

# MY IDEA FOR LONG-DISTANCE FISH TRANSPORT



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Last year was my first long-distance collecting of native fishes. Being sure I was prepared with Styrofoam coolers, breather bags, etc., I figured going into the trip I would bag the fish I caught, place them in a cooler, and all would be well. After all, I had shipped fish before and had them last for several days en route to their destinations.

I was awfully disappointed when I lost a number of my fish, especially the target fishes I traveled 12 hours one way to collect. Almost as disappointing was that one of the people who was kind enough to take me collecting also lost a number of fish he had collected and he lived about 30 minutes away from the collection spot. He didn't use bags, only a plastic cooler with an airstone.

After I got home with the remaining survivors, I wondered what I could do differently transporting fish that would increase their chances of survival.

Since I had never considered a plastic cooler before that collecting trip, I now decided that I liked the idea. But I didn't like the thought of having a few dozen fish of several species mixed together for me to identify and separate after getting home from such a long trip. I wanted a way to keep them separated yet benefit from the total volume of water in the cooler.

Since we had some coolers up in the attic, I decided I'd use one of them for this project. My first goal was to identify the cooler that would allow me to keep the greatest amount of fish, yet would leave a fair amount of room in the car for luggage, etc., if it was needed for the trip. Since the fish I wanted to target (darters) are relatively small, I

settled on a 48-quart Igloo with the inner dimensions of 21.5" long, 12" wide, and 10.5" deep.

So I had the cooler I was going to use but I now needed to figure out how to keep the fish separated. I came up with some ideas but either it would be impossible to remove and add fish without a lot of trouble or it was cost prohibitive, at least for me. Finally, I decided I was making it too difficult and began thinking how I could accomplish what I wanted using an item that was already on the market. Knowing a couple friends of mine had been using clear plastic shoeboxes to breed killifish, I figured I could find some the size I needed to fit in the cooler. What concerned me though was the total number of boxes that would fit, ultimately determining the number of species I would be collecting on a given outing.

One day I happened to be following my wife down an aisle at Walmart when up ahead I spotted what resembled plastic shoeboxes, though not quite. In fact they are called Kiss Bi-Storage Box with the dimensions: 10.43" long, 6.3" wide, and 3.94" high. They weren't completely clear like I was looking for and there were several colors but the black ones looked good to me. They did have a section at each end and on the lid that would allow me to see fish in the box and I thought maybe the darkness would help relieve stress on the fish. Plus the boxes had some very nice clamps at each end that were easy to open and close. After some quick figuring I thought I could get six of them, stacked in two rows, to fit in the cooler and decided to purchase them. When we got home I took the boxes to the cooler and as I suspected they fit fine (Figure 1).

My plan now was to figure out how to get water to circulate through them. At first I had considered using an airstone in each box to draw the water out but trying various ways to get that to work gave me headaches. Then I wondered why not also filter the water and use the filter to draw it out of the box? Again, remembering my friends who raised killifish, I inquired about some small sponge filters they used for their shallow boxes and wanted to know where to get some. I was disappointed when my

Photos by the author unless otherwise indicated.

Ken Glackin grew up with a fondness for native fish, whether rolled in beer batter for his stomach or swimming around in an aquarium. Ken has been a member since 2010 and serves NANFA as its Iowa Representative. Some of the activities he enjoys are enlightening students from high schools and ISU of the fish diversity of various creeks in the state, working with the DNR doing surveys, cleaning creeks, presenting programs at local fish clubs, setting up displays at functions such as local fish shows to educate and recruit new NANFA members.

friend replied that he believed those sponge filters were no longer being produced. But then he offered to sell me some extras that he had and wasn't using. I purchased all he had.

After picking up the filters from my friend, I struggled with how I would get them to work. Initially, I envisioned an entire filter inside each box but soon realized that I would have the same problems as trying to use an air-stone. So taking a lid and holding a filter underneath it, I thought what if I had the filter come up through the lid? That would remove water from the box, which is what I wanted to accomplish. So I drilled two holes as far to one end of the lid as possible that would still allow the filter to fit. The first hole being for the lift tube and the second for the airline input tube (Figure 2). One benefit I didn't consider was when the airline was connected to the filter it would keep the filter connected to the lid. I liked that. At the opposite end I drilled several small holes to allow water into the box as it was displaced. I did find out that I needed to drill slowly through the lid or the lid could crack and/or break. Needless to say I had to run back to the store for another box only once.

Once all of the drilling was finished and the filters were in place, I placed them in the cooler to see what would be the best way to have them positioned. Having them all facing the same direction, I found that if I placed the top row forward of the bottom row it would allow the air from the lower boxes a more direct route to the surface and it would not tend to collect under the top row.

To allow water to flow to the entrance hole of the lower boxes, I made some spacers out of one-inch square acrylic that ran the length of the cooler in the front and back. And to have the boxes remain in their original position, I used egg crate that's used in light fixtures between each box. I made them long enough so that they'd fit snugly to

the front and rear of the cooler. To connect it all together, I cut out square holes in the egg crate dividers just large enough to slide the acrylic spacers through.

