Minnesota Statewide AIS Advisory Committee (SAISAC)

August 24, 2023 Meeting Minutes
WebEx Online Meeting

Members Present: Michaela Anderson, Charlie Brandt, Shelly Binsfeld, Holly Bushman, Pat Brown, Nick Phelps, Mike Sorensen, Ryan Wersal
Members Absent: Will Bemont, Chris DuBose, Chris Magnotto, KoriiRay Northrup, Maggie Stahley
Ex-officio Members Present: Nick Phelps
Ex-officio Members Absent: Nicole Lalum, Amy McGovern
DNR Staff Present: Adam Doll, Robert Gorecki, Doug Jensen, Kelly Pennington
Guest: Megan Weber

Chair H. Bushman called meeting to order at 10:05AM

Motion to approve agenda: First by C. Brandt, second by S. Binsfeld

Motion to approve Meeting Minutes as presented by D. Jensen from April 27, 2023: First by M. Anderson, second by M. Wersal

Meeting Summary

- The Committee heard presentations "Baitfish, AIS and Pathogens" and "MAISRC's September Showcase Preview" from Nick Phelps, MAISRC Director, and an "Update on Starry Trek" from Megan Weber, University of Minnesota Extension
- The Committee discussed how can the DNR, partners, and this Committee promote/support/improve behavior change outreach to anglers in 2023

Baitfish, AIS and Pathogens – Release of Bait Fish by Recreational Anglers

Nick Phelps, MAISRC Director

- In MN, the vast majority of our minnows come from wetland ponds (shallow, eutrophic systems)
- Baitfish from Shore to Shop: Baitfish harvested then transported to bait shops
- Baitfish raised and harvested in several ways: wild harvested, raised in aquaculture in other areas of the country in manmade ponds, or in indoor aquaculture systems
- From Shop to Shore: Anglers may release unused bait which poses risks; concern that importation of bait can transport AIS and pathogens within the supply chain
- Many studies have examined fish diseases
- DNR contracted study regarding Minnow Importation Risk by Jeff Gunderson
- Millions of baitfish are moved, minimal disease testing and biosecurity, low ability to trace origin, millions of anglers who are highly transient and dynamic, thousands of lakes, both accidental and deliberate release resulting a potential source for spread by anglers

- Brief history:
  - Newspaper headline: In 1950, live bait was $25 million state industry
  - $2.4 million or greater annual industry
  - Dozens of harvesters and producers
  - 800+ baitfish retailers
  - Supports a large recreational industry valued in the $billions
  - 1974 MN banned importation of baitfish for angling – justification has changed over time, but ban remains in place (Chapter 101.42)
- For decades, bait shops have faced minnow shortages ahead of fishing seasons due various reasons: drought, severe winters, over harvest, thus have turned to the DNR
  - Bait dealers want to import golden shiners, but DNR say's that's too risky
    - It's turned into a tangled mess
- What is the risk of fish pathogen spread via illegal release of live baitfish by anglers?
  For a pathogen to spread along the baitfish pathway, a series of steps must occur:
  - What are the hazards of greatest concern?
  - What is the frequency of risky behaviors by anglers
  - What is the risk of fish pathogens spreading to wild fish?
  - What are the social and psychological determinations of release behavior? – would be beneficial to know for management decisions
- What's in the bait supply?
  - 2015-2016 undercover survey done as part of a DNR enforcement project with contract to U of M to look at pathogens in bait supply included AIS; purchased 30 golden shiners each time at different shops at different times; received a wide range of species; avg was 58 golden shiners/purchase, range 3-136
  - Bait supply included numerous other fish species mixed in including a game fish (yellow perch n=2); no AIS were found; somehow these species are being mixed which demonstrates weakness in the supply chain
  - Found several pathogens, several that are concerning
    - An ovarian pathogen that can sterilize golden shiners were found in 60% of the bait shops
    - A few bacteria species which are not reportable in baitfish were found, but would have major regulatory implications if found in trout - further evidence of a weak supply chain because these pathogens are moving around undetected under the regulatory purview of the DNR
  - Consulted with local resource managers to identify and scope of problem
  - Integrated stakeholder-expert opinion and scientific data to identify and rank fish pathogens
  - Created a decision support tool for prioritizing management
  - Ovarian parasite, VHS and Asian fish tapeworm were top three pathogens of concern:
    - VHS is on doorstep in the Great Lakes
    - Asian fish tapeworm has not been found in MN, but has been found in MI bait supply
- What is the frequency of risky behaviors? What is the probability pathogens make it to a lake?
  - Assumes a negative consequence
  - Angler – uses live bait – purchases susceptible fish – purchases infected fish – releases infected fish = risky trip
  - 70% use live bait
  - Likelihood: 20% of surveyed bait users admitted to releasing leftover live bait (illegal activity) - likely an underestimate, provides a baseline of risk, but the number should probably be a bit higher
- Modeling used to estimate number of risky trips
  - Provides a tool for managers to tweak based on the number of risk trips by anglers

