



Lake County SWCD AIS Prevention Behavior Change Grant Final Report

Summary of target audience and behavior

The release of live bait into a waterbody is one pathway for the introduction of aquatic invasive species or fish diseases. We know from a DNR sponsored survey in 2019 that roughly one-third of anglers who fish with live bait have at some point released their unwanted bait into a waterbody. From that same survey we also know that there is a knowledge gap around the risks of dumping live bait in a waterbody, with 48% reporting that they didn't realize it could be invasive. We at Lake County SWCD saw an opportunity to provide anglers with accurate information and encourage them to take actions to reduce the risk from the live bait pathway.

The specific behavior we supported through this project was disposing of unwanted live bait in the garbage. The angler survey indicated that 75% of respondents were either "very willing" or "extremely willing" to dispose of unused bait in the garbage if available on-site, so we ventured that by placing a bait disposal bin at a busy access we could both facilitate that behavior and at the same time provide accurate information through signage and interactions with the public. By doing this we would be removing the commonly cited barriers of lack of information and lack of tools or resources.

Intervention Strategy Design

We proposed to reduce the number of anglers releasing live bait by initiating multiple interventions:

- Provide a disposal site for anglers to trash their unwanted bait at a busy public water access (convenience, barrier removal).
- Provide a sign at the disposal site describing the problem with releasing live bait as well as informing users of Minnesota laws about bait and bait water (communication, barrier removal).
- Utilize watercraft inspectors at the access to encourage use of the disposal bin and to ask anglers to sign on to the statement: "I commit to draining bait water on land and disposing of unwanted bait in the trash" (communication, written commitment).
- Work with local bait shops to:
 - hang posters with information about proper bait disposal (communication, barrier removal);
 - ask customers to sign a poster stating: "I pledge to do my part to protect Minnesota's lakes and rivers by properly disposing of unwanted bait in the trash or compost," (public written commitment);
 - administer an angler survey to measure angler knowledge resulting from the project;
 - distribute "don't let it loose" bait bags (communication, barrier removal).
- Promote the project and highlight information through posts on social media (communication).

Bait disposal bin and sign strategy and products

We wanted the bait disposal bin to look clean and user friendly while also blending in well with the more rustic surroundings. The access administrator was concerned about the bins becoming a bear attractant, so we selected a fully enclosed, heavy-duty bin from Dog-Waste Depot. Stickers were designed as prompts to remind users what items should and should not be placed in the bins and a sign was designed to be placed above the bin on the post. The sign posted with the bait disposal bin took advantage of the fact that the majority of anglers in the survey identified boat launches as a preferred location for receiving AIS information. For the sign design we decided to incorporate some of the motivators identified in the angler survey. To make them aware that they are preventing the spread of AIS we informed them of the risks of live bait. To let them know that they are making a positive impact on the community and the environment, we associated the project with composting and a well-regarded youth organization. And to inform them that it is illegal to release live bait in

Minnesota we included details about the bait laws. The images below depict the materials designed for this strategy. From left to right: sign designed to be posted with the bait disposal bin, sticker indicating what does and does not belong in the bin, sticker reiterating that only baitfish may be disposed of in the bin, photo of installed bait disposal bin with sign and stickers.

UNWANTED BAITFISH? DUMP IT HERE!

Protect fish and fish habitat by disposing of unwanted bait in the trash

Live bait and bait water can harbor fish diseases and aquatic invasive species (AIS). Do your part to prevent the spread of AIS and fish diseases by following bait laws and guidelines.

Know the Bait Laws in Minnesota:

Before leaving the access, you must drain all water from water-related equipment, including bait containers.

It is against the law to release bait in Minnesota lakes and streams. If you want to keep your live bait, you must drain the water from your bait container away from the lake and refill the container with bottled or tap water.

Minnesota Statutes Section 84D.10



Minnows dumped in this bin will turn into plants!

Make a positive contribution to the community by providing compost material for the Ely Community Resource Community Garden!



Sponsors:



