DEPARTMENT OF NATURAL RESOURCES

# Minnesota Statewide AIS Advisory Committee (SAISAC)

***September 28, 2023 Meeting Minutes***
***MS Teams Online Meeting***

**Members Present:** Michaela Anderson, Charlie Brandt, Shelly Binsfeld, Beto Garcia, Kate Hagsten (AM), and Ryan Wersal
**Members Absent:** Will Bemont, Pat Brown, Holly Bushman, Chris DuBose, Chris Magnotto, KoriiRay Northrup, Mike Sorensen, Maggie Stahley
**Ex-officio Members Present:** Nick Phelps (AM)
**Ex-officio Members Absent:** Nicole Lalum, Amy McGovern
**DNR Staff Present:** Mimi Daniel, Doug Jensen, Kelly Pennington, April Rust, Sean Sisler, Isaiah Tolo

***Vice-Chair: M. Anderson called meeting to order at 10:06AM***

***Motion to approve Meeting Minutes as presented by D. Jensen from August 24, 2023: B. Garcia, second by R. Wersal***

***Motion to approve agenda: First by B. Garcia, second by R. Wersal*** *– Kate needs to leave early. Written update provided to Doug who added to the updates below. Nick Phelps needs to leave early.*

## Meeting Summary

- The Committee heard DNR presentations "Fish Pathogens: DNR Perspectives" from Isiah Tolo, Fish Health Supervisor; "Baitfish Management" from Sean Sisler, Commercial Aquatic Programs & Fish Health Consultant; and "Diversity, Equity and Inclusion: Current and Future" from Mimi Daniel, DEI Program Manager.
- The Committee discussed topics for next meeting including a deep dive into invasive aquatic plant control including a broad overview concerning physical, biological with more specifics on chemical control options.

## Fish Pathogens: DNR Perspectives

**Isiah Tolo, Fish Health Supervisor**

- Introduced himself and fish health program at DNR.
- Tied in fish pathogens to invasives, both are definitely related but there's more of a gray area when talking about microorganisms.
- Pathogens are microorganisms that cause disease (parasites, fungi, bacteria, viruses). Not all pathogens are invasive. Some highly coevolved with native species, they have been associated with the host fish for as long as the fish has been around. As long there are fish, we will have fish diseases and will never get rid of them, nor should we.

- Some pathogens are considered invasive, but it's often difficult to know where the pathogen came from. One example is largemouth bass virus (LBV), it's considered invasive because it's not historically endemic to region, viruses like this to be considered invasive have to cause harm to ecological, economic loss, or impact human health. Pathways often include people moving host species or water. Almost identical virus from doctor fish (*Garra rufa*), a popular for fish pedicures and as an aquarium cleaner sucker fish. Virus naturally spreads in water, cutaneous contact are mechanisms for spread. Have not observed population impacts in MN like reservoirs in TX.
- Bass tournaments have been implicated in LMB virus outbreaks/high mortality during hot times of the year due to stress put on caught fish (e.g., temperature shock, handling). It is fairly widespread, and other related fish are susceptible too. A few states are managing it by having fish tested before import/export. It spreads by water, fish to fish contact, and consumption of infected prey fish. Widespread distribution is probably related to stocking. It's a warm water virus so climate change is likely to increase the issue especially as it relates to water quality, which often trigger outbreaks. Unfortunately, many MN lakes have low biological integrity, so fish are already stressed. It's here to stay.
- Distribution is not well known, some surveys have found LMB detections, ~20 total, a few in Chisago, Hennepin, Scott, Goodhue, and Winona Counties, two latter findings are from the MS River. It's moving between watersheds, so that rules out spread only by water connections, it's people.
- Pathways are pretty much the same as other AIS: import trade, fish and bait release, which is illegal, but people do it any way for reasons we do not understand well, by hitchhiking on equipment, fishing, waterfowl hunting – pretty difficult to clean gear all of the time under all conditions. Commercial fishing is also implicated in spread of AIS by nets. Use of live bait, not necessarily deliberate release. Pathogens like this can spread by direct consumption of infested prey.
- For import and trade, there are a couple of examples: 1) Koi herpes virus – likely from import/aquarium trade and escape from aquaculture, koi shows, or intentional release. Some stocks in trade are tested, but others are not. Aquarists can release infected fish. Cultural release is another pathway. 2) *Remibacterium salmoninarum* is one of the oldest bacterium pathogens known, probably originated from Atlantic salmon and definitely, continues to be introduced through salmonid stocking programs in inland waters.
- Aquaculture considerations: Farms have varying levels of biosecurity; bait is almost exclusively wild harvest; state stocking programs are not immune to risks of pathogen introduction. There is extensive production in natural waters, especially walleye brood stock. Most fish production in MN is through wild harvest, not a lot of fishponds out there nor raising food fish. Probably 150-250 fish transports in MN each year that are reviewed, mostly walleye, sunfish, some bass, and rainbow trout (much of which are imported). Salmonid stocking programs are responsible for introduction/risk of introduction of most certifiable pathogens. Very little testing occurs for certifiable pathogens.
- Live bait is a potential pathway due to inherent risks due to harvest from all over the state then held together in facilities where pathogens can be exchanged, lots of mixing, thus creating a potential hub for spread. Pathogen training is required by law to help ensure the public hatchery fish are protected.
- Michigan leads the field when it comes to state fish health programs, Michigan State University is well connected to Michigan DNR. In 2006, VHS was detected in emerald shiners and VHS detections

increasing in wild muskie populations in MI/WI 2003-2013. While MI has a program for VHS with regard to egg collection/propagation only in that waterbody, MN does not because VHS has not been detected in any inland waters or in any bait supplies.

