Department of Primary Industries
Department of Regional NSW

DPI Primefact

Carp control in farm dams

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DPI Aquatic Biosecurity, Animal Biosecurity, Biosecurity and Food Safety

NSW Department of Primary Industries (DPI) receives many enquiries from people about how to rid their farm dams of the pest fish carp. This factsheet is designed to give a brief overview of this species, the factors that need to be considered before attempting to control carp in farm dams, and the control options available to members of the public.

Introduction

Carp (*Cyprinus carpio*) is a large freshwater fish well known in Australia as a significant pest of inland or freshwater waterways. It goes by many different names, including oriental carp, European carp, leather carp, mirror carp, king carp, common carp, and koi. Some of these reflect differences in colour or scale patterns of different varieties (e.g., the decoratively coloured ornamental 'koi' varieties) however all belong to the same species.

Origin and distribution

Carp originated in Central Asia, but they are now distributed throughout Asia, Europe, the Middle East and the Americas. Carp are one of the most widely distributed freshwater fish in the world.

In Australia there are well-established carp populations in NSW, Victoria, the ACT, South Australia, and in more restricted areas in Tasmania, south-western Western Australia, and Queensland.

In NSW, carp are widely distributed throughout most of the Murray-Darling Basin as well as several coastal river systems (including the Hawkesbury-Nepean, Shoalhaven and Richmond Rivers and Prospect Reservoir).

Figure 1 Carp are often found in farm dams in areas where carp are prevalent (Photo: Ben Rampano, NSW DPI)

Description

The colour of carp varies. Wild carp are usually olive green to bronze or silvery in colour, while ornamental 'koi' carp show a wide variety of colours including orange, yellow, white and black markings. Carp can grow to a very large size, although in Australia they reach a maximum of around 10 kg, with weights of 4-5 kg being more common.

Biology and ecology

Carp are very versatile and can live in a great variety of habitats including highly degraded areas. Changes to water flows, declining water quality and other changes to river habitats over the past few decades have favoured carp while negatively affecting many native fish.

Under suitable conditions carp are highly prolific. They mature early and produce large numbers of sticky eggs. Flood conditions appear to be especially favourable for carp breeding, providing abundant food for both adults and juveniles.

Legal issues

The *Biosecurity Act 2015* commenced on 1 July 2017. This new biosecurity legislation introduces the general biosecurity duty. This means that people are expected to have a basic level of knowledge about the biosecurity risks they might encounter in their normal work and recreational activities. All community members have a general biosecurity duty to consider how actions, or in some cases lack of action, could have a negative impact on another person, business enterprise, animal, or the environment. We must then take all reasonable and practical measures to prevent or minimise the potential impact.

Note: It is illegal to use live carp as bait

It is not illegal to immediately return any captured fish, even carp, to the waters from which they were captured (except tilapia, *Oreochromis mossambicus*). However, because carp are a significant pest fish and NSW DPI strongly encourages anglers to humanely euthanise and utilise captured carp, or responsibly dispose of captured carp to general waste rather than returning them to the water.

What can you do if you have carp in your farm dam?

It is not uncommon for carp to be found in farm dams in areas where carp are prevalent in surrounding waterways. Carp can move into farm dams during high flow or flood events or may even be carried as eggs on the feet of waterbirds.

There are limited options available for farmers or landholders to control carp.

OPTION 1: Attempt to eradicate carp from the dam

Under specific circumstances you may be able to eliminate carp from your farm dam through draining and drying. Use the following checklist to determine if this is feasible.

Can the dam be drained/de-watered?

Draining/de-watering your dam is the only way to completely remove carp. However, this option depends on several factors including:

- How important is the dam as a water source? Do you have alternative stock watering points or irrigation sources until it can be refilled?

Figure 2 Common Carp (Image: Pat Tully, NSW DPI)

- If natural drainage is not possible, do you have the necessary equipment (pumps etc.) to de-water the dam?

Can the dam substrate be completely dried out?

Once carp are removed from the dam, the bottom of the dam must be thoroughly dried out to ensure that no eggs or juveniles survive. This may be very difficult or impossible to achieve if the dam is spring-fed or in areas with high rainfall or elevated water tables. Discing the soil may help speed the drying process. However, care needs to be taken to ensure that the integrity of the dam seal remains intact as discing may expose sand, gravel or porous areas which will result in the dam leaking.

Does the dam form part of a river or creek system which contains carp upstream?

Is the dam subject to flooding by a nearby waterway which contains carp?

Is the dam connected to an irrigation structure that has carp in it?

Is water pumped into the dam from a nearby river containing carp?

If you answer 'yes' to any of these questions, then it will only be a matter of time before carp recolonise the dam, either naturally (dispersed during normal or high flow events) or through pumping of water containing eggs or juveniles. You will need to weigh up the effort involved against the likelihood of success.

If you determine that it is feasible to drain and dry your dam to remove carp, there are some important considerations to keep in mind before proceeding:

1. In many cases carp will also be present in surrounding waterways. If this is not the case (e.g. because carp were originally stocked in the dam) great care will need to be taken to prevent water draining into any natural creek or river system and infesting it with carp.

