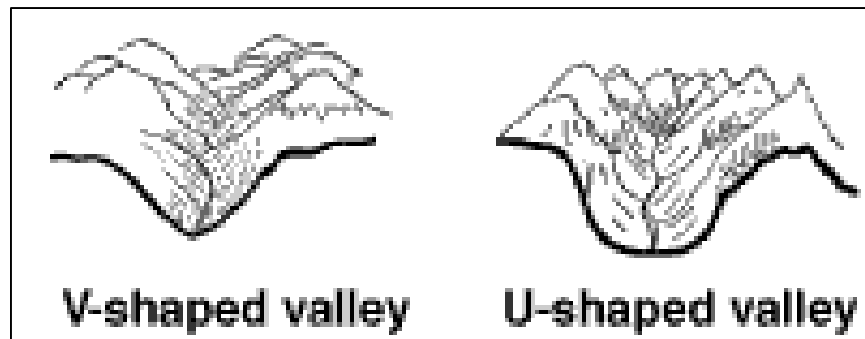


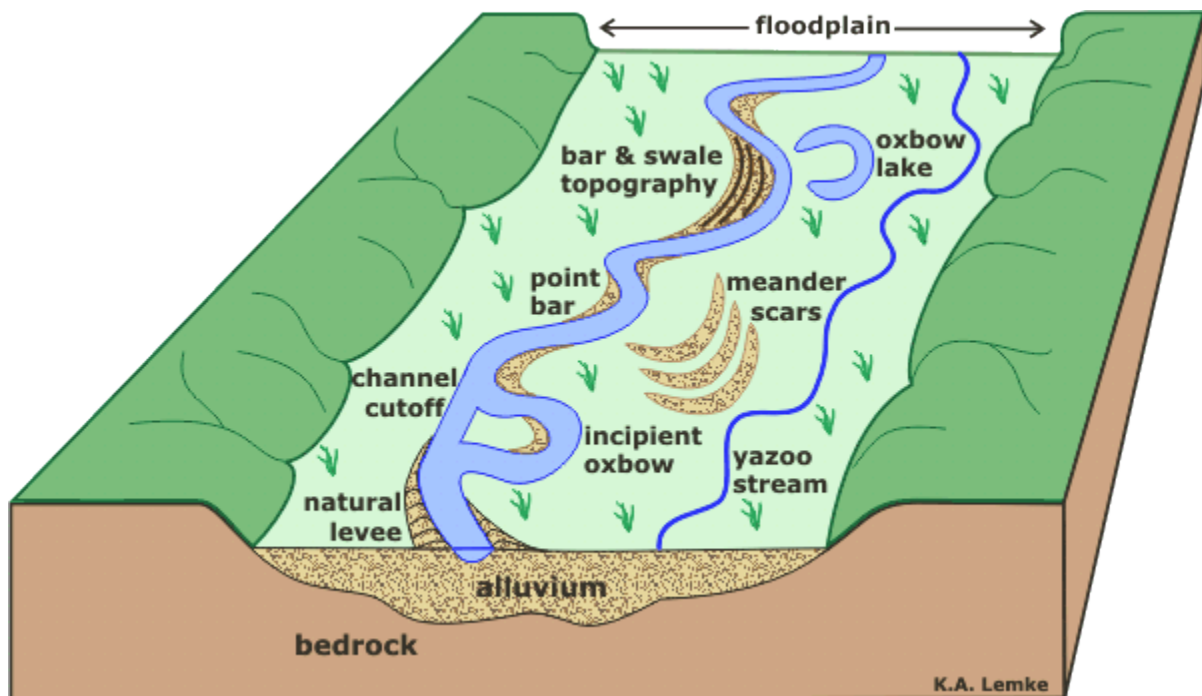
# RIVER VALLEY AND CHANNEL TERMS AND DEFINITIONS

## 1. Valley Form (setting - general overall character)

- V-Shaped (River formed)
- U-Shaped (Glacial formed)
- Canyon/Ravine (Steep-sided)
- Gully (for smaller streams)
- Flood Plain