If bin needs maintenance: (218) 248-7288

Unwanted Baitfish ONLY

-  **NO - Pet Waste**
-  **NO - Trash**
-  **NO - Water**
-  **NO - Worms**

**Drain water on shore,
away from the lake**



**Take trash and worms
home and place in the
garbage**



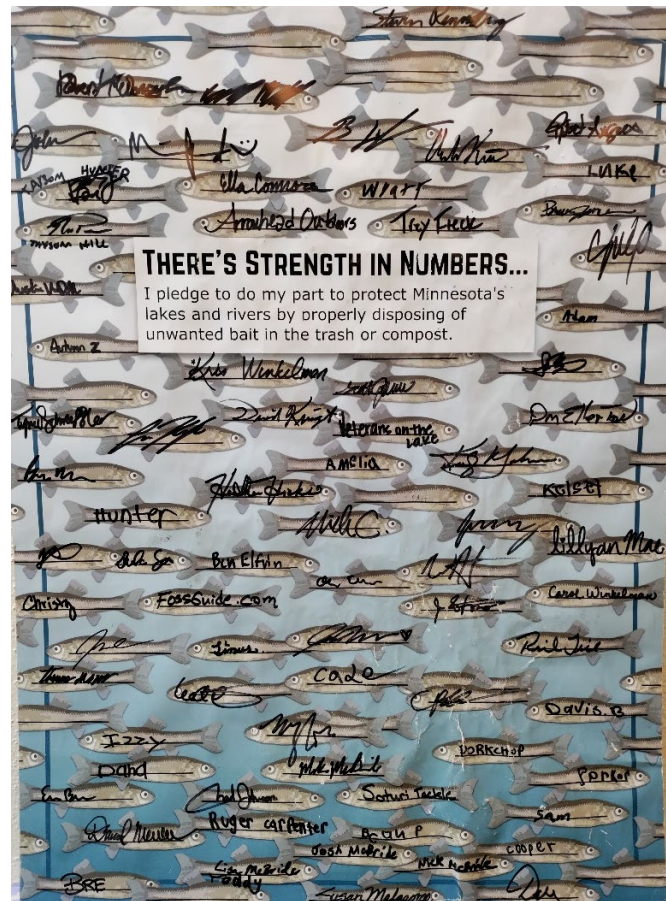
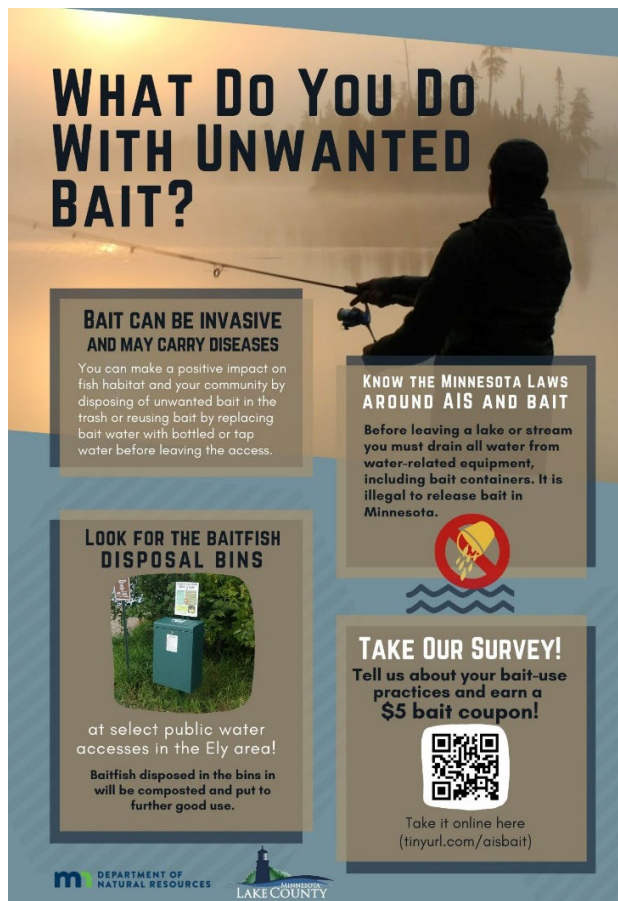
Watercraft Inspectors strategy

Again making use of the preferred location for receiving AIS information, we had watercraft inspectors at the pilot access inform anglers fishing with live bait about the bait laws and about using the bait disposal bin. We also trained them to collect commitments from anglers after the watercraft inspection survey was complete. A written description of the process and a flowchart to follow were provided to the inspectors along with the training. Inspectors had a clipboard that was stored at the access to record the signatures.

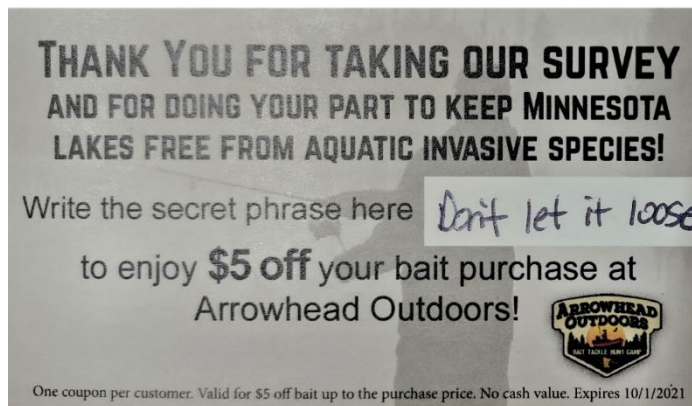
Bait shop strategy and products

Both of our bait shop partners in the Ely area agreed to help us administer a survey to gather information about bait use from anglers. When customers were checking out they were presented with a two-sided card with information on how to take the survey and when completed, instructions for how to redeem the card for \$5 off their bait purchase. We designed two posters for the shops as well. One of the shops posted the informational poster (below left), but didn't have the capacity to utilize the signature poster, and the other shop didn't have enough space for the informational poster, but did utilize the signature poster (below right). The informational poster highlighted the risk of the live bait pathway, the associated Minnesota state laws, introduced customers to the new bait disposal bins, and had a QR code for the bait use survey. The signature poster was the form our commitments took at the bait shop. The worker would ask a customer to sign their name on the poster to pledge to dispose of their bait properly.

