



## WATERING LIVESTOCK DIRECTLY FROM WATERCOURSES

This Factsheet discusses direct access to watercourses for livestock watering.

### Livestock and Watercourses

Livestock that have free access to watercourses may impact both the water quality and the land bordering the watercourse (the riparian area). Impacts can include such things as: direct deposit of urine and manure into the water; deposit of manure onto low land that is seasonally flooded or where it can be washed into a watercourse; spawning bed trampling; streambank trampling and siltation of the water; and removal of riparian vegetation. Livestock impacts are usually related to the duration and timing of use, the livestock density, and the nature of the watercourse.

Good stewardship by the agricultural land user includes preserving the integrity of watercourses, streambanks, and riparian areas through environmentally responsible livestock management.

While livestock can cause impacts, this does not mean all livestock need to be denied direct access to watercourses. It does, however, mean that stockmen need to use appropriate, environmentally sound, methods to water livestock.

### The Concerns

Impacts to a watercourse from livestock are primarily either from manure and urine or from hoof action.

**Water Quality - Fish.** Livestock manure contains a number of contaminants, such as ammonium, nitrates, nutrients, pathogens and solids that degrade water quality and adversely affect fish.

Livestock-caused streambank or streambed disturbances can add soil and silt to a watercourse, covering spawning gravel and smothering incubating eggs, reducing survival rates.

Manure is a high oxygen demanding substance (measured as *biochemical oxygen demand* or BOD). It uses oxygen directly as it decays, and indirectly due to its nutrient content (that promotes growth of aquatic organisms that will use oxygen when they die and decay). This results in water with reduced dissolved oxygen levels. Lowered oxygen levels imperil fish. This is particularly sensitive as water temperature increases, as warm water holds less oxygen than cool water.

**Water Quality - Domestic.** The above contaminants can all adversely affect the domestic use of water and are a human health concern, for instance pathogens such as cryptosporidium parvum (“crypto”).

**In-Stream Fish Habitat.** Livestock that walk on spawning gravel can contribute to egg or hatchling mortality during that period of the year when fish eggs are incubating or recently hatched in the gravel.

**Riparian Areas.** Riparian areas need to be managed to maintain their functions and values. When livestock use these areas, prevent overgrazing, maintain vegetation cover, prevent erosion and otherwise manage them to prevent riparian degradation. Fish and other marine species rely on the health of the riparian vegetation as it is an important component of fish habitat providing cover, shade and food for fish. Wildlife is attracted to these areas for bedding, nesting, bedding and foraging, as are livestock.

**Upland Area Livestock Management.** The way in which livestock are managed on upland areas adjacent to watercourses is also important to watercourses. How they are fed, mineral site locations, where they bed down, where manure is deposited and spread, the slope of the land toward the watercourse, the rainfall and snowmelt runoff etc., are all management factors that influence the amount of manure and erosion impacting a watercourse.

## The Legislation

While various acts regulate agriculture and environmental concerns, the following acts are of primary importance to livestock use of watercourses.

**Environmental Management Act.** The *Agricultural Waste Control Regulation* of this provincial act contains the *Code of Agricultural Practice For Waste Management*. The *Code*, administered by the Ministry of Environment, deals with agricultural wastes and pollution concerns.

[http://www.qp.gov.bc.ca/statreg/reg/W/WasteMgmt/131\\_92.htm](http://www.qp.gov.bc.ca/statreg/reg/W/WasteMgmt/131_92.htm)

This *Code* recognizes that the impacts to watercourses from the unrestricted access by livestock vary with how livestock are managed. It describes three types of outdoor feeding areas and limits livestock access to watercourses:

- **Grazing Areas.** Grazing areas are pasture or rangeland where livestock are primarily sustained by direct consumption of feed growing on the area. Livestock are maintained at a density where no additional feed is provided other than that which is available from grazing.  
*Livestock in grazing areas may have access to watercourses providing the livestock do not cause pollution (Code, Section 25).*
- **Seasonal Feeding Areas.** These are unique areas as they are used for both crop production and, during the non-growing season, they are used as livestock feeding areas. They are commonly known as overwintering sites, calving areas, lambing areas, foaling areas, etc.  
*Livestock in seasonal feeding areas may have access to watercourses provided that feeding is in accordance with Section 26 of the Code and that the access is located and maintained as necessary to prevent pollution (Code, Sections 26 and 27).*

- **Confined Livestock Areas.** These are outdoor, non-grazing, non-crop areas where livestock are confined by fences, other structures or topography. They are commonly known as feedlots, paddocks, corrals, turn-out areas, exercise yards and holding areas. The manure produced is in excess of the site requirements and must be removed for spreading as a fertilizer onto cropland.  
*Livestock in a confined livestock area cannot have access to watercourses (Code, Sections 28 and 29).*

Producers must install a watering system for livestock in these areas.

