

A wide-angle photograph of a calm river or lake. In the background, a dense forest of green trees covers a hillside. A small white boat with a person inside is visible on the water. The scene is shrouded in a light mist or fog, creating a serene atmosphere. The text 'key tips for a fish friendly farm' is overlaid in white on the lower part of the image.

key tips for a fish friendly farm

snags | vegetation | crossings | run-off | fencing | floodgates | wetlands



Native fish need shelter, clean water, food and the ability to move up and down stream. Here are some actions you can take to benefit native fish life in the waterways on or near your farm. They can also improve water quality, stabilise streambanks and reduce erosion, increase farm productivity, improve farm infrastructure, reduce stock loss, increase stock health and improve the value of your farm.



1 Have large woody debris (snags) in your streams

When trees fall into a river they create large woody debris or snags and provide one of the most important habitats for fish within a river or creek. In some cases, numbers of native fish in a waterway are directly related to the amount of wood. Large woody debris provide protection from predators, shelter from direct sunlight, resting areas out of the main flow, territorial markers, breeding sites and foraging sites and make great fishing spots for Black Bream. Large wood in streams can also increase bank stability and reduce waterway erosion.

What you can do

- Let 'sleeping logs lie' wherever possible
- Modify wood by lopping, realigning or moving in preference to removal
- Consider 're-snagging' if your waterway is free of large woody debris, because the wood can provide immediate benefits to fish. Consult with your local catchment group before you take action to ensure works maximise benefits to fish
- Re-establish native riparian vegetation to ensure a future source of large woody debris



Carefully reintroducing wood habitat through resnagging can benefit a range of native fish.



2 Grow native vegetation on the stream banks (riparian area)

Fish and other aquatic species prefer rivers with good riparian vegetation because the plants:

- Provide food in the form of terrestrial insects, and plant/organic matter (Marron actually eat decaying plant matter!)
- Shelter, shade and control temperatures during our hot WA summers
- Are a direct natural source of large woody debris/snags
- Growing native vegetation on river banks can filter sediments and in some situations phosphorus and organic nitrogen from run-off before it enters waterways.

Non-native vegetation such as willow oak and pine trees invade river banks and exclude native vegetation, changing the structure and function of the riparian zone, creating a poor habitat for native fish. Willows are deciduous, dropping their leaves all in one go. This alters the timing and quality of organic inputs in the stream, causes wide temperature variations and reduces the amount of shade and protection.

What you can do

- Control stock access to waterways and limit grazing in riparian areas
- Revegetate riparian areas in layers with a mix of species native to your area
- Control weeds during revegetation
- Both Roundup Bioactive® and Fusilade® can be used to control weeds near waterways (provided product instructions are followed).
- Fusilade® is a selective herbicide, designed only to kill grasses, and will not harm most native plants. Maintain a well-vegetated buffer area (grass margin) between cropland and riparian areas
- Eradicate kikuyu and other exotic plant species (though ensure adequate revegetation with native species follows).
- Work with your neighbours to prevent re-infestation from an upstream source

Photo: Densely vegetated stream banks shade the waterway and help to control water temperature which is important for Marron.



shutterstock Dmitry Sedakov

3 Provide water for stock offstream

When stock drink directly from streams they have the potential to reduce water quality, cause bank and stream bed erosion, damage riparian vegetation and cause the loss of habitats for fish and other wildlife. While much of the faeces from stock is deposited in paddocks, when cattle do access waterways there is a big chance of them defecating. In fact, cattle defecate 25% of the time when drinking, 1kg of phosphorus from manure can result in the growth of up to 500 kg of algae¹. Faeces from stock are just one of a number of sources of phosphorus in waterways which can contribute to algal blooms that can choke waterways and may be toxic to fish, other aquatic life, livestock and people.

What you can do

- Provide a number of off-stream watering points. Studies have shown that even without fencing, stock prefer to drink clean water from a trough even if they have access to stream water. There are also examples of stock performing better when drinking from troughs.
- Pipe from an existing supply or pump water from a bore or waterway to troughs in the paddock.
- If complete restriction is not viable, manage stock access with limited, carefully considered drinking points



Stock access to waterways can erode habitat for small species such as glass shrimp which provide an important food source for black bream and other native species.



4 Control or treat agricultural run-off

Run-off from agriculture is a source of sediment and nutrients. Chemicals such as pesticides are suspected of causing 8% of fish kills in NSW over the past 20 years (NSW Fishkill Database). Pesticides can affect fish by:

- Reducing reproductive success and life expectancy
- Increasing the incidence of abnormalities
- Causing skeletal defects and growth reductions

Suspended sediments in waterways (turbidity) can smother fish eggs, clog gills, and increase stress levels and disease. Deposited sediment can smother whole stream beds, filling in important breeding and refuge sites such as deep holes, reducing available habitat and increasing the input of sediment bound toxins.