I modified two three-way adjustable plastic valves to distribute the air to the boxes and mounted them to the underside of the cooler lid with a nylon nut and bolt. To make it easy to know which valve adjusts the air flowing to which box, each three way is dedicated to a row of boxes and are hooked up in the order the boxes are placed in the cooler. For easier removal I cut each air hose and used a one-inch piece of rigid tubing to splice them back together. That way I can remove the boxes without removing the airline from either the filter or valve, thus reducing the risk of breaking them.

When the cooler needs air when in the field, each valve is fed by a dedicated battery-operated air pump that I picked up at Dick's Sporting Goods. I purchased the Frabill brand typically used for minnow buckets. Because different model pumps use batteries at different rates, I looked for the ones that would last the longest. When I got home, I mounted them to the outside of the cooler lid and drilled two holes through the lid to feed the airline that would hook up to the valves through them (Figure 3).

This completes the building of the transport cooler.

If I have access to a power inverter in the car or a wall plug in at a motel, I simply disconnect the airlines from the Frabill pumps and connect them to a twin-air pump.

### SOME TIPS

First, prior to going collecting I seed the sponge filters about a week prior with live bacteria. As an added measure of protection, I add Amquel Plus to the water. If you decide to build something similar to this, be sure the water level in the cooler is above the top row of boxes so it can circulate through, otherwise the filter could reduce



Figure 1. Stacking the boxes into the cooler.

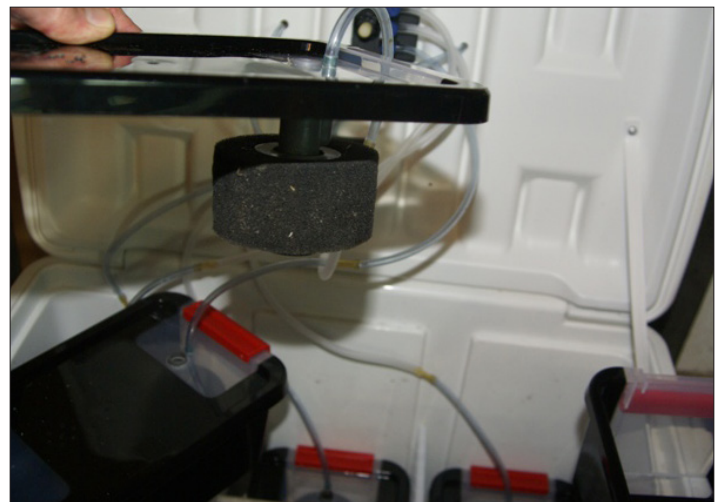


Figure 2. Airline tubing connections inside the filter.



Figure 3. Finished cooler with air pumps located on the lid.

the total volume in the boxes and the fish will actually have less water in their box than what it started with.

To acclimate the fish once I get home, I disconnect the air hose at the rigid splice, place the box in the selected aquarium, and let it float in the aquarium just as if it were a plastic bag. Because the plastic is thicker, while adjusting for temperature, I let the box float for about a half an hour before transferring water. Once the temperatures have equalized, to transfer water between the box and aquarium, I don't remove the lid. I simply push the box below the water level and squeeze the lid three or four times. And I repeat it again about 15 minutes later. Once I

am comfortable that enough water has been transferred, I simply remove the lid and tip the box on its side to let the fish swim out.

So far I have taken this cooler with me to the Ozark's in southern Missouri and to this year's NANFA convention in Oklahoma and have arrived home with zero losses.

Because the cooler needs to be almost completely filled when full of fish, it can get quite heavy so I like to leave it near or in the vehicle depending on the temperature that day. I would then bring water from the creek in a five-gallon bucket that would also have fish I intended to bring home. Five gallons would cover the bottom row of boxes, so once the fish are distributed I just pour the balance of the water into the cooler and start the air pump.

A month or so ago I was again at Dick's Sporting Goods and happened to notice a neat minnow box called the Frabill Min-O-Life Personal Bait Station. It is an eight-quart cooler with an air pump attached to the side. It is already designed to have an airline go through the wall of the cooler. But what I really liked about it is it has a lift-out net liner that eliminates the need for a minnow net! No more chasing fish around the bottom of a bucket. It is a bit pricy but in the end I figured anything that can make my collecting easier is worth it!

If you decide to try what I've described and make yourself a cooler like mine, or if you get an idea from this and make an even better one, I hope your collecting trips will be good ones, and that the survival rates of the fishes you collect will be great!

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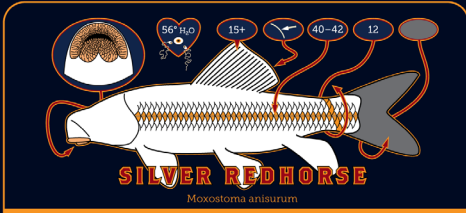
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