



a new flow

People are always looking to break new boundaries, and one new concept in pond design is the 'streamflow' tried and tested by Dave Cousins

Once upon a time (a few years ago), a Japanese hobbyist succeeded in growing a male to sai koi to over 70cm, winning a 75Bu Kokugyo prize at the All Japan Show. "No big deal!" I hear you cry. However, this was achieved in a pond of around 1,300 gallons, and with 200 koi in the pond! Surprised now? Well, the fact that this pond had no filtration should make you at least raise an eyebrow!

basic concept

There were a few key elements that enabled this pond to work: exercise, and cleanliness being the main ones. This pond was approximately 2.5 times longer than it's width, with a depth of just 70cm,

and a slight fall towards one end. At the deeper end, a row of small bottom sumps went straight to waste, with the influx of good fresh water causing the waste to go down the sumps, and up the standpipes to overflow. After talking at great length with Dave Cousins, and seeing his interest in one that I had already started building, this basic concept became the inspiration for his own 'Streamflow pond'.

Dave's pond holds 5,000 gallons, and uses the backbones of the aforementioned pond, but with the addition of a filter system, and automated 'air uplift' to flush the drain sumps, as opposed to the top-up water causing overflow from the sumps. Anyway, the following is an overview of how this design works. ▶

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As you can see, the air keeps the media extremely clean as cleanliness is one of the key objectives in any koi pond



The two submerged filter bays contain Momotaro Bacteria House media, with heavy aeration at the bottom of the bay underneath, in order to stop any settlement taking place where it can't be seen



All solid waste is removed by the uplift every three hours, before it gets a chance to deteriorate. This dramatically reduces the load on the filter, and makes for a much cleaner environment for the koi. There is nothing worse for koi, than decaying settlement that has been allowed to accumulate for a few days in a conventional settlement chamber. Fish can taste their own excreta in the pond, which will easily put them off their food. This system removes it before it becomes an issue.



The secret to this design lies in the uplift pipes. Each one of these is made from 50mm pipe. A small airstone is situated deep at the bottom of the pipe. When the air is turned on, the rising bubbles lift a surprising amount of water, and completely clear the pipe, and sump drain in just a few seconds

how it works

Dave's pond contains 6,000 gallons, with an additional 500 gallons in the filters. The main key principle of this pond is to have a flow that runs from one end to the other, by pushing water along the bottom of the pond, towards the deeper end. This is done with a moderately strong flow, which at first causes the koi to get pushed around a little, but they quickly get used to it, and swim against the flow, which makes the koi exercise more. Even male koi develop good thick tail joints, and good strong bodies like female koi. It also makes the koi burn up energy thereby eating more, and hence, growing faster.

At the deep end, the flow of the water rises up the back wall, with solid waste settling out in the row of sumps, whilst the cleaner water is drawn off just under the surface, and fed to the filters. The waste that

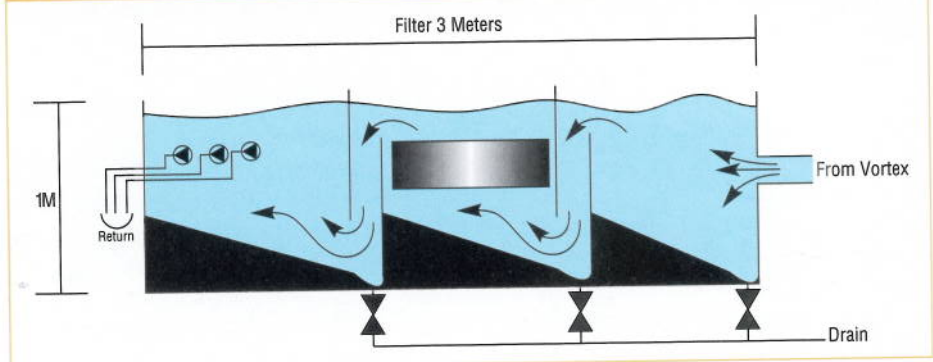


accumulates in the sumps is drawn off every three hours, using an air uplift (something that Dave was very sceptical of, believing that the air would not give enough 'lift') before it starts to decay and pollute the water. This principle greatly aids TDS levels, and pretty much makes pond maintenance a thing of the past.

