

Select Aquatics of Erie, CO.

## That Other Fishkeeping Skill: Shipping

Shipping frightens people. Having to ship fish is often a deal breaker for many- one prominent fishkeeper in Michigan, with one of the bigger fishrooms in the area, refuses to ship to anyone for any reason- but will gladly give you fish if you drive out to his place. Why? Most of us have had our shipping nightmare stories, generally the result of someone that took a bunch of fish, put them in a bag, and mailed them. When they arrived, the bag was best left unopened. But it can be done so that the fish arrive not only healthy, but unstressed enough that they adapt quickly, and are eating immediately.

Anyone faced with having to ship fish across country that genuinely cares that they arrive safely, and in good shape, freaks out about it. For better or worse, most hobbyists simply pay attention to the last way someone sent fish to them, and try to do the same. The sender doesn't feed the fish the day before, the box is sent off with the understanding that people do this all the time, they should be fine, and fingers are crossed. Then, if there are only a couple fish, they are under 2 inches, it's an overnight delivery, the box is handled well, no bags leak, it arrives on time, the receiver is there to sign for it, it has never been drop-kicked by the Post Office, and the ambient temperature outside is mid 70's... it will probably arrive well, and all is good. However, many attempts to ship fish routinely go wrong for reasons that can be easily avoided by following a few, generally common sense procedures.



Fish awaiting shipment in breather bags, divided up into channels (described below)



Fish about to be shipped, in knotted breather bags. All bags are labeled if there are more than one species in a box.

As a small business doing a fair amount of shipping, there are many basic practices that I follow to make the job easier, simpler, consistent, and where near total control of each fish's survival can be addressed. Granted, giving a box up to the postal service to be shipped comes with risk, but that can be minimized through care when initially packaged, so that if a disaster should happen, all or most of the fish will still survive. The most common disasters encountered have been boxes lost in transit for over a week, and the occasional box that gets smashed or damaged by mishandling. To keep expenses down I use only USPS, which 99% of the time has done an excellent job.

At Select Aquatics, all of the best husbandry, breeding and care is moot if the fish don't reflect all that work when a customer opens the box. Fish that arrive looking malnourished or "hanging on" as the result of a poor shipping experience wasn't going to meet the minimum standard I aimed for. Obviously, assuming each box would lose "a couple", as many shippers do, didn't seem warranted if they were packed correctly. I set out to achieve the highest proportion of fish arriving

alive, that looked good, were minimally stressed, and had the best chances of adjusting well to their new environment. I also strived to keep shipping costs to a minimum- not by cutting back on any services or shipping times, but through changes made to the shipping and bagging process that would dramatically cut water weight, allowing for more fish per box, and if possible, in a way that was actually better for the fish.

### **The Post Office - The Good**

Boxes are shipped one of two ways, 3-5 day Priority Mail, and Overnight Express Mail. Except for holiday periods, a Priority box generally arrives second day- about 80% of the time, the rest usually arrive the following day. A box shipped on Monday arrives on Wednesday. The best time to ship a Priority box is on a Saturday- there is not as much box traffic, and packages still move over the weekend (Except holidays). Shipping on a Monday results in the largest number of boxes arriving a 3rd or 4th day later.

There are other delivery service options, but they are much more expensive. A recent 4 lb. Styrofoam box needed to go overnight to southern Texas. The customer asked that I compare USPS and UPS. Though I ship all of my styrofoam boxes with USPS as they are, UPS required that I pay \$9 to put the Styrofoam container into a cardboard box before it could be shipped. Then, to go overnight, the cost was \$106. So to ship this 4 lb. box would cost \$125. I then took the same box to USPS, who accepted it as is, and the total cost for overnight shipment was \$38. So I have yet to use UPS. When a customer has requested UPS- which has happened three times, all three went with USPS when told of the price options. FedEx substations no longer accept live fish, though with prearrangement I am told FedEx will still accept live fish at the airport station. DHL and other shipping generally do not ship live fish, or are prohibitively expensive.

Because of colder temps., heavy box traffic and the potential for packages being handled more roughly, and lost more frequently, I have not shipped fish from about mid- November to mid-January.

