



will be removed from the system," said Dr Pit. "This poses no risk to the ornamental Koi industry and because the numbers of carp will gradually decrease, there will be no mass clean up required or potential environmental disaster."

Mr Bell, who has been heavily involved in the research of daughterless technology in the past, also supports this method as "possibly a much better system of carp control compared to the virus, even though it will possibly take 20 to 25 years to see the effects," he said.

Daughterless technology research in Australia ended when funding stopped in 2012, but laboratory trials are still being conducted at Auburn University, USA, said Mr Barwick.

Modelling undertaken by the CSIRO shows that if these sex biasing methods were used in isolation, they would be prohibitively expensive, because so many fish carrying the construct would need to be released to have the desired impact on the current enormous carp biomass in Australia<sup>\*\*\*</sup>.

"Additionally, significant reduction in carp numbers would take more than a century due to the long generation time of common carp (carp live 30+ years)," added Mr Barwick. "I am unsure that the Australian community would be willing to wait 100 years or more to see the carp

problem fixed."

However, the same modelling shows that additional control measures, such as a genetic construct, will provide benefit if used in combination with the carp virus.

"This approach is consistent with most successful pest control examples worldwide," said Mr Barwick. "An Integrated use of a suite of control methods is always the best approach and that is exactly the focus of the National Carp Control Plan.

We are currently exploring the best suite of measures that might work synergistically with the carp virus to fix the carp problem in Australia in the long-term."

### CHANGING PERCEPTIONS OF CARP

Mr Bell believes changing Australians' perception of carp will also go a long way in helping to reduce numbers, and consequently rejuvenating Australia's waterways.

"You've got to create value demand for people to want to get carp out of the river, and you can do that by putting a higher value on carp so that people will buy it and put it on the menu of both animals and humans," he said.

Carp is a healthy food choice for humans and animals as the fish contains a considerable amount of vitamins and minerals - particularly phosphorous and Vitamins B12 and D - as well as high levels of beneficial fatty acids, protein and antioxidants<sup>\*\*\*\*</sup>.

So it's no surprise that carp is on the growing list of novel protein and health nutrition sources for pet foods overseas, according to Petfoodindustry.com. Based in America, BareItAll Petfoods makes dog treats from Asian carp, crediting the food with not just reducing pets' skin and fur problems, but also carp numbers!

In Australia, after a decade of research and development, Mr Bell launched into the

market a natural growth supplement made of wild carp, called Selvita, to help improve the health and vitality of pets and livestock alike.

Mr Bell believes the targeting of carp by different Government management and commercial operators will assist in the control of carp, having benefits for the environment and the community while providing new commercial, ethical and environmental opportunities.

"Instead of using a virus, we need better management of commercial carp fishing to help eradicate carp," he said. "The current fisheries policies make it very challenging to use this tool to keeping carp numbers down."

Mr Bell said his calculations show the carp industry could be worth \$50 million if it was managed differently, such as turning carp into a high value product.

"There is a demand in Europe and Asia, and there would be demand in Australia if the government could look at it differently," he said. "Right now, people's perception of carp is like a bicycle. We need to make carp a Rolls Royce."

Carp also gets a bad rap for its muddy taste, but this can be avoided by respecting the fish more, said Mr Bell. When cooked properly, carp is very tender and flavourful - great for soups and other culinary dishes!

"Freshly caught carp need to come straight out of the water and go onto ice immediately. Otherwise, the body temperature rises through stress, which gets the histamine levels going into the capillaries of the flesh, and the result is the muddy taste!" he explained. Mr Bell travels around Australia giving demonstrations on preparing and cooking carp. If more Australians could get a taste for carp and take up carp fishing as a hobby, it could play a small part in helping to solve a major environmental problem, he said. 

## How can you help with research?

The NSW Department of Primary Industries is conducting surveys to help decision-makers gain a better understanding of the issues and interests of recreational and commercial fishers dealing with carp species in Australia, as well as the economic value of Koi ownership in Australia. You can help share the information/survey! Please visit <http://frdc.com.au/>