Source: <http://www.nature.nps.gov/geology/usgsnps/glacier/uvalley.html>

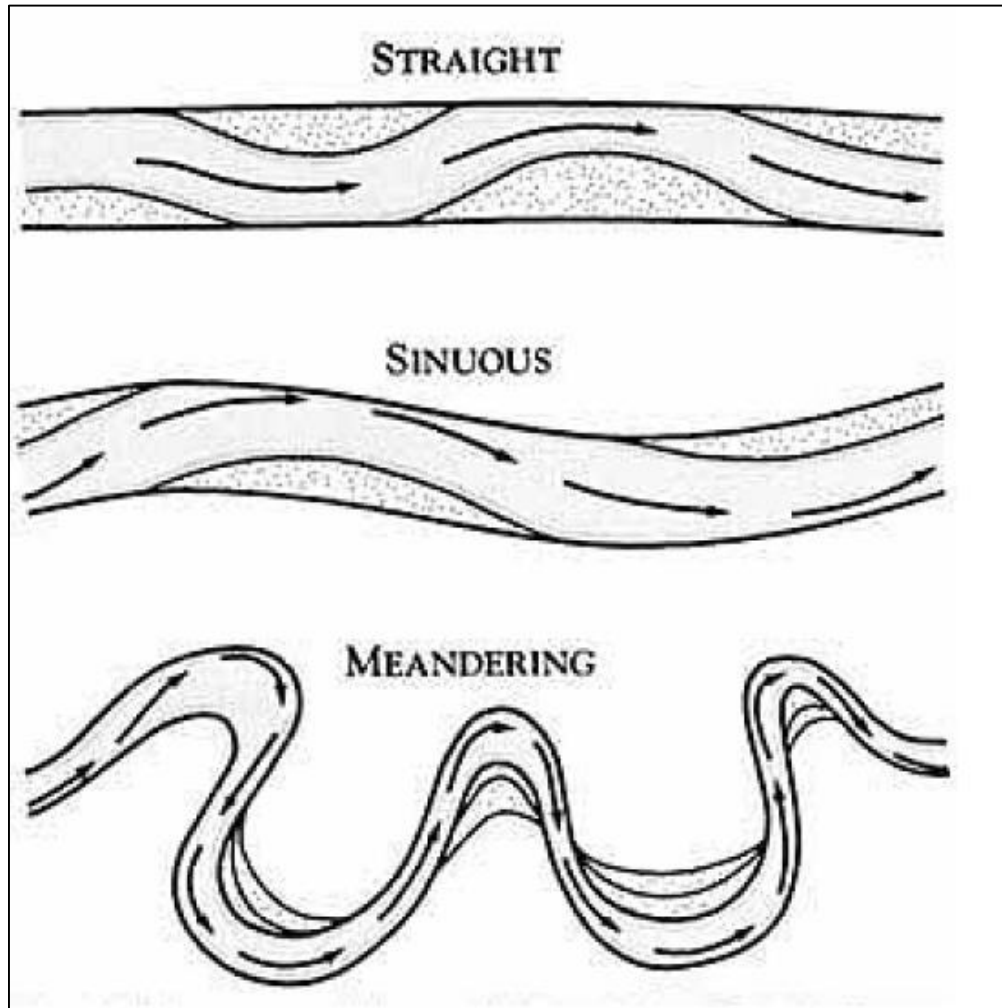


Source: [http://www.oldearth.org/rebuttal/icr/news/icr\\_news\\_2013\\_1\\_25\\_trackway.htm](http://www.oldearth.org/rebuttal/icr/news/icr_news_2013_1_25_trackway.htm)