Incidentally, we also piggybacked on a different project that developed printed bait bags with AIS messaging. We provided our bait shop partners with 2,000 bags each to use when selling baitfish. The bags helped to reiterate and extend the message we were trying to convey through this project.

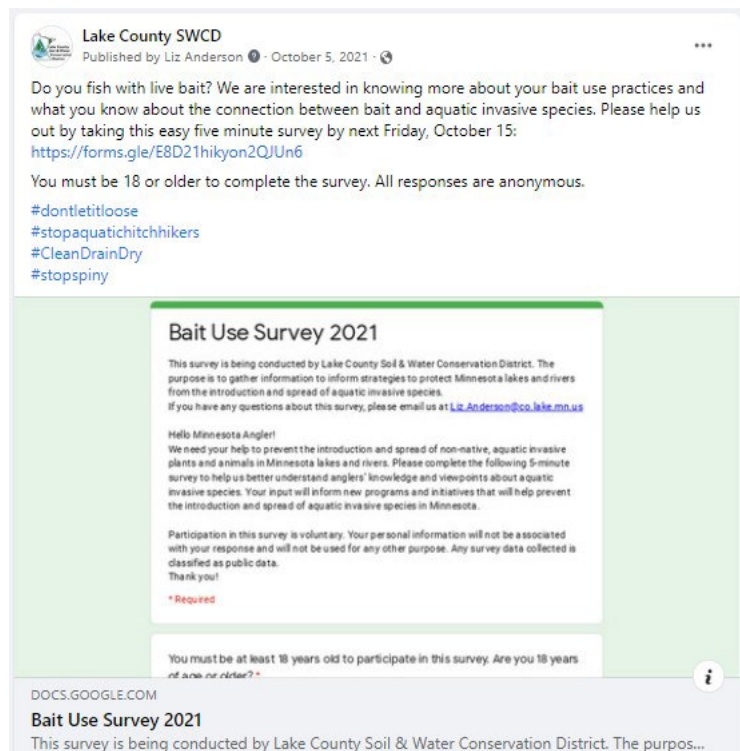


Below left: image of front and back sides of the bait coupon/survey card, below right: photo of the bait bags that were distributed to the bait shop partners.



Social media strategy and products

Our social media strategy was to provide announcements about the installation of the bait disposal bin and information about proper bait disposal. We targeted our followers as well as paid for advertising to the general public in Lake County. Below are the two Facebook posts that were used for this project.



Implementation summary

Project Partners:

- Minnesota DNR
- US Forest Service, Kawishiwi Ranger District – Fall Lake Public Water Access Administrators
- Arrowhead Outdoors – participating Ely bait shop
- Spirit of the Wilderness Outfitters – participating Ely bait shop
- Ely Community Resource –good will partner
- North St. Louis Soil & Water Conservation District, Natalya Walker and interns - managers of the watercraft inspectors assigned to Fall Lake Public Water Access
- White Iron Chain of Lakes Association (WICOLA) – bait disposal bin project expansion

Timeline of implementation

Spring of 2020

- Application recommended for funding and grant contract executed
- Access administrator permissions acquired
- DNR watercraft inspection program plan amended to include asking for commitments
- Grant project work plan submitted and approved
- First bait shop partner recruited
- Grant extension approved to account for COVID-19 related delays

Summer of 2020

- Sign and sticker designs finalized and approved
- Bait disposal bin, hardware, and signs purchased

Fall of 2020

- Bait disposal bin installed at Fall Lake public water access (9/9), weekly maintenance and usage data collected
- Bait disposal bin removed for the season (10/20)

Spring of 2021

- Bait shop posters, coupons, commitment process, and bait usage survey finalized and approved
- Second bait shop partner recruited, bait shop initiatives launched
- Bait disposal bin at Fall Lake public water access installed for the season (5/17), weekly maintenance and usage data collected
- Installation of WICOLA's expansion project bait disposal bins at three additional Ely area accesses
- Watercraft inspectors trained and asking for commitments at the Fall Lake public water access

Summer of 2021

- Bait bins utilized and maintained
- Commitments collected
- Bait survey and coupons operational
- Monthly check-ins with bait shops

Fall of 2021

- Bait bins cleaned and removed for the season (8/27 WICOLA, 10/11 Lake SWCD)
- Bait use survey promoted on Facebook for a final push to get responses
- Materials and invoices collected from the bait shops, commitments sheets collected from watercraft inspectors