- Baitfish considerations – Nationally, lots of interstate connectivity between baitfish suppliers from where baitfish are harvested and where shipped, all make it very risky for fish pathogen movement, especially those states that allow importation of bait. It would be extremely expensive and incredibly difficult to document disease contact tracing due its complex network of supply and demand.
- Some pathogens have complex life histories, it's not just about moving fish. Some pathogens such as Asian fish tapeworm can be spread in fish, zooplankton hosts, and in other hosts so can transport in water. AFT has been found along the border of WI and Upper MI Peninsula, so it's not far away.
- Risk of pathogen introductions are not just large die offs (a potential consequence of some pathogen introductions). Other considerations include impacts of cost of doing business, unintended consequences on fish communities, unintended consequences on human health (Ex: *Diphyllobothrium latum* first found in MN in early 1990s which can increase cases of infections), and restrictions on conservation work such as complicating our native brook trout program. Example: Brook trout can only be stocked in lakes that have already known infestations of the bacteria *Tetracapsuloides*.
- How to manage risk of invasive pathogen introduction? Lots of potential options: disease testing requirements, impose movement bans on high-risk pathway (i.e., out of state bait import), impose movement restrictions (VHSV zones), increase visibility of movements (transport permits to see what species moved where), reduce impacts of stocking programs (salmonid stocking rules reduce pathogen spread using hatchery matching with waterbody classifications), ID/stop movement from pathogen sources via surveillance programs.
- We don't manage alone! Constantly trying to understand what other states are doing and why. We participate in the Great Lake Fishery Commission, learn what new pathogens emerge in the area, and membership can perform risk assessments with uncertainty. Mission of the GLFC's Fish Health Committee is to unity and coordinate fish health management effort of the fishery agencies. GLFHC follows a model program for fish health management, identifies research needs, provides education, and forms partnerships with agencies and organizations outside the committee.

*Discussion*

- **D. Jensen** shared via chat recent research on cultural release.

- **K. Hagsten** via chat (answered after the meeting): Has anyone looked at the lake characteristics that are necessary habitat for shiners? Can we link that information to the same conditions that we know make certain lakes more susceptible to new invasive infestations? Thinking about this as a measure of climate change that is not so commonly talked about in media sources. Also, as a way to brace the bait harvesting industry for what kind of harvest we might expect to be realistic/sustainable in the future. **I. Tolo** responds that 1) generally shiners are not very picky about habitat - they do well in anything from large lakes to ditches and can tolerate a moderate level of anthropogenic disturbance causing eutrophication and low DO. This is what makes them relatively easy to culture in ponds or even in recirculating aquaculture systems. They are also fairly thermotolerant. So, MN is literally completely covered in shiner (and other baitfish) habitat. 2) If the question about infestations is related to ZM's I think there has been a great deal of work

on ecological niche modeling of ZM lakes - It think a ENM of ZM's superimposed over potential golden shiner habitat would probably be very correlated. Both can survive well in productive waters and do well a variety of shallow lake environments. 3) I personally resonate with the last part of the question. One thing we need to realize about minnows is that like any other natural resource - they are not unlimited. Bait use can be... wasteful as anglers buy minnows without any way to keep them alive for more than a single outing. MN has a massive amount of bait production because of our amazing lake resources but we still hear about bait shortages. My personal take on that is that we need to appreciate the level of bait habitat and production that our lakes provide, and use bait in a renewable fashion within that production budget. I don't know why bait is treated as a commodity similar to what you would find a grocery store. Baitfish are wildlife just like steelhead trout, muskies and sturgeon and so they should not be expected to always be in convenient supply no matter what. While I think we can certainly find ways to produce more bait, I do wonder if we ought to think about how we can be less wasteful, and more conservation minded in the way we use bait.

- **S. Binsfeld** asks if there is any current DNR research on fish pathogens and can DNR keep up with keeping good records to look back on over time? **I. Tolo:** Not much novel fish health research. DNR does some screening/surveillance work, which is mandated, but not full research. Always surveying and sample from fish kill events and screen those. We do have one MAISRC research project starting that combine pCR testing to streamline for simpler testing to increase the speed to get results, using a model similar to disease testing for saltwater shrimp trade. **S. Binsfeld** asks what about keeping historical records to track pathogens? I**. Tolo:** Fish kill records data collection is very difficult process, really an uphill battle for creating a data collection mechanism. As a long-term goal in my position, he wants to build publicly accessible, maintained database with the ability to upload current data. Program manages some of the data well but needs to improve in other areas.
- **D. Jensen** comment via chat: VHS was first discovered in the Duluth-Superior harbor in 2010. Spread of VHS is mostly likely spread by migrating fish and fish to fish contact, not by ballast water (according to S. Bailey, Department of Fisheries and Oceans, Canada) or recreational watercraft (according to M. Bain, Cornell University). It is has not spread inland in most GL states and has not spread inland in MN to anywhere that we know of. There is no bait harvest in the St. Louis River estuary since the late 1980s due to the threats of Eurasian ruffe for spread inland via contaminated bait.
- **M. Anderson** asks how do you get fish kill reports? I**. Tolo** responds that fish kill reports are pdfs submitted by duty officer to report system. **S. Sisler** has data collected system by FAW for aquaculture programs. Lots of various data available, but it's largely in a grey area format.