- Anglers releasing live bait at end of trip is main driver – while this is intuitive, it also provides an opportunity to get the best bang for the buck by having managers focus here, in part by checking bait more often and removing sick fish
- Angler Survey 2021: Assessing angler motivation for Illegal baitfish release:
  - Methods: 8,000 anglers contacted, 1,493 responses
  - Results: Use of live bait is important
    - 75% of respondents said it was moderately or extremely important – value of baitfish to anglers is really important
    - 28% reported plans to release bait in the future
    - Understanding the laws regarding bait release showed that the probability of releasing live bait was low with people that understood the law, and much higher for age groups 18-39 and 40-59 that did not understand the law
  - If we can educate people about the law itself, we have opportunities to change behavior
  - Using Theory of Planned behavior:
    - Angler attitudes and norms around live bit release drive the intent (0.32)
    - Major moderating factor is knowledge of regulations
    - Anglers generally want to do what they think other anglers do (subjective norm 0.55)
    - Education campaigns using normative messaging may be effective (perceived behavior control 0.034), like 4/5 anglers are dumping their unwanted bait in the trash can and not releasing bait to send a positive message reinforcement; knowledge of regulations should be part of it
  - Bait shops are an important point of contact for anglers, is poorly understood dimension of pathway, but could play an important role in prevention outreach
- Bait shops – bait is often the thing that gets people into the store, majority of revenue comes from other sales once customers are inside (example: VHS Free Smelt Sold Here sign)
  - Retailers are concerned regarding potential shortages of bait; reported modest concerns regarding their income, risks to fish, AIS, etc.
- Survey of 800 bait shops by store type in 4 regions (n=139) – good representation from across state
  - Descending order by type: Ag; coop; resort; c-store; gas station; independent angling or sporting goods, chain store
  - Bait sales only 10% of their revenue – most revenue from sales of other products; marketing is bait
  - Most bait purchased from harvesters, but some farm raised; not many culturing their own fish
- Shortages (descending order): golden shiner, white sucker, spottail shiner, fathead/crappie, horney head/redtail, goldeneye/mooneye, bullhead
  - Important to understand what shortages occur; ½ bait shops reported shortages, often in early summer corresponding to industry activities; hard to get fish from the wild every year; shortage is likely to increase; surprising that fathead minnows were reported as a shortage since if it is the most popular bait and generally widely available; this is likely different from the harvesters/producers; lots of reasons for this, culture changes, demographics, environmental changes including habitat loss, AIS and climate change
- Retailers generally concerned about AIS threats (descending order): economic impacts, threats to sources, higher costs for anglers, reduce fish populations, personal financial impacts, threat to angling, threats to way of life - nothing really stood out in either direction
- Retailers range of emotions to baitfish and AIS (descending order): curiosity, worry, optimism, fear, anger – again, nothing really stood out in either direction
  - Important to know when attempting to engage the industry, embrace and understand their emotional beliefs; for example understanding positive emotions regarding curiosity and optimism may require a different outreach approach/style