To ship a 5 lb. box, approximately 12 x 14 inches, 3-5 day Priority Mail, within the continental US costs about \$15- 25 depending on the destination. This amounts to 8 to 10 1- 1.5 inch fish in my channeled breather bags. The same box overnight runs \$32- 45. With each addition of 2-3 fish the price roughly goes up about \$4-5. Rates go up as distance, the weight and the size of the box increase. Overnight delivery is generally guaranteed by noon or 3pm., provided the box is delivered to the originating post office by a certain time. A box dropped off at 4:50pm, for example, is likely not going to make a next day overnight delivery. You will need to check when the pickup occurs at your post office. Particularly if you are using a heat pack, you do not want the box to sit at room temperature at the post office waiting to go out for any period of time.

Many post offices, however, do not guarantee overnight delivery under any circumstances due to their distance from a main hub, and I run across 1-2 destinations a month where overnight delivery is not guaranteed. Often, the box arrives next day to the destination post office, but does not arrive in time to make it out for delivery to your destination, and the box can be picked up from the post office the next day by notifying the post office, and having them pull it for pick up for you.

### **The Post Office - The Occasional Reality**

Like many people that have tried shipping fish through the Post Office, the clerk that shakes a box, then asks if the box contains water, and then refuses to ship it, has been all too commonplace. At one point, in fact, I vowed never to again set foot in another post office after the third time I was taken to a side room and questioned about my box that contained water, in post offices on the east coast. Today I know that I had simply encountered uninformed and poorly trained people that were not interested in listening to my explanations. Shipping fish was something I was often told, by Post Office clerks, wasn't possible. Not winning by trying to explain to the Post Office what will ship and what won't, I would take the box and ship it, the same Postal service, no questions asked, through a 3rd party discount shipping service (Such as Boxes etc.). I had not shipped a box from the Post Office for over 20 years because of those experiences.

I have found that if you are having a problem with your post office accepting your appropriately packaged boxes of live fish it will come down to establishing a personal relationship. It shouldn't, but it does. Most post offices are fine and will ship your box without a problem. Not wanting to find myself in a possible scene on my first attempt, once it was known I would be shipping regularly I set up a meeting with my local post office. I told them of my past experience and asked to do business with them. There is nothing wrong with shipping fish by the post office. It's legal, it's done routinely.

Today everyone in my small town post office knows me as the fish shipping guy, and it always goes well. Yet I have a friend the very next town over who ships cichlids, and he now drives to my post office to mail his fish, as his post office refuses to take any of his boxes. Unfortunately, fish shipping is still infrequent enough that you could be treated as a new situation by your post office (you may simply want to stop by and talk to someone ahead of time to pave the way for yourself). The Post office is great, and I could not begin to do what I do without their service

and rates. But facing new situations in these fearful times of terrorism is not one of their strengths. Even when it involves following their own policies.

A big step forward is to use the breather bags. Tied off without any air in the bags, the box does not slosh as it does with standard plastic bags that contain air. Without the slosh, the box can often be shipped easily without being questioned. Because of all this, it has only been recently that I have begun to attach "Live Fish" labels to the box, no longer concerned the box will not be accepted, or intercepted in shipment. Now as a licensed fish shipper I should finally be beyond question. I do recommend placing "Fragile" or "Handle With Care" labels on the box

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What are the losses? To better provide a guarantee of live delivery, a formula of extras was worked out that covers any fish that may be lost in transit. Essentially, if a customer buys 2 pair, I will send a third, if he/she purchases a pair, I will send a trio. Losses now are minimal during the warmer months- 1-2 fish every 20 or so boxes, but during colder weather it will increase to 1-2 fish every 7-10 boxes. I decided to raise the fish here in large numbers, so that customers only receive the best quality fish, and I am protected if there should be a problem with a single tank or two. and for me to send an extra or two is not a loss to the business. As well, I try to keep the fish being shipped to 2 inches or less, to both save the customer money for shipping, and give the fish the best odds at making the trip comfortably.