## 2. Channel Pattern (geomorphological classification of the river)

### 2.1 Single Channel

- Straight
- Sinuous
- Meander



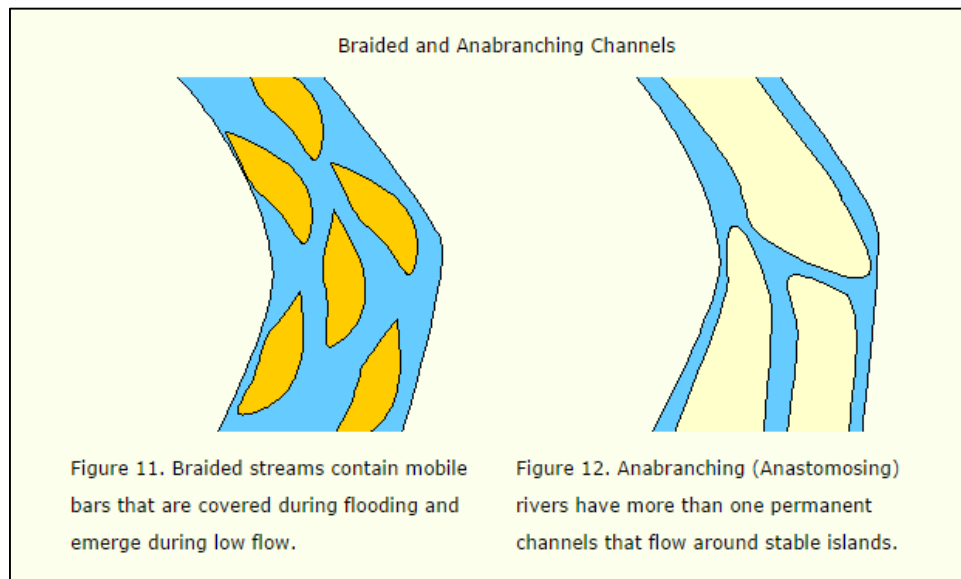
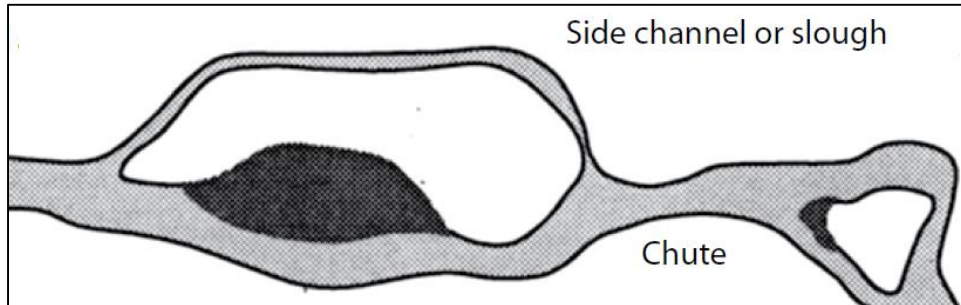
Source: [http://www.geocaching.com/geocache/GC1TGAY\\_memomonee-river-straight-sinuous-or-meandering?guid=b89306b0-083e-427e-94be-f4b0367b47fd](http://www.geocaching.com/geocache/GC1TGAY_memomonee-river-straight-sinuous-or-meandering?guid=b89306b0-083e-427e-94be-f4b0367b47fd)

The meander ratio or sinuosity index is a means of quantifying how much a river or stream meanders (how much its course deviates from the shortest possible path). It is calculated as the length of the stream divided by the length of the valley. A perfectly straight river would have a meander ratio of 1 (it would be the same length as its valley), whereas the higher this ratio is above 1, the more the river meanders.

The sinuosity index has been used to separate single channel rivers into three general classes: straight ( $SI < 1.05$ ), sinuous ( $SI = 1.05-1.5$ ), and meandering ( $SI > 1.5$ ).

## 2.2 Multiple Channel (connected)

- Slough
- Anastomosed (or anabranching)
- Braided



Source: [http://w3.salemstate.edu/~lhanson/gls210/gls210\\_streams2.htm](http://w3.salemstate.edu/~lhanson/gls210/gls210_streams2.htm)