## Baitfish Management

**Sean Sisler, Commercial Aquatic Programs & Fish Health Consultant**

- Overview of minnows in MN: what is a minnow, minnow shortages and minnow management.
- In MN, minnows (97A.015 sub 29) are classified as any fish in the Cyprinidae family except carp and goldfish, members of mudminnow family (Umbridae), suckers up to 12", bullheads, ciscoes, lake whitefish, goldeyes, and mooneyes under 7", tadpole madtoms, stonecats, and leeches. Why leeches? They are harvested, held, cultured, and transported similar to that within minnow classifications.

- Bait (97C.341 sub b) includes fish, aquatic worms, amphibians, invertebrates, and insects used for taking of wild animals from waters of the state.
- Where people get minnows? Anglers can harvest with a valid fishing license or buy from minnow dealer/retailers or aquaculture.
    - Anglers can harvest for personal use, purchase them as above, angling license cost is $25, and permits transport up to 12 dozen; about 1 million licensed anglers in MN.
- Minnow dealers harvest under a minnow dealer license ($310), purchase and sell at one retail location with other commercial licenses, and permit transport with vehicle license ($15). About 250 statewide, which has dropped recently from 300-350.
- Aquaculture permits ($535) allow for harvest, purchase, selling and raising minnows with minnow dealer endorsement, and transport ($15/vehicle). 150-200 licenses annually (about 50 raise minnows) for aquaculture statewide.
- General Regulations for Minnow Dealers: They can harvest from any waterbody they have legal access to (except infested waters, trout waters, wildlife management areas (WMAs), state parks, etc.). They are required to take annual online AIS training, can have designated helpers, must import dead bait only, and if so, it must be VHS tested or preserved in a manner excepted by MN DNR. (**D. Jensen** comment: treated with borax kills VHS). Imported live fish must come from VHS-free sources.
- Harvesting in Infested Waters – General prohibition for harvest from infested waters.
    - Anglers: No harvest for personal use except infested with just EWM only, then can use cylindrical traps. Angler harvest is prohibited from zebra mussel, spiny waterflea, faucet snail, and starry stonewort infested waters. All minnows must be transported in clean water. Anglers cannot release minnows into waterbodies and need to exchange bait water to move them between waterbodies (with dechlorinated tap, spring or bottled water from home).
    - Commercial harvest requires permit: Separate permits and separate gear for each combo of AIS. Gear used in infested waters must be kept separate from gear used in uninfested waters. Minnows can only be hauled in clean water. General permit for hauling equipment that may have aquatic plants to cleaning locations. Cannot hold or sell minnows in infested water taken from an infested waterbody. Harvesters required to take annual AIS training and use color coded tagged gear based on species specific conditions, type of AIS, and gear types (ZM – no traps can be used because hard to see, hard to clean off, closed season) and is mostly for shiner harvest. More stringent conditions for zebra mussels. Gear can have multiple-colored tags. Bait harvest is not allowed from around May 23$^{rd}$ through mid-October. Bait harvest is allowed before and after this period because minnows are economically and culturally important to MN (bait industry, angling industry, over 70% of MN anglers use minnows), starts with expensive spottail shiners in the spring. This harvest moratorium is because this is the period that zebra mussels produce free-floating larvae called veligers, which can be easily transported on gear and in water throughout the summer into early fall.
    - **D. Jensen** comments via chat: 1) Zebra mussels produce veligers (young) between 54-82F degrees. When they hatch, they are 40 microns in diameter, the diameter of a human hair, so virtually impossible to see with the naked eye. 2) DNR AIS training for bait harvesters began about 1996. I worked with Roy Johannson, retired DNR commercial lead back then to develop program. It's important to know that there has been an established program going on for nearly 30 decades.

- **K. Pennington** adds via chat: Like **S. Sisler** mentioned this is addressed in MN Statutes - section 84D.03 subd.3 (e) says "Bait intended for sale may not be held in infested water after taking and before sale unless authorized under a license or permit according to Minnesota Rules, part 6216.0500." So, bait shops doing that activity will need to mitigate the risk according to permit conditions. **S. Sisler** may have more to add!

