

Framework for Delineating Channel Migration Zones

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Presentation Outline

- Introduction
- Components of Channel Migration Zones (CMZ)
- Summary



Why delineate CMZs?

- To reduce risks to human development and infrastructure
- To reduce risks to riparian habitat by protecting it from development

Why Ecology?

- Flood hazard management (local Critical Areas Ordinance)
- Proposed revisions to Chapter 173-26 WAC (the Shoreline Management Guidelines)
- Guidance document for local governments and practitioners, based on up-to-date, peer-reviewed research.

Existing CMZ Delineation Methods

- King County
- Department of Natural Resources
- Hodge-podge of consultants “bush-wacking” their way without guidance from Ecology for Ecology-related applications

Limitations

- The approach and methods presented in this document:
 - represent only one approach to CMZ delineation;
 - are not mandated for local government use under any state law; and
 - do not replace existing regulatory definitions of CMZs.
- The approach and methods outlined in this document need to be tested with a case study and updated accordingly.

Regulatory Context

- National Flood Insurance Act of 1968
- Shoreline Management Act
- The Endangered Species Act

Components of CMZs

- The Historical Migration Zone (HMZ)
- The Avulsion Hazard Zone (AHZ)
- The Erosion Hazard Area (EHA)
 - The Erosion Setback (ES)
 - The Geotechnical Setback (GS)
- The Disconnected Migration Area (DMA)

Middle Fork Nooksack River



Banks prone to mass wasting are part of CMZs
Lower Elwha River



The Final CMZ Delineation is the
Cumulative Result of Historical
Analysis and Field Observations:

$$\text{CMZ} = \text{HMZ} + \text{AHZ} + \text{EHZ} - \text{DMA}$$

HMZ = Historical Migration Zone

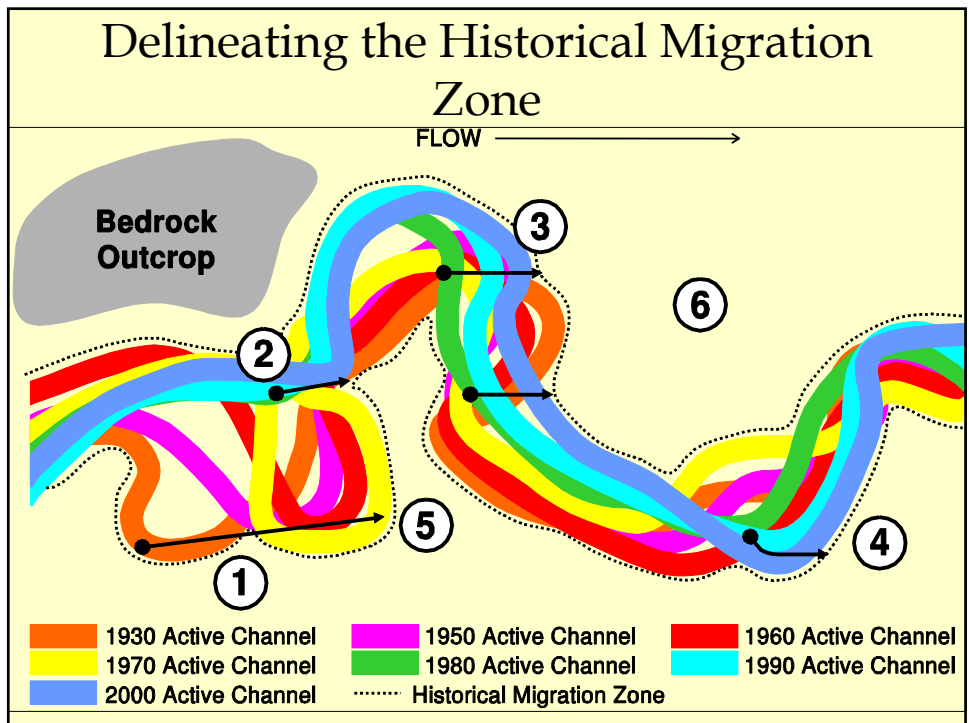
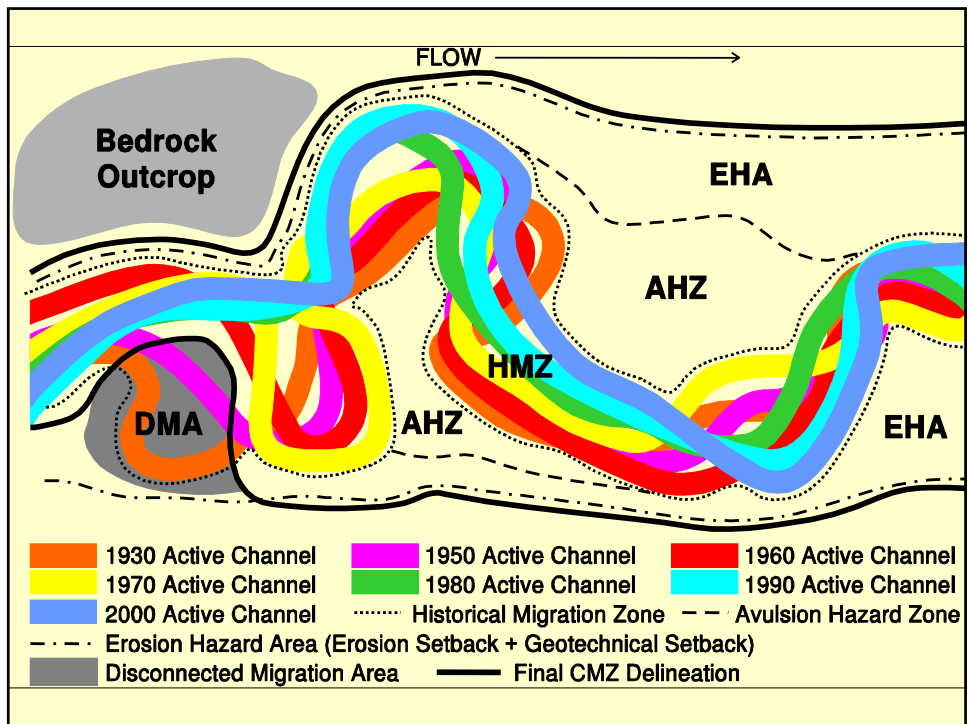
AHZ = Avulsion Hazard Zone

