Wright County Behavior Change Grant Bait Composting Report

January 2022



Report Completed By:

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Target Audience

The use of live bait (worms, minnows and/or leeches) is incredibly common, with 92% of anglers surveyed by the Minnesota Department of Natural Resources (DNR) reporting using live bait (Full results here). However, over one third of those anglers have reported released live bait in Minnesota waters which can spread new species and disease. This project proposes using a series of prompts, a convenient location to dispose of live bait at the access and a commitment statement request.

A key barrier to disposing of bait on land instead of the water is that at many accesses there are no such amenities. This project provided a compost location at the access for unused bait to be disposed. Compost bins were constructed out of hardware cloth and a rot-resistant wood such as cedar. Designs for the bins include lids to discourage animal activity and trash. Additional compostable materials such as plants could also be disposed.

According to the DNR survey of anglers, they want to receive information close to their activities (i.e. at the boat launches, bait shops and fishing piers). Therefore, signage was posted both at bait shops and on the compost bins with consistent graphics and messaging to inform all anglers using live bait that unwanted bait should be disposed of properly.

Pilot Implementation

Partners

Wright SWCD engaged several partners during this project. The DNR and Wright County cooperated with bin placement. A master gardener built the bins, lake association members and sportsman group members maintained the bins. Bait Shops posted signs to inform anglers of the preferred behavior.

Timeline of delivery

The compost bins were placed the week prior to Memorial Day at 12 locations in Wright County. Two locations were on county access: Maple East and Little Waverly. Ten locations were on DNR accesses: Ann, Beebe, Bass, Eagle, Indian, Limestone, Sugar, John, Sylvia, and Buffalo North.

Volunteers primarily from lake associations maintained the bins about every 2-3 weeks. Volunteers took pictures and recorded the amount of trash, plants/ food scraps, and bait. They also documented the smell and neatness around the bin. Finally, volunteers turned the compost pile to encourage decomposition. Volunteers are continuing to monitor the bins for trash and bait during the ice fishing season.

Successes

Use for Bait

The number one success for this program was that the bins were used for their intended purpose. Bait was found in the bins from the very first maintenance check (Figure 1). Additionally, bait seemed to make up a larger portion of new material as the season progressed (Figure 2). This indicates that users learned the intended behavior and implemented that behavior going forward. It also indicates that the presence of trash, an undesired of behavior, was not a significant issue with regular maintenance.



Figure 1. Eagle lake site upon arrival in June 2021.



Figure 2. Percent on new material that was bait fish by month of maintenance. Red indicates no new bait. Blue and green indicate a larger portion of new material was bait. Black indicates no new material.

We also noticed that bait did successfully decompose over time. This was not tracked officially but pictures show that proper maintenance incorporated the bait well. Figure 3 shows the Lake John bin near the end of the season after turning. Little to no bait is visible indicating the bait deposited early in the season decomposed as was incorporated into the compost.



Figure 3. John in November after turning

Overall, compost bin use varied by site. Some sites always had new bait present (Beebe, Eagle, Sugar South). Other accesses had much more limited use (Bass and Little Waverly). In some cases it may just be that not enough anglers traffic the lake or the bin may not be as visible. These and other considerations will be taken into account when determining the future of the program.



Figure 4. Compost site use varied by site. Black indicates no new material. Red/orange indicates a lower percentage of bait. Blue/Green/yellow indicates high percentage of bait.

Smells

The first comment we got about this program when it was first introduced was commonly "But it will smell!" Based on this feed back volunteers tracked the smell of the bin noting either: "no smell", "I could smell it standing right next to it" or "I could smell it getting out of my car". Out of 101 observations only once was the smell noticeable immediately leaving the vehicle. In this instance someone had placed four large carp in the bin. There were ten other instances in which the smell was noticeable when standing at the bin. Volunteers usually commented that these smells were associated with trash in the bin and not the fish. Therefore, we can conclude that when the bins are used for the intended purpose and if regularly maintained the smell disruption is minimal.

Volunteers

Volunteers were relatively easy to find. Lake association members were eager to help with this project. Additionally, we asked an angling group to post a request for volunteers and got a response within 10 minutes! Wright SWCD staff maintained one bin and noted that maintenance took about 10-15 minutes every 2 weeks. There was some additional time to send pictures and completed documentation.

Damage

Volunteers tracked damaged and needed repairs. There were a couple instances in which hinges of lids need to be tightened, but this was easily accomplished by bringing a screwdriver at the next visit. There was one instance of damage at the Lake Sylvia site (Figure 4). The hardware cloth was dented, and the wood spilt on one of the hinges. The volunteer for this site was able to remove the door and glue the wood so the hinge would reattach. Simple materials made repairs easy with basic tools. There was no indication that animals caused any damage to any of the bins.