- Mostly Shiners: Most permits deal with shiners. When harvesting from infested waters, it's a big deterrent when going for a high valued minnow like shiners.
- Why allow commercial harvest of minnows? Economically and culturally important:
  - Bait industry (USDA Aqua Census 201.3)
    - $29.4 M nationwide
    - $2.4 M MN (#2 behind AR @ $18.4 M)
  - Supports $1.8 B MN angling industry to $4.2 B economic output (MNFISH and Outdoor News)
  - >70% of MN anglers use minnows (McEachran et al.)
  - Starts with spottail shiners in spring for walleye fishing opener ($15 per dozen/>$1 per minnow)
- Most infested waters harvest permits are for spottail and emerald shiners, some horny head chub permits (only 1,000 gals per yr). Spottail shiners are almost entirely wild harvest. Over the years, more harvest has come from infested waters. Emerald shiner harvest is spotty, high variability year to year.
- Variability can result in seasonal shiner shortages which impact entire season.
- From 2013-2022, as more waters have become infested with zebra mussels are major waterbodies where shiners are harvested, permit conditions began to impact availability too:
  - When there's been closed seasons in first few weeks of fishing season, when demand is high from early to late spring into the summer, there can be shortages; they may begin to die-off and anglers don't want to use them anymore – so those first several weeks are important.
  - Sets off chain reaction of when anglers are using golden shiners harvested from ponds or there is a fish kill, those fatheads don't bounce back into mid to late summer.
- Minnow importation risk report from 2018 (Gunderson) – Importing golden shiner proposed as a simple solution; however, MN DNR has concerns over: contamination with invasive species, pathogens, chain of custody, new pathway, increased cost for enforcement, testing, and verification. Alternatives include investing production within MN: indoor culture, produce golden shiner fry, increase pond availability.
- Discussed VHS Free Zones, permit conditions, pilot project now using traps in zebra mussel infested waters (7-9 lakes focused on spottail and emerald shiner harvest, evaluate potential permit conditions, lake specific tagged gear; allowed harvest through Memorial Day, along with temperature and veliger monitoring). Meetings hosted concerning minnow shortage meetings with public stakeholders October-April 2023 included discussions/experiences with shortages, species and timing, observations, and thoughts about causes. More meetings this fall. Legislative report on ensuring adequate bait supply will be completed in 2024.
  - VHS Free Zones: Worked with USDA APHIS and Great Lakes Fish Health Committee to declare VHS Free Zones, over 10 years of active testing (without VHS detections or outbreaks), rapid response with Fish Kill reporting system through state duty officer (who can collect samples), biosecurity through state regulations (no movement of water, no dumping unused bait, and no importation of live bait). Legislature passed in 2021 and began implementing VHS Free Zones in 2022. Improvement

because before Zones were set up, all waters needed to be tested for VHS. To be declared free, no VHS can be detected for 3 years. This approach allowed minnow dealers to be to harvest from more waters. To date, thankfully, no VHS has been found in inland waters of MN even though we have lots of species that are susceptible.

- Golden Shiner Project: Partnering with MN Sea Grant, industry, funded by LCCMR in 2021, to research production of golden shiners in winter, and grow out over spring through summer. Results look promising, able to spawn fry all year around and hatch fry for various grow out scenarios (with/without feeding, aquaponics) to get market size faster to 3-4 inches long in just one season. Previously, it took at least two years to reach market size. Fish in the New London hatchery in May were three inches long last week. As word is getting out, licensees are beginning to add golden shiners to their licenses. A facility in New Ulm which previously grew yellow perch as food fish is now converting to raise golden shiners in their waterbodies. Hopefully, they will be able to grow them year around.
- Permit conditions for zebra mussel project: Starting in 2020, meetings were held with tribal governments, agencies, and stakeholders to review zebra mussel permit conditions resulting in a pilot project to allow traps in zebra mussel waters, 7 lakes year-one, 9 lakes year-two, focused on spottail and emerald shiner harvest to evaluate potential permit conditions, looking at lake specific years using dedicated gear. Shows how important this resource is to them. If harvesters cannot harvest from a particular lake, they've move to the next one, which puts more harvest pressure on those populations. So, now allowing trapping and through Memorial Day, both are keys for weekend bait sales during the summer. Along with this, DNR is conducting temperature and veliger monitoring. Bemidji State was hired on contract to collect and analyze the samples, results are pending.
- Minnow Shortage Meetings held with stakeholders October 2022 through April 2023 that included Commissioner's office and staff, MNFish, Aquaculture Licenses, Minnow dealers, retailers, guides, other partner representatives. Discussed stakeholders experience regarding shortages, which species, timing of shortages, and causes of shortages. More meetings will be held beginning October 3rd. A legislative report on ensuring adequate bait supply will be completed in early 2024.

- **I. Tolo** via chat: Checking for population impacts from overharvest of bait sounds like a great research project.

*Discussion*

- **M. Anderson** comments that she is well aware of the bait shortage issue as it has been mentioned by anglers for years but didn't realize how much bait is wild harvest**. S. Sisler** responds that the drought isn't helping bait harvest. **D. Jensen** comments that it's probably really hitting grow out ponds and wetlands for fathead minnows. **S. Sisler** comments that when we discuss shiners, we're referring to ten thousand gallons compared to the top three: fathead minnows, leeches, and white suckers – the latter big three refers to 100s of thousands of gals. Overall, two hundred thousand of gals harvested seems to be about right when there are good supplies, but when the harvest is around 150 thousand gallons, that is when shortages begin to be reported.

