

# A Sustainable Aquatic Ecosystem

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I had a hole, and a vision for a sustainable aquatic ecosystem. Now I needed to create a pond that would sustain life, last a long time – and also be beautiful. I pre-lined the pond with newspaper, weed cloth, and old king sized cotton and polyester sheets I bought from Ohio Thrift Store. This would keep acidic dirt and sharp stones from puncturing the pond liner.

I was already told that my plan for lining the pond using pig manure, straw, and lime water was “absolutely out of the question” by both the city and my husband. I built a wood frame using 2 x6 lumber around the edge of the pond to give the semi-circle pond edge a graceful curve and give the brick lining a proper foundation.

## **No Pig Manure Pivot**

After filling in all the gaps with river stone and sand and leveled out the sloping yard with dirt I hauled back from the north side of the house. I then laid the EPDM runner liner over this massive hole. Eventually I had to recruit several of my neighbors, because this huge sheet of heavy duty rubber was just too big and heavy for one person.

Once it was in place and all the seals were made and cut for the sump pump and the flow release valve, I started filling the pond. I waited for the spring rains to fill it as much as I could. About half way through, I discovered I had a leak. Drats! I used the sump pump to empty the pond.

I bought another pond liner. I made double sure all the seals were good and I started filling the pond again. It took quite a while, but eventually the deepest corner became a dark pool. I added in the metal frame shelf to hold the oxygenating plants and the pots for the bacteria fighting plants.

After submerging the 500 GPH pump, the three aerators and the ceramic chimney masonry tubes for the fish and amphibians to hide within, I added water hyacinth and water lettuce and aquatic iris all around the edge of the pond. We lined the pond with bricks and mortared them in place. We installed a fountain to circulate the water and add more aeration and the calming sounds of splashing water.

## **The Road To The BioFilter**

Installing and priming the biofilter took about three months as the bacteria needed time to build up in the body of the filter. I tested the PH, the nitrate, chlorine and nitrite levels religiously. When I was satisfied, I added 20 goldfish to start the ammonia cycle.

Several of them did not make it. But when everything was balanced, I added the minnows, frogs, koi, and a few more

goldfish – and of course the now crazy ducks. The ducks LOVED the pond immediately. They took to it like, well, ducks to water.

I helped Rick add a line of transplanted monkey grass to soften the edge of the pond where the grass meets the brick edging, and a step outside and a step inside the pond at the shallow west end so future ducklings could easily get into and out of the pond (I learned that lesson well and I learned it the hard way).

I set a bench into the planting bed across from the grass path around the pond to watch the pond mature. Then I let mother nature do her thing. The ducks near instantaneously destroyed the monkey grass border.

## **A Few Scares**

Over the summer we had a few scares. A dead fish. A sick duck, algae blooms that clogged the pump every day. We engineered our way around all of these obstacles.

I took copious notes of what I tried that did and did not work. I added bacteria and aluminum sulfate, nursed the duck back to health and designed a removable bag and frame around the pump. The dragonflies and midges came.

The sparrows, finches, herons, and racoons came. The depth of the pond foiled the plans of the herons and racoons. The fish were happy and the ducks were happy and the humans were happy. I had a living ecosystem, and a beautiful garden feature.

I only had to add water on one occasion over a very hot summer. I watched the ecosystem bloom in the summer, transform in the autumn, and freeze over in the winter. I watched, and worried.

I broke through the ice like a good caretaker. Now I wait for the spring thaw with bated breath for my not a pool, not an

open septic system, aquatic ecosystem to come back to life.  
I'll let you know how it goes.