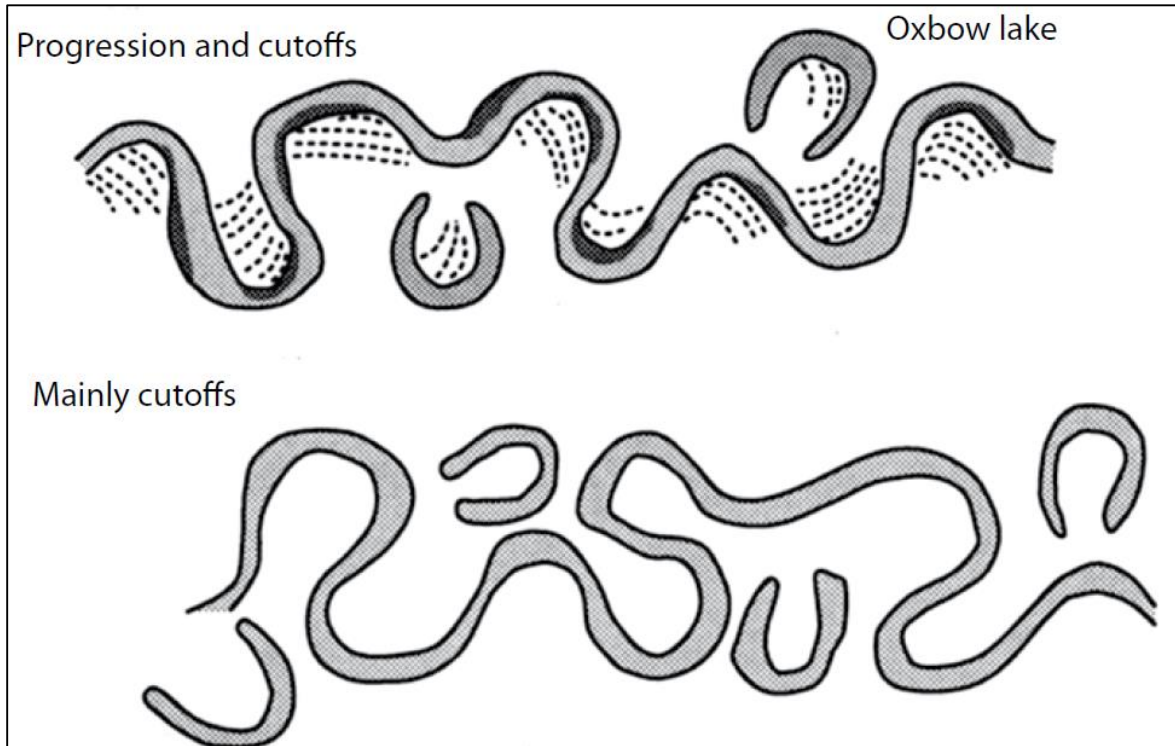
- Both are multi-threaded channels.
- The terms are not mutually exclusive – anastomosed channels can be braided.



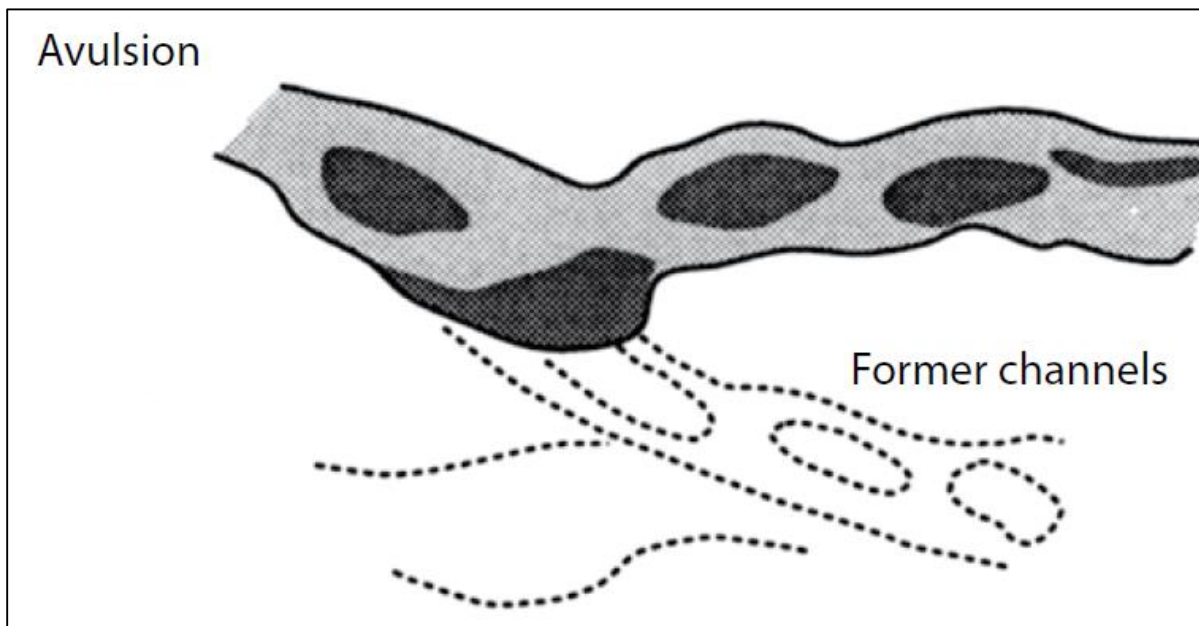
L: braided; R: Anastomosed (or anabranching)

## 2.3 Disconnected

- Oxbow-Cutoff
- Avulsion



Avulsion is the rapid abandonment of a main channel and the formation of a new channel. Examples include the channel switching in the Mississippi Delta. An ox bow or cutoff is an example of avulsion.



