

Juvenile stock in waterways

Reducing impacts on human and stock health

Landholders play an important role in protecting the health of Victoria's waterways. The presence of livestock, particularly juvenile stock, in waterways creates a risk to human and stock health.

Managing juvenile stock is the most cost-effective first action for the protection of drinking water catchments. This fact sheet provides an overview of the issues related to juvenile stock in waterways and provides steps landholders can take to help manage the problem.

What is the problem?

Stock manure contains disease-causing microorganisms known as pathogens. If stock manure contaminates drinking water sources, and the required level of water treatment is not applied, pathogens can cause serious outbreaks of human and stock disease. Poor quality water can also adversely affect stock growth, lactation and reproduction.

Two of the most common waterborne pathogens that can cause intestinal illness in humans are infectious species of *Giardia* and *Cryptosporidium*. Cryptosporidiosis, for example, is very common in cattle and can cause severe intestinal illnesses in humans.

Separating calves and lambs from waterways used for the supply of drinking water can reduce the pathogen risk to water supplies by 1,000-fold – similar to the reductions achieved by water filtration or UV disinfection systems.

Risks from juvenile stock manure

Juvenile stock, particularly calves, contain many times more of these human-infectious pathogens than adult stock. This is because juvenile stock take a while to develop resistance to the pathogens that cause cryptosporidiosis. Calf and lamb manure contain far

more human infectious oocysts¹ than the manure of adult stock. For example, calves shed 57 million oocysts per day on average in their manure, compared to a beef cow, which sheds on average 2,400 or a dairy cow at around 80,000 oocysts per day.



Cattle in a creek near Milawa, North East Victoria.
Credit: Leanne Wells, Department of Health and Human Services

The potential public health issues associated with the higher pathogen concentrations in manure from juvenile stock are further increased by the common practice of locating juvenile stock near waterways due to the availability of water, productive pastures and the shelter from wind provided by riparian vegetation².

The amount of pathogens entering waterways is also highest when stock graze on paddocks adjacent to riparian land not long before or during a rainfall event that creates run-off.

In contrast, native animals (such as kangaroos) pose a much lower risk of contaminating drinking water supplies as they are less likely to carry the human-infectious species of pathogens, and, overall, they shed much lower amounts of pathogens in their faeces.

¹ An oocyst is a thick walled structure in which each pathogen cell is 'housed' to transfer to a new host.

² Riparian land is land that abuts waterways.

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Reducing the impact of pathogens

Landholders can reduce the pathogen impact by:

- Fencing waterways on or abutting their property. Preventing **all** stock access will have the biggest impact on reducing pathogen risk from stock defecating directly in waterways.
- Excluding only juvenile stock and their lactating mothers from waterways and paddocks that adjoin waterways, **until the juveniles have been weaned at about three to four months old**. Targeting juvenile stock and lactating mothers can significantly reduce the amount of pathogens entering the waterways.
- Not applying dairy effluent to paddocks being grazed by stock less than 12 months old to reduce infection rates.
- Excluding calves from pastures grazed by infected cows.
- Establishing permanent off-stream watering points.
- Maintaining groundcover in paddocks above 80 percent, for example by changing from continuous to rotational grazing. This limits selective grazing and improves the persistence of desirable perennial groundcover species. Better groundcover reduces pathogen run off to waterways.
- Locating stock laneways away from riparian land.
- Revegetating riparian land. This helps to minimise the movement of pathogens from paddocks to waterways.

Further benefits of managing juvenile stock in waterways

Healthier and more productive stock

Stock water from troughs is of better quality than water consumed directly from waterways. Stock will drink more water if it is of better quality, leading to an increase in pasture use and feed intake, resulting in stock weight gains or, where relevant, increased milk production.

Other potential benefits for landholders include increased property values, wind protection for stock, easier stock management around waterways with reduced risk of stock injury and loss, and decreased soil erosion.

Healthier environment and improved social values

Riparian vegetation helps improve water quality in waterways. Riparian vegetation also improves habitat for birds, animals and fish. Riparian land also provides important recreational opportunities and protects cultural values.



Fenced riparian land and off stream watering for stock.
Credit: West Gippsland Catchment Management Authority

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Further reading

Department of Environment, Land, Water and Planning. 2016. *Juvenile stock in waterways – Supplementary information and resources*.

Department of Environment, Land, Water and Planning. 2016. *Managing Crown water frontages for better farms and waterways*.

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