Evaluation

Successes & Challenges

Bait bin servicing metrics

Access Location	Fall Lake (SWCD)	White Iron – North (WICOLA)	Birch - Northeast (WICOLA)	Farm (WICOLA)	Overall
Total visits	28	10	8	10	56
Average bin fill	11%	7%	15%	16%	12%
Max bin fill	25%	20%	40%	50%	50%
Frequency of slight odor	41%	25%	29%	40%	36%
Frequency of definite odor	14%	0	14%	30%	15%
Frequency of contamination	86%	63%	71%	70%	77%
Common contaminants	Water, leech containers, pop cans, misc. trash	Water, leech containers	Leech containers	Misc. trash	

Bait Bin design and use successes:

- The bait bin was used to dispose of unwanted baitfish and was well received overall by access users.
- There were no issues with bears or other wildlife (that we know of)!
- There was very little litter observed around the bait bin.
- The project was championed by WICOLA who decided to expand it to three other accesses.

Challenges:

- Our original compost bin location fell through when the landowner had concerns about attracting bears. We were unable to line up another private landowner and instead used the Tower DNR fisheries compost area. Because of this we were unable to fulfil our contributions to the ECR Children's Garden. In the future we will not bother with trying to compost and instead dispose in the trash. That way we will also be able to encourage leech and worm disposal as well.
- While the volume of contamination in the bait bins was quite low, the frequency was high. Oftentimes the bait would need to be trashed because it was too difficult to remove the contaminants. In the future we will dispose of the bait in the trash. We will still discourage any other items in the bin and hopefully the level of contamination will not get any worse.
- If the weather was very hot, odors were pretty noticeable and often flies would gather around the bin and some would get in the bin and lay eggs. In hot weather it would be worthwhile checking the bin more than once per week.
- One bin user did comment that due to the mechanism of raising the handle of the bin at the same time as dumping the fish into a narrow slot, it was somewhat awkward to use.

Engagement metrics

Metric	Count
Bait shops engaged	2
Total bait bin locations including WICOLA expansion	4
Commitments at the access	19
Commitments at the bait shop	79

Metric	Count
Surveys completed	26
Interactions with users while servicing the bait bins	20
Social media engagement	17
Total recorded number of people introduced to the information through this project (conservative estimate)	161
Printed bait bags distributed	4,000
Social media reach	719

Watercraft inspector-initiated commitments successes:

- North St. Louis SWCD was a great partner in training and supporting their watercraft inspectors to collect signatures at Fall Lake access.
- There were a significant number of commitments signed early in the watercraft inspection season.

Challenges:

- After the initial surge in commitments signatures, the pace dropped off in early July. When I noticed the trend, Natalya reminded the inspectors to keep at it and the commitments picked up again for a while. This sort of process may require consistent encouragement and support from supervisors.

Bait shop initiatives successes:

- Two bait shops in Ely gladly participated in our project and will remain important partners in the future.
- Both bait shops distributed printed bait bags and survey cards to their customers.
- One bait shop displayed an informational poster about bait and AIS.
- The other bait shop asked for commitments using the minnow poster. This worked really well, and I think having a visually interesting commitment format added value. I will definitely use this again in the future!

Challenges:

- The larger of the two bait shops, which is also a trip outfitter, had delays in getting the coupon program up and running because it was a training issue for them. There were a lot of staff and not everyone was there at the same time, so rolling out something like that was challenging. I also did not think that having them implement both the survey/coupon and the commitment poster was realistic. Whereas the smaller shop, which is a husband-and-wife operation, was able to hit the ground running. In the future I will probably avoid complex initiatives with larger businesses unless they are going to run for a longer length of time.
- Both bait shops were lacking in available wall space and so I could not hang both posters as I had planned.
- Although many survey cards were handed out, only a few surveys were submitted. One speculation of the bait shop proprietors is that since Ely is a tourist destination, they often get out-of-towners who are just one-time customers. For some it is their last stop before going into the Boundary Waters, so they may not plan to stop at the store again, therefore the incentive (coupon) is no longer relevant to them. Lack of time to take the survey may be another limiting factor. I ended up making an appeal on Facebook to our followers to take the survey if they met the criteria.