- **K. Hagsten** asks what kind of numbers are needed from the aquaculture industry to help sustain bait harvesting? She has a student that is interested in this industry. Maybe in the future, Leech Lake can help contribute. **S. Sisler** responds that the target for golden shiners is 10,000 gallons or more, when it's at 5,000 gallons, that's when we start to hear about shortages.
- **N. Phelps** is curious about tradeoffs and risks. Anglers want bait so the DNR is developing options to do that as safely as possible, but what is the process DNR uses to balance those trade-offs? Seems like some recent changes to allow harvest is allowing more risk. **S. Sisler** responds that we have had discussions with AIS specialists and industry to determine what makes sense, in some cases, and what can be done to mitigate risk. Part of what we're looking at with the pilot project is collecting temperature and veliger monitoring and to see how they're harvesting and learn where risks are. Based on Gary Montz's (retired) study, now looking at 3 lakes and 3 years for veliger monitoring. So, looked at conditions that could be used to mitigate that risk. Also, lowered risk by using dedicated lake traps and specific sites, storage during off-season, and permit conditions allow inspection of equipment and storage verification. It's often a balance that allow for minimal risk.
- **N. Phelps** likes the data-driven process being followed. Follow up question: As lakes become more limited due to infestations, there is potential for overharvest, so how do we prevent overfishing bait harvest (e.g., tragedy of commons) – how does that fit into DNR process? From talking with bait harvesters over the years, this is happening and maybe widespread. **S. Sisler** says it's something that they've thinking about, including places that that could restrict harvest as needed. He's aware of it happening with white sucker egg collection. There are restrictions in place where harvesting can be suspended. **N. Phelps** says but how would you know (if there's overharvest)? There is no other sector than commercial fishing and bait where they are allowed to harvest natural resources commercially. If there isn't monitoring, how would you know? **S. Sisler** says we wouldn't know. In certain cases, we know forage base, like Mille Lacs. DNR took a look at that a few years about concerns for overharvest there, but because only two harvesters were active there, it was determined that there likely insufficient harvest pressure to warrant shut down. To determine over harvest, we'd need to start seeing impacts on game fish due to lack of forage.
- **I. Toto** asks N. Phelps where harvest issues have been observed. **N. Phelps** says he has heard from the industry where there has been reduced shiner, goldeneye, and wild redtail. It's unknown what the causes could be including climate change, overfishing, loss of waters that are sustaining minnows, no longer have access due to development, non-desirable fish in same waters, etc. For example, redtail harvest in small streams are highly vulnerable and can be easily fished out, they are getting really hard to find. Asking the industry about their thoughts on sustainability of the wild caught minnows is important. **S. Sisler** responded that a lot of these statistics are being driven by leech harvest which is the biggest downtrend in minnow shortage data - concerned that could be related to impacts of agricultural chemicals. **N. Phelps** is concerned about concentrated harvest practices resulting in overharvest and cautions DNR that harvesters are not likely sharing that information with DNR when they have no obligation to do so. It could be a consequence, but they could be pointing their finger to other potential causes. **S. Sisler** says that there have been discussions on how to decouple wild harvest into other production, like the golden shiner project, building breeding structures in ponds to increase production,

if there was a winterkill – consider stocking with golden shiner fry, moving fathead minnow egg masses, to more directly manage it, rather than relying solely on wild harvest.

- **B. Garcia** saw video of North Country bait harvesting crayfish on Leech Lake - is that for disposal/food? What are the risks? **S. Sisler** says that harvest is for crayfish boils only and permit stipulates that. As a reminder, he says that crayfish can be harvested with an angler license, but the crayfish can only be on the waters that the crayfish was harvested. Otherwise, anglers can only use dead crayfish on other waterbodies. For zebra mussel infested waters, crayfish cannot be used as bait. **D. Jensen** says that a very important aspect because we do know that crayfish can be colonized by zebra mussels. He published a paper about that which surmised that the colonization likely had detrimental population impacts on native and invasive rusty crayfish in Green Bay (see paper). **B. Garcia** asks if there is a risk that colonized crayfish could move zebra mussels across land to other waterbodies? **D. Jensen** responds that pathway would be negligible compared to the other vectors in which crayfish spread. However, if anglers harvest crayfish colonized with zebra mussel post-settlers or larger that would much great risk.
- **I. Tolo** via chat to **N. Phelps**: Wonders if a student could see if there is a correlation between IBI data and harvest vs non-harvested waters. **N. Phelps** replies that would be tricky, retrospectively without knowing effort, site-specific catch rates, etc. However, going forward a project could be designed like that with MPCA, DNR, and industry - would be a great MS project!
- **K. Pennington** via chat: **S. Sisler** mentioned "Op Order 113" - that's DNR's operational order that governs DNR personnel and contract/grantee activities to prevent the spread of invasive species.
- **D. Jensen:** Based on this presentation and what has been learned, how can DNR, partners, and this Committee support fish pathogen research and baitfish management in 2023? **I. Tolo:** Could use stronger professional research network for fish pathogens with more people working in the field. **S. Sisler:** partners continue to be supportive in bait fish research like at Bemidji State and at MAISRC.
- **N. Phelps** asks that since you both are in fisheries, are there any concerns about working in department silos? **S. Sisler** says he's worked with the invasive species unit specifically on permit conditions for harvesting in infested waters, serves on DNR Invasive Species Operational Order 113 committee, so he feels pretty-well connected. **I. Tolo** noticed silos for fish health, which are not well-connected to wildlife health, it's a bit of a problem, but feels we're working our way out of that. Always helps to have engagement – invited to speak and engage at meetings like this and be able to make connections. Has small team building up for fish health, thanks for MAISRC students to connect and fish health research.

## DNR Updates

**K. Pennington**

- Program work continues as usual (Watercraft Inspection Program, etc.)
- Invasive Carp – Structured decision making processs for the MS River Basin in MN continues, contracted with USGS to help facilitate – spent last two days participating in intensive workshop creating different invasive carp management scenarios that participants value which will then recommended to the team; they will be scored based on whether those meet management objectives. Results will help inform the statewide invasive carp action plan, which will updated later in the year.
- Legislature appropriated `$1.7 million to DNR for FY24-25 for the purposes of invasive carp work. DNR is planning to do a few things based on this investment to: 1) contract with UMN on a spillway study, 2)

complete the 65% design for deterrent at lock and dam #5 (currently have a 10% concept design planned) to determine what it would take along with a cost estimate, both of which will inform the Army Corps of Engineers with great details to initiate their plan, 3) increase our commercial fishing efforts; currently we trap and tag carp, want to augment that program as well; 4) perhaps add some temporary support staff; 5) invest in equipment for current invasive carp program such as nets, 6) study native fish passage at lock and dam 5, and 7) collaborate with partners in other states where invasive carp are more abundant and see if there are lessons we can learn. **K. Hagsten** asks can you speak more to the legislative action that is going to take place this January? Are there resources online to see direction that DNR might be heading? **K. Pennington** replies that legislative proposals are in preliminary review for 2024 session and will update this committee when ready to be put forward.