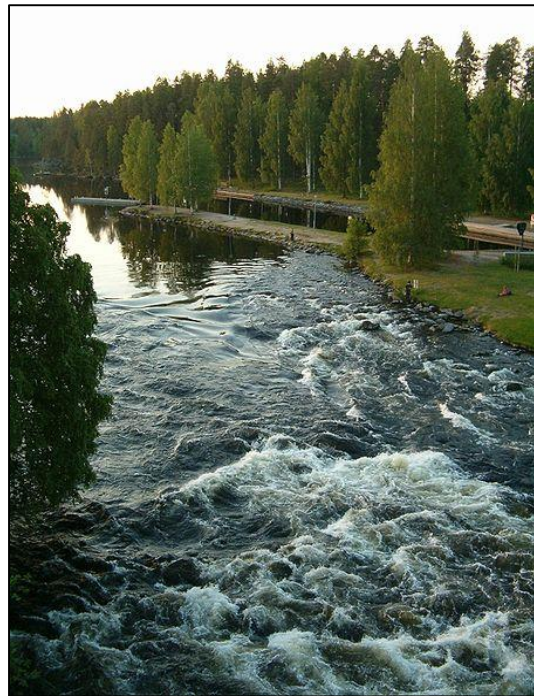


### 3. Channel Form (classification of channel water flow character)

- Cascade (water falls) or step
- Rapids
- Riffle
- Glide or Run
- Pool
- Woody debris jam

**Cascade** – involves a vertical water drop. Can result from bedrock outcrops (fall) or a line of interlocking boulders or cobbles across a channel (step).

**Rapids** – fast, turbulent flow section of channel with intermittent white water



L: Cascade. R: Rapids

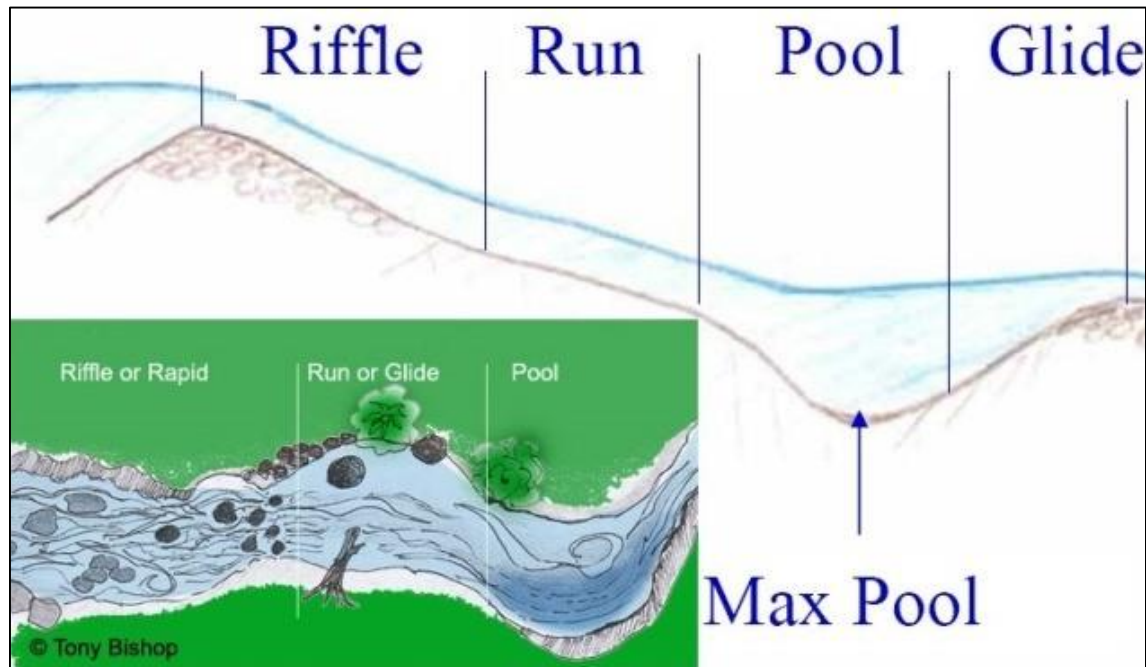
Source L: [http://upload.wikimedia.org/wikipedia/commons/5/53/Ricketts\\_Glen\\_State\\_Park\\_Shingle\\_Cabin\\_Falls\\_1.jpg](http://upload.wikimedia.org/wikipedia/commons/5/53/Ricketts_Glen_State_Park_Shingle_Cabin_Falls_1.jpg)

