

Pond “Turnover”

Pond turnover is a term used to describe the mixing of stagnant waters in a pond. This process will often occur during the first cool days, or nights of early fall. Pond water that has sat in a pond basin throughout the hot summer months tends to stratify. The sun warms the surface waters, while cooler, more dense water sinks to the bottom of the pond. Unless there is a heavy, cold rain or strong winds, this water will remain at the pond bottom until air temperatures cool the surface water. Cool fall weather will force the water column to mix. Water which has sat on the pond bottom all summer is generally deficient in dissolved oxygen. Little sunlight reaches these depths. As a result, these waters will support little oxygen producing algae or plant life. Dead plants and algae, wasted feed and other organic matter sinks from the productive top layers of the pond and decomposes near the pond bottom. This decomposition process further depletes the bottom waters of dissolved oxygen.

Deep ponds, those deeper than 6-8 feet, may contain large volumes of anoxic water following summer. When cool weather forces the water layers to mix, an oxygen deficit can be created if the surface waters cannot compensate for the oxygen deficient waters from the pond bottom. These waters may also contain gases toxic to fish such as hydrogen sulfide. The end result of a pond turnover can cause an algal bloom die off, a fish kill, or both.

Preventing pond turnover, in addition to harvest considerations, are the primary reasons most fish culture ponds are constructed with shallow depths. The only way to prevent pond turnover during fall is to prevent the stratification of waters during hot weather. Mechanical aeration and water circulation are the only reliable methods of preventing these occurrences. Pond waters will typically mix throughout the late fall, winter and spring months, naturally as cool temperatures, rain and wind will keep pond water temperatures similar throughout the water column.

Fall is a transition period in warmwater ponds. During the onset of cool weather in fall, it is critical to watch for changes in production ponds. Oxygen depletions can occur due to rapid algae bloom losses, nitrite levels may elevate, and bacterial and parasite problems in fish may develop. Continue to check and maintain your water quality during this season of abrupt changes in weather.

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