What you can do

- Ensure riparian areas are fenced and well planted with native vegetation to reduce erosion of stream banks from stock access
- Use chemicals conservatively, and apply with care especially near waterways
- Maintain a fertiliser buffer where nutrients are not applied adjacent to streams
- Support the use of biologically sensitive herbicides and pesticides
- Use an evidence based approach such as soil testing coupled with a Fertcare accredited advisor to make fertiliser decisions and keep track of your soil health
- Use an Accuspread accredited contractor when spreading fertiliser, and ensure your own spreading equipment is calibrated
- Retain and protect wetland areas as they have the potential to retain some nutrients captured in run-off
- Consider sealing gravel roads and unsealed tracks
- Avoid driving through creeks and waterways where possible, and install culverts over waterways that vehicles must regularly cross.

Photo: Healthy riparian zones can filter run off ensuring good water quality that is needed by native fish including Black Bream.



5 Protect your wetlands

Wetlands are low-lying areas inundated with water on a temporary or permanent basis. These areas have many important ecological functions. They can filter sediments and toxic materials from water before it drains into the main waterway. Wetlands also provide essential feeding, breeding and nursery habitats for many fish species.

What you can do

- Revegetate wetland areas that have been cleared, using native species
- Fence stock out of wetland areas, and only use them for grazing in droughts
- Modify water retention devices (eg floodgates) to mimic natural flow regimes
- Identify acid sulfate soil areas and seek advice on their management
- Consider the role re-established wetlands may be able to play as a filter for farm run-off

Photo: Healthy wetlands support a diverse ecosystem, and provide essential habitat for migratory birds, invertebrates and native fish. Revegetating wetlands is an important part of a fish friendly farm.



Do you need some help in making your farm fish friendly?

Southcoast Natural Resource Management and Ozfish Unlimited can provide additional advice:

South Coast NRM

P: 9845 8537 e: info@southcoastnrm.com.au

Ozfish Unlimited

P: 0435 828 116 e: ozfishunlimited@gmail.com
www.ozfish.org.au

Funding for making farms fish friendly

There are lots of sources of funds you can apply for to help make your farm fish friendly, below are just a couple to get you started.

Community Action Grant

www.nrm.wa.gov.au/grants/state-nrm-program.aspx

Smart Farms Small Grants

<https://www.grants.gov.au/?event=public.GO.show&GOUUID=91F42211-B949-D848-EED0FC748C00CBEE>

Recreational Fishing Initiatives Fund

www.recfishwest.org.au/funding-projects/large-grants/

This brochure was adapted from the "7 Key Tips for Fish Friendly Farms" document produced by NSW Department of Primary Industries (Fisheries) as part of their Fish Friendly Farms program"

More information

Technical information on improving habitat in streams and riparian zones is available from your nearest NRM office and on the internet. Department of Primary Industries and Regional Development (DPIRD) can be contacted for information about soil testing and fertiliser management.

Land and Water Australia technical guidelines www.lwa.gov.au/products.asp

- 1 **Designing filter strips to trap sediment and attached nutrient** (May 2001)
- 2 **Managing nutrients in floodplain wetlands and shallow lakes** (July 2002)
- 3 **Managing wood in streams** (June 2003)
- 4 **Development & application of a method for the rapid appraisal of riparian condition** (February 2004)
- 5 **Managing high in-stream temperatures using riparian vegetation** (October 2004)

Land and Water Australia River and Riparian Land Management Fact Sheets www.lwa.gov.au/products.asp

- 1 **Managing riparian land**
- 2 **Streambank stability**
- 3 **Improving water quality**
- 4 **Maintaining in-stream life**
- 5 **Riparian habitat for wildlife**
- 6 **Managing stock**
- 7 **Managing woody debris in rivers**
- 8 **Inland rivers and floodplains**
- 9 **Planning for river restoration**
- 10 **River flows and bluegreen algae**
- 11 **Managing phosphorus in catchments**
- 12 **Riparian ecosystem services**
- 13 **Managing riparian widths**

Other publications

Fairfull, S. and Witheridge, G. (2003) **Why do fish need to cross the road? Fish passage requirements for waterway crossings** NSW Fisheries, Cronulla. 16pp.

www.fisheries.nsw.gov.au/publications/aquahab.htm Johnston S, Kroon F, Slavich P, Cibilic A and Bruce A (2003) **Restoring the balance: Guidelines for managing floodgates and drainage systems on coastal floodplains** (NSW Agriculture: Wollongbar, Australia). www.fisheries.nsw.gov.au/publications/aquahab.htm Brouwer D (1997). **Managing waterways on farms** (NSW Agriculture: Tocol, Australia).