- Staffing updates: Rafael Contreras-Rangel hired for the Invasive Species in Commerce position, funded for 3 years by a federal grant. He will work with DNR Enforcement, staff, and statewide partners to conduct outreach and collaboration. Adam Doll has been hired as the Invasive Species Prevention Consultant. We're still working to hire a research and grants coordinator and a permanent northern seasonal trainer.
- **B. Garcia** asks via chat: Could we include in minutes or otherwise where the public notices are for these carp initiatives and expenditures? **K. Pennington** asks for clarification on what is meant by public notices? **B. Garcia** clarifies, is there public notice for vendors like commercial fisherman. **K. Pennington** says that she anticipates that some of the funds will be awarded by requests for proposal (RFP) processes, so we can make a note to update the Committee when those are out! **B. Garcia** wishes the RFP process was less opaque, thanks. **K. Pennington** appreciates that, it's a complicated process.

**D. Jensen**

- Responded to multi-county and partner inquiries.
- Worked with WI on a MN-WI water gardener brochure regarding alternative non-invasive species nearly complete to go, working on accessibility, then printing and posting online.
- Interviewed by Oregon Sea Grant re: 2021 Moss Ball contamination by zebra mussels to develop an "after action report" on behalf of the U.S. Fish and Wildlife Service/Aquatic Nuisance Species Task Force; heavily involved in the statewide and national response as previous Co-Chair of the Outreach and Education Subcommittee of the ANSTF.
- Last week, participated virtually in some of the fall meeting Western Regional Panel on ANS.
- Last week, attended virtual MAISRC Showcase, hope members of this committee also attended.
- Minnesota Invasive Species State Plan draft evaluation report is under review; contributed writing a section on outreach evaluation, status, and recent efforts; on October 11-12, there is a virtually meeting of the Minnesota Invasive Species Advisory Council which I plan to attend and provide a UMISC planning update (https://www.mninvasives.org/news-and-events).
- 9th biennial 2024 Upper Midwest Invasive Species Conference (Nov 12-15, 2024, Duluth) planning is going well, ~4 months ahead of where we usually are.
- In early September, staffed the DNR invasive species booth at the Minnesota State Fair, which had >300 during my afternoon/evening shift. Also, co-hosted an AIS booth at the Ely Harvest Festival, hosted by the White Iron Chain of Lakes Association in partnership with the Lake County AIS Program, DNR, and 1854 Treaty Authority, which educated 400+ visitors on how to prevent the spread of AIS.

- Assisted in planning the upcoming fall meeting of the Great Lakes Panel on ANS, Detroit, MI.

*Discussion*

- No further questions/discussion.

## Member Updates

- **R. Wersal:** Teaching and finishing up diploid flowering rush research primarily on phenology, funded by the Army Corps of Engineers, and also a project on Cuban Bullrush (probably won't see in MN but has potential to make it into central Missouri) – adaptable new things on horizon, on the move. Looking to retool research lab and recruit new research students depending upon funding for the next fiscal year. **D. Jensen** asks so based on climate change projections where MN will be more like KS during the summertime in 50 years, will that be when it could eventually invade MN? **R. Wersal** responds that the thing about Cuban bullrush is that it does better in colder climates based on threshold temperatures in studies from FL, MS, and LA, so yes it could.
- **S. Binsfeld:** Attended MAISRC showcase in morning. Interesting watercraft treatment study concerning temperature of decontamination water sprayed from the decon unit hose vs temperature contact with different parts of the boat. Also, helping SWCD with SWF checking on her lake.
- **B. Garcia:** Not much since last meeting. Lake Owosso Association looking into 2-3 year lake wide fluridone Eurasian watermilfoil (EWM) treatment (1,400 acres). **S. Binsfield** shares success story in Lake Orono from 2020 just before dredging – in fall did draw down then dredged in winter. AIS company conducted a treatment and identified EWM in small spot the next summer and within weeks SWCD did quick treatment. OLID very active and installed signs to keep boat traffic in that area, EWM hasn't come back. If stays away 5 years, can remove from the list, but did discover zebra mussels as well.
- **R. Wersal** explained a bit about fluridone effects, it's a systemic herbicide, pros and cons; there are multiple formulations. When applied during the growing season, it is not selective, it doesn't remove EWM and leave everything else. Impacts on native plants can be minimized when applied in the fall when native species begin to senesce, so less non-target impacts than there would be than in June/July. For effective treatment, this herbicide has to sustained in contact with plants for 30-40 days to get good control. Low use rate, long contact time herbicide (6 ppm). It degrades in sunlight, so fall is a better time to treat.
- **B. Garcia** asks about impacts on fish and native plants. **R. Wersal** responds that it depends upon the season, in the spring before native plants come up, there can be better control and low impacts on native plants. Both EWM and curlyleaf pondweed have phenologies where they spout earlier in the year, which give them a competitive edge, and they hang out a little longer in fall, which in turn makes them vulnerable to chemical treatment.
- **M. Anderson** asks if the herbicide impacts baitfish? **R. Wersal** responds that fluridone ECOTOX numbers are good, meaning that it degrades quickly and has fewer impacts on other aquatic life. **D. Jensen** mentions that based his previous work at EPA, generally herbicides are magnitudes of order less toxic to fish than compared to aquatic plants. Fluridone has been used as a staple for invasive aquatic plant control for nearly three decades.
- **S. Binsfeld** asks if there is a regime that needs to be followed after treatment. **R. Wersal** responds that yes there will be a couple of years of follow up. **B. Garcia** asks if the decay of plants following treatment causes water quality problems? **D. Jensen** responds that he's not heard of any, but that would be an excellent