#### **Some Basic Rules of the Game:**

- The post office requires that the water is contained within the box with a double barrier. Double bagged, or bags in another bag. With breather bags, that really isn't an option, so you make every effort to ensure that if a bag were to leak, the water released is minimal.
- The box must be sturdy and well sealed with clear shipping tape. I only use Styrofoam boxes from previous shipments sent to me, or collected from any number of places such as hospitals, doctor's offices, local colleges that do research, etc. Styro boxes are simply far too expensive to buy and ship to you online.
- The fish must not be fed for 1-2 days prior to shipping.
- The fish must be "comfortable" to survive. A large bag sitting directly on the bottom of the box can break when dropped, or when the bottom is slammed for any reason. So for example, a layer of styro peanuts is first put down to cushion the bottom should there be an impact. Avoid starch peanuts, as the slightest leakage of water will cause them to break down. If you are not sure, simply drop one in a glass of water and it will dissolve.
- Fish can be shipped year around when temps are roughly between 35 and 90 degrees. Heat packs and cold packs come into play at the outer temperature extremes. Overnight delivery is recommended in those circumstances.

#### **The Fish do best when:**

- They are individually bagged. Not only do males of some species not attack or kill companions in the crowded confines of a bag, but one dying in the bag does not create an ammonia bloom that can kill off the rest of the fish.
- They have enough room to maintain the ability to rest easily in the bag. It isn't necessary that they be able to turn around.

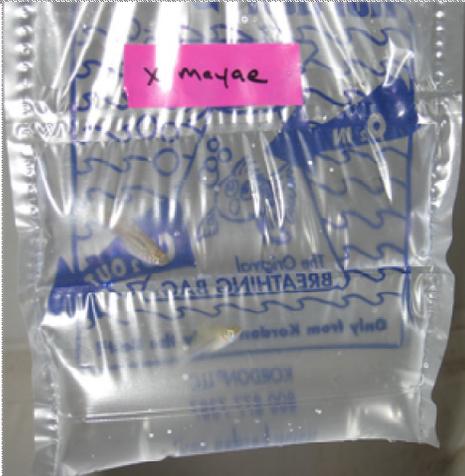
I do use regular aquarium plastic bags when shipping larger fish or fish with spines that may puncture a breather bag (such as catfish).

#### **Breather bag requirements:**

- Breather bags are a bag where the plastic walls of the bag are "semipermeable" in that the bag itself continuously exchanges clean air and dissolved oxygen into the bag. When a bag is used, the fish is put into a small amount of water- just enough to meet their needs, WITHOUT any air in the bag. Most people tie a knot to close the bag. The result is a solid ball of water with the fish inside, with no air in the bag at all. The bag doesn't slosh, the fish isn't banged around against the sides, and the oxygenation function of the bags works so well that fish in similar amounts of water (or even a little more) do not do as well in a standard, tied, plastic aquarium bag.

## Shipping

- The breather bags must not be allowed to touch one another or get wet as doing so will compromise the oxygen exchange ability.
- I use a Midwest-Pacific impulse sealer, bought from Grainger, Inc., that allows me to seal each fish within a channel within the breather bag. For example, with a 5 x 8 bag I can seal in 3 smaller fish in the space of a single bag. Some people have done the same with food sealing units bought at local appliance stores. My sealer cost about \$130, but I have been told they are available used on Ebay for much less. I did find that my losses increased slightly when the breather bags were used this way- chambers do occasionally leak, and for this reason I still use the chamber method, especially with smaller fish, but not as extensively as I did at first.
- The breather bags are very thin, but surprisingly durable. I have found that chafing from the edges of newspaper or other packing materials can cause the bags to leak if handled roughly enough- so the breather bags only come in contact with a particularly soft brand of paper towel- I use the Viva brand. The channeled bags can be layered within the paper towels, or with larger fish where there is only one fish per bag, each bag can be gently wrapped and laid into the box next to one another in what a customer called the "tamale method", again layered between paper towels and styro peanuts. (See pics below)
- After being sealed into the breather bags, and before being put into the shipping box, all of the bags are placed on dry newspaper, and each is turned after 10-15 minutes, looking for possible leaks. Any that leak are put into new bags before being shipped.
- How much water? In the breather bags I usually figure there should be enough water in the bag so that the fish can turn around, and it should be roughly as deep as the fish is long. This is not a lot of water, but it truly is all that they need.



Here are 2 X. mayae, each about an inch long, sealed into their chambers in a single 5 x 8 breather bag. There is actually a little more water in these chambers than they actually need



This was a smashed box received by a customer. This box had 22 fish in it, and amazingly, even after the box was delayed by 3 days, all arrived alive! But this happens very rarely.