**Wildlife Amendment Act 2004.** This provincial act makes changes to the Wildlife Act to include protection of species at risk on Crown and private lands in BC.

**Fisheries Act and Species at Risk Act.** These federal acts have sections to protect wildlife, fish, aquatic life, and their habitats. Impacts to habitat or the deposit of deleterious substances into watercourses are prohibited, both of which could occur from livestock access to watercourses.

*Fisheries Act:* <http://laws.justice.gc.ca/en/F-14/59482.html>

*Species at Risk Act:*

[http://www.parl.gc.ca/common/Bills\\_ls.asp?lang=E&Parl=37&Ses=1&ls=C5&source=Bills\\_House\\_Government](http://www.parl.gc.ca/common/Bills_ls.asp?lang=E&Parl=37&Ses=1&ls=C5&source=Bills_House_Government)

## Direct Access Practices

While watering livestock directly from natural sources includes a pollution risk, well developed and managed access sites will greatly reduce any environmental impact. Direct access to a watercourse may be classified as either managed or unrestricted. Various factors relating to both the site and the type of livestock management will determine the preferred choice of access such as:

- livestock management, such as the timing, duration and intensity of use
- the riparian area soil, moisture and vegetation (bare soil or sparse vegetation; light sandy soil; saturated soil; or clay soil sites are more prone to erosion and may require improvements)
- the stream bottom composition (solid, gravelly areas, while providing good livestock footing, may be good fish habitat sites and may require restricted access in fish-sensitive areas)
- watercourses that experience high flows from storm events (such as winter storms in coastal areas when soil is saturated) or high flows from spring freshets (such as occurs in interior regions of BC) may be more sensitive to livestock impacts
- sensitive riparian areas (such as easily eroded stream banks)
- instream and downstream uses of the water

Regardless of the type of livestock access, implement the following practices:

- provide good grade and footing for livestock at access points
- place salt, minerals or supplemental feed away from the riparian area to attract livestock away from the watercourse
- keep upland surface water from entering the watercourse at the access by berming the approach to redirect runoff away from the sloped access, as shown in the sketch on page 5
- clean up manure from the sloped access from time to time

- for managed access, where possible, enclose the watercourse end of the access to prevent livestock from entering the watercourse (use removable panels on streams subject to high freshet flows, as shown in the photographs on the next pages)
- unless unrestricted access is chosen, fence or otherwise block unneeded access areas

Choose the following access options by matching the conditions at the watercourse access site to the density, duration and timing of livestock use. (Note that an approval from Ministry of Environment is required for work “in and around” a watercourse.)

**Managed Access.** Restricting access will limit livestock impacts on water quality and sensitive streambank areas but will concentrate impacts onto the access site. Specific, low risk sites should be chosen along the watercourse to be used as access points. They may require some maintenance depending on the concentration of livestock. Use a fence or other means to control access and a small berm to direct upslope surface water away from direct flow into the watercourse at the access location. Refer to pictures on the next pages.

In some cases improvements to the access may be needed because of soil, streambank, or intensity of use on the site. High-use, direct access points may benefit from improvements such as improved access grade, or surface improvements such as gravel or geosynthetics and gravel. Refer to Factsheet 590.302-2 *Improved Livestock Access to Water Using Geogrids*.

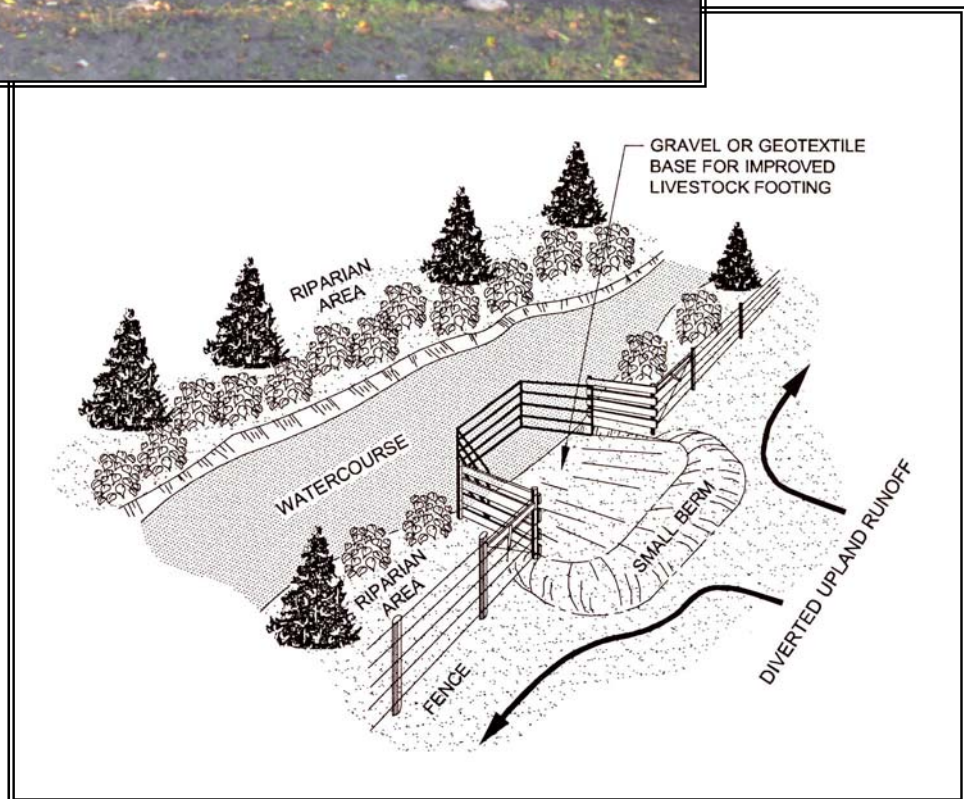
**Unrestricted Access.** This option may have the greatest risk of pollution unless carefully matched to the livestock use. Evaluate such access with the characteristics of the site and degree of expected livestock activity in mind. This type of access is commonly used on sites of low density grazing, such as on dryland pastures. It may not be appropriate for high-use sites, such as summer-long grazing on irrigated pastures.