- Fishtail story – Ovipleistophora ovariae
  - First described in 1960s, widespread in golden shiner farms
  - Infects oocytes (eggs) of female golden shiners
  - Functional sterilization as fish mature by age 2-3
  - Very little (and nothing recent) describing presence/impacts on wild fish, but we know that it is being spread through bait use
  - Precautionary principle for management – most states do not regulate for this disease
    - Maine v. Taylor – Maine won and still to date, live bait importation is illegal
    - MN one of the primary reasons still listed as justification to ban imported golden shiners from AR
  - Why do we care about Oo in MN?
    - Presumed negative in MN, but do not have surveys of wild or production ponds
    - No way to trace fish sources and is possible that fish detected with the parasite may have been illegally imported
    - Operation Bucket List 2015-2016: Survey of 16 different ponds showed positive infections in all but one; seems widespread in MN; DNR operating on a negative assumption
    - MN DNR: "No traceability, infected fish may have been illegally imported" – prevailing hypothesis
    - Rambling Along - Newspaper quote 1975: "Malone credited Hogan with bringing the golden shiner from Minnesota to Arkansas"
  - Historical Survey: At Bell Museum of MN, they have shiners dating back to 1893; possible to do a retrospective survey to determine when parasite was introduced to MN:
    - Not all samples were positive, but earliest DNA evidence showed it was present in 1893
    - Confident confirmation in sample from 1941 in low level infections
    - Disease described in literature in 1963, likely an endemic issue that has been present at low levels

Discussion

- **C. Brandt:** Concerned over heterosporis in Leech Lake, disease findings in fish. Does it warrant testing? **N. Phelps** responds that the disease can be found in perch, walleye and other species as a parasite that ruptures cell walls, liquifies tissue. Also found in Cass and Winnie. Probably not a disease of concern because it hasn't become a population impact issue. Fillets of infected fish should not be consumed.
- **B. Garcia:** How many golden shiner farmers are there in MN? **N. Phelps** responds, not many, only eight with another 20-25 harvesters of wild stocks.
- **H. Bushman:** Could a program be set up at bait shops to continually sample bait for diseases? How could the data be collected? – she recognizes pros/cons, potential fear, its complicated. **N. Phelps** responds that bait shops show a high willingness to engage, would need to set up process if something found, not just identify the business; develop like a seafood safety issue.
- **B. Garcia:** Recognizes complexity of restricted access to bait with increasing AIS infestations; a majority of bait fish are not inspected for AIS before transport or in bait stores - really no other business like it.
- **S. Binsfeld:** Agreed that it's really important to help anglers understand issues of releases; anglers like to see their bait swim away; they do not understand bait vs. wild on a mass scale. **N. Phelps** responds that helping to understand motivations is key, whether they intend to feed wild fish, save the lives of fish - how cruel people think it is to dispose in the garbage vs the reality that when they fish, anglers put a hook through the fish's head? Knowing why they don't release is equally important, trying to help the environment, desire to follow the laws, majority are doing the right thing - their behaviors are being influenced.

- **S. Binsfeld:** Suggests putting "It's the Law" in regulation booklets, a trusted authoritative resource by DNR. Bait shops probably have lower trust of DNR regarding bait.
- **B. Garcia** question about licenses. **K. Pennington:** Bait harvesters are licensed, but it's not the same as a commercial license.
- **D. Jensen:** Is there an understanding as to why we don't see widespread crashes if the pathogen has been seen in the state for so long? Is wild bait less susceptible? **N. Phelps:** Not completely sure, but there could be temperature determinate – production ponds are often warmer than lake systems. (In contrast, if there is death in ponds, there would obviously be dead fish observed.) An outbreak wouldn't result in dead fish, it would impact population abundance and there aren't studies looking at these populations. Anecdotally bait harvesters are reporting reductions in golden shiner populations and availability.
- **B. Garcia:** Based on lack of golden shiner availability, is there potential for aquaculture production? **N. Phelps:** Yes, but it takes two years of production to grow age-2 fish for bait markets. Minnesota Sea Grant is conducting a study using indoor aquaculture, but getting shiners to grow is one thing, the other getting around the financial investment and profitability – he's not optimistic that it will work.
- **D. Jensen:** Please recap, why are harvesters reporting lower catches in the wild, why? **N. Phelps:** Drought, habitat loss, overharvest, climate change.