### How long can they last?

All fish being shipped should be fasted for 1-2 days before being shipped to clear out their systems so that they do not release excess waste into their bag. Most fish can handle 3-4 days in a sealed shipping box without problems if they were fasted properly beforehand. If the fish are smaller and healthy, and the temperature was not a problem, with one fish per bag, fish will generally survive up to a week. The longest a box of fish survived was a box sent to Taiwan of *Xiphophorus montezumae*, all about 3/4ths of an inch long. They arrived exactly 2 weeks to the day from when they were shipped, and all survived.

### The Box:

- Styrofoam boxes are best. They are sturdy, insulated and seal up firmly with less chance of being crushed. But ordering them online is simply not an option. Styrofoam box manufacturers ask \$5-7 per box, and then it costs that

again to ship them to you. A \$10 cost for just the box can't be an option. When I shipped infrequently, I would call oral surgeons offices, dentist offices and local hospitals to get boxes before they were thrown out. Today, I have found that local research institutions, who receive a wide variety of Styrofoam boxes in many sizes, generally have to pay to have their Styrofoam boxes recycled. I have become the "Styrofoam recycle guy" at a local college, and go in once a month and take all of the boxes I need. For a hobbyist to pick up occasional boxes would not be a problem, as I am doing, simply by asking.

- The one size one price USPS boxes- these are simple, uninsulated cardboard boxes guaranteed by the post office to ship for one price. I have heard of people who spend the time necessary cutting little Styrofoam sides that fit inside these boxes. These are probably the mainstay of the shipping hobby at the moment, but I have found that a well packed, appropriately sized Styrofoam box can actually be cheaper, is far more sturdy, and is ready to go without the need for any prep of the box to insulate it.

### **Packing Materials:**

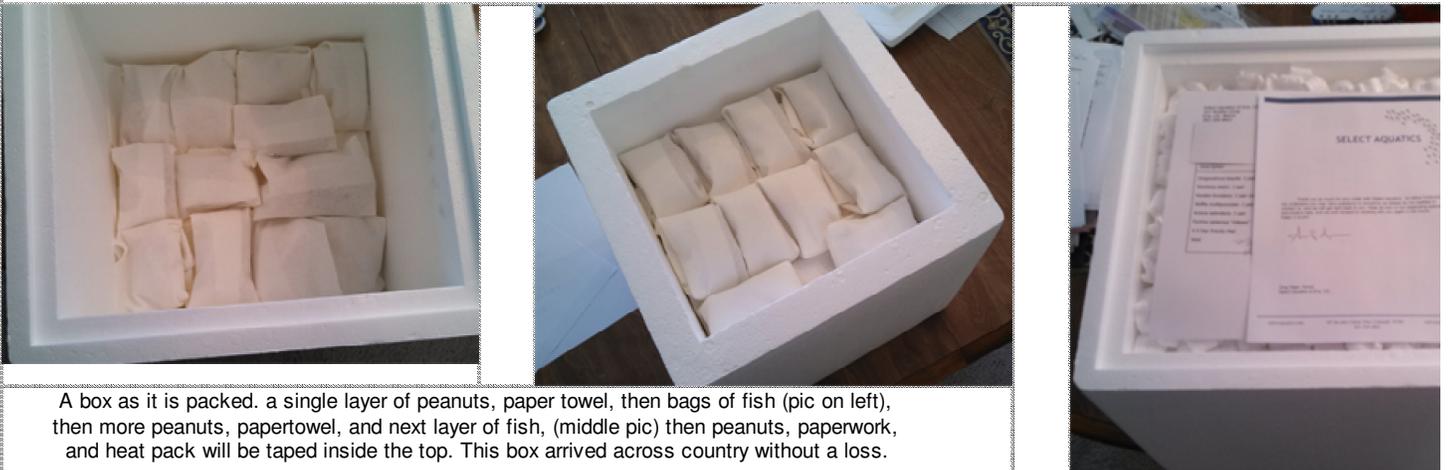
I have tested a number of different materials, and have had customers share with me the materials used by others, often asking that certain materials be avoided as they are messy or unpleasant to unpack.