Source R: [http://commons.wikimedia.org/wiki/File:Karvionkoski\\_rapids.jpg](http://commons.wikimedia.org/wiki/File:Karvionkoski_rapids.jpg)

**Riffle** - a section of shallow water without the turbulence that causes breaking waves (whitewater).

**Glide or Run** - has swift water with little or no surface agitation or turbulence.

**Pool** - has low flow or standing water.



Foreground – riffle, leading to a glide.

Sources:

<http://www.dep.wv.gov/WWE/getinvolved/sos/Documents/SOPs/RiffleRunGlidePool.jpg>

<http://www.dnr.state.md.us/streams/definitions.asp>

## 4. Channel Character (channel description: bars and islands terminology)

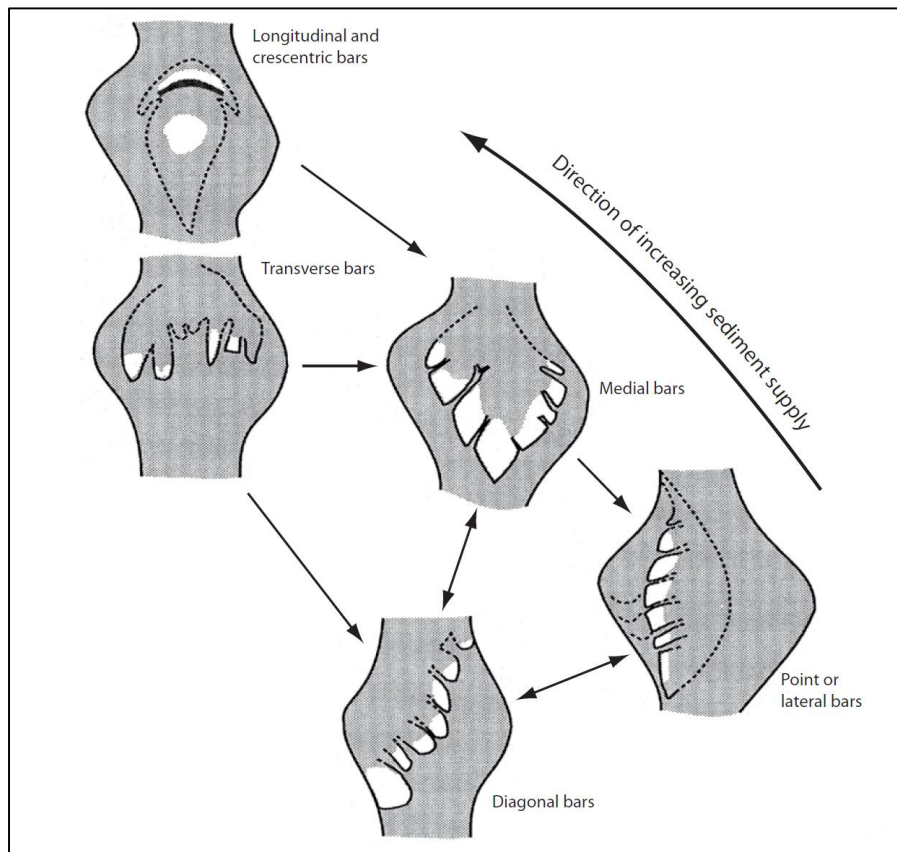
### 4.1 General

- Confined or Leveed (Yes/No)
- Channel Width (meters)
  - Max (bankfull stage)
  - Min (mean low water)
- Water Depth (meters)
  - Max (bankfull stage)
  - Min (mean low water)