question for those who conduct on the ground control. Further discussion ensued with suggestion for this topic as primary topic for October meeting with Wendy Crowell and AIS specialists, who have lots of experience with herbicide control, options, repercussions, decaying matter, compared to other methods, etc. It would be helpful for members to know what lake associations are up against when they're seeking control options, what DNR will approve versus what they don't want, how to go about getting permits, it's very complicated, but would be good to understand more.

- **M. Anderson:** For her lake association, they had some difficulties working with DNR, but she doesn't know if they were asking the right questions, there was some miscommunication, misperceptions, expectations, etc., sometimes they expect a swimming pool, when that is clearly not the goal. Also, talking through issues of sediment in the water of our lake – investigating ways to mitigate sedimentation. **B. Garcia** points out that lake associations are not the only stakeholder on that lake and it needs to managed that way.
- **S. Binsfield** explains the value of SWCD partnership, helping individuals/lake associations navigate the process of permitting/treatment. She suggests Chris Jurek to speak at next meeting. To that end, we could prepare some questions for them ahead of the meeting so Chris and other can prepare ahead of time.
- **K. Hagsten** (provided written update provided below):
    - Crews completed 95 survey points on Leech Lake. Looking for native Chara species. They also attended the aquatic plant workshop hosted at Itasca State Park.
    - We meet with U of Montana to discuss eDNA samples on the reservation. Funding for an extension of this work was not awarded but we will continue to work with partners that wish to do this work within the Reservation boundaries.
    - We implemented the use of DASH on Leech Lake and in the Mississippi. We found that the thrash from wild rice clogs up the bottom two layers of our screens, meaning the only way to remove the biomass of SSW is with the use of one larger screen. We are working with MAISRC and MNDNR contacts to be transparent about this flaw in the management tool. At this time, it would seem that we need to accept the fact that we will be removing bulbils and the majority of SSW but there will be some fragments and bulbils passing through the screen. We are looking at ways to quantify how much of this is happening in the next field season and to see how many of the fragments have viable nodes after being DASHed. Our plan is to DASH Leech Lake research plots and main channels early in June, at the start of SSW growth, and again in the late fall with the hope of removing as many bulbils as possible and therefore reduce the "seed bank". Our early season DASH is an effort to prevent the spread of it. It is clear the DASH will be most effective as an early detection tool and in sediment that is sandier in nature. We successfully removed another 400lbs from the Mississippi.
    - The conversation of ricer education was brought up. We hosted this year, several meetings Ganawaabi Manoomin – He/she watches wild rice. We will continue to use this meeting next year to educate ricers about the presence of SSW and discuss how they can prevent spreading it further into the rice bed.

*Discussion Summary*

- Discussion continued on what to focus on for October meeting presentation. Interested in focusing on once a lake association receives an aquatic plant treatment plan, what type of treatments are they doing and what are the impacts. Ex: This is what we did decades before, but now we're doing this. What are the changes in options and pos/neg effects of treatments. What studies have been done? Do we truly know what some of the impacts are? What are the benefits of aquatic plants? What do lake associations see as they talk to hired companies – do they get the full picture? What are they being told? Guessing read a lot online. How can the DNR knowledge be exchanged with shoreland owners? Does the DNR have a resource to explain chemical treatment options/impacts? What outreach tools are available for shoreland owners to use as guidance? What tools exist? Promoting the benefits of aquatic plants has

been an on-going discussion for 30 years. Generally, lake associations want less plants, anglers want more plants. What arguments can be brought into the discussion to change the negative perceptions around native plants? Short term herbicide treatments may be great, but long term are they the way to go? Good to have information about if there are targeted methods for selectively removing invasive plants. Pros/cons lessons learned, case studies, success stories, etc. Are there targeted methods to selectively remove aquatic invasive species, small infestations vs whole bay or whole lake. Success stories. Case studies.

- **S. Binsfeld** – suggested pre-submitting questions for October meeting, include AIS Specialist (Chris Jurek or another available specialist and Wendy Crowell)
- **K. Pennington:** Want to include Dan Larkin/colleagues?

