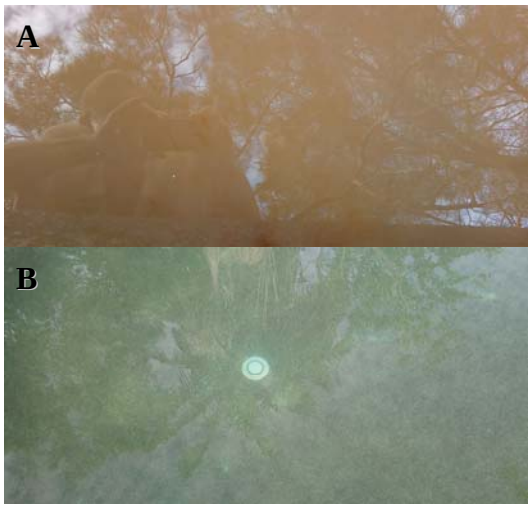
What If The Pool Gets Flooded?

A swimming pool that gets flooded by surface runoff or riverine flooding can look very muddy and seem like a nightmare for an owner experiencing this rare event for the first time. But it is not as much trouble as it looks. With some manual work and the right pool chemicals, a muddy pool can be restored to a safe and appealing condition for swimming within a week. This short article gives practical advice on recovering from flooding of an outdoor salt-chlorinated swimming pool.

In many areas 'habitable' floor height is regulated at a minimum distance above common (eg 100 year ARI) flood height, but swimming pool height is typically not regulated. In consequence, pools are often below the habitable floor level, and severe floods may overtop the pool while the home largely escapes.

If surface runoff enters the pool, or riverine flooding overtops the pool, a substantial effort will be needed to return it to normal swimming condition. When the flood subsides, pool chemicals will have been lost; and there may be a lot of mud, sediment and debris in the pool. What should you do?



You can get a flooded muddy pool from A to B within a week, with some manual work and pool chemicals.

1. Turn off the pool filter as soon as possible or it may quickly become blocked and destroy your pump. If there is enough warning, it is even better to turn off the pump before the flood. If the pump is below possible flood level, you might turn off the power, unplug the cable, unscrew the barrel junctions, and relocate the pump to a higher location until after the flood. Don't waste time with any other treatment until the flood, and the rain event that caused it, are finished.
2. Do not empty the pool, or structural damage may result.
3. Remove any logs or other large objects from the pool. Clean the surrounds.
4. Use a net to remove as much floating material (and fish) as possible.
5. If you cannot see the bottom of the pool at the deep end due to sediment suspended in the pool water: you will need to add a flocculent, let it work to complex the fine sediment and settle it onto the pool floor, then vacuum this material to waste.
    a. Check pool pH and if necessary adjust above 7.4: flocculation works best at higher pH.
    b. Add a pool floc treatment to the concentration recommended by the manufacturer. They are generally alumium (or polymeric aluminium) salts. Avoid sulphates (usually cheaper, also known as "Alum") and prefer chlorides, because sulphate salt crystals can expand to worsen any cracks in the pool wall. Pre-dissolve and distribute the flocculent as instructed by the manufacturer. Most (clay) sediment particles carry multiple negative surface charges, and many are too small to be trapped by a pool filter. The positively charged part of the floc chemical (commonly Al^{+++}) works by cross-linking them to make bigger particles that will settle (or be trapped in a filter).

c. If you use a cartridge filter, you will need to remove or bypass it. If you use a (sand, glass or diatomaceous) depth filter, it will probably have a 'spider' valve with various settings that can allow you to bypass the filter media. Then run the pool pump (at full speed, on recirculate) for at least 2 hours to distribute the flocculent throughout the pool water.
d. Turn off the pump and allow the floc treatment to work overnight: this is important to complex and settle the sediment particles.
e. Vacuum the sediment from the pool floor to waste. It is a very loose sediment, so work slowly to avoid resuspending it. You will still likely need to vacuum to waste at least twice, with time in between to resettle the sediment. This removes a lot of water. You must replenish it.
f. Now you should be able to see the pool floor at the deep end.

6. If you can see the bottom of the pool at the deep end, but the water is still turbid, a pool clarifier can be used. This will be slower to work than a floc, but it will use less water (for filtering and backwashing instead of vacuuming). Many different pool clarifiers are sold, and they work on different principles. Clarifiers and filters vary in efficiency, depending on the cause of turbidity. Follow the manufacturer's instructions. In general:
    a. Make sure the pool water is at the normal height.
    b. Now is the time to replenish pool chemical levels: chlorine, salt (NaCl), $MgCl_2$, boric acid, cyanuric acid, pH 7.4-7.8. (The chlorine will stop mosquitoes from multiplying in the pool, but sadly it will kill any fish still in the pool unless you remove them very quickly to their natural habitat).
    c. Run the pump in filter mode to remove suspended particles, but keep an eye on backpressure and backflush or replace filter media if pressure gets high.
    d. It is OK to use a pool robot (or brush) to clean the floor and walls now. The robot may resuspend more sediment than it traps, but this lets the filter do its work. If you use a pool sock in the leaf filter, you must clean the sock frequently to avoid destroying the pump by running it dry.
    e. It may take a week or longer to remove the suspended sediment. Keep an eye on pool chemistry and pump backpressure throughout this period.
    f. If turbidity persists, try an alternative approach. One way is to let the particles settle, then vacuum again, or draw water from the pool bottom drain to the filter if your plumbing permits. Or try a different type of clarifier chemical. Also check every possible component of your pool chemistry and ensure all concentrations are within your usual working range. Backflush or replace the filter media and try again.
7. It is sometimes recommended to use a phosphate remover after any flooding. This is not generally needed, but it may be sensible if you experience any increased difficulty with algal control. Most pool shops can test for phosphate level: aim to keep phosphate in your pool water below 1,000 ppb. The treatment (if needed) typically precipitates phosphate with lanthanum (which is even more efficient at binding phosphate than the calcium already in your pool). You will need to remove the precipitate (by filtering). Follow the manufacturer's instructions.
8. All of this was probably a lot of work, and expense for pool chemicals and water; but at the end of the process, you have restored the pool to a safe and attractive condition for swimming, with the usual ongoing attention to maintenance of BABES principles.