

Glenwood Area Fisheries Newsletter

2019-2020

A Look at the Past Year



Chris Uphoff, fisheries specialist, with a 51-inch muskie sampled on Lake Miltona in spring 2019.

Spring is always a busy time of year in fisheries. The Glenwood Area fisheries staff started the 2019 field season with winterkill checks on eight lakes. After ice-off we began a muskie survey on Lake Miltona. In a change from previous years, we used Passive Integrated Transponder (PIT) tags, similar to microchips used by veterinarians in pets, which were implanted under the skin in all muskies captured. When scanned, these tags have an individual identification number that allows us to track the age and growth of fish, and estimate the number of muskies in Lake Miltona. This is a two-year study that will be completed in 2020.

Spring and fall were also busy times for walleye production. Hatchery production went well this year with over 55 million walleye fry produced, most of which went into area lakes, with some being stocked into ponds for walleye fingerling production. Walleye fry grow in these ponds until fall, when

they typically reach 4-7 inches, and are harvested as walleye fingerlings and stocked into area lakes. This fall, over 13,000 pounds of walleye fingerlings were stocked in our area (for stocking specifics see the Walleye Stocking Section).

Mid-summer fisheries work was largely dedicated to the completion of lake survey. Fifteen standard surveys were completed from June to August (details can be found in the Lake Survey section). Reports for the current surveys aren't available online until spring, as we are currently aging fish and analyzing data, but you can contact our office for a preliminary report. Fish sampling continued into the fall with young-of-the-year (YOY) walleye electrofishing on eight lakes. Of note was Lake Minnewaska, which after four years of poor YOY walleye numbers had a near record catch rate of 75.5 fish per hour. If these fish survive, look for good walleye fishing in a few years. This past year we also welcomed two new staff members to Glenwood. Nick Rydell joined us in February as a fisheries specialist and Storm Kettelhut, our fisheries/aquatic plant management technician, started in July.

Northern Pike Regulation Reminder

North-central Zone: Includes the Glenwood Management Area. Map included in the Minnesota Fishing Regulations booklet or: <http://www.dnr.state.mn.us/pike/index.html>

Angling: Bag limit 10 (Not more than 2 over 26". All from 22-26" must be immediately released.)

Spearing: Bag limit 10 (only 1 between 22-26" and 1 over 26"; or, only 2 over 26".)



Quality Bluegill Initiative: **Bigger Sunfish**



A 10.5-inch West Central Minnesota bluegill.

Large sunfish have become scarce in many Minnesota lakes. In response to angler desire for larger sunfish, local fisheries managers are identifying lakes that would be a good fit for improvements in sunfish size by reducing bag limits.

According to angler surveys, anglers are generally happy about the number of sunfish they catch, but dissatisfied with the size of sunfish they catch. Some angling groups have been asking the DNR to consider reducing the 20-fish bag limit for sunfish and adding length restrictions, but angler survey data show apprehension over a statewide bag limit reduction or length restrictions. In response, the DNR is considering special regulations for individual lakes that have

the right biological characteristics to produce larger sunfish, and local angler support, to benefit from reducing the sunfish bag limit. These special regulations would help maintain or improve sunfish size quality.

Through the DNR's Quality Bluegill Initiative, fisheries managers aim to increase the number of special regulation lakes for sunfish from about 60 to between 200 and 250 lakes statewide by the year 2023. The current options for special regulations include:

- **10 fish bag limit** - Applies to lakes in which anglers want to maintain current populations of large sunfish.
- **5 fish bag limit** - Applies to lakes in which anglers desire to increase sunfish size quality.

In the Glenwood Management Area, five candidate lakes are under consideration for special regulations to help maintain or improve sunfish size quality. Fisheries managers will be seeking angler input throughout the process of proposing special regulations. Angler input is an important part of proposing special regulations, without support these regulation changes will most likely not go into effect. The first round of candidate lakes (and proposed special regulation) in the Glenwood Area for 2020 include:

- Douglas/Todd County
 - **Osakis (10 fish bag limit)**
- Douglas County
 - **Irene (10 fish bag limit)**
 - **Whiskey (5 fish bag limit)**
- Pope County
 - **Grove (10 fish bag limit)**
 - **Gilchrist (5 fish bag limit)**

Details on the regulation proposal process and public input meetings will be forthcoming. However, we welcome comments at any time.

