



Following is a list of reconnaissance level techniques (from most rapid and least expensive, to more intensive) that will help to answer the broad question of aggradation or degradation. The maximum number of techniques listed should be employed depending on feasibility and appropriateness to a given site. This is a weight of evidence argument, so conclusions should not be drawn from a single approach.

- \$ Analysis of stream gauge records, especially long-term comparison of individual flow measurements and rating curve shifts (the number of rating tables will give an indication of channel cross-sectional stability and a trend of aggradation and degradation).
- \$ Analysis of bathymetry from bridge scour evaluations and/or analysis of bridge as-built conditions with current conditions.
- \$ Review of bridge maintenance records, specifically additional scour protection or dredging.
- \$ Examination of in-channel or channel-adjacent cultural features for evidence of scour or deposition (i.e. rip rap, irrigation diversions, boat launches, exposed pipelines).
- \$ Analysis of peak flow hydrology, including shifts in magnitude of index floods or flood patterns (extensive gravel exposure after flooding is often interpreted as aggradation, when in actuality it may just reflect a redistribution of the sediment).
- \$ Evidence for cross-sectional change in shape and area, especially widening and shallowing of the cross-section, which can be evaluated even where cross-sections cannot be precisely re-located.
- \$ Examination of streambank heights and relationship with geomorphic bankfull (the elevation of the depositional surface corresponding with the currently active floodplain, which may not be the same as the historic floodplain).
- \$ Examination of floodplain and bank areas to determine if there is a buried soil horizon.
- \$ Review of aerial photos with ground truthing to determine if riparian vegetation has been lost due to prolonged saturation, or if there has been a shift from drought tolerant to saturation tolerant species (or vice versa).
- \$ Semi-quantitative field examination of streambed sediment patterns, including:
 - \$ pavement to sub-pavement size relationships (lack of a coarsened surface layer may indicate heavy sediment load and inability to transport this load),
 - \$ matrix supported sub-pavement (i.e. the coarse grains do not touch each other, which may indicate a heavy sediment load),
 - \$ evidence for pool infilling (bars encroaching on pools, or buried pavement in pools),
 - \$ bar patterns, such as population of medial bars and bars located at the outside of meander bends, buried pavement layers,
 - \$ bi-modal pavement layers,
 - \$ bimodal sediment distributions (i.e. peak in both the sand and gravel fractions, which can be an indication of heavy local sources such as eroding banks, as opposed to distal watershed sources).

None of these study elements alone is sufficient to conclude that a stream is aggrading or degrading, but taken together, they provide a strong basis for determining the trend in vertical stability.