

Method 8 Channel Migration Zone (CMZ)

Definition of corridor:

The area where a stream or river is susceptible to channel erosion.

Description of method, inputs and outputs:

This method delineates the channel migration zone based on a summation of other delineated zones. These other zones are the Historical Migration Zone (HMZ), the Avulsion Hazard Zone (AHZ), the Erosion Hazard Area (EHA), and the Disconnected Migration Area (DMA). The $CMZ = HMZ + AHZ + EHA - DMA$.

The AHZ, EHA and DMA are delineated through field mapping and the assessment of surficial geology, fluvial landforms, geotechnical characteristics and current physical conditions of the given area. When combined with historical data analysis, field observations provide the means for predicting future channel change and delineating the boundaries of the CMZ.

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| Output: | | Technology needs: | |
| <input type="checkbox"/> Binary map (in the zone of risk or not) <input checked="" type="checkbox"/> Graded map (maps levels of risk) | | <input checked="" type="checkbox"/> GIS <input type="checkbox"/> Specific model | |
| What is assessed: | | Data Sources: | |
| <u>Channel-scale</u> <input type="checkbox"/> Width (bankfull) <input type="checkbox"/> Depth <input type="checkbox"/> Slope <input type="checkbox"/> Planform <input checked="" type="checkbox"/> Erodibility of Banks/Bed <input type="checkbox"/> Grain Size <input type="checkbox"/> Stream Power | <u>Landscape-scale</u> <input type="checkbox"/> Vegetation <input type="checkbox"/> Hydrology (streamflow, channel forming flow, flood) <input checked="" type="checkbox"/> Erodibility of floodplain <input checked="" type="checkbox"/> Width (flood prone area) | <input checked="" type="checkbox"/> Imagery (± channel geometry) (± vegetation) (± land use) (± infrastructure) <input checked="" type="checkbox"/> Topographic Maps (± LiDAR DEM) <input checked="" type="checkbox"/> Geologic Maps <input checked="" type="checkbox"/> Soil Maps/ database (± Surficial Geology) | <input type="checkbox"/> Streamflow data <input checked="" type="checkbox"/> Field measurements (± Channel geometry) (± Erosional Forms) (± Sedimentary Forms) (± Bankfull indicators) (± Vegetation) <input checked="" type="checkbox"/> Historical Information <input checked="" type="checkbox"/> Land use maps (± vegetation) (± wetlands) |

Developer/Year: Rapp & Abbe, 2003

Citation(s) for primary method or descriptive publication(s):

Rapp & Abbe. 2003. A framework for delineating channel migration zones. Washington State Department of Transportation. Seattle, WA.