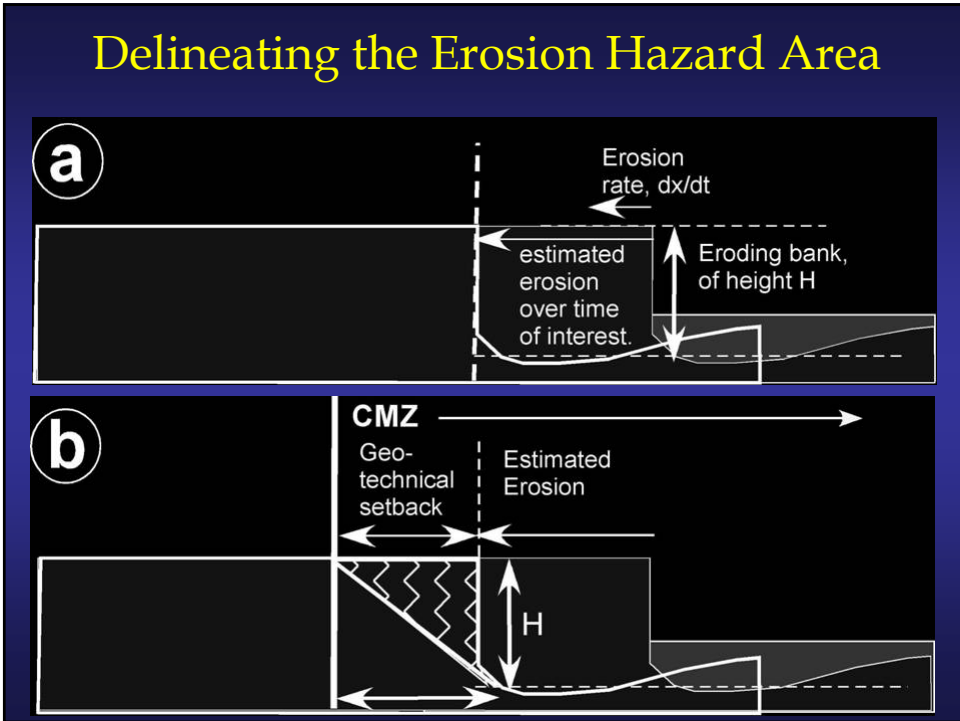
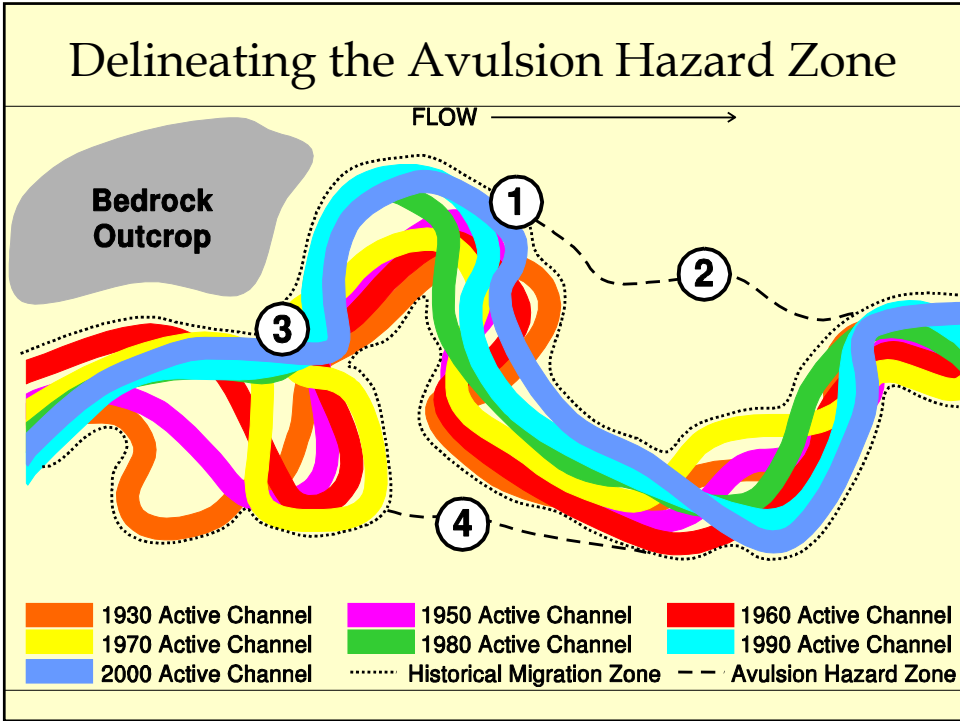
EHA = Erosion Hazard Area (= ES + GS)

ES = Erosion Setback from edge of HMZ or
AHZ