Expenses (grant and matching funds)

Item Description	Grant Funds	Matching Funds - Grantee
Garbage can, hardware & compost bin	\$280.00	\$10.06
Signs	\$31.31	

Item Description	Grant Funds	Matching Funds - Grantee
Stickers	\$21.98	
Posters for bait shops	\$38.25	
Bait rebate/coupon (16 at \$5 each)	\$80	
Printing or producing other materials (e.g. survey cards, commitments, etc.)	\$73.94	
Lake County SWCD staff time to plan, oversee, and report on the project		\$2,295
Watercraft Inspector hours informing users of bait bin and asking for commitments at the Fall Lake Public Water Access		561

Total Grant Expenses: **\$525.48**

Total Matching Expenses: **\$2,305.06**

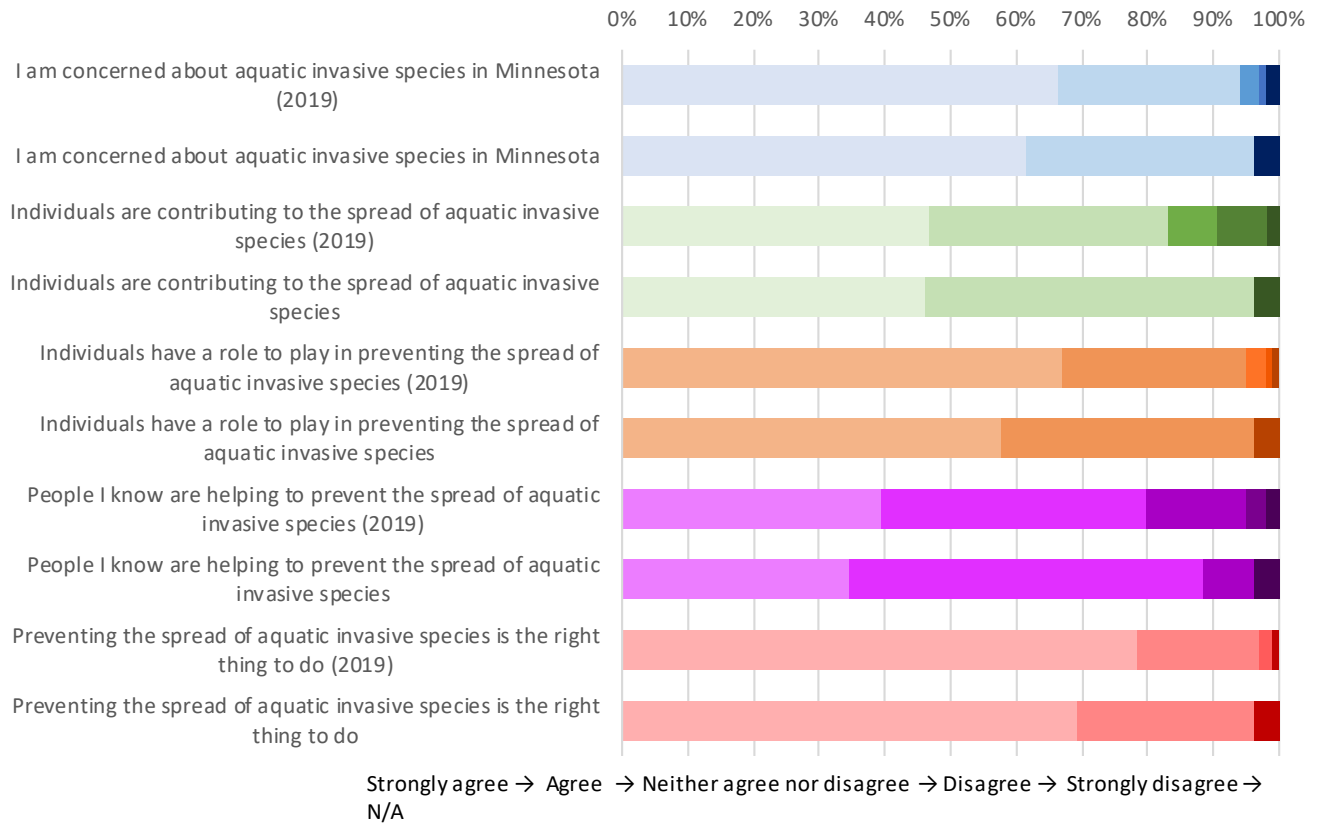
Total Project Expenses: **\$2,830.54**

Survey Evaluation

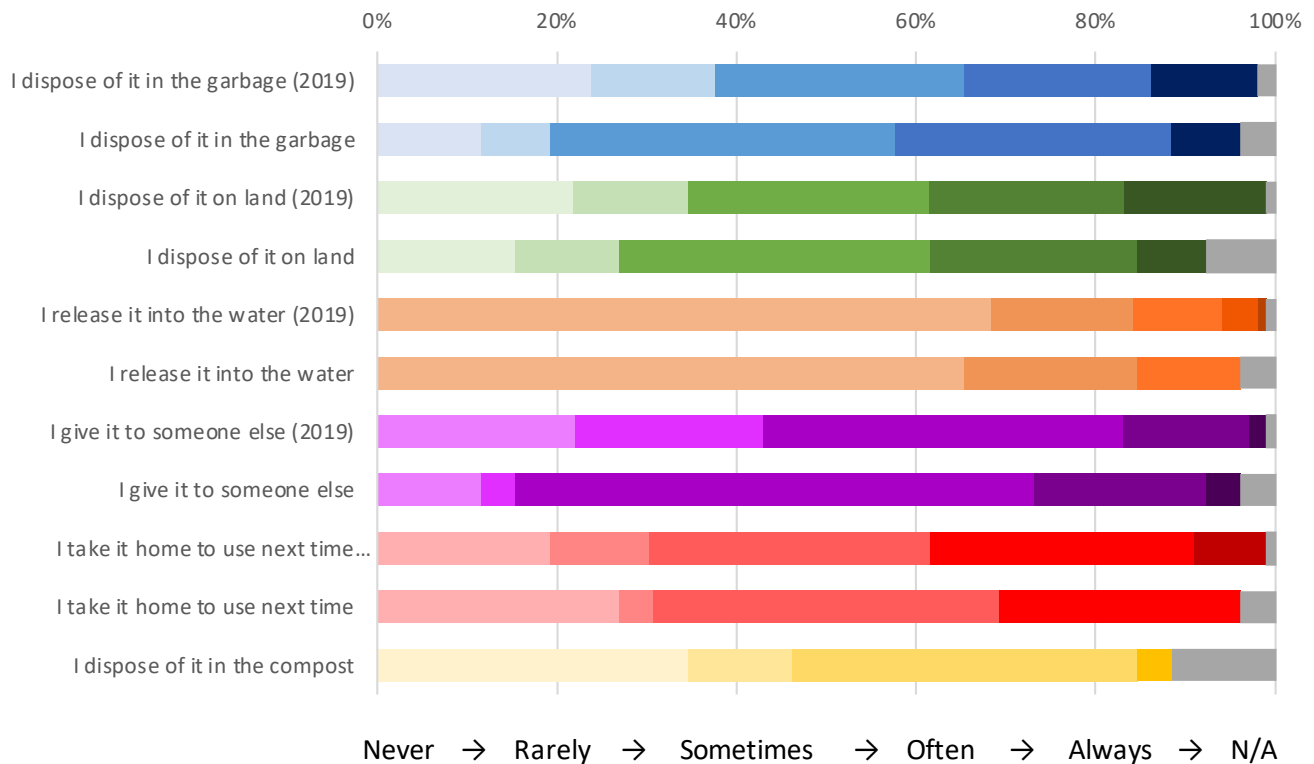
Although we had positive outcomes from this project as indicated by bait bin usage and the commitments that were collected, I think it will be difficult to conclude from our survey that