#### **Restricted Livestock Access To A Pond**

The fence denies livestock access to the pond except at the chosen watering point.



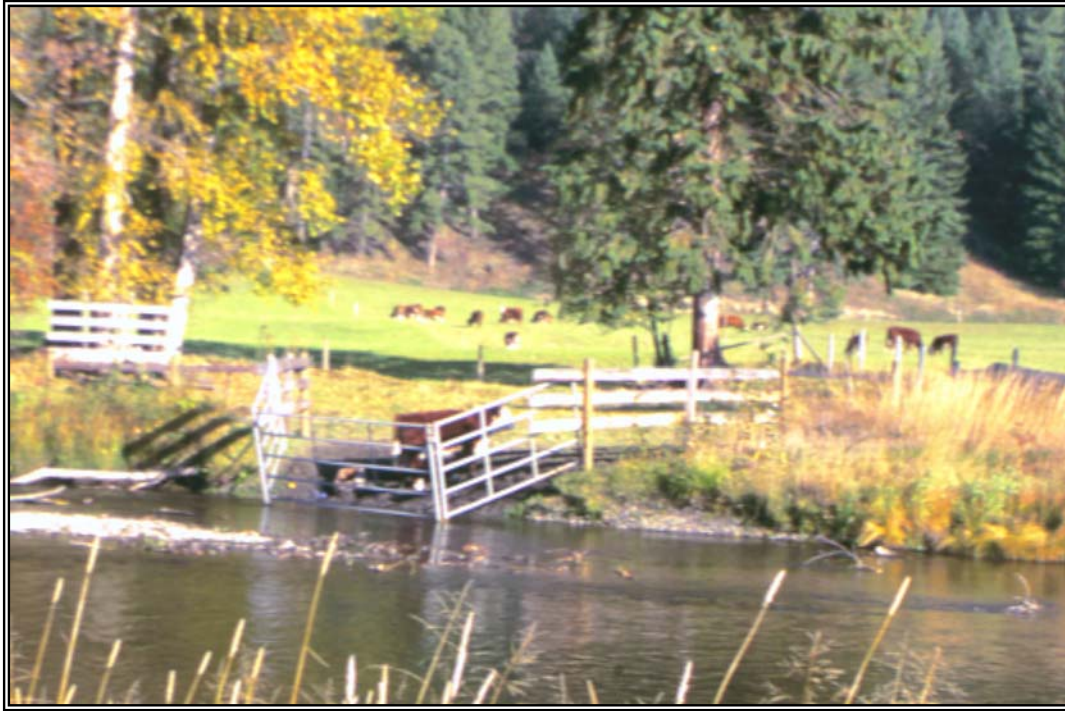


**Restricted Livestock Access To A Stream**

**- Viewed From the Livestock Side -**

Steel panels complete the fence during low water to prevent livestock from entering the stream. They are removed during high water stream flows

Wooden fence rails on the approaches to the access are preferred over wire fencing.



**Restricted Livestock Access To A Stream**

**- Viewed From the Water Side -**

Wooden fence rails are used on the high pressure approaches to the access point.  
Removal steel panels are used into the stream.

---

**RESOURCE MANAGEMENT BRANCH**

Ministry of Agriculture and Lands  
1767 Angus Campbell Road  
Abbotsford, BC V3G 2M3 Phone: (604) 556-3100

**WRITTEN BY**

Lance Brown  
Engineering Technologist  
Kamloops Office