Figure 5. Damage at the Lake Sylvia site. The hardware cloth was dented, and the hinge dislocated.

Perception

We conducted an online survey to get an idea of perception of the project. There were very few responses (which we will discuss in the challenges section). However, two respondents did note they remembered seeing the compost stations. Both respondents agreed or strongly agreed that they were in a convenient location, easy to understand and were clean. This is encouraging but by no means a significant response. Wright SWCD staff will need to continue communications with anglers to learn more about perceptions of the project.

Challenges

Trash

Going into this program our biggest concern was trash. Previous attempts at creating a bait disposal resulted in heavy amounts of trash. These programs did not have the benefit of volunteer labor. In general trash was commonly placed in the bins but it varied widely by site (Figure 5). One of the bins that had the greatest frequency of trash was one that was maintained less frequently. Thus, we assume the larger amount of time allowed any trash present to snowball (Figure 6). This emphasized the need for continual maintenance and trash removal.



Figure 6. Graphs showing how often trash was a significant portion on new material in the bin by site. Black indicates no new material. Red/orange indicates a larger percentage of trash. Green/yellow indicates low percentage of trash. Blue indicates no trash present.



Figure 7. The Maple East bin had a large amount of trash in August 2021

Bin Status

Since the bins are on site it was difficult for the Wright SWCD staff to know the condition of the bins. Most volunteers were very good about regularly submitting maintenance report. Occasionally, Wright SWCD staff would need to send out a reminder. Once the DNR contacted Wright SWCD to inform us about an issue (the carp placed in the bin). Our goal is to limit the occurrence of issues such as these.

Verbal Commitments

One desired outcome of this project was to get commitment from users. Volunteers were instructed to note if they chatted with anyone about the bin and ask for a commitment if they did. However, volunteers are only present for a very short period of time, out of 101 visits volunteers spoke with people on 23 occasions. In general, those interactions were positive. Anglers either said they would use the bin or they had other methods of following the law. Some of the interactions were with lake service providers or the AIS inspectors.

Potential Modifications

Overall, the program seemed to work well as intended. However, the program needs to be evaluated on a site-by-site basis. Some accesses just seemed better suited to the program than others. But with only one year of data it is difficult to determine if any changes are necessary. Additionally, volunteer commitment is imperative to this program. Continuation of the program and new locations will be dependent on volunteers. Wright SWCD staff will work with volunteers and access managers to determine new sites and/or continuation on other sites.

Expenses

Wright SWCD staff had some left-over materials from construction. These include misc. hardware (screws, washers, staples, etc.) and a roll of hardware cloth. These materials will be used be repair existing bins as necessary. Wright SWCD has five outdoor signs ready to use for new locations or for replacing broken signs. Finally, we have some indoor signs for bait shops to replace signs that may get sun bleached, damaged or removed.

In 2021 Wright SWCD staff spend 85 hours on this project including coordination, bin placement, bin maintenance, volunteer recruitment/training, data tracking, etc. The master gardener who built the bins reported spending about 50 hours building 12 compost bins. Volunteers reported spending about 15 minutes on average maintaining the bins every 2-3 weeks. This time was shorter or longer depending on amount of trash and if they talked with anyone on site.

Construction materials for the bins including the bases was estimated at about \$150.00. The signage cost an additional \$55.00. This was at a time when wood prices were inflated. Prices of hardware and pavers bases will vary over time. Expenditures are outlined in Table 1.

Category	Expenses
Bases	\$ 727.48
Chicken Wire	\$ 150.00
hardware	\$ 150.00
lumber	\$ 1,083.36
Sign Mounting	\$ 9.21
Signs	\$ 680.00
Indoor signage	\$ 375.56
Graphic design	\$ 75.00
Contingency	\$ 499.46
Admin	\$765.00
Total	\$4,364.71

Table 1. Expenditures of the DNR grant. contingency funds were spent on overages for hardware cloth (\$81.84), misc. hardware (\$64.82) and admin (\$352.80)

Additional Evaluation

As an additional pilot we put lids on half of the bins. We theorized that lids might prevent animal action, prevent trash, or prevent usage of the bins entirely. Animal action was not observed at any bin, so lids didn't seem to make a difference. In general, all the bins seemed to have similar proportions of trash (Figure 8). Bins with lids may have slightly lower proportions of trash, however no statistical analysis was conducted to determine if these results are significant. The proportions of bait appeared nearly identical regardless of whether a bin had a lid or not (Figure 9).



Figure 8. Proportions of trash in bins with no lids compared to bins with lids. Blue indicates no trash, green indicates low proportions of trash, red/orange indicates high proportions of trash



Figure 9. Proportions of bait in bins with no lids compared to bins with lids. Blue/green indicates high proportions of bait, yellow/orange indicates low proportions of bait, red indicates no bait