Caring for Lake Sturgeon in an Aquarium Setting

Proper lake sturgeon care is essential. Lake sturgeon will not survive without careful consideration, understanding and implementation of the following subjects. It is your responsibility to adhere to the following guidelines when participating in the program.

Weekly Lake Sturgeon Care Timeline

• Feed fish as appropriate on a daily basis (lake sturgeon require feeding every 4 hours, primarily when you arrive and before you leave)
• Clean tank once each week; exchange one-quarter of the water in the tank every two weeks or more as needed. Do not use chlorinated water.
• Test water quality levels
• Maintain appropriate temperature (68-75 F)
• Observe fish for behavioral changes that may indicate disease or other stresses. Common behavioral changes are rolling, circling, and if they are hungry they will swim upside down along the surface of the water to search for any floating food. This food search behavior is normal but may indicate that not enough food is provided on a daily basis.

The Equipment

Having quality equipment that is properly maintained is one of the most important components to successfully caring for a lake sturgeon. The DNR does not provide this equipment. You are required to purchase it on your own. The following information will help you research and plan equipment purchases.

It is important to set up the equipment at least two weeks before receiving your lake sturgeon to ensure everything is working properly.

Equipment List

• Aquarium tank (55-gallon minimum)
• Cabinet/tank stand
• Filter system
• Air pump and air stone
• Aquarium gravel or coarse sand
• Gravel cleaning siphon
• Fish net
• Battery-operated air pump
• Several feet of narrow tubing
• Thermometer
• 5-in-1 test kit (pH, ammonia, hardness, alkalinity, nitrite and nitrate)

Filter Systems

• Hanging (recommended); all necessary setup equipment typically accompanies the purchase of a hanging filter. Replacement filter cartridges will be necessary over the life of the filter.
• Canister (recommended); all necessary setup equipment typically accompanies the purchase of a canister filter.

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• Under gravel system; this system is not recommended because it tends to trap debris, uneaten food and waste contributing to problems with ammonia, bacteria and fungus.

In selecting a filter, it is always better to purchase a larger filter for your tank. For example, if you have a 55-gallon tank, it is recommended that you purchase a filter that is the minimum for a 70-gallon tank.

Miscellaneous Equipment

- Gravel necessary. The use of this in an aquarium is purely aesthetic. In fact, the buildup of waste in the gravel can contribute to water quality issues. If using gravel or sand, place just enough to cover the bottom of the tank.
- Dechlorination Tablets - If city water is the only available water for your tank, be sure to dechlorinate the water prior to placing it in the tank and let it filter for several days before placing the fish into the tank of water.
- Purchasing Supplies - Supplies can be found at most aquarium supply stores, such as PetSmart, Petco or Pet Supplies Plus or online. The aquarium stores also may be a good source for information. It is recommended that you contact the store well in advance to ensure items are in stock.

Tank and Maintenance

It is important to set up your tank at least two weeks ahead of time to ensure all equipment is working properly. The tank and accompanying equipment should be set up according to equipment specifications.

Test the water for pH, ammonia, nitrates, nitrite, hardness and alkalinity. It is important to obtain these baseline levels when you set up your tank. This will help you recognize when levels change throughout the year.

- pH should be at 7-7.5. If the pH is above this range, it is considered alkaline. If the pH is below this range, it is considered acidic. Fish are used to living within a relatively small pH range. It is hard for them to tolerate big changes in pH. If the water becomes too acidic or too alkaline, it is stressful on the fish. Other water quality parameters can be affected when the pH changes.
- Ammonia: There should be no initial levels of ammonia. Ammonia will not begin to develop until the fish start feeding and begin producing waste. Water chemistry can be influenced by ammonia levels.
- Nitrates/nitrites: There should be no traceable amounts of nitrates or nitrites.
- Hardness: Hard water is not a problem. Hard water tends to buffer small changes in pH and other water quality parameters. Soft water, however, does not have the ability to buffer such changes when the water chemistry changes.

Cleaning the Tank

Cleaning the tank includes siphoning out waste and debris that has collected (once a week) and exchanging approximately one-quarter of the water in the tank every two weeks. To dechlorinate the water, add tablets or set the tank outside in the sun for a day. The sunlight will help break

down the chlorine. Scrub the sides of tank as necessary to remove any algae growth. Proper cleaning of your tank is important to ensure good water quality.

Food and Feeding
Spread the food amount over several feedings, 5 or more is best. Do not over feed as this will lead to water quality issues.

The best food for lake sturgeon in an artificial setting is bloodworms. Frozen bloodworms are readily available at most pet stores. If bloodworms are not available then frozen krill or live red worms may be used. Avoid using earthworms as this will result in lake sturgeon getting gastro-intestinal problems.