Update on Starry Trek

Megan Weber, Extension Educator, University of Minnesota Extension

- 2023 event just happened last week, still compiling results.
- First observed 2015 in Lake Koronis, with burst of 7 more found in 2016, likely going undetected elsewhere
- Partnered with WI to create a lakes protocol for use across both states, based on WI "Snapshot Day"
- Central coordination in St. Paul at UMN, but local partners play key role – 23 local training sites in 2023
  - UMN provides equipment, central registration, route maps, coordinator training, central coordination
  - Local partners provide event day training, local recruitment, sample processing, route feedback, data collection
  - MN DNR provides report verification, results coordination, infested waters listings, ID training (some years)
- Training offered virtually due to COVID, check out YouTube channel
- Around 200 volunteers annually on average – they make it happen!
- 23 local training sites in advance this year, 20-28 typically based on coordinators and availability
- Routes include 5-6 lakes, use risk/needs assessment to choose lakes; routes start with uninfested waters to infested lakes; emphasize cleaning between lakes; fine-tuned routes over time
- Selection and routes have improved over time – close to 300 accesses are checked in a single morning
- 26 lakes known to be infested, 4 of those have been found via Starry Trek (16%). And 58 new AIS reports (starry stonewort (4), zebra mussels (1), Eurasian watermilfoil(3), freshwater golden clam (2), curlyleaf pondweed (7), mystery snails (41), purple loosestrife (2)), total 58 new AIS reports

z.umn.edu/StarryTrekMap

Explore the map!

- **H. Bushman:** How to be proactive in lower risk areas? Suggestions on good approaches to participate in starry trek in lower risk areas? **M. Weber** responds that an email goes out to anyone that we know of to look for local coordinators, would love to have new groups join and can tailor training to look for higher risk species in your local area. **H. Bushman** is interested in joining next year.
- **S. Binsfeld** says she's participated 5-6 years, program is run so well. Is there something that you wish you could do to improve? **M. Weber** responds that efficiency is main improvement. Each year, improvements to routes save time and effort. This year, color coded maps improved efficiency. Everything else is pretty well set, not a lot of change. Sherburne County has nearly all accesses monitored. In contrast, Beltrami County has a higher risk and local partners have difficulty getting more volunteers. **P. Brown** offered to provide info to Boy Scouts to see if they may be interested.
- **D. Jensen:** Has the number of volunteers remained steady? **M. Weber** responds that it bounces around a bit year to year. **D. Jensen:** Yeah, maybe kind of hit a threshold of sorts. Any ideas on how to grow volunteer base? Seems like there are a lot more potential lake association members that could be tapped. **M. Weber** is working to engage several audiences, but is open to suggestions. **D. Jensen** suggests expanding the Big Stone 4-H model to other areas and approaching high school fishing clubs would be two suggestions, there are many clubs in Ottertail County, which are working with their county AIS program. It's a growing sport.

DNR Updates

K. Pennington

- Invasive carp plan revision in progress.
- Working with USGS on contract for invasive carp structured decision-making process, started in June.
  - Several steps: Starting by framing the problem, setting objectives, evaluation consequences and evaluating alternative actions, consequences – on-going.
  - Have had several meetings with the values group which focuses on problem framing and happy to have the process moving forward.
- Funding update from USFWS and Great Lakes Restoration Initiative for ANS management plans; grant manager site visit yesterday to share the work the program has been doing.
  - Showed pie chart of program's 2022 spending.
- Cool story: DNR watercraft inspectors helped to decontaminate a large 60' houseboat that was previously on zebra mussel infested waters; headed to uninfested Lake Vermilion; used 3rd party transport company and due to route, couldn't stop at any decontamination stations; owner contacted North St. Louis SWCD, who contacted DNR watercraft inspection program and Region 2 DNR staff to set up a special decontamination for this watercraft; owner was super grateful, they wanted to do the right thing. Zebra mussels were found on the boat. An example of awareness leading to local and regional collaboration to prevent introduction of AIS! Owner had been on TV show Shark Tank trying to build his business selling lionfish for human consumption. His business eventually failed, but now lionfish are being sold across the South - he was a bit ahead of his time, but he recognized the threats of AIS and took appropriate action. After decontamination, he even voluntarily kept the watercraft off the water for a week.
- Another watercraft inspection success story: Last year, watercraft inspector in Two Harbors found something that looked like grass on a boat motor intake. Based on inspection survey, it was discovered that the watercraft had come from Bowen Lake, which had just been identified as infested with starry stonewort. Upon further inspection, they found it was starry stonewort and were able to decontaminate the watercraft before it was launched in Lake Superior. Both stories demonstrate the effectiveness of watercraft inspection.
- Busy watercraft inspection program with lots of trainings.