On any lake, anglers can voluntarily help protect big sunfish by releasing or limiting their harvest of large sunfish, which are typically considered about eight inches or bigger. In spring and early summer, sunfish nest in large colonies. Male sunfish, often called "bulls", compete for the best spawning sites in a lake. Only the largest sunfish build and defend nests. When anglers keep the largest sunfish, competition for spawning decreases and there is less need for smaller males to devote energy to grow larger. Instead, with a lack of spawning competition, they devote more energy to spawning at younger ages and smaller sizes. In lakes where large sunfish become overharvested, sunfish may not grow as fast as they once did.



A large bluegill from one of the proposed special regulation lakes in the Glenwood Area.

Zebra Mussels: Cause for Clearer Lakes



Walleye have a reflective layer in the eye, allowing them to see in low light.

Most lake users have heard of zebra mussels, a shellfish invader that made its way to the United States from the Caspian Sea region in the ballast water of Great Lakes cargo ships in 1989. Since being recorded in Duluth harbor, zebra mussels have expanded throughout Minnesota. They were first discovered in the Glenwood Management Area in Lake Le Homme Dieu in 2009, and have expanded to new lakes over the past decade. However, it can take over a decade before the full environmental and ecological effects are evident. Zebra mussels tend to have a rapid expansion after introduction, before hitting peak abundance, then declining and stabilizing. With no significant native predators, control is difficult once in a lake.

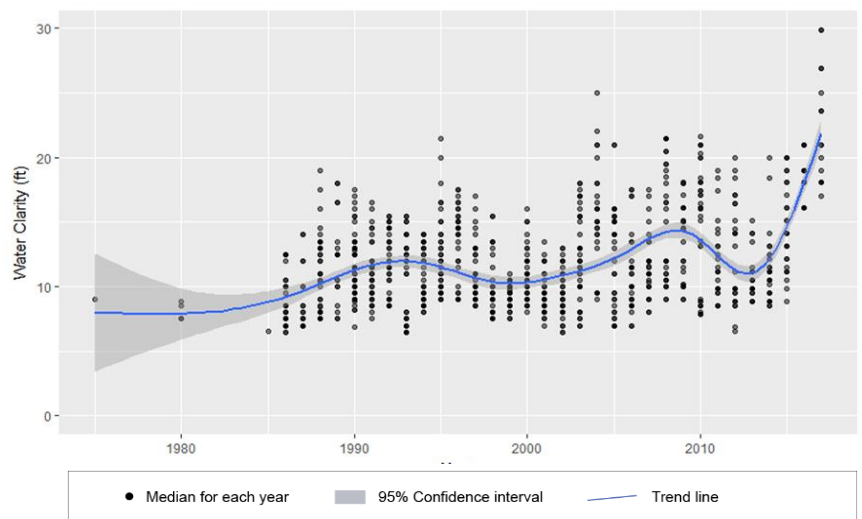
Zebra mussels are filter feeders, meaning as they transport lake water through their system, they strain out available food particles, including plankton. Phytoplankton and zooplankton are the base of the food web in lakes, all fish species rely on them as food for at least the first couple weeks of life. So in essence, zebra mussels are competing not only with native mussel species, but young fish for food. This competition for resources can slow the growth of fish during their first year of life. Research in Minnesota has suggested that young-of-the-year walleye grow slower in lakes infested with zebra mussels. Smaller fish are more vulnerable to predation, have less food reserves going into winter and are more limited in the prey they can consume, all of which can limit early survival.

In addition, this filtering removes nutrients from the lake, improving water clarity. While clear water may be aesthetically pleasing, it can make fishing difficult, especially for species such as walleye. Walleye have a reflective layer on the retina, called the tapetum lucidum, which allows them to see in low light conditions. However, this same structure makes their eyes sensitive to sunlight. As water clarity increases in lakes infested with zebra mussels, walleye tend to move deeper, feed at night or seek shade by moving into aquatic vegetation. Anglers often need to change their tactics in order to have the success they once had.

As water clarity improves, sunlight can reach the lake bottom in deeper areas, allowing aquatic vegetation to grow in deeper areas than it could previously. Clearer water and expanding aquatic vegetation is a benefit to fish species such as largemouth bass, bluegill and northern pike. We can expect some of the newly infested zebra mussel lakes to shift from previously turbid systems to clear, vegetated waters.

