



NATIONAL CARP CONTROL PLAN

# THE NATIONAL CARP CONTROL PLAN

PROGRESS REPORT - MARCH 2019



## Research program extended

The National Carp Control Plan (NCCP) program has entered its final year. The Fisheries Research and Development Corporation (FRDC), which is overseeing the program, is due to deliver the NCCP to the Australian Government in late 2019.

The FRDC originally planned to submit the completed NCCP in late 2018. However, research as part of the plan identified some critical knowledge gaps, and the FRDC applied to the Australian Department of Agriculture and Water Resources (DAWR) for an extension. This would also allow additional time for further stakeholder engagement and to complete all necessary research analysis and modelling (for example, carp biomass estimation).

DAWR approved a 12-month extension for the development of the plan in September last year.

The aim of the NCCP project remains to deliver a plan that will assess the feasibility and use of the carp virus *Cyprinid herpesvirus 3* (CyHV-3) as a tool to substantially reduce carp numbers.

Over the next six months, results from many of the research projects will be peer reviewed by NCCP's Science Advisory Group. They will also be peer reviewed by independent scientists external to the project, to ensure the scientific rigour of the work undertaken. After addressing any comments from the peer review process the projects will then be complete.

More than 15 research institutions are working on projects that will inform the plan. The results from this research will be combined with operational knowledge gathered from consultation with stakeholders in carp-affected areas. This information will then be used to compile a comprehensive case of the best way to control carp in Australian waters and inform the government's decision on whether or not to release the virus.

The final decision on whether to release the carp virus will be made jointly by agriculture ministers from the commonwealth and all state and territory jurisdictions. The FRDC's role is to ensure that a science-based plan is presented to government for its consideration of the next steps.

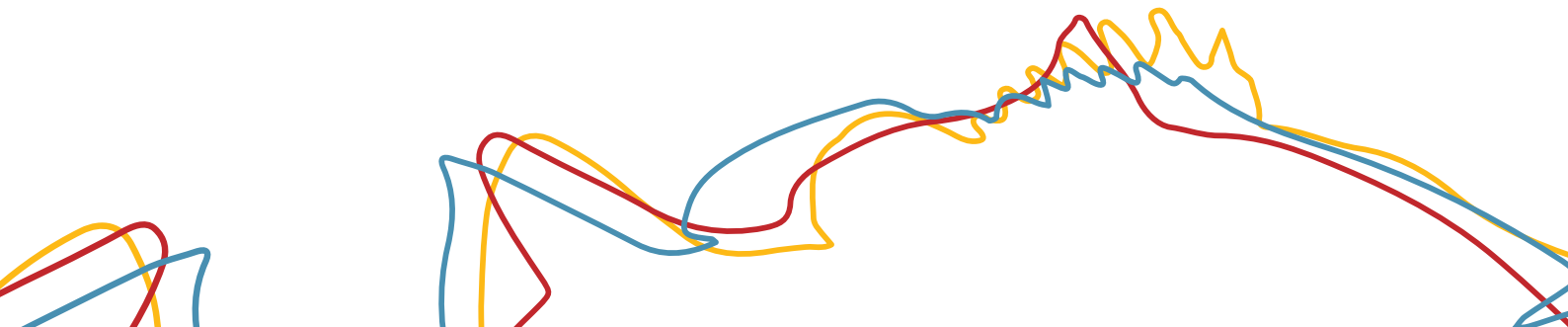
During 2019, the NCCP team will continue to meet with researchers, state governments and key stakeholder groups to build consensus around ideas, recommendations and issues to be included in the plan.

## NCCP Coordinator change

In November 2018 after two years as the NCCP Coordinator Matt Barwick resigned. Jamie Allnut, who had been an NCCP operations manager since December 2017, has now taken on the role of NCCP Coordinator. Jamie has 30 years of experience working in environmental management in regional areas around Australia.

In resigning, Matt Barwick noted the importance of completing the NCCP draft. He highlighted that the research to date had started a constructive scientific debate, which is an important part of informing sound recommendations. All evidence should be considered in the process of evaluating merits of carp biocontrol. Over the coming months, a large body of research will be finalised that will provide us with new insight into what is likely to work, and what is not.

