WHAT RESEARCH ON THE CARP VIRUS HAS BEEN DONE?

Quite a bit of research has been done on this topic, which is useful when exploring potential for use of the carp virus to manage carp impacts in Australia.

Critical research by CSIRO in recent years involved testing a range of species of fish, as well as birds, mammals, reptiles, amphibians, lampreys and crustacea to determine whether the carp virus could infect or affect them. This work was done in a lab at the Australian Animal Health Laboratory, and involved animals being challenged with the virus and then monitored over time for any evidence of virus replication or disease. Importantly, this work showed that the only species affected by the carp virus is common carp.

CSIRO have also been leading sophisticated mathematical modelling to help identify the best strategy for release of the virus for optimal results. This work will be expanded under the National Carp Control Plan to enable us to better understand how aquatic ecosystems may change in response to virus release and changes in carp abundance.

Ecological monitoring in the Murray-Darling Basin by the NSW Department of Primary Industries, funded by the Invasive Animals Cooperative Research Centre, is helping us to understand the present condition of our waterways, and will provide a baseline for comparison if the virus is eventually released to help to track recovery of waterway health.

Scientists from the University of Technology in Sydney and University of Adelaide are also investigating how different biomass levels of dead carp affects water quality parameters, which will help inform clean-up efforts.

And recently, interesting research has been published in North America showing that the same carp virus we are considering using in Australia is likely to be driving sustained collapse in populations of the same carp species we have in Australia (Cyprinus carpio) in the Mississippi River, where they are also a pest*. This is a good indication that the virus being considered for use in Australia doesn't just impact on carp populations in the short term; it may also help to supress their populations over time.

Further research is proposed under the National Carp Control Plan to ensure that key questions are answered, and inform decision-making on how to process at the end of next year.

What about current research?
The research program under the National Carp Control Plan is getting underway right now, which is quite exciting!

Over the next two years, some of Australia's best scientists will be contributing to delivery of a comprehensive and robust research program, coupled with numerous assessments under stringent environmental and biosecurity legislation to ensure that decision making is evidence based.

Research underway and proposed will help improve current estimates of carp biomass levels in Australia, better understand how ecosystems and water quality may respond, and identify efficient and effective methods for harvesting carp biomass.

There will be a full risk assessment prior to any release using global leaders in risk analytical approaches. Importantly, there will be no release of the virus by government agencies until this work has been completed.

Results of all research commissioned under the NCCP will be communicated in a range of ways including our website www.carp.gov.au as studies progress.

** https://link.springer.com/article/10.1007/s10530-017-1405-5*

systems and captive populations. Carp populations in the United States, Europe and China have also been affected by the Carp virus. Australian researchers say if presented in Australia, the virus may prove to be hugely effective if managed and implemented correctly.

Over the past eight years, scientists from the CSIRO Australian Animal Health Laboratory have been examining the potential of the Carp virus as a biological control agent for carp in Australia, undertaking a rigorous assessment of the virus in the laboratory against Australian native species and carp strains.

"There have been a range of other control measures trialled in Australia over recent decades, however all have been unsuccessful in reducing carp impacts at a continental scale," said Mr Barwick. "The evidence we have right now (from CSIRO's research) indicates that the Carp virus is likely to be the best tool we have at our disposal to tackle carp in Australia. Used together with other complementary measures, we can potentially provide a long-term solution to the issue of the carp pest."

Now, researchers and managers in countries such as the USA and New Zealand, where common carp are also a problem, have shown interest in Australia's National Carp Control Plan.

"In part, this is because the research underpinning this program represents the most extensive pre-release testing that has ever been done on a potential viral biocontrol agent for a vertebrate pest species anywhere in the world," said Mr Barwick.

The final report which summarises the eight years of carp biocontrol research, conducted through the Invasive Animals Cooperative Research Centre, has been published online and can be viewed at www.pestsmart.org.au/final-report-phase-3-carp-herpesvirus-project-cyhv-3/.

MIXED REACTIONS TO THE NATIONAL CARP CONTROL PLAN

The government's announcement of the NCCP has been welcomed by a cross section of stakeholders, some who rely heavily on the Murray-Darling Basin. The Clearer Waters Alliance – *whose partners are the National Irrigators' Council,*