

# Artificial spawning

Simon Austin was surprised to witness a process of stress free artificial spawning at Taniguchi Koi Farm



## About the author:



**Simon Austin** and his business partner James Sharp own and run Nippon Nishikigoi, which is based in Kent. Simon has eleven year's experience in koi and the business has been running for five years. He travels all around Southern Japan in the search of nishikigoi and has no interest in quantity, only quality.

**C**ome early May a national holiday named Golden Week starts in Japan, and after the holiday season the Nishikigoi breeding season starts. It can be as early as the last week in April but, on average, mid to late May is the norm. By this time the Taniguchi-san's female Oyagoi (parent koi) have been carefully conditioned – sometimes outdoors, but this can also be done indoors.

In the six months leading up to the season the overall conditions and the temperature have been carefully managed. This helps to bring on the female's egg production to full maturity. It's not so hard to prepare the male koi for spawning. The time of year, along with the rise and fall of temperature is all that's required.

Conditions are quite the same here in the UK; mid May has day temperatures of 20°C, but it's not so warm at night. This swing of

temperatures through the day aids the process of triggering the natural spawning process.

For this article, I'm going to cover the process of artificial spawning, from May 2008, with Taniguchi Koi Farm. This process is Taniguchi-san's preferred method of spawning.

### precise time keepers

Nishikigoi have an uncanny ability of being able to tell the time. They barely show any interest until the clock has gone past 12 midnight, then a period of non-stop activity occurs.

During a visit to Japan in May 2008 I spent some time at Taniguchi Koi Farm and helped out with the spawning process. Two female Oyagoi and six male koi were placed into ponds of around a few thousand gallons. The ponds were lined with a containment net which is a very fine mesh. Within the nets lay spawning ropes. ▶

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Over the next 24 hours there was a constant vigil at the pond side. Although the chances of the koi spawning in broad daylight were slim, someone had to keep watch. As previously mentioned the magic usually starts around midnight, under torchlight. Once the first sign of egg release from the female happens the koi are separated and the males removed. Now the female is left alone to mature her eggs and reach a point of broodiness/maturity.

Once the hour is up the female is caught and anaesthetised – to my surprise quite heavily – as the process of egg release is quite quick. The koi was then wrapped in wet towels and her vent extensively cleaned time and time again with sterile water and tissue. This constant cleaning also surprised me but I soon found out that this was to protect the eggs from infection from bacteria and fungus.

### stress free

Once Taniguchi-san is happy with the female

he rolls her over in one swift movement. Underneath her is a bowl into which she empties her eggs. The sheer weight of her body supported by the towels (which are held by two people) applies enough pressure to the abdomen to enable her to automatically release her eggs in a constant stream.

The female in the photograph was 94cm. She produced 2.5lb in eggs, which equates to approximately 400,000 at least. There was no forcing or stripping involved – a process of applied pressure to the abdomen to ensure you squeeze all the eggs. This can cause excessive stress to the koi and is not essential. The safety of the female koi was priority.

She was then released back into the pond to come around from her anaesthetic. I was pleasantly surprised to see that she was swimming around within a few minutes. In fact she went on to feed straight away, eating the eggs she first released in the pond at the beginning of the process.

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Spawning is an arduous task, made easier by many hands





### the role of the male

Now to the males. I feel a lot of emphasis is put on the female when people discuss koi, often disregarding the role of the males. But the males, I believe, bring quality to the spawning in the sense of determining the skin and pattern of the offspring.

In this case only one Sanke male was used, out of a choice of four. This surprised me again but when I asked why I was told that it was because of the particular traits of sumi and pattern that Taniguchi-san desired to see in the future. However in the Kohaku spawning three males were used. It is usual to use two, possibly three, males.

Each male was anaesthetised and the vent cleaned religiously, as it was with the females. Then the milt was removed from the vent with a syringe. Each male koi produced around 7-10ml of milt. Then each syringe was checked under a

microscope to see the quality of milt, ie to check the numbers and to see if there was movement and strength in swimming ability.

Once the eggs and milt were gathered and approved, a bowl was set up with spawning mats inside. The eggs were then scooped into a cup and ringers solution was added. I'm not exactly sure what this consisted of but it stopped the eggs sticking to each other and to the surfaces. The eggs were easily mixed and able to be fertilised by the milt.

The eggs, ringers solution and milt was swirled around for 30 seconds to ensure the best possible contact, then they were scattered over the spawning mat. As this is quite coarse, the eggs attach very easily to it. Then, after around five minutes, the mat is removed and placed into a net in a confined pond. The eggs fertilise and the wait was on for them to hatch.

Around six mats was used to hold 2.5lb of eggs. It was hard to believe that such a



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The spectacle of the female releasing her eggs

short contact time was enough to ensure the fertilisation of the eggs. In all this process took around one to two hours per parent set. But you have to remember that this only explains one breeder's process of artificial spawning.

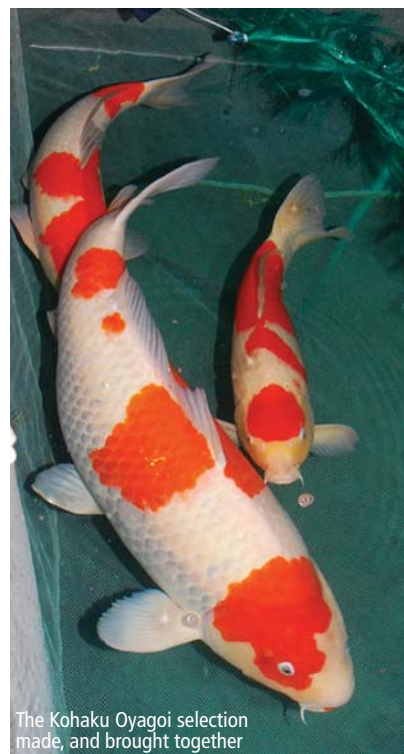
After some four to five days the eggs hatched, and measured around 15-20mm by the time they were 14 days old. From this point onwards, the breeders are in for a long summer of culling the fry down. Usually, the breeder will be left with less than one percent of the original total. These will then be grown on in the mud ponds until the following October.

## enriching the quality of koi

Taniguchi san's goal is to breed koi that grow very well with good body shape and pattern. He is constantly aiming to enrich the quality of koi and parent koi. The policy is to use large female parent koi at the time of spawning, and to use first coupling only. This is so that the same males and females are not used for spawning again. This is not unusual as the one time pairing rule ensures new blood/genes are introduced. It also means that the same lines are not exhausted year in year out. This ensures quality

aspects of different bloodlines such as shape and skin quality are used.

In a few months time I will be following the process of spawning into the Sembetsu stage of culling and selecting the fry. 鯉



The Kohaku Oyagoi selection made, and brought together

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