

The following provide further information regarding fish and fish habitat inventory standards and procedures, presented in the Resources Inventory Committee (RIC) Standards. RIC Standards must be consulted to provide a context for this information.

## Large Channel Morphology

**This information relates to:** *Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: Standards and Procedures*, RIC (April 1998), section 4.2.6.4, Channel Morphology Classifications.

### Purpose/Problem

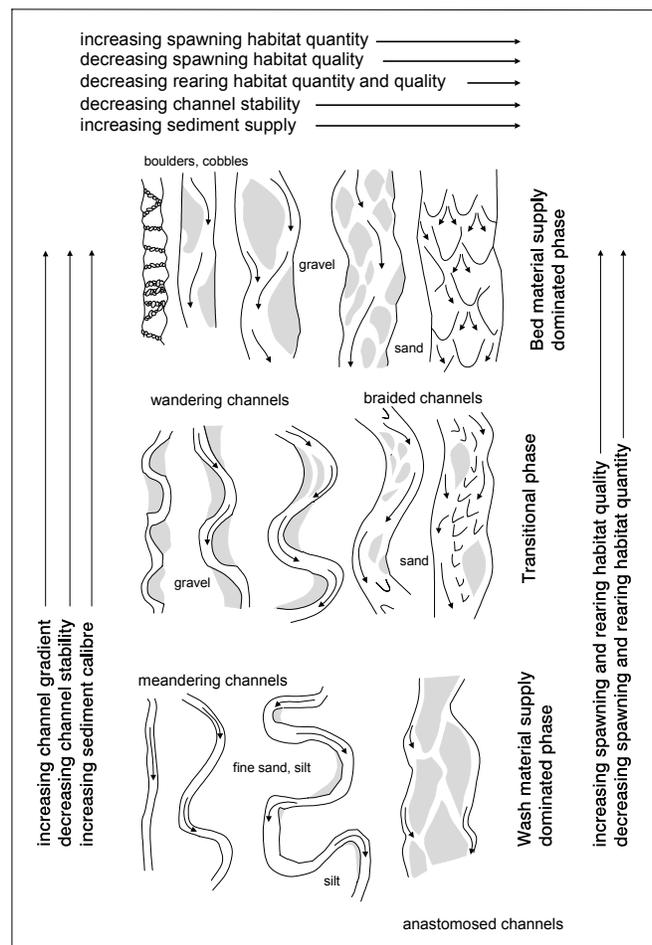
Certain types of streams do not fit into the SP-CP-RP classification.

### Discussion

Morphology is determined by the stream's flood regime, the amount, timing and nature of sediment delivered to the stream, the nature of the material through which the stream flows, the local geological history of the area, climate and riparian conditions (CAP Guidebook). These factors interact to produce a wide array of different channel types that vary depending on the channel's location within the watershed.

The large channel morphology is determined entirely by fluvial processes and geological constraints - there are negligible effects of LWD or larger rocks. Typically for large channel morphologies,  $D/W_b$  (the size of the largest moveable particle over the bankfull width) is  $<0.0001$ ,  $D/d$  (the size of the largest moveable particle over the channel depth) is  $<0.001$ , and the gradient is usually less than 2%. Another way to look at this is to ask "how many bed particles would it take to fill the depth of the channel?" If it is greater than 100, and the stream is low gradient, it should have a large channel morphology.

Large channel morphology is a relative term and should not be confused with any direct reference to width. Narrow channels ( $W_b < 10m$ ) can have large channel morphologies. An example would be a 2m wide stream (largely a glide), flowing through fine material deposits in the



**Figure 1: Morphological types of large channels (Hogan and Ward, 1997).**

wetlands of north eastern B.C.

Other examples of large channel morphologies can be seen in the wash material supply dominated and transitional phases of Figure 1, and in Figure 2.



**Figure 2: Example of a stream with large channel morphology.**

### References

Anonymous (1996) Channel Assessment Procedures Field Guidebook. Forest Practices Code Guidebook, Ministry of Forests, BC.

Hogan, D.L. and B. Ward (1997) Watershed Geomorphology and Fish Habitat *in* P. Slaney and D. Zaldokas, eds. Fish Habitat Rehabilitation Procedures. Watershed Restoration Technical Circular No. 9. BC Ministry of Environment, Lands and Parks . p 2-1 to 2-18.