we saw a significant change in angler behavior resulting from our interventions. The survey, which was supposed to measure angler awareness post-intervention, probably only captured a snapshot in time of anglers who may or may not have experienced the bait bins, the commitments, or any other information released through this project. Only one quarter of the respondents had seen the bait bins prior to taking the survey. Additionally, the sample size was small, with just 26 completed surveys submitted. Compare that to the 1,965 responses submitted to the DNR survey in 2019, which is our pre-intervention benchmark.

In fact, many of the patterns in the response data for this project are very similar to the 2019 survey, as shown in the following four charts. It demonstrates that there is still work that needs to be done to communicate the proper actions to take when using live bait.

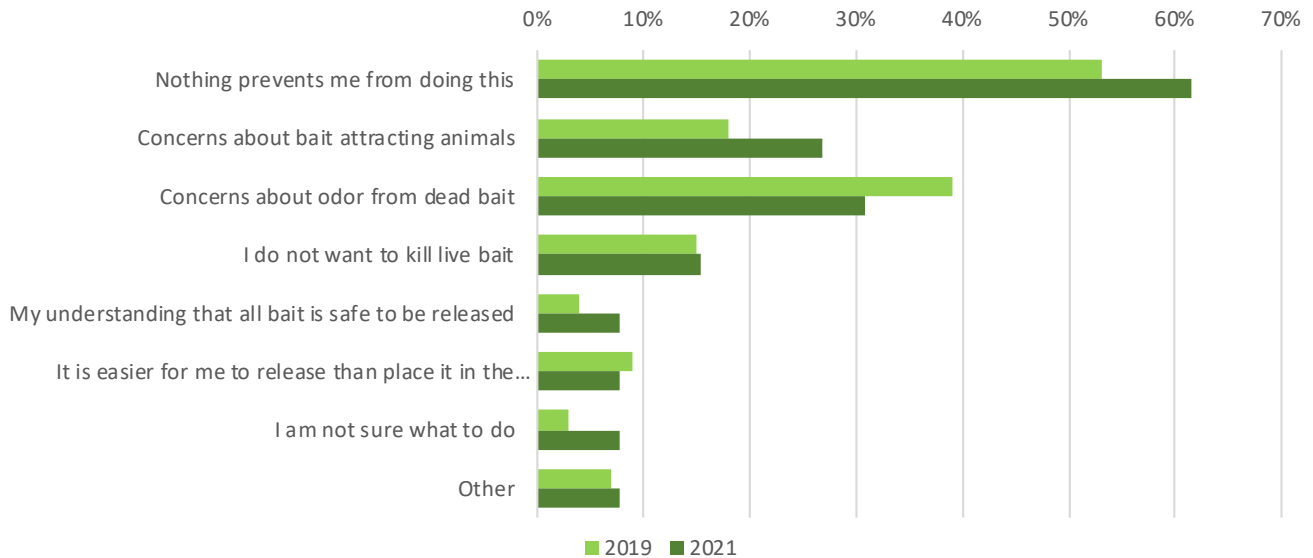
How strongly do you agree with each of the following statements?