These are generalizations, but reasonable predictions of what we can expect to happen in most lakes. However, lakes are complex systems and can react in different ways as species adapt to changing conditions. There is currently no viable eradication measure of zebra mussels, but Minnesota researchers have finished mapping the complete genetic code of this invasive species. With this information, there is hope in discovering a weakness in the genetic code to allow an eradication effort, such as destroying the ability to reproduce or grow shells. Until a control exists, the best thing we can do is stop the spread. For more information on aquatic invasive species visit

<https://www.maisrc.umn.edu/>.



Water clarity, measured by Secchi disk, for Lake Miltona from 1975-2017. Zebra mussels were discovered here in 2012.

Walleye Stocking: Fry or Fingerling?

-Adapted from an article by Crag Soupir, Waterville Area Fisheries Supervisor

During fall months, fisheries staff are out on natural rearing ponds lifting trap nets and harvesting walleye fingerlings to fulfill stocking quotas. The walleye fingerlings being harvested in fall have grown substantially since spring. Typically, walleye fingerlings grow to 4 to 7 inches (or larger) by October when they are harvested at somewhere around 20 fish/pound. These walleye are then transported in tank trucks and stocked in lakes based on Lake Management Plans.

It is a common perception by anglers that these larger fingerling walleye are the 'best option' for stocking a lake because they 'survive better'. In some situations that very well is the case; however fry are still the preferred choice in most management scenarios. Why are fry preferred? Lakes are stocked using a number of fish per littoral acre. The littoral area of a lake is the area where sunlight can penetrate to the lake bottom, usually less than 15 feet. Stocking based on area standardizes stocking among various sized lakes. For this comparison let's assume we have a 1,000 acre lake. The fry stocking rate typically is 500 to 1,000 fish/littoral acre. At a rate of 1,000 fish/littoral acre, a shallow 1,000 acre lake would receive 1,000,000 fry on stocked years, typically every-other-year. The fingerling stocking rate is generally 0.5 to 1 pound/littoral acre. Since fingerlings generally run 20 fish/pound at the time of fall harvest this lake would receive 20 walleye fingerlings per acre, or in our 1,000 acre example lake, about 20,000 fish total.

The question most people then have when considering walleye fry (because they are very small) is how many survive? That is a good question, and the honest answer is usually a low percentage. But, the caveat is it doesn't take a very high survival to create a really strong year class. Even 2% survival in our example would equate to 20,000 fingerlings. Under the right conditions survival could be much higher so the chance of having a really strong year class from fry stocking is greater than from fingerling stocking where there are limitations just based on the numbers stocked. For example, following a winterkill in a shallow lake fry survival rate could be much higher than 2%, it may even approach 25 to 50%. That is why shallow lakes that frequently winterkill provide some of the highest catch rates for anglers. Really strong year classes of walleye are formed from fry stocking following winterkills.

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Lake	Number of fry
Ann	185,000
Barret	422,000
Charlotte	692,000
Freeborn	172,000
Gilbert	190,000
Grants	64,000
Hattie	464,000
Ida	875,500
Latoka	269,000
Lightning	250,000
Long (Douglas Co.)	100,500
Long (Stevens Co.)	310,000
Long Prairie River	1,000,000
Lower Elk	131,000
Malmedal	99,500
Miltona	2,759,000
Minnewaska	3,388,000
Osakis	3,389,000
Pelican (Pope Co.)	1,521,500
Perkins	517,000
Pomme de Terre	2,419,500
Pomme de Terre River	1,400,000
Reno	2,029,000
Thompson	74,000
Westport	203,000

Number of walleye fry stocked in 2019.

Lake	Number of fingerlings	Pounds of fingerlings
Aaron	8,588	468
Aaron*	2,500	100
Burgen*	900	100
Carlos	14,572	461
Cottonwood	3,667	285
Cowdry	356	89
Darling	14,214	554
Darling*	4,000	200
Geneva	7,179	305
Geneva*	2,700	225
Grove	3,778	232
Ida	9,597	848
Irene	10,080	360
Latoka*	9,415	269
Le Homme Dieu	18,786	882
Le Homme Dieu*	3,000	100
Linka	568	142
Little Chippewa	1,642	148
Lobster	22,812	1,386
Louise	784	196
Miltona	12,867	449
Minnewaska*	40,000	2,000
Moses	3,603	786
Moses*	2,500	100
Osakis*	15,050	500
Pelican (Pope Co.)	13,059	860
Rachel	11,216	334
Red Rock	19,203	525
Scandinavian	3,643	230
Signalness	356	89
Smith	14,429	728
Turtle	3,986	198
Union	232	58
Vermont*	1,098	79
Victoria	4,454	131
Victoria*	2,000	100
Whiskey	2,482	73

Pounds and number of walleye fingerlings stocked in 2019. *Indicates fish purchased and stocked by private citizens and sporting groups.