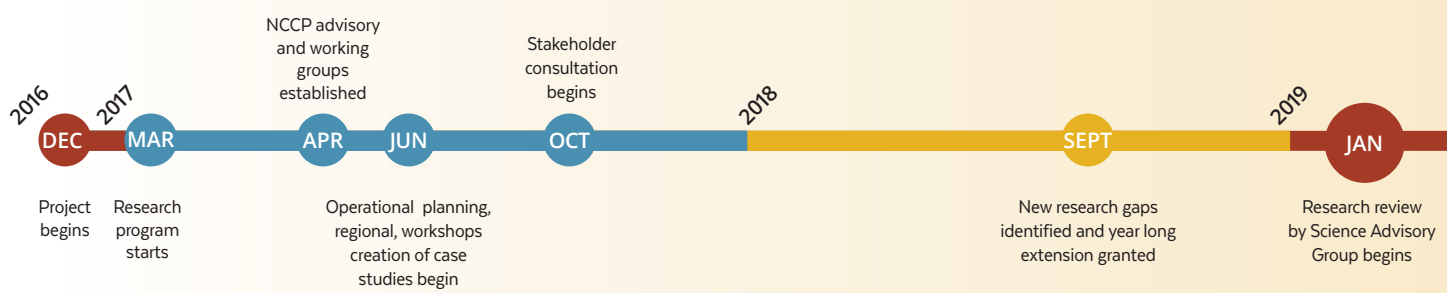
Whether you believe controlling carp using biocontrol is a good idea or not, completing the broad program of research and planning now underway will enable government to make an informed decision about whether or not it could reduce carp numbers in Australia's river systems.



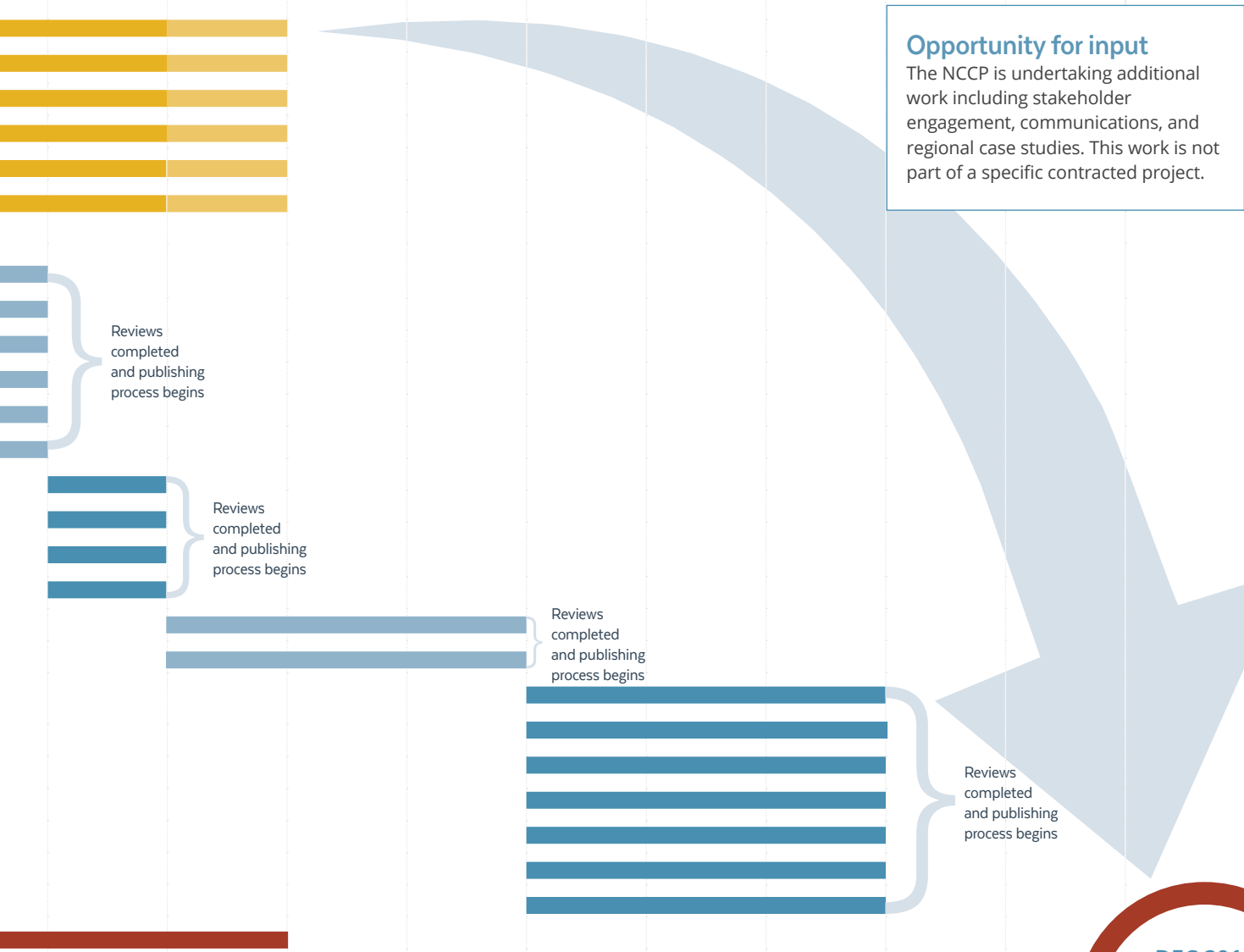
# NATIONAL CARP CONTROL PROJECT TIMELINE