### 4.2 Channel Bars

Bars are non-vegetated and exposed at the low water level, can have a secondary sediment size descriptor. Based on BC MOF and BC MOELP, 1996a, bars are:

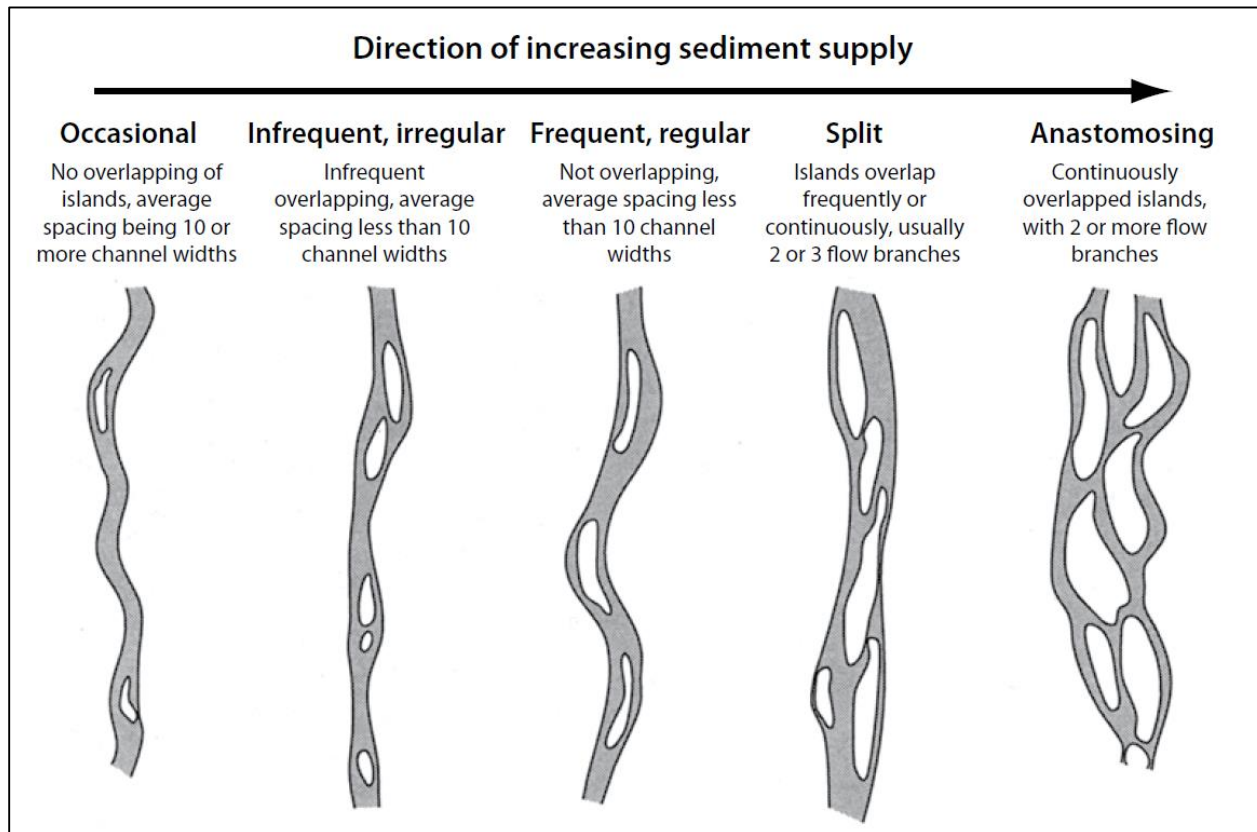
- Point or lateral
- Medial - transverse
- Medial – longitudinal and crescentic
- Diagonal



### 4.3 Channel Islands

Islands are vegetated and above the bank full water level. Based on Kellerhals *et al.* 1976, islands are:

- occasional
- infrequent, irregular
- frequent, regular
- split (overlapping)
- anastomosing (multiple overlapping)





## 5. **Wetlands** (short definitions)

- Pond (open water, <2m deep in midsummer)
- Marsh (free standing water with emergent vegetation)
- Fen (contains peat: has water flow through)
- Bog (contains peat: sustained by precipitation)
- Swamp (periodically inundated)
- Shrub-carr (wooded - rarely inundated)
- Wet meadow (herbaceous - rarely inundated)