kh friendly

While solid waste is flushed away from the uplift pipes, cleaner water is drawn off

how the system works





The impressive-looking pond completed

the pond by a 6" pipe just under the surface, and fed to the filters. In hindsight, the pipe was not really needed. A couple of wall mounted bottom drains half way up the wall of the deeper end, would have been just as effective, and far less obtrusive to viewing the koi. The filtration system's task is an easy one, since there is little or no solid waste in the pond. This means that the pond is also very 'KH friendly' since only a fraction of the hydrogen ions are being produced, compared to a conventional pond that would be dealing with large amounts of decaying waste.

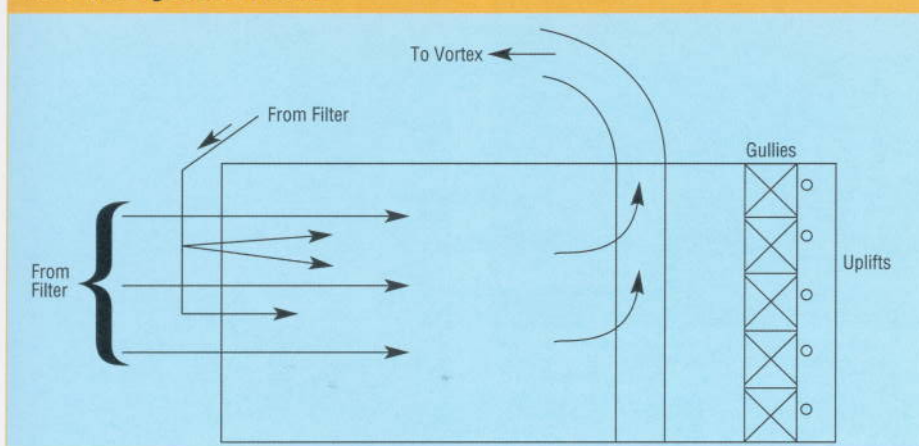
Another positive attribute to this system is that being so 'clean' it means that the bacterial count in the water is going to be much lower: potentially meaning that fewer

health problems will be encountered. This certainly seems to be the case so far with this pond.

submerged filter

The submerged filter consists of two bays of Momotaro 'Bacteria House' filter media with heavy aeration (80lpm) beneath the media keeping it clean and stopping any settlement from taking place where it can't be seen. The final bay is a pump bay. Dave chose to use three Aquamax 5500 pumps, which are submerged in order to make the most of any heat that the pumps dissipate. An additional Aquamax 5500 pumps water up from this chamber, over a Bakki Shower, and returning to the same bay. But, this will be changed, and fed with unfiltered water, ►

how the system works



water board friendly

Every couple of weeks, the vortex is flushed of what little dust that has accumulated there, while an automatic top up valve takes care of replenishing the dumped water. This kind of pond is very 'Water Board friendly' with very low water usage, and exceptional cleanliness.

It also makes the koi burn up energy thereby eating more, and hence, growing faster

which will then be returned directly back to the pond. A surface skimmer at the deep end is powered by a Sequence 1/6 (which will be swapped over to the Showers), which then returns mid-water at the shallower end. This may seem a bit odd, since the water in the pond flows away from the skimmer, but if it were at the other end, food would get drawn down it within seconds of hitting the pond.