- Two new ZM dogs are doing great, fully in service and working at roadside check stations, random access checks, and helping out at large events where watercraft are being removed from the water.
- New state fair interactive display in DNR Building is a game to clean various equipment featuring Jed, another new dog. Jed helps users walk through "Muck Hunt" to remove AIS from various places and equipment associated with a watercraft. It challenges users learn how to use four tools to remove AIS. Jed introduces users to AIS and how people can help.
- Nonnative Phragmites project, working with the University of Minnesota, has led to a management plan on how we can deal with this problem in MN. Lots of headway, with lots of partners. It is supported by federal funding to help reduce populations within the state. MN has opportunities here given most invaded areas are small. Small is something we can do something about, not like the large populations in eastern Great Lakes, which are really difficult to deal with. In 2022, revisiting sites across MN, 20% no Phrag was detected. This is an indicator we are making progress with promising results.
- In the process of hiring vacant positions:
  - Grant coordinator (formerly Jake Walsh's position)
  - Prevention consultant (Kelly's previous position)
  - AIS North District Trainer
  - OIT Position (formerly Chelsey Blanke's position)

Discussion:

Discussion ensued concerning successful interdiction of a watercraft being hauled by a commercial hauler. **D. Jensen** added that the issue of commercial hauling of watercraft become evident after the Western Regional Panel was formed. By 2002, it was known that dozens of commercial haulers had been observed or intercepted in Western states. At the time, he helped the USFWS write a letter to commercial haulers to help raise awareness. The recent "Call Before You Haul" campaign in the West has really helped to raise awareness.

D. Jensen

- Initiated Take the Pledge campaign last year, about 400 people have committed to join, and we're looking at exploring ways to modify and improve that program.
- Didymo updates – DNR, Science Museum, others doing a study to investigate density and impacts on North Superior and North Shore tributaries.
- DNR proposed rule changes for species, fill critical gaps in regulations – public comments are under review.
- County aid prevention – Hosted 6 workshops with partnership to help develop their local programs.
- Completed one-page metrics report highlighting work by local AIS county programs which receive prevention aid funding, amazing work being done! Parks and Trails provided watercraft access data to the Department of Revenue which in-turn certified the findings to determine 2024 funding allocations to the counties; he notified counties of their allocations to they could begin their budget processes for 2024.
- Attended ANS Task Force, regional Great Lakes Panel on ANS, and Minnesota Invasive Species Advisory Committee meetings – lots of coordination going on at multiple levels.
- Created new template for AIS tool signs that have DNR approval for counties to use and install with permission at DNR owned public water access sites; many counties are producing and installing signs.
- DNR participated in the 2023 Great Lakes Landing Blitz first weekend in July; thousands were educated about AIS and how to inspect their watercraft.
- DNR supported MAISRC's "From Lab to Lake" workshop and field trip, Cass Lake, in June. DNR served on planning committee and facilitated field trip.
- Gave an invited presentation at Lake Vermilion Association annual meeting and co-hosted AIS booth at the Ely Blueberry Festival first weekend in August.