PROJECT NUMBER	PROJECT TITLE	JAN	FEB
<b>ISSUES PAPERS</b>			
	1. Release strategy (why and the justification)		
	2. Operations strategy		
	3. Managing water quality		
	4. Environmental assessment and ecological recovery		
	5. Social and economic assessment		
	6. Safety of releasing the virus		
2016-153	Preparing for carp herpesvirus: a carp biomass estimate for eastern Australia		
2016-158	Development of strategies to optimise release and clean up strategies underpinning possible use of <i>Cyprinid herpesvirus 3</i> (CyHV-3) for carp biocontrol in Australia		
2016-183	<i>Cyprinid herpesvirus 3</i> and its relevance to humans		
2017-104	The likely medium to long-term ecological outcomes of major carp population reductions		
2017-148	Identifying synergistic genetic biocontrol options for <i>Cyprinus carpio</i> in Australia		
2017-094	Review of carp control via commercial exploitation		
2016-180	Assessment of options for utilisation of virus-infected carp		
2017-055	Expanded modelling to determine anoxia risk in main river channel and shallow wetlands		
2017-056	Investigation of nutrient interception pathways to enable circumvention of cyanobacterial blooms following carp mortality events		
2017-127	Defining best practice for viral susceptibility testing of non-target species to <i>Cyprinid herpesvirus 3</i> – a discussion paper based on systematic quantitative literature reviews		
2017-054	Social, economic and ecological risk assessment for use of <i>Cyprinid herpesvirus 3</i> (CyHV-3) for carp biocontrol in Australia		
2017-237	Risks, costs and water industry response		
2016-132	Impact costs of carp and expected benefits and costs associated with carp control in the Murray–Darling Basin		
2016-170	Development of hydrological, ecological and epidemiological modelling to inform a CyHV3 release strategy for the biocontrol of carp in the Murray–Darling Basin		
2017-135	Essential studies on <i>Cyprinid herpesvirus 3</i> (CyHV-3) prior to release of the virus in Australian waters		
2018-120	Population dynamics and carp biomass estimates		
2016-152	Building community support for carp control: understanding community and stakeholder attitudes and assessing social effects		
2018-112	Carp questionnaire survey and community mapping tool – empowering the community to be part of the national solution to carp		
2017-236	National Carp Control Plan – Aboriginal Community Engagement		
<b>DRAFTING OF NCCP BEGINS</b>			
<b>DRAFT OF NCCP SUBMITTED TO DAWR FOR COMMENT</b>			
<b>FINAL DRAFT OF NCCP SUBMITTED TO DAWR.</b>			

PRELIMINARY RESEARCH INFORMS ISSUES PAPERS



MARCH	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
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**Opportunity for input**  
 The NCCP is undertaking additional work including stakeholder engagement, communications, and regional case studies. This work is not part of a specific contracted project.

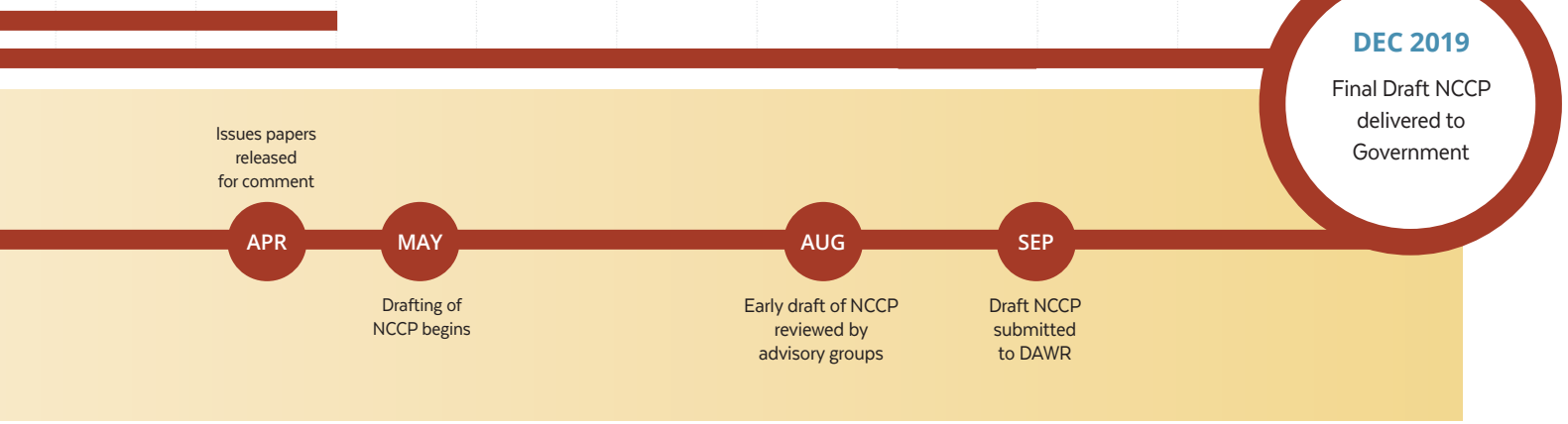
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## RESEARCH UPDATE

