



You are here : [Home](#) > [River](#) > [Water and Sediment Quality](#) > **Water and Sediment Quality Guidelines**

[RAMP](#)[RIVER](#)[PEOPLE](#)[RESOURCES](#)[ENVIRONMENTAL MANAGEMENT](#)

Water and Sediment Quality Guidelines

Scientifically-established water and sediment quality guidelines help protect aquatic ecosystems by setting acceptable levels for chemical substances—for example, metals, organic chemicals, and nutrients—that may be found in the aquatic environment. Concentrations of chemicals below the guidelines are generally considered “safe”, and are not expected to lead to negative effects on the environment or aquatic organisms (Environment Canada 2004).

Alberta Environment has developed *Surface Water Quality Guidelines for Use in Alberta* for the protection of aquatic life; guidelines for both acute (i.e., maximum concentration) and chronic (i.e., continuous) exposure to different chemicals are included (AENV 1999). The Canadian Council of Ministers of the Environment (CCME) has also developed a set of water and sediment quality guidelines (the Canadian Environmental Quality Guidelines) for protecting freshwater aquatic life.

Environmental quality guidelines can vary between provinces and countries because of differing natural environments, research capabilities and priorities. Screening water and sediment quality data against relevant guidelines—that is, guidelines applicable to the area under study—can indicate current or potential environmental degradation. However, guidelines can be exceeded due to natural events, not just pollution. For example, concentrations of total iron in the lower Athabasca River often exceed guidelines, even at locations minimally impacted by human activities, due to the characteristics of minerals within the basin (RAMP 2008). Site-specific environmental quality objectives can be established where guidelines may be inappropriate due to unique natural conditions in those areas.



Guidelines provide a benchmark against which environmental quality data can be compared.

Source: Hatfield Consultants 2007
(click to enlarge)

[Next page: Aquatic Ecology](#) ►

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