

CLEARING MUDDY PONDS IN ALABAMA

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Muddy water is often a problem in farm ponds across the southern states because it inhibits the growth of natural fish foods and is not aesthetically pleasing. In addition, the reduced visibility in muddy ponds limits the ability of sight-feeding predators, such as largemouth bass, to feed on forage populations effectively.

The first step in solving a muddiness problem in farm ponds is to inspect the watershed for sign of erosion, construction, crop cultivation or any significant disturbance of soils and vegetation. It is critical to stabilize soils to stop or greatly reduce movement of soil particles within the watershed into the pond. Grass sod or other plant cover should be established on bare areas vulnerable to erosion. Rocks, broken concrete or riprap type material can be placed along shorelines or in the waters edge to reduce erosion caused by wind and wave action.

Many ponds become temporarily muddy following heavy rains, but clearing usually occurs in just a few days. Sometimes fish such as bullhead catfish and/or common carp populations may also bring about muddy pond conditions and should be greatly reduced or eliminated.

If heavy rainfall or undesirable fish are not causing muddy conditions, the cause is likely very small clay particles, because of their chemical make-up, these negatively charged particles repel each other and will not settle out. The addition of positively charged particles causes coagulation and precipitation of clay particles. Compounds used for clearing ponds include agricultural limestone, gypsum (calcium sulfate), alum (aluminum sulfate) and hydrated limestone. The compound utilized should be determined by its cost, availability and effectiveness. Many Alabama ponds require special consideration and care because of their typically low pH and total alkalinity. Water samples should be analyzed to determine the need for agricultural limestone applications (see Liming Fishponds at: <http://www.aces.edu/pubs/docs/A/ANR-0232/>).

The addition of the mineral compounds listed often clear muddiness from southern farm ponds. Ponds in some areas of Alabama can also be cleared using gypsum and alum. However, tests should be run on each individual muddy pond to determine the type and amount of compound to use because pond and soil conditions vary so greatly.

These simple tests can be run in the field by obtaining several 1gallon samples of water from the pond in glass jars or some clear 1 gallon vessel. One of the gallon samples should be set aside as a control for comparison. A second gallon container is used to prepare a slurry for each compound tested. At least three other samples should be treated at various rates to determine the rate and type of compound that provides the most acceptable results.

Gypsum

Mix 2 level tablespoons (using a standard measuring spoon) of gypsum in 1 gallon of clear water. Stir until gypsum forms a slurry.

The table below shows how the number of tablespoons of slurry added to 1 gallon of pond water sample relates to pounds of gypsum needed to clear a pond if sample clears water in 12 hours.

Table 1.

Number of tablespoons of slurry solution added to 1 gallon samples	Pounds of Gypsum to apply to ponds per acre-foot if water clears in 12 hours
1	80
2	160
3	240
4	320
5	400
6	480
7	560
8	640
9	720
10	800

Alum

The lowest concentration of alum that will precipitate the clay muddiness in 12 hours should be used to treat the pond. Remember to add hydrated lime as indicated in the chart below if alum is used. Consideration of the economics for each compound should be a part of the selection of material to be used. Freight costs for delivery of materials can be significant.

Mix 1 level tablespoon (using a standard measuring spoon) of alum in 1 gallon of tap water. Stir until alum forms a slurry.

The table below shows how the number of tablespoons of slurry added to 1 gallon of pond water sample relates to pounds of alum and hydrated lime needed to clear a pond if sample clears water in 12 hours.

Table 2.

Number of tablespoons alum slurry Added to 1 gallon water sample	Pounds of Alum to apply if water sample is cleared in 12 hours (Pounds applied per acre-foot)	Hydrated Lime to be applied with the alum (Pounds applied per acre-foot)
1	30	13
2	60	26
3	90	39
4	120	52

References

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