Pugging near waterways

Pugging is when stock trample the banks and bed of a waterway, causing banks to collapse and stream beds to be disturbed; both of which provide a source of sediment into the waterway.

Stock, especially cattle, will often excrete while standing in water, leading to nutrient and pathogen issues downstream as well. Pugging also occurs in paddocks when soils are saturated, and is commonly seen in winter feed paddocks. Sediment (and nutrients, pathogens and bacteria) can drain from these paddocks and enter waterways if there is no adequate buffer to stop them.

Why is pugging a problem?

Excessive levels of sediment from pugging and bank collapse in waterways results in negative consequences for in-stream values. Directly, sediment can smother in-stream invertebrate habitat and also reduce the available sites for trout, salmon, and a number of native fish to spawn. The smothering of invertebrate habitat also has the indirect effect of reducing food availability for fish.

Rivers that are excessively turbid (muddy looking) also have the effect of reducing the feeding efficiency of all fish species as fish are visual predators and murky water reduces their ability to see prey.

a) Downstream of stock access. Sediment smothering stony bottom.

b) An area with no stock access. Pebbly bottom, good for invertebrate habitat.

Good management practices

1. Prevent stock from accessing waterways

Providing temporary or permanent fencing to keep stock out of waterways will eradicate stream bed and bank pugging. When cattle have unrestricted access to a waterway or are frequently crossing it, pugging the stream bed and banks, the water quality rules in the Water Plan are likely to be breached.

2. Prevent stock from accessing swales, wet spots

Use a temporary fence to exclude stock from these areas when wet to reduce the risk of pugging. Limit grazing on wet soils where possible, and if it must occur, ensure there is an adequate buffer margin to filter any sediment, nutrients, and bacteria that may runoff from pugged paddocks.

3. Planning ahead for winter feed crops

- If possible choose paddocks away from waterways, or at least don't cultivate close to the bank.
- Leave an adequate margin uncultivated. This will act as a buffer.
- Identify swales in the paddock that will carry overland flow when it rains heavily, and leave them unploughed as a grassed waterway.
- Ensure there is at least a temporary electric fence keeping stock back from waterbodies.
- Strip feed from the top down. This uses the rest of the crop as an added buffer between the pugged ground and the waterway.

4. Planting up unstable banks

Planting key areas around waterbodies will help stabilise banks, provide shelter for stock, habitat for birds, and help improve water quality. You will need permanent fencing to achieve this. Rock can also be used to stabilise where suitable.

5. Providing separate stock water
Stock will generally go to a stock water trough if it is available.

6. Feed out in the driest areas
This encourages stock away from the waterways.

Rules for stock grazing near waterbodies

Under the Water Plan, stock grazing in or around waterbodies is a permitted activity only when:

- no water take is affected;
- the stock do not cause slumping, pugging or erosion on the bank, or a conspicuous change in the colour or clarity of the lake or river;
- no wetland identified in the Water Plan is affected;
- stock do not disturb indigenous vegetation or the habitat of indigenous fauna, trout or salmon.

If you cannot meet all the permitted activity conditions you will need a resource consent.

Same stretch of river, before, with stock access and pugging letting sediment into the waterway: prosecution level of pugging; and after, with a fenced buffer stopping stock access and therefore no pugging.

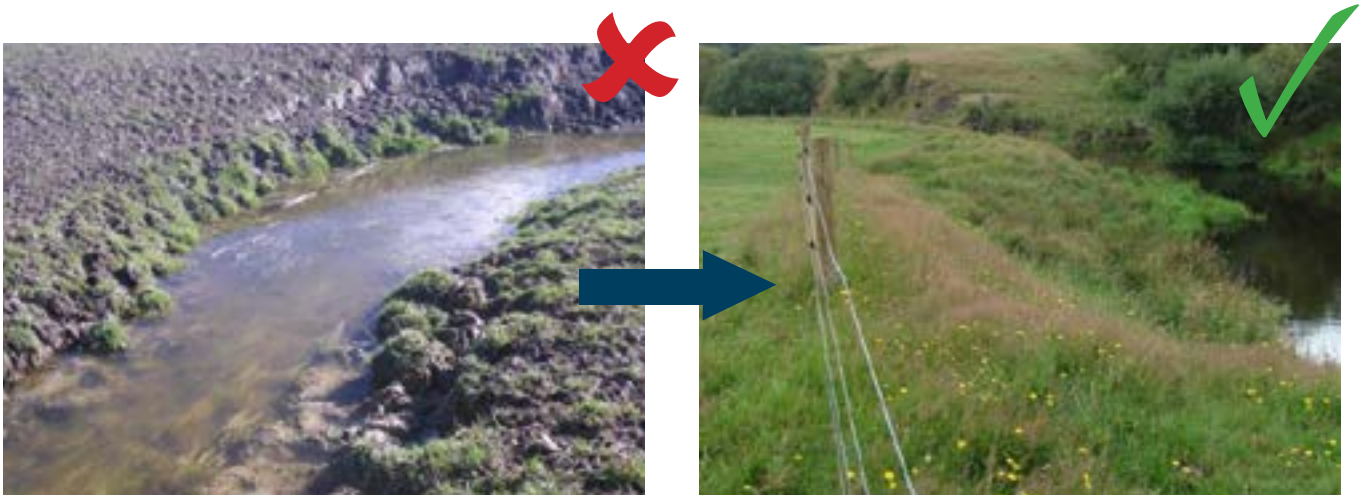

Photo on left shows prosecution level pugging of stream banks and bed. Farmer has since fenced and has a large rank grass buffer. Photo on right shows good riparian fencing to exclude stock access to waterway. A six metre buffer margin has been left in rank grass for maximum filtration.