Member Updates

- **B. Garcia:** Working on putting boat together, working "Boggie Bot," might have Phrag on shoreline property; will take pics to verify; had discussion about using worms for compositing.
- **C. Brandt:** Talking with Jeff Forester about Stop Starry campaign, implementation of CD3s, encouraging people to use them; shared info about using stations are reducing violations by 70%, prevention is key. Thinking how to integrate civic pride to get people to clean their boats, make it the right thing to do, the cool thing to do. Get tournament directors to integrate pledge into entries. Trying to contact HS bass fishing clubs directors, but it's been challenging. Gave a presentation to Isanti youth on careers in the fishing industry. If you're not Kevin Van Dam, doesn't mean you can't have a career in the fishing industry. Followed up with Directors, less enthusiastic than expected; basically picked up on the mentality that school sports take priority for kid's entertainment and that AIS are boring. Needs help emphasizing the learning and character building. Ideas to engage the public to prevent the spread, especially avid fishing crowd. Jeff would be happy to present CD3 and SSW presentation as a guest at one of these meetings.
- **M. Anderson:** Gave a presentation at a Bass Federation meeting a couple of years ago about weed sticks, entrepreneurialism, what other things you can do as a job in the industry, tied in some basics on why it's important to prevent AIS – easy to mix into the conversation. She will reach out to **C. Brandt** to connect. Working with counties and lake associations to get more weed sticks at accesses. Not as many tools on these, but they are more cost effective. Otherwise, she had a baby and a puppy, busy!
- **M. Sorensen:** Works more on water quality than AIS. Working to improve water quality of Crystal Lake in Robbinsdale, surrounded by parklands, nutrient issue, it's green and stinky. Grant funding from Shingle Creek WSD to improve lake, multi-faceted approach: in-lake alum treatment, operates a treatment facility that continuously cleans the water, and carp management have improved water quality. Were 13,000 carp, but have removed 8,900, or 70%. It's really working, encouraging, best water quality in 20 years. Best part is getting rewarding feedback from lake users. Minneapolis Park Board uses mechanical harvesters - concern that even if they collect a lot of the fragments, some will float and spread. Benefit of mechanical is the instant visual results without chemicals.
- **P. Brown:** Red Lake now with permanent decontamination station at Washkish in collaboration with Band; first 2 portable CD3 stations installed; taken 120 plankton samples on Red Lake to look for zebra mussel veligers and spiny waterfleas - because Gary Montz retired, didn't get 2022 samples analyzed yet. Conducted stomach analysis of Red Lake freshwater drum and yellow perch and have not yet found adult zebra mussels, even though veligers have been found in lake. Conducted mussel survey with DNR on Red Lake River, flowing out of Red Lake, looking for native and zebra mussels.
- **H. Bushman:** Conducted purple loosestrife workshop at end of July, good news that existing beetles are found in the park, so ramped up beetle populations through releases. Verified some sites on EDDMapS including verifying no purple loosestrife on private lands. Found new population on Lake Washington. Lots of interest, keep building that biocontrol program. Fun and not hard to do by any means. Difficulty with one mechanical harvester purchased by neighboring county to control curlyleaf pondweed; now everyone wants to use it and move it around. Commissioners supported purchase. Expensive and have a hard time supporting it because of logistics and associated risk for moving it/AIS around. She would appreciate any advice on successes in using mechanical harvesters. Not sold on support this just yet. Going to Isle Royale for vacation! **M. Sorenson** responds that the Minneapolis Park Board does not use herbicides, only mechanical harvesting, gets immediate results, but if only 90% of fragments are being collected that means that 10% are not and spread across the lake, more than one would expect, maybe not so much for curlyleaf, but likely more if Eurasian watermilfoil. **M. Anderson** asked if mechanical harvesters can be contracted for a fee; seems like it would a lot cheaper? If purchased, who will cover the maintenance?, need to think about first. **H. Bushman** suggests that hand pulling of small infestations may be more cost effective and easier.

- **K. Pennington** via chat: DNR has a list of permitted commercial mechanical control companies; their permits (issued by DNR Fisheries) include AIS prevention conditions.

Ex-officio Updates

- **N. Phelps:** MAISRC showcase coming up soon to highlight ongoing MAISRC work. Secured state funding to continue MAISRC out to 2027. Received state funding out to 2027. Also received funding to do a large research implementation initiative called Lab to Lake Initiative. Details will be coming out soon, focused on control of common carp to improve water quality that will translate work into the real word. Will be hiring a new research outreach specialist, announcement coming soon, new outreach specialist Sept 5th, will probably take this ex-officio seat after she's settled in.

