Sediment coefficients used to develop sediment target and load allocations for the Lower Clark Fork River sediment TMDL.

Land use	Coefficient (tons/acre/year)	Reference
Anthropogenic canopy alteration high	0.21	Within ranges recorded for harvest activities.
Anthropogenic canopy alteration medium	0.07	Within ranges recorded for harvest activities.
Anthropogenic canopy alteration low	0.025	Within ranges recorded for harvest activities.
Anthropogenic slide	Volumes reported in cubic meters. Volume multiplied by 2.72 to convert to tons. Applied regression analysis to determine sediment contribution.	Stream delivery volume obtained from IDL CWE reports
Natural slide	Volumes reported in cubic meters. Volume multiplied by 2.72 to convert to tons. Applied regression analysis to determine sediment contribution.	Stream delivery volume obtained from IDL CWE reports
Forest Roads	McGreer equation used to determine sediment export from forest roads based on CWE scores, given 10% delivery.	Road scores obtained from CWE reports.
Forest Roads within 200 feet of stream	McGreer equation used to determine sediment export from forest roads based on CWE scores, given 100% delivery.	Road scores obtained from CWE reports.
Wild fire high (2000-1990)	0.10	Values derived from WAG input and from best professional judgment.
Wild fire low (1979-1970)	0.025	Values derived from WAG input and from best professional judgment.
Natural background (Forest)	0.023	Developed based on geology of the watershed and used in previously approved TMDL in northern Idaho.

Sediment coefficients used as of 3/29/06.

Sediment Coefficients

All attempts were made to use the most applicable and accurate data available to determine appropriate sediment yield coefficients. Coefficients were developed from a mixture of

literature, approved TMDLs, group discussion and professional experience. Coefficients were designed to provide a relative rather than an exact estimate of sediment yield within the basin. The processes used attempts to characterize all known sediment contributing land activities separately.

Target Selection

Although it is well understood that streams have the ability to process sediment levels above natural background levels, it is not well understood to what level this is possible before impairment occurs. A multitude of options were explored when developing the sediment target used in the Lower Clark Fork River sediment TMDL. Sediment load targets have been set at various levels with northern Idaho. To determine the most appropriate target each watershed must be evaluated on an individual basis.

Reference streams (conditions) were chosen to determine the appropriate sediment target to be used. Reference streams were chosen based on an extensive knowledge of the watershed. Land use activities within the watershed were mapped using a Global Information System (GIS) software package. Once the desired land uses (see above table) were mapped the area for each land use could be determined. Sediment yield coefficients were then applied to the appropriate land use and multiplied by the associated acreage. A pre-anthropogenic value was determined by multiplying the acreage of the watershed by the natural background sediment coefficient. The percentage above natural background was then derived.

The current sediment yield condition (percentage above natural background) of the reference streams were then analyzed to determine the most appropriate sediment yield target for the Lower Clark Fork River basin. Once the sediment yield target was selected all other sub-watersheds within the Lower Clark Fork River basin were analyzed to determine sediment yield reductions when appropriate.

The sediment yield target was derived from percentile categories of the reference condition, a process similar to the one used to determine stream macroinvertebrate index scores (see DEQ Water Body Assessment Guidance second edition, January 2002). The seventy-fifth percentile was chosen as a sediment target from the distribution of reference conditions (figure 1). Using the seventy-fifth percentile assumes that most reference conditions fall below this target using this sediment modeling method.

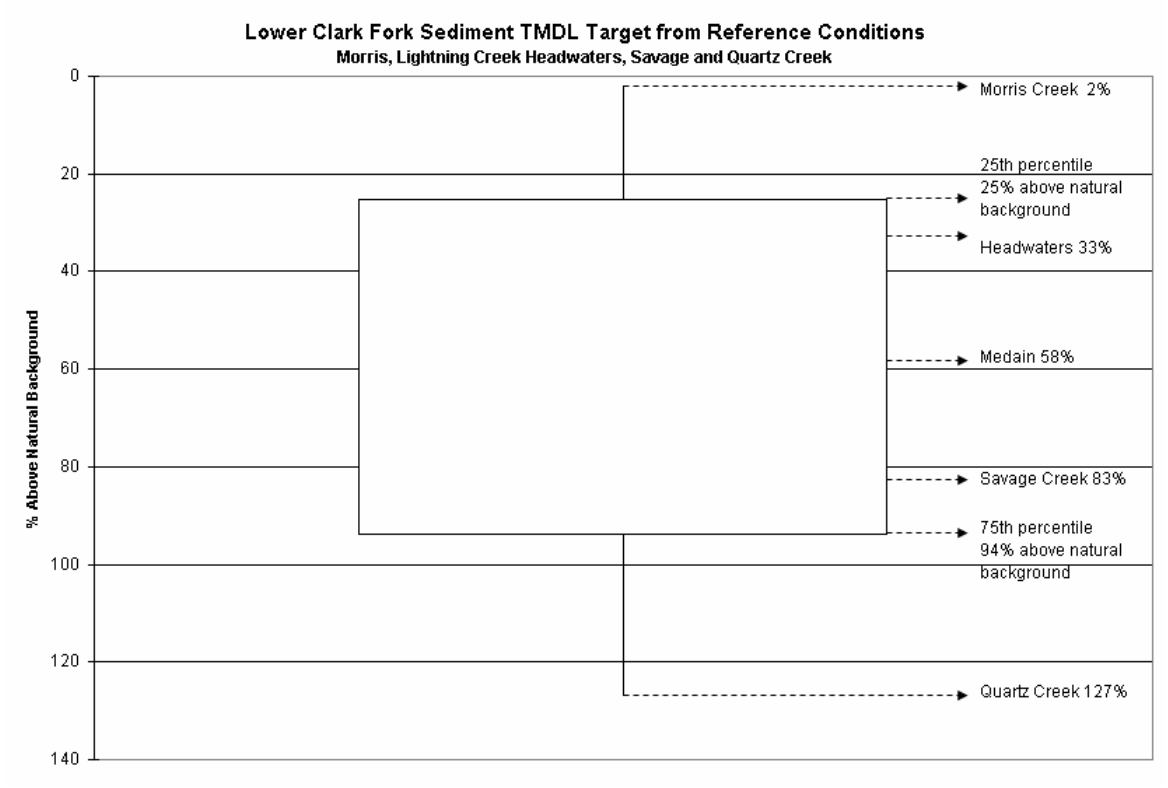

Figure 1. Box plot depicting distribution of reference sites.