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Fingerlings on the other hand are stocked at larger sizes, and the survival is assumed to be much higher, but the number of fish stocked limits the potential for large or extraordinary year classes. Thus, fingerling stocking can only be expected to maintain a low to moderate abundance of walleye in a lake.

The reality is that in most scenarios fry stocking can provide a low to moderate abundance of walleye just as well as fingerlings. So then cost also must factor into decision-making. The kicker is fry cost \$5 per 1,000 fry. In our example 1,000 acre lake that equates to about \$5,000 every-other-year. Conversely, fingerling cost is \$20 per pound, or around \$1.00/fish. That equates to \$20,000 every-other-year in our 1,000 acre lake example.

Bottom line, most often we can produce net catches of walleye in the 2 to 5 fish/net range with fry stocking. This is considered a low to moderate abundance and is very similar to the better net catches we have found using fingerlings. It makes much more sense to use the less expensive fry option rather than spending four times as much to get the same results using fingerling stocking. Of course, there are other factors at play in making this decision, and in the next issue we will discuss this topic further and consider when fingerling stockings should be considered.



Walleye fingerling ready for stocking into area lakes.

Winterkill Lakes: Boom and Bust Fisheries



Winterkill on Lightning Lake.

Winterkill is a term used to describe a fish die-off in winter because dissolved oxygen was not sufficient for fish to survive. Shallow, productive lakes, like those found in Grant and Stevens County, are those most vulnerable to winterkill. Heavy snow can limit the sunlight reaching aquatic plants in some area lakes, reducing the amount of oxygen created by photosynthesis. Additionally, if vegetation dies from lack of sunlight, the plants start to decompose, which uses oxygen.

Fish such as bullhead are more tolerant of these low dissolved oxygen conditions than gamefish such as bass, crappies and walleye. Reoccurring winterkill may lead to lakes dominated by rough fish. However, if a winterkill is severe enough, quick restocking of gamefishes can restore a fish community and fishing opportunity. During these conditions, there are abundant resources available, so gamefish numbers can increase rapidly and fish grow quickly. In many cases, these lakes have our highest walleye catch rates a few years following a winterkill event.

Heavy snowfall in January and February of 2019 led to winterkill conditions in at least six managed lakes. Following ice-off, fisheries staff from the Glenwood office performed winterkill checks on lakes with a suspected winterkill (See Table Below). If a species was absent during our winterkill survey, adults of that species were stocked prior to spawning so they could reproduce in the winterkill lake. If another winterkill event doesn't take place, look for good fishing on these lakes in the next couple years.

Lake	County	Winterkill Severity	Species Stocked
Gilbert	Douglas	Severe	black crappie, bluegill, largemouth bass, yellow perch, walleye*
Lightning	Grant	Severe	black crappie, yellow perch, walleye*
Lower Elk	Grant	Severe	black crappie, bluegill, largemouth bass, yellow perch, walleye*
Johanna	Pope	Partial	
Westport	Pope	Partial	black crappie, walleye*
Charlotte	Stevens	Partial	black crappie, walleye*
Hattie	Stevens	N/A	walleye*
Long	Stevens	N/A	walleye*

Lakes where winterkill assessments took place, severity of winterkill and species stocked. Spawning adults were stocked unless otherwise noted. *Indicates fry were stocked.

Employee Spotlight: Storm Kettelhut



Storm Kettelhut with a lake trout caught near his home in Duluth.

In July of 2019, Storm Kettelhut joined the Glenwood Office as the new Fisheries Technician. Storm is originally from Duluth, MN, where he developed a passion for fishing along with a desire to better understand and participate in the management of fisheries resources. After graduating from Hermantown High School in 2010, he joined the U.S. Army and served three years active duty as an Infantryman at Fort Lewis, WA, along with a deployment to Afghanistan. Upon completing his military service at the end of 2013, Storm decided to revisit his desire to take part in fisheries management by attempting to make it a career.

He attended Minnesota State Technical and Community College before transferring to North Dakota State University and obtained a B.S. degree in Zoology in 2018. During his time in college, Storm worked as an intern for the North Dakota Game and Fish in Dickinson, ND, and the Minnesota DNR in Fergus Falls, MN. After graduating from NDSU, he looked to build on his experience by accepting a position as a Graduate Research Assistant with the Illinois Natural History Survey working on a variety of fisheries habitat projects. After a year in Champaign, IL, Storm

applied for the Glenwood Technician position and fulfilled his goal of turning his passion into a career.

