

Fish Handling and Transport ¹

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See Figure 1 .

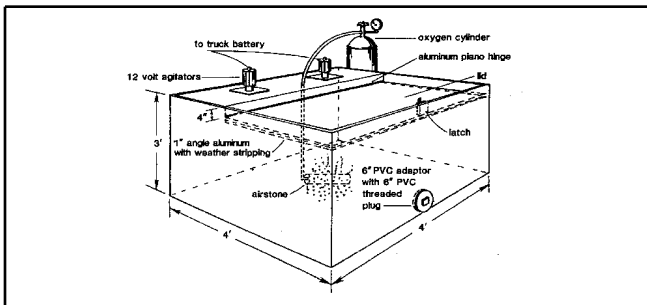


Figure 1 .

Whenever fish are stressed during handling or transport they become vulnerable to injury and disease. Fish farmers know that fish will often "breakdown" if they are handled poorly and for this reason, proper care during harvest and transport is important. Although most fish farms have established procedures for handling fish, it pays to remain aware of what situations can later lead to fish disease outbreaks and mortality.

Causes of Stress

Fish, crowded in a trap or net, can rapidly deplete the oxygen supply in a localized area. In warm water oxygen is less soluble and fish respiration is higher.

Sublethal oxygen stress often leads to later disease outbreaks.

Fish which get scraped or bruised during handling can lose their protective slime coating, thereby reducing their natural defense against pathogens (viruses). Loss of scales or cuts are even a more dramatic invitation to infection or direct mortality due to injury.

Sudden water temperature changes are a well known cause of fish stress. Try to avoid direct water temperature changes of greater than 5 degrees Fahrenheit when moving fish from one environment to another. If large differences in water temperatures exist, then gradual tempering to acclimate them is important. Fish can be acclimated to a 10 degree Fahrenheit change in about 20 minutes by slowly mixing waters to equalize temperature.

A sudden pH shock may also be harmful, especially to young fish. Within the range of pH 6 to 9, a pH shift of less than 2 units can be tolerated by most fish. If a large difference in pH exists water can be mixed to gradually acclimate fish.

When possible, it is better to harvest and move fish during the cooler parts of the day, and avoid long

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exposure to strong sunlight. Avoid leaving fish in the sun if they are in small containers, as the water will warm quickly.

Summary

Experience and observation are the best teachers when learning how to avoid stressing fish during handling and transport. Since the outcome of poor handling is generally sick or dying fish it does not make sense to take chances. Establish and follow a set of procedures which minimize stress and risk of injury to fish when they are handled. Use appropriate preventative treatments to ward off disease outbreaks before they occur. Look for patterns in the type and extent of diseases which occur when compared with the type of handling the fish have received and under what conditions. Placing an emphasis on following these useful guidelines should help prevent disease problems and unnecessary losses for fish farmers. (See Figure 1)