The research program for the NCCP consists of a suite of interconnected research projects. As projects are completed, results will be incorporated into issues papers.

### Research planned for first quarter 2019

#### Excretion and transmission experiments

During 2019, additional experiments will be completed as part of project 2016-170 to understand more about the mechanisms by which the virus *Cyprinid herpesvirus 3* CyHV-3 is transmitted from infected to susceptible carp. Results from these experiments will inform the virus transmission epidemiological components of the NCCP epidemiological modelling project.

#### Carp mortalities and water treatment processes

Experimental methods and approaches have been produced for project 2017-237, which is assessing water treatment industry responses to CyHV-3-induced carp mortalities.

#### Carp biomass estimates

Carp biomass estimates from project 2016-153 will be available within the next three months. These results are critical for the NCCP, as they will directly inform epidemiological modelling, understanding of potential water quality impacts, and assessment of the costs and benefits of broadscale carp control.

### Emerging results

#### Project 2017-148: Identifying synergistic genetic biocontrol options for *Cyprinus carpio* in Australia

This project was commissioned to assess the potential application of different genetic sex-biasing biocontrol technologies to control common carp in Australia. A suite of different measures is likely to be most effective for the long-term control of carp. The project has been conducted by Claus Wedekind of Lausanne University in Switzerland. This project considered the relative merits of emerging genetic sex-biasing technologies with the aim of identifying the most viable candidate for potential use as a synergistic tool. This included some consideration of logistical elements and social acceptability. While project results are preliminary, the “Trojan Y” chromosome technique has emerged as having the best balance

of biological effectiveness and social acceptability. The technique works by introducing “Trojan Y” fish into a population. These are fish with an altered sex chromosome that results in their offspring being mostly male. Over time, the target population’s ratio of males to females becomes increasingly skewed in favour of males, until the population eventually collapses.

#### Project 2017-104: Likely medium to long-term ecological outcomes of major carp population reductions

Carp control is based on the premise that reducing the number of carp in Australia’s waterways will improve the health of aquatic ecosystems. While there is experimental and anecdotal evidence for this, the studies have tended to involve small areas, such as single wetlands, over short periods of time. Longer-term predictions over broader geographic areas are complicated by the diversity of ecosystem types inhabited by carp in Australia, each with unique management histories and conditions. Researchers from the University of Canberra have been collecting and analysing expert views on the likely environmental responses to various levels of carp reduction over different timescales. These results will inform the formal cost-benefit analysis for carp control being done under the NCCP, which will include both market and non-market costs and benefits.

Contributors include experts from various branches of biology, ecology and physical sciences, including hydrology and biogeochemistry. The experts considered the likely responses that carp reduction would elicit among native fish, water plants, macroinvertebrates (molluscs, water bugs, yabbies, shrimp), waterbirds, amphibians, algae and zooplankton, as well as changes to water quality parameters.

For most of the ecosystems components assessed, experts considered there was potential for improvements following carp control, providing carp biomass was reduced by at least 70 per cent. Herbivorous waterbirds were an exception, with experts predicting only a minor response to carp control. For all ecosystem components, experts emphasised that responses to carp control would be context dependent. The project also includes measures of certainty underpinning the experts’ predictions.

## HOW CAN YOU GET INVOLVED?

The NCCP has been consulting extensively with communities across areas affected by carp. This work will continue in 2019.

The project team wants to understand your local waterways, what’s important about them and how you use them, and your concerns and questions so that they can be addressed in the plan.

For more information contact the National Carp Control Plan team at:  
[carp@frdc.com.au](mailto:carp@frdc.com.au)

To stay up to date with progress and submit comments online:



[www.carp.gov.au](http://www.carp.gov.au)