Break off a nickel to quarter sized piece of frozen blood worms and thaw. When thawed, place in tank and wait 20 minutes. If there is some food left after 20 minutes, clean out the uneaten food, and reduce the next feeding amount. If all of the food is eaten after 20 minutes, add slightly more at the next feeding and adjust as necessary at future feedings.

How you present the food is important as well. Lake sturgeon feed in the wild with their snout pointed upstream or along the bottom, and then wait for something (insect larvae) to physically be detected by their barbels, then they eat it. In an aquarium setting, place the food in a place where it will be carried naturally by the water current (from the filter) to their snout.

Important: To ensure that fish receive their daily food over multiple (5 or more) feedings throughout the day, divide the amount to feed into the number of feedings you are able to do. This portion is called a “ration.” Fish should receive either their entire ration or be fed until they are satiated (they are full and no longer actively feeding), whichever occurs first. Observe your fish while feeding -- their behavior will let you know what they need and if you need to make adjustments.

Feeding on the weekends
We understand that it is not possible for someone to care for the fish 24 hours a day, seven days a week. In the event that someone is at the school or retail business to feed the fish on weekends, please do so. If not, however, please feed the fish late on Friday and early on Monday.

Feeding during holiday breaks:
It is required that feeding the fish is continued over all holiday breaks including, but not limited to: Thanksgiving, Christmas and Easter. Please make arrangements for the fish to be fed on a daily basis during holiday breaks.

Fish Condition
Signs of problems that may indicate disease or other stresses include changes in behavior -- not eating, lethargy, remaining close to the surface or the bottom of the tank, increased gill activity, no startle response (when you make sudden movements or noises the fish will normally react immediately). You should check water quality parameters (temperature, dissolved oxygen, pH, etc.) to determine the source of problem. Most problems in fish tanks are caused by overfeeding.

Following the feeding schedule for the number of fish in your tank should eliminate any problems related to water quality.

It is generally better to underfeed fish than to over feed them. If you err, it is better to err on the side of underfeeding. Overfeeding leads to wasted food, which can negatively affect water quality. Lake sturgeon require clean water so wasted food is much more of a concern than underfeeding. Even underfed lake sturgeon will grow. They just need a little food each day to grow and be healthy. Keep in mind that wild fish do not often have the opportunity to feed until they are full.

Water Temperature

Optimum water temperature for lake sturgeon is 68 to 72 °F; with an absolute upper max of 75° Lake sturgeon will survive with cooler water temperatures however, growth rates will be reduced if outside the optimum range. Temperatures above the upper max can severely impact lake sturgeon survival.

Water Quality

- Poor water quality can be serious issue
- Wasted, uneaten food can foul the water and lead to fish health problems such as bacterial gill infections. Bacterial gill disease can be lethal.
- The key to keeping the water clean is to feed only enough food so that it is all eaten immediately. Feed that falls to the bottom will not be eaten by the fish and can dissolve in the water causing it to become cloudy. The uneaten food is a nutrient that can promote the growth of harmful bacteria.
- Signs of fouled water include cloudiness and suspended particles of food and feces. Uneaten food and feces should be siphoned out of the tank daily. If the water becomes cloudy it should be replaced.
- Clear, apparently clean water can have harmful levels of ammonia. Ammonia is a metabolic product the fish produce as they eat and grow. Ammonia levels should be monitored with a simple test kit. When the levels approach 0.0125 parts per million you should stop feeding the fish and replace the water.
- Always keep in mind that lake sturgeon naturally inhabit clean flowing water. They do not tolerate poor water quality and will become sick and die if the water quality is not maintained.

High ammonia levels

- Stop feeding your fish!
- Clean your tank
- Closely monitor the ammonia levels
- When levels are back down to an acceptable level, resume feeding the fish

Mechanical Failure Solutions

- Filter failure: Your fish will have a few days before ammonia levels become a problem. Changing approximately one-quarter of the water in the tank will help.
- Air bubbler failure: It is extremely important that oxygen levels do not fall too low. Use a portable, battery-powered bubbler as a temporary solution.

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What Does That Mean

- **pH**, - is the measure of the acidity or alkalinity of a solution
- **ammonia** - is a compound with the formula NH3
- **nitrates** - a salt of nitric acid with an ion composed of one nitrogen and three oxygen atoms
- **nitrite** - is either a salt or an ester of nitrous acid.
- **hardness** - a type of water that has high mineral content
- **alkalinity** - is a measure of the ability of a solution to neutralize acids to the equivalence point of carbonate or bicarbonate