   Note: there are penalties for introducing live fish into any NSW waters without a permit.
2. The safest option is to use the water for irrigation, at a rate which does not exceed the soil's infiltration ability (the soil's capacity to accept the water). This may mean siphoning off the water rather than pumping it, to reduce the flow rate.
3. Draining the dam may result in a large number of dead and dying fish which will need to be collected and disposed of humanely and appropriately.
4. When the dam is refilled, you should consider re-stocking it with native fish that are endemic to your area, to reduce the chances of reinfestation with carp.

Note: Careful consideration must be given to the potential impact on native fish and other flora and fauna when implementing the draining and drying method, especially in wetland areas and associated water bodies where acid sulphate soils are known to occur.

Draining and drying may require the completion of a review of environmental factors (REF) and/or a permit; therefore, local agencies must be consulted regarding any requirements before attempting this method.

OPTION 2: Reduce the number of carp in the dam

In some cases, even though it may not be possible to eradicate carp you may wish to take action to reduce their numbers and impacts. Line fishing in conjunction with stocking your dam with appropriate native fish may help in reducing carp numbers.

Line Fishing

Legal fishing methods to remove carp from your dam are via line fishing and using a landing net. Line fishing may assist with removing larger carp from the dam. It may help reduce numbers in the short-term, but as carp reproduce quickly line fishing will not eradicate the carp even with a sustained effort over a long period of time.

Bread, corn, and worms are common baits used by anglers to target carp, using a line and small hook.

For details about legal recreational fishing methods in NSW please refer to the current 'Freshwater Fishing Guide' at https://www.dpi.nsw.gov.au/fishing/recreational/fishing-rules-and-regs/freshwater-recreational-fishing-guide.

Methods to aggregate carp

Fishing methods will be more effective if you can aggregate carp in a small area before trying to catch them. Methods to aggregate carp include:

- Try training the carp to come to a particular part of the dam by feeding them (e.g., using chook pellets or corn kernels) in that location over several weeks.
- During winter carp may be attracted to warmer areas of a dam, such as a source of warm water. For example, a long length of polypipe filled with water can be left to warm in the sun, then the water can be drained from the pipe into an accessible part of the dam to attract carp. Using warm water to attract carp will work best if they are trained by releasing water at the same place and time each day for several weeks before attempting any fish removal.
- Using a pump to create a point of flow within the dam may also result in carp aggregating around the water flow.

Figure 3 Dispose of caught Carp humanely and appropriately (Photo: Milly Hobson, NSW DPI)

Re-stocking your dam with native fish

Stocking your dam with native fish may assist with the control of carp, especially if the carp are juveniles. The species selected should be endemic to the area. For information on stocking native fish in your dam visit the website:
https://www.dpi.nsw.gov.au/fishing/recreational/resources/stocking

For information on making your farm “fish friendly” and how to protect and improve fish habitat search for “fish friendly farms” at www.dpi.nsw.gov.au.

Help prevent the spread of carp and other aquatic pests

- Only keep koi in places such as secure garden ponds and other secure outdoor containers where they cannot escape into natural waterways, even during flood events.
- Remember that other than immediate return of fish at point of capture, it is illegal to release live fish, including carp, into streams, rivers, or lakes in NSW without a permit and heavy penalties apply.

- Do not use live carp as bait. The use of live carp as bait in freshwater is illegal and carries a high probability of infesting new areas with carp.
- Do not return pest fish to the water – although it is not illegal to immediately return any captured fish to the water where you caught it (except for tilapia), NSW DPI strongly encourages fishers to discharge your general biosecurity duty by humanely dispatching and utilising or responsibly disposing of carp and other pest fish rather than returning them to the water.
- Ensure your fishing gear and boating equipment is free of weed before use/re-launching to avoid the possibility of spreading carp eggs (which are extremely sticky) or juveniles.
- Manage your land in a way that reduces damage to natural waterways, for example by restricting stock access to stream banks and conserving or restoring riparian vegetation.
- Assist efforts to restore our rivers (which can help native fauna to out-compete carp) by taking part in a Rivercare, Landcare, Waterwatch or a NSW DPI aquatic habitat rehabilitation project.
- Don't dump that fish! Give unwanted aquarium fish to friends or a pet shop, rather than letting them go in the wild.

Note: it is illegal to release any fish to NSW waters without a permit.

- Report any sightings of carp outside their known distribution to your local NSW DPI Fisheries Office or DPI Aquatic Biosecurity (contact details below).

To report the sighting of aquatic pests

You can report suspected aquatic pests or diseases through one of the following:

- Call the 24-hour Emergency Animal Disease Hotline: **1800 675 888**
- Complete the online form (https://forms.bfs.dpi.nsw.gov.au/forms/9247)
- Email: aquatic.biosecurity@dpi.nsw.gov.au

More information

DPI Aquatic Biosecurity Program
Port Stephens Fisheries Institute
Nelson Bay NSW 2315

P: 02 4916 3900

E: aquatic.biosecurity@dpi.nsw.gov.au

W: www.dpi.nsw.gov.au/fishing/aquatic-biosecurity

These NSW DPI publications can be found at www.dpi.nsw.gov.au:

- 7 Key Tips for a Fish Friendly Farm: http://www.dpi.nsw.gov.au/fishing/habitat/publications/pubs/7-key-tips-for-a-fish-friendly-farm

References and further reading

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