**Shredded paper-** I used this for awhile. It was clean, easy to use, cheap and always available. However, when water does leak, the paper quickly collapses, creating unwanted room in the box for the bags to bounce around. Also, chafing tears in an occasional bag led to me switch materials- same applies to using crumpled newspaper.

**Insulation-** Some shippers use the foil sided insulation available at home improvement stores. When asking around, customers told me to consider another option. Insulation is messy and unpleasant to deal with. It also has some cost to consider. A few customers told me they don't order from certain people because they know that is what they use. So this was out.

**Styrofoam peanuts-** This is what I ended up using, but with a few concerns. I once received a bag of starch based peanuts without realizing it. The result was that in a big order, a small leak developed, turning the box contents into a sloppy soup. And still, except for the fish in the bags that burst, there were no other deaths. But the customer described a most unpleasant unpacking of that box! Regular peanuts work great, but I always provide a paper towel barrier between the breather bags and the peanuts to reduce chafing that could create a leak.

**Paper towels-** These have proven indispensable. You can't use too many paper towels. Each breather bag is carefully wrapped in a paper towel, and each layer of bags in the box are separated by paper towels.



A box as it is packed. a single layer of peanuts, paper towel, then bags of fish (pic on left), then more peanuts, papertowel, and next layer of fish, (middle pic) then peanuts, paperwork, and heat pack will be taped inside the top. This box arrived across country without a loss.

### **Putting the box together:**

A box is chosen based on how many fish are being shipped. The box must be big enough to allow for comfortable packing of the fish where each bag is separated and all bags are have some "give"- bags that are stressed with any pressure against them may break during shipping.

During colder temperatures a slightly larger box is required to allow for room between the heat pack, taped

to the top of the box, and the side of the first bag below it containing fish. Never allow the bags of fish to touch the heat pack, and a layer of peanuts at least 2-3 peanuts thick is placed above the last fish bags before the top is placed on the box to allow room between the heat pack and the fish.

At first a single layer of peanuts is placed against the bottom. This disperses any momentum against the bags if it is dropped or moved quickly, and provides a "channel" for the warmed air to circulate throughout the box. Over that first layer of peanuts goes a double layer of an especially soft paper towel (I use only Viva paper towels), then a 2 or 3 channel bags of fish, or a row of "tamale" type fish bags are laid in gently next to one another. Over that goes another double layer of paper towels, followed by another layer of peanuts, more paper towels, another bag of fish etc., until the box is filled. To avoid putting too much weight pressure against the bottom row bags, the space between rows is made as wide as possible with styro peanuts, and a single box is never more than 3 rows deep.

As bags differ in size, the larger bags holding larger fish or more water are generally placed on the bottom, smaller bags are placed above. The species are also alternated if more than one, and Goodeids, that prefer cooler temps, are often placed on the bottom away from the heat pack, while any swords and limias are placed higher in the box.

After the layers are done and the fish are nestled in their portions of the box, the box is then topped off with peanuts. This is the important part. Gently place the top on the box and get a sense for how firmly the bags in the box are being held in place. Gently rotate the box around- is there any shifting? If there is, you need to slowly add more peanuts to where the bags are held in place, but are not being pressed upon such that the bags could be stressed enough to develop a leak, but firm enough to prevent any shifting. A perfectly packed box makes no noise when it is slowly flipped around.

Lastly, as much as you hate to do it, when all of the fish are put into the box, it sometimes occurs that a larger box is needed, or the box should be re-arranged for the fish to be packed best. It's a pain, but unpacking a box- once all of the bags have been put into their paper towels, etc., does go quickly. Taking shortcuts now, when the box can be quickly unpacked and re-put together, will result in lost fish. Make sure every box going out is done right!



Developed to keep a variety of animals warm and safe, these are usually available in 24 hour and 72 hour sizes for under \$2.



This is the Impulse sealer that seals the fish into channels in the breather bags.

