus



IN ORDER TO CATCH FISH, YOU FIRST MUST FIND THEM.

In order to maximize commercial netting efforts during Clear Lake's ongoing carp study, Iowa State University fish researchers used radio tracking to keep tabs on how the lake's burgeoning carp schools traveled during open water and winter seasons. Over two years, 50 adult and 50 juvenile carp were implanted with transmitters, shown below, weighing 25 grams. LEFT: ISU fish researcher, Chris Penne, implants a radio transmitter into a carp. Radioed fish were released to rejoin roving schools and the chase was on.

Researchers followed the fish with boats during summer and then snowmobiles during winter. Fish movement, school densities, water depth and habitat use were recorded during each season.

Carp are creatures of habit. When commercial netters returned to Clear Lake, the information gained by researchers helped anglers quickly locate large numbers of fish. Late last November, commercial netters located and captured more than 20 tons of carp during a single effort.



into Clear Lake than all other sources combined.

Although metal grate barriers have helped exclude adults, at least some carp manage to successfully spawn in Ventura Marsh each year. During high water, thousands of fingerling carp migrate back into Clear Lake, become adults, and repeat the cycle.

“At Clear Lake, the words ‘carp recruitment’ are synonymous with Ventura Marsh,” says Grummer. “In order to effectively control carp in Clear Lake, we also need to effectively manage the marsh.”

A dramatic example occurred during the summer of 2000 when Ventura Marsh received an aerial application of rotenone, a chemical that kills fish by impairing their ability to pull oxygen from the water, but is harmless to birds, mammals and reptiles. Within days of treatment, the murky waters of Ventura Marsh became crystal

clear. With turbidity eliminated, submergent aquatic plants sprouted. Unfortunately, the success was short lived. Carp returned, phosphorus increased, clarity decreased, and marsh water resumed its former pea soup consistency. With that valuable and dramatic lesson in mind, aggressive management of the Ventura Marsh has become a priority component of Clear Lake's restoration project.

“Carp are just a single factor in a variety of complex water quality issues facing Clear Lake,” says Grummer. “But I think that one of the things that make this study so important is that carp are a major water quality and fisheries consideration in so many other places. If we can find ways to have success in suppressing carp numbers in a lake as large as Clear Lake, then perhaps the model can be refined and used other places. That would be huge.” 🐟