

## **Traveling With Pet Fish** by Gerald Pottern, January 2011. Raleigh Aquarium Society and North American Native Fishes Association

To safely transport pet fish, you must consider:

- 1) keeping temperature in an acceptable range;
- 2) water quality, especially dissolved oxygen and ammonia.
- 3) psychological stress during netting and transport;

The safest way to travel with fish is to place them directly in an insulated cooler or thick-walled styrofoam box, or in sturdy plastic bags laid inside the cooler or insulated box. For fish larger than 5 inches or any fish with sharp spines, placing them directly in the cooler is the safest method, as it's difficult to find bags large and sturdy enough for large fish, and they may suffocate in bags if you don't have enough air space. Using a cooler also allows you to run a filter or aeration when you're stopped for the night. Pet shops, meat markets, and scientific or medical labs often have thick-wall styrofoam boxes to give away or sell cheap.

If the cooler lid does not close snugly and you don't want water sloshing out into your car, you can either tape the lid shut with strong packing tape or place a large heavy-duty trash bag or leaf bag inside the cooler. If using a bag as a liner, make sure to spread out the bottom so that fish cannot get trapped and suffocate in folds in the bag corners. The cooler or bag should contain about 1/3 water and 2/3 air to provide adequate oxygen. Trap as much air as you can in the bag, twist the top, fold it down, and secure it with a thick rubber band (or two). Twisting the plastic bag makes it water-tight, and folding the twist down before putting the rubber band on keeps it from un-twisting. Small punctures by fin spines shouldn't cause a problem, but check the bag periodically when you stop to make sure the air space above the water hasn't collapsed, which could suffocate the fish.

Smaller fish (under 5 inches) can be transported directly in coolers (as above) or in sturdy plastic bags laid in the cooler. If you're moving fish that cannot be mixed (different water conditions, or fish that may injure one another), then use sturdy polyethylene bags without "expansion folds" in the corners that can trap and suffocate fish. Ask your local pet shop for fish bags. Depending on bag size and fish size, you can put several fish in each bag, provided they are similar in size. Fill each bag 1/3 with water (and fish), 2/3 with air (or an oxygen tank, if you have access), twist the top, and either tie a knot or fold it down and secure with a rubber band. Lay the bags down in the cooler to maximize the air/water surface contact area. Water holds very little dissolved oxygen, so a large air space is crucial for replenishing the dissolved oxygen.

Kordon breathing bags (best for small fish) require no internal air space, as oxygen and carbon dioxide diffuse through the plastic, but they do need air space around the bags. Do not pack breathing bags directly against each other, but use newspaper, cardboard, towels, socks, styrofoam peanuts, etc to separate them. Do not float breathing bags in the aquarium; they do not "breathe" underwater.

If you must use bags with expansion folds, place them upside-down in the cooler so the folds are up in the air. Zipper-type bags are also risky, as they can unzip if a sudden jolt forces water against the

zipper. If you must use them, dry the top of the bag after zipping and reinforce it with sturdy packing tape. And remember to leave at least twice as much air volume as water volume inside each bag.

If you're traveling with just one or a few small bags of fish in hot or cold weather, place extra bags or bottles of warm or cool water as needed beside them in the cooler. This will provide extra "thermal mass" to keep the temperature in the fish bags from heating or cooling too fast. For cold-tolerant fish, letting them cool down gradually is safer than keeping them warm because they will need less oxygen when cool.

Feed your fish normally up to two days before traveling for fish larger than 2 inches, and up to one day before traveling for smaller fish. Then stop feeding for one or two days before travel to empty their intestines. Fish will continue releasing ammonia from their gills, even without food, but starving them for a day or two will reduce their solid waste production and thus reduce the risk of ammonia poisoning and oxygen depletion during transport. Bacteria that consume fish waste (plus uneaten food and dead fish) will also use up oxygen in the bag.

For catching fast or nervous fish out of the aquarium, use two nets: one held still for catching the fish, and one to herd the fish toward the still net. Try to catch and transfer your fish quickly, to minimize chasing and frightening the fish. Prolonged chasing and exhaustion can disrupt their osmoregulation (blood-salt balance), increase their oxygen need, and make them more susceptible to stress-induced infections. Once you arrive at your destination, open the cooler or box in a dimly-lit area and leave it alone for 10 to 15 minutes before removing bags or fish. Certain kinds of fish "freak out" and may die when suddenly exposed to bright light and handling after prolonged darkness.

When moving an established aquarium, treat your filter media just as carefully as your fish, to protect the vitally important nitrifying bacteria that grow in the filter media. These "friendly" bacteria consume ammonia and nitrite, and help maintain good water quality. If your filter bacteria dry out, suffocate, or overheat during transport, your fish might survive the trip and then die of ammonia or nitrite poisoning a week after setting your tank back up, especially if you have large fish or a crowded tank. Drain out most of the water from your filter so it doesn't become anaerobic, but the media needs to stay wet and protected from heat. If you have sponge filters or foam filter blocks, these can be placed directly in the cooler with your fish (remove the hard plastic base and airlift tube), where the bacteria will continue to absorb ammonia released by the fish.

Shrimp and crayfish need something to cling to in the cooler or bag, or they will injure each other trying to get a foothold on something. Live aquatic plants such as Java moss, or synthetic yarn or filter foam scraps will work. I keep small strips of filter foam or acrylic yarn in aquarium filters just for this purpose. The material is colonized by nitrifying bacteria that consume ammonia during travel, in addition to providing a foothold for shrimp and crayfish. Live plants in the dark do consume a little oxygen, but it is negligible compared with animal oxygen use. Live plants also continue absorbing ammonia in the dark, which is beneficial to fish and other aquatic animals during travel.