## Heat Packs

Heat packs are used when the temperatures outside are generally between 35 and 60 degrees. They can be bought from a variety of vendors, such as AQPKG.com, where I also obtain my breather bags. I have found them to be the most responsive to work with, and their prices are at or below other vendors. I generally purchase the 72 hr. heatpacks that run under \$2 each. (See pic)

The heat pack begins to heat up once its bag is opened, and it will take about 4 hours for the heat pack to reach its warmest temperatures- a surface temp of the heat pack of about 114 degrees. The packs are meant to heat approximately 1 sq. foot of packaging space, exceeded by most boxes used. Because you want the heat pack to distribute the heat evenly throughout the box, there are some tips to follow:

The heat pack is generally attached to the top of the box, its edges taped with packing tape to hold it in place. Each heat pack has a red stripe printed on one side- make sure that side with the red stripe is facing down into the box.

Many shippers use the One Price boxes available from the post office, buying precut Styrofoam inserts (which can also be bought from AQPKG.com) to insulate the box. They will then place a heat pack in this confined space, often cooking the fish before they arrive to their destination. Obviously, you will need to place the heat pack carefully.

Take into consideration fish that do best in cooler temperatures, and place them near the bottom of the box, and fish that can tolerate warmer temps can go closer to the top. Also, in boxes with a number of species being sent, mix the species up so that if the box is damaged on one side, all of one species won't be affected.

A note about heat packs- A customer wrote that he was disappointed that a box of fish left on his porch for only 4 hours, when it was in the 30s, had all expired by the time he got home. Because there had been a heat pack, he figured the heat pack must have been defective. A heat pack does an incredible job- most boxes encounter only brief periods of threatening cold temperatures during their shipping, generally on pallets and in warehouses closer to room temperature- so the heat pack cannot be too warm, yet they must also protect against those genuinely cold periods. As a rule, when placed appropriately away from the fish, they do a good job of keeping the fish within safe temperatures. But leaving a box in the cold for many hours, or dropping a box with an activated heat pack off at the room temperature post office at 9 am, when the box won't go out until 5 pm, is asking for trouble.

Once the box has been packed, heat pack taped in place and any paperwork put into the box, it is ready to be sealed up. I use clear packing tape to seal the box up thoroughly, and always put copies of the destination address on at least one side of the box. Labels saying "Keep Cool", "Fragile", "Handle with Care" etc. are used. In the past, stating "Live Fish" has caused some shippers to refuse to ship it, but other hobbyists tell me they use those markings routinely without problem.

I do not put any holes into the box, and when sealed, the box is airtight. However, enough "fresh air" is in the box to provide all of the air the fish need.

#### SO:

For best shipping, use a styrofoam box with non-water soluble Styrofoam peanuts, layered where soft paper towels are used to protect the thin walled Kordon breather bags, placed in layers so that the breather bags do not touch one another, each layer separated by paper towels and Styrofoam peanuts.

An electric Impulse sealer is used to create 2-3 channels in each breather bag, each chamber containing just one fish, and for larger fish the bags are used by knotting them.

Careful packing ensures little movement in box so the fish do not slosh or move around.

And then you can still cross your fingers, as accidents still happen. Recently a box was, in fact, dropped by the Post Office and arrived to its destination (Los Angeles), haphazardly taped with a letter of apology from the Post Office. The bottom of the box was a large hole. And all of the fish- each in its own channel in breather bags, and arriving 3 days late- survived! (See pic)

**International shipping out of the Country:** As hobbyists, we are all familiar with others that have been able to ship fish to other countries. Often a variety of techniques are employed, fashioned to arise little suspicion or chance that the box will be opened and inspected. Everyone assumes it can be done, but that if kept well enough "under the radar" everything will be fine. As a business wanting to ship out of the country routinely, I checked with my Post Office and became involved with phone calls to Canada, Singapore and Taiwan to ensure that I was legally following all procedures, paperwork, etc. Following an order shipped to Taiwan, after 3 years of shipping regularly out of the country, I was notified by Fish and Wildlife/US Customs that I was in violation of US laws and was risking fines, and prosecution if Select Aquatics continued to ship internationally, particularly as the fish I was shipping were endangered as well.

When asked about my efforts to follow all guidelines, I was told "No one knows these rules, and people like you are busted every day". They can be shipped legally, but only after an export license is obtained (\$100), and fees of \$186 per box are paid.

Shipping fish successfully by anyone can be done fairly easily. Once the materials are obtained it is possible to ship fish quickly, easily and without losses.

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