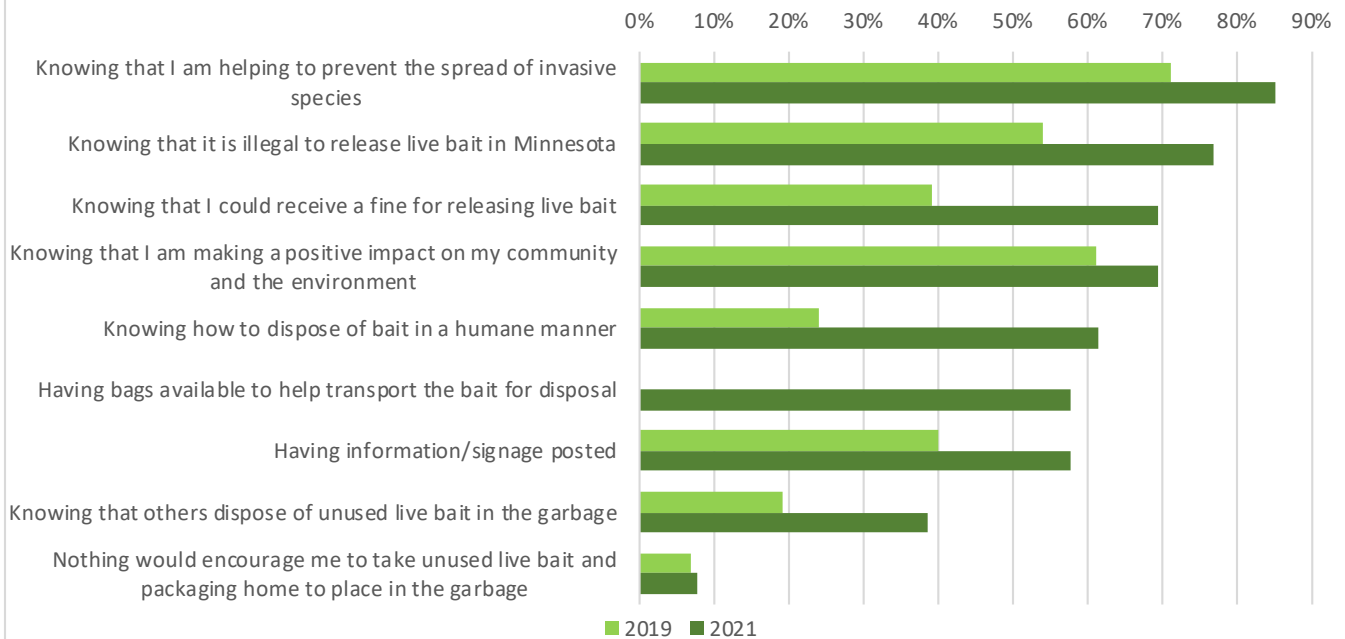
If you have any unused minnows left over at the end of the day, what do you do with them?



What, if anything, would prevent you from taking unused live bait and packaging home and placing it in the garbage?

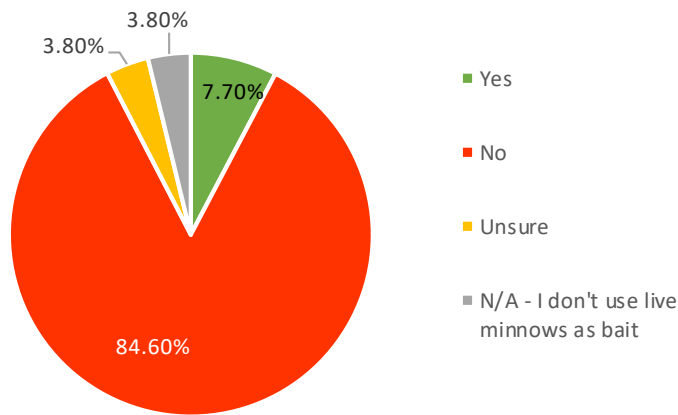


What would encourage you to take unused live bait and packaging home to place in the garbage?