## Ex-officio Updates

No updates

## Diversity, Equity, and Inclusion: Current and Future

**Mimi Daniel, DEI Program Manager**

- Working on rolling out agency wide DEI assessment to get pulse of full agency to help us inform the DNR DEI plan and set priorities for divisions. Data driven approach will help back up our goals and priorities. Will be rolling out DNR DEI plan to address key priorities and move agency towards a more inclusive workforce. Hope to have going in early 2024.
- Conducting agency-wide assessment which provides a data-driven understanding of the current organization state around DEI. Data will inform our DEI plan and set DEI priorities for agency and divisions. This will give us a pulse of where we are at in DEI.
- Agency DEI plan will help achieve our DEI visions and address key priorities helping to move the agency toward a more inclusive work force. This will help us move forward not going with what we think we know, but we'll have a data-driven process to move our way forward based on the priorities and goals that we have. We hope to have the plan ready late this year or early next year.
- DNR recently created an agency language access plan to insure people with limited English proficiency have meaningful access information to products and services. It is required that all staff will receive the plan. There will be specialized training for those staff who are in most contact with people who have limited English proficiency. A Language Access Plan Implementation Team is rolling out the plan to identify, prioritize, and address the language access needs of communities with limited English proficiency needs who are served by the DNR. So, we're not only doing this approach, but we're also evaluating it as we go with the desired outcome to know if this is the best way to do this.
- DEI Action Team formed to support implementation of DNR Equity Change Plan through carrying out tasks that promote DNR and Governor's office of Inclusion strategic goals related to DEI, which informs and advises on the DNR's internal DEI strategic goals, priorities, and measurement. Group of 12 staff champion DEI strategic goals, priorities, and measurements. Sub teams doing work on DEI quarterly newsletter, DEI agency plan components, and inclusive hiring plan for supervisors/managers - creating a centralized list of organizations, agencies, and diverse networks for sharing job posting and resources regarding recruitment. A third team is developing an affirmative action program (working on FAQ doc

for hiring plan and an evaluation form). Around this, we'll need resources to support that work. Works with Office of Diversity is hosting Diversity Chats for staff learning and discussion around DEI topics.

- DEI employee resource group (new pilot program). New group based around shared interest in DEI work to help provided a place to come together and learn, create a more inclusive culture, welcoming work space, promote sharing information, growth, and understanding to build cultural competency.
- DEI Champions Cohort program – pilot projects with FAW/PAT. Moving now towards agency wide offering for those interested. Offers IDI assessment, training, group conversation and coaching designed to help members to grow in cultural competence and become champions in respective divisions.
- IDEC – four cohorts so far have participated past 4 years. Collaborative paid summer internship program who will rotate with DNR/PCA/BWSR to learn about their programs and opportunities in natural resources. Goal is to help them determine if this is a field they want to go in to. Piloting next year as a 1-year program to get hands on experience, help learn, and vet natural resources work as a possible impetus to decide their major.

*Discussion*

- **S. Binsfeld** asks has DNR seen hiring success of interns continuing to work in natural resources fields from the program? **M. Daniel** responds that we have some data indicating that most go into natural resources and environmental careers or grad school. Others have gone into the field, but necessarily as state careers – which is the ultimate goal, which is to join one of the three state agencies. There's a lot that we need to work through because in the end it comes down to being able to provide entry-level jobs for them to apply to. It then comes down to them competing with other students who have the minimum qualifications, plus the preferred qualifications and experience. They might not have the full two years of experience as other applicants. Trying to work with HR, if it's an entry level position, what can the hiring supervisor do? If trying to hire a more diverse work force, can it be someone who meets all of the minimum qualifications and can do the job as well, why not hire them? Some may have already worked at DNR, but not for five years. Could we give them points for completing the DNR internship program. If they've done the internship two years in a row, how do we get them in here? Working with HR to see how to translate IDEC work experience into hiring.
- **S. Binsfeld** likes that program is working to meet with leadership and supervisors on hiring.
- **B. Garcia** asks if IDEC is focused on govt jobs specifically? **M. Daniel** responds that the Legislature provided funding for establishment of program so IDEC was created based on data from 2016-2026 that 44% of the work force would be eligible for retirement. Looking at MN and how it is diversifying, we are taking this opportunity as one way to diversify the work force. Diversity in the agencies is quite low right now. It's not just about state careers. Navigating state system is hard even if you know the positions are open, it is challenging to find them. HR also works with interns on mock interviews and helping them develop resumes. **A. Rust** comments that she has been working on this on behalf of the division. Even though there have been four cohorts, they are small 12-17 students each, and many of them are still in graduate school, so it will be really interesting in 5-10 years to see what placement really looks like. She says that her division has been better than the other two agencies in getting placement so far. Also, the internships are very intensive compared to other internships. Results will be in the long game.

- **S. Binsfeld** asks are you having difficulty placing students geographically? **M. Daniel** says divisions struggle more with getting diverse applicants from greater MN than in metro area. There are more interns from the metro area.
- **S. Binsfeld** says this was helpful to better understand DEI work at DNR, mentioned high number of retirements coming and important transfer of knowledge needs to happen.

## Discussion Time for Committee

- Recapped earlier discussion on plant control process as focus for next meeting (pages 12-23).
- Other topics:
  - **B. Garcia** asks what about Invasive carp? **K. Pennington** suggests adding to agenda for early 2024.
  - **B. Garcia** asks if there are any decisions advisory committee members will need to make or vote on in early 2024, that might want to study up on this year still? **K. Pennington** says DNR can share updates as legislative process unfolds and then look for opportunities for SAISAC to support actions/letters of support during legislative session. **S. Binsfeld** says she would love to hear speakers from other states talk about their AIS species programs, she would like an update on anything new in CBSM in 2024 (when CBSM grants are finished). Has anything new been learned? **B. Garcia** supports hearing from Iowa's AIS Program. **S. Binsfeld/B. Garcia** support hearing about any research from other state's research institution, such as Iowa? **D. Jensen** will look into.

**Adjourn at 3:02PM**

***Next meeting to be held IN-PERSON ONLY Thursday, October 26, 2023, at the Sauk Rapids DNR Office.***