Storm and his wife, Hanna, couldn't be happier to be back in their home state of Minnesota and closer to their family. Being new to this part of the state, Storm looks forward to assisting the Glenwood Fisheries team in their management of local lakes and getting out to explore these new waters in his free time. We are excited to have Storm onboard and look forward to him and his wife being a part of our community moving forward.

Employee Spotlight: Nick Rydell

Nick Rydell joined the Glenwood Office as a Fisheries Specialist in February 2019. He is originally from St. Peter, MN where he grew up spending his free time outdoors. Nick received his Bachelor's degree in Zoology from Minnesota State University-Mankato. While completing his undergraduate degree, he also spent two summers as a fisheries intern at the Walker Office and one fall at the Baudette Office. After completing his Bachelor's degree, Nick attended graduate school at the University of Wisconsin- Steven Point. His thesis research was on the effects of 2, 4-D herbicide treatments used to control Eurasian watermilfoil on fish and zooplankton in northern Wisconsin lakes.

Upon completing his Master's degree in Fisheries Biology in 2018, Nick accepted a position as the Fisheries Biologist for the Menominee Tribe in northeast Wisconsin. As the largest reservation east of the Mississippi River, he had the opportunity to manage some extraordinary waters. This included 50 lakes with no shoreline development, and over 180 streams, most of which were naturally reproducing brook trout waters. He also had the opportunity to assist with the restoration of lake sturgeon to the Menominee reservation, which were extirpated after two dams downstream blocked access to their ancestral spawning grounds. Nick is happy to be back in Minnesota assisting the Glenwood Office with fisheries management activities. He has enjoyed getting to know the area and the great fishing we have here.



Nick Rydell with a healthy walleye.

Aquatic Invasive Species

Aquatic invasive species (AIS) continue to be a problem statewide. Over 60% of our public waters within the Glenwood Fish Management Area contain at least one AIS. Aquatic invasive species are moved from infested to non-infested waters by anglers, boaters, and lake shore owners and can adversely affect lakes and fish populations. To avoid spreading AIS, lake users are required to remove all aquatic plants or animals from their watercraft and drain all water from their boat before leaving the access. If you suspect an infestation of an invasive species in this lake, save a specimen and report it to a local natural resource office.



Zebra mussels found in Oscar Lake.

In fall of 2019, several new lakes were confirmed to contain zebra mussels. These include Gilchrist, Grants and Oscar lakes in Douglas County and Pelican Lake and Shallow Pond in Pope County. Flowering rush, an invasive wetland plant, was also discovered along the lake shore of Grants Lake, but a swift eradication effort followed shortly after discovery. Additional information on all of these topics can be found on the DNR website (<https://www.dnr.state.mn.us/invasives/ais/index.html>).

Lake Survey

Lake surveys are the primary tool for guiding fish management. Our standard lake survey consists of trap nets, gill nets and electrofishing. Electrofishing is conducted in the spring to target bass, while gill nets sample offshore fish (e.g. walleye, northern pike and yellow perch) and trap nets sample near shore panfish (e.g. bluegill and black crappie). Nets checked and moved daily on each lake for about a week in the summer. Nets are placed in the same locations within a lake each year, and surveying over many years allows us to track trends in fish populations. Survey information can be accessed by going to <https://www.dnr.state.mn.us/lakefind/index.html> and typing in the lake of interest.

Standard Lake Survey 2019

The following lakes were sampled in 2019:

Burgen	Cowdry	Ida
Little Chippewa	Long (Douglas)	Long (Stevens)
Maple	Miltoia	Red Rock
Round	Stowe	Amelia
Goose	Leven	Villard

Standard Lake Survey 2020

The following lakes will be sampled in 2020:

Andrew	Blackwell	Carlos
Darling	Freeborn	Geneva
Grants	Irene	Jessie
Mina	Vermont	Victoria
Le Homme Dieu		

Glenwood Area Staff:

Dean Beck - Area Supervisor
Bill McKibbin - Assistant Area Supervisor
Sue Mulville - Office & Admin Specialist
Chris Smith - Fisheries Specialist
Chris Uphoff - Fisheries Specialist
Nick Rydell - Fisheries Specialist

Storm Kettelhut – Fisheries/APM Technician
Jerry Wendlandt - APM Specialist
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