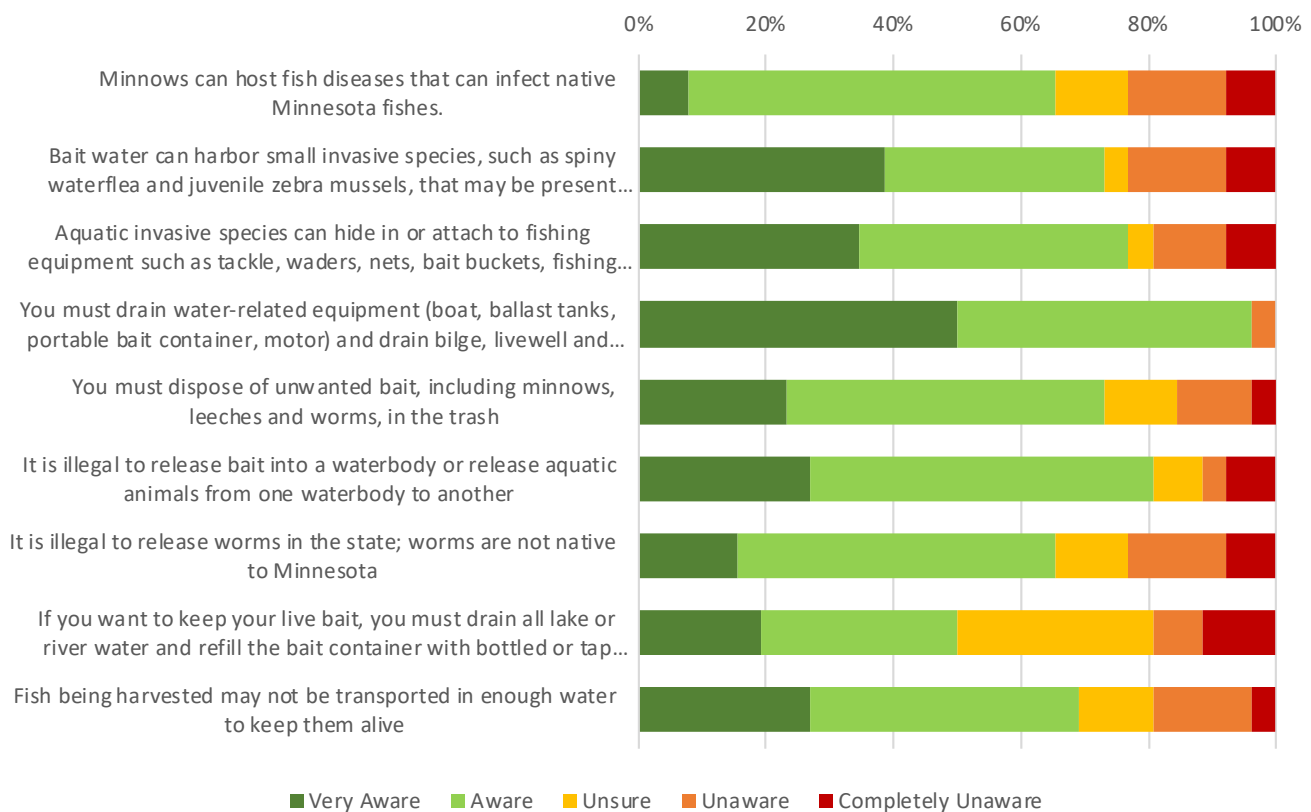
The largest divergence from the 2019 survey came with the responses to the question: “What would encourage you to take unused live bait and packaging home to place in the garbage?” The respondents to the 2021 survey stated that they were overall more likely than the respondents of the 2019 survey to be motivated by knowledge, prompts, and supplies to facilitate the action.

In the past year have you ever released live minnows into a lake or river at any point during a fishing trip?



The question above was a slight change from the 2019 survey. The 2019 survey asked “Have you ever released any live bait into a lake or river at any point during a fishing trip?” whereas this question focused on a specific live bait and a specific timeframe. The 2019 survey indicated about one-third of anglers had released live bait at some point on a fishing trip, but these results show that most anglers (84.6%) are not releasing minnows.

Please rate your level of awareness of the following true statements:



The question above “please rate your level of awareness of the following true statements” was a new addition in the 2021 survey. It provides some valuable insights into where there are knowledge gaps that we can address as a part of our next steps. I was interested to see that while over 60% of respondents claimed to know that minnows can host fish diseases and more than 70% knew that bait water can harbor invasive species, only

50% knew the proper steps to take when keeping live bait. That is surely an area where more education and outreach is needed.

Ninety eight anglers committed to proper bait disposal during this short pilot project. Since many of these anglers were likely visitors, the project likely had an influence in the Ely area and beyond. Despite the lack of concrete evidence that our project caused a change in angler behavior after one-and-a-half seasons, the positive impact of the bait bins will be ongoing. The bins and signs paid for through this grant will continue to be used at the Fall Lake Campground public water access site. The additional bins purchased by WICOLA will continue to be used as well. This will continue to eliminate barriers and provide information to anglers at the access.