MAISRC's September Showcase: A Preview

Nick Phelps, MAISRC Director

- MAISRC is an AIS research center at U of MN. About 40 research fellows, 22 graduate students, core to our mission is trying to get learned information out to everyone in a useful way
- Showcase is a feature annual event to highlight all the work happening
- Event is on Sept. 20th in an online format via Zoom
- Registration is open:

- Intended for researchers to get out from behind their desks, feature their work, time to ask questions, facilitate dialogue on how to use results of the research in our daily lives; your chance to see it all
- Presented teasers to research projects currently underway at MAISRC featured at showcase (not all are listed below):
  - How to influence recreational boaters at water access points using signs
  - Optimizing eDNA monitoring for multiple AIS for early detection - includes community science and recommendations for moving forward
  - Integrating professional and citizen monitoring to improve surveillance - how to use data collected by non-professionals – compare the two datasets in terms of confidence
  - Improving the efficiency of watercraft inspection through coordination and cooperation - how can counties be more efficient with coordinating site selection and effort, will unveil online dashboard at Showcase; builds upon AIS Explorer and Dashboard
  - AIS and tourism impacts- socioeconomic assessment – do AIS infestations impact how people travel
  - Evaluating innovative coatings to suppress priority AIS – third phase, paintable coating, durable, effective at preventing attachment; uses microbial signals
  - Local and landscape-level effectiveness of AIS prevention - also estimated cost benefit - hot-water decon is more expensive than boater education, have also built into AIS explorer; estimated costs of various interventions
  - Genetic biocontrol of invasive species - understanding attitudes and risk perceptions - sneak peek: public was more open to this technology than chemical control
  - Copper-based control: Zebra mussel settlement and nontarget impacts - MAISRC has been working on for nine years, now looking at large-scale population suppression in a large bay in Lake Minnetonka

    - Enhancing habitat and diversity in cattail-dominated shorelines - looking at the ecological value of removing cattails
    - Genetic control of invasive fish species - common carp specifically, create a synthetic species that is genetically incompatible with the wild fish
    - Acoustic conditioning in common carp to accelerate removal and reduce cost - common carp are smart, condition them with sound to make capture easier
    - Geographic distribution and herbicide response of watermilfoil to inform management decision-making - hybrid type is more herbicide-tolerant; have an online tool where you can see what genotype is where
    - Early detection of ZM with multibeam sonar
    - RNAi screens for ZM biocontrol target genes
- Showcase features: 9 "lightning talks" for new projects
- Showcase is intended to provide updates on the latest and greatest research by MAISRC; if cost is concern, there are ways to off-set costs; all talks will be recorded and posted on YouTube channel for future viewing

Discussion and Q&A:

M. Sorenson: Does MAISRC track where virtual participants live? **N. Phelps** responds definitely; in-person was increasing steadily, about 300 people at last one in St. Paul, dominated by Twin Cities residents, maybe with property elsewhere. Now get 450-500 participants, Greater MN gone way up. Also, attendees from WI, MI, Dakotas, especially managers. Some academics from US/world tune in. Videos are used in classrooms; viewed many, many times. No brainer to keep online. Visitor tours are available.

Discussion Time for Committee

Potential topics for September and October Meetings:

- Reviewing/compiling success stories
- More on fish pathogens/research: Invite Isaiah Tolo, MNDNR perspectives on fish pathogens, and Sean Sisler, MNDNR perspectives on bait management
- Outcomes of CBSM grants to local partners at October meeting (after T. Fitzgerald returns)
- DEI within DNR and other organizations – DNR's DEI coordinator started August 2nd and can check to see when she would be available to meet with the group; focus on current and future efforts
- Committee could provide feedback on new grant opportunities
- Continue to explore bait pathway and look for ways to engage local partners:
    - Disposal challenges include appropriate places to dispose of the bait on-site
    - Is there a way to search in the enforcement RMS to search for bait dumping related citations? Is there enforcement?
- Integrating water quality improvement and AIS management
- More discussions with enforcement

Other topics:

- Advisory Committee Recruitment: Working to get status on some open seats., ~5 pending open seats
    - How are they advertised? There's a group within DNR that organizes calls for all advisory committees and follows a standardized process.
- Next meeting: Will send out information sooner to determine if it will be online or remote

Adjourn at 2:59PM

Next Meeting to be held on Thursday, September 28, 2023