straight line flow

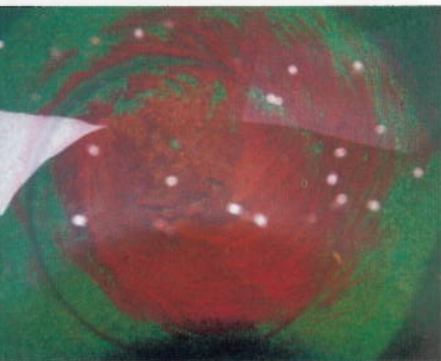
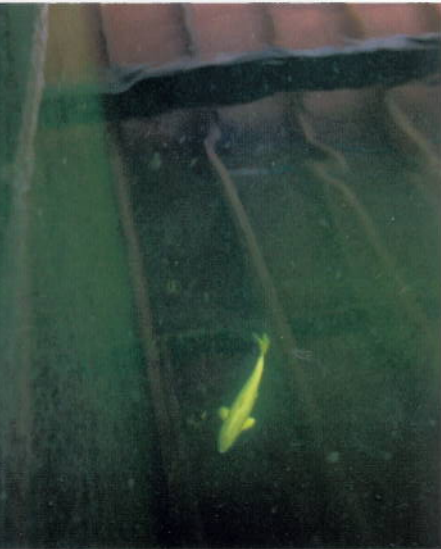
Dave's pond is heated by gas, and feeding is carried out predominantly by a FOK auto-feeder. Already, the pond is showing excellent growth, with remarkable water clarity, which is free of any signs of discoloration. The straight-line flow direction of this pond should certainly well

avoid the possibility of larger koi developing lopsided body shapes. This kind of pond may not suit everybody, but does offer some advantages over conventional designs.

Dave would like to thank Bob Cousins, and Dave Wrides for all their help in building this pond over the last couple of years, and to myself (blush!) for help with the design concept. Maybe there will be an update in a year or two, if Dave can raise a champion in his own pond!

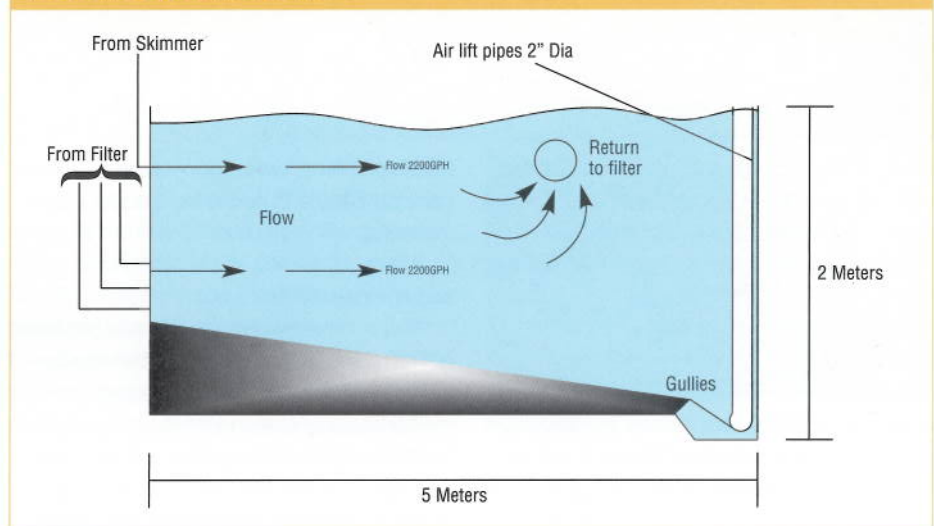
nb: Although this new concept has worked for Dave, Koi Carp Magazine is not suggesting that koi keepers should change their current system. This is an interesting idea that may cause debate, and does not represent the views of anyone but the author.

If you look carefully, you can see each of the square drain sumps running across the width of the pond base at the deeper end here



This is all of the waste that accumulates in two weeks: just a small thin layer of 'dust'. Maintenance is virtually a thing of the past!

how the system works



Dave's older generation Bakki Shower currently sits over the pump bay, but will soon be moved so that the water returns directly to the pond. The polythene is to avoid the water splashing, which was a minor drawback with this older 'Mark II' version. Beneath the Shower you can see the three pipes that take the water back to the pond, returning close to the floor at the shallow end

The entrance to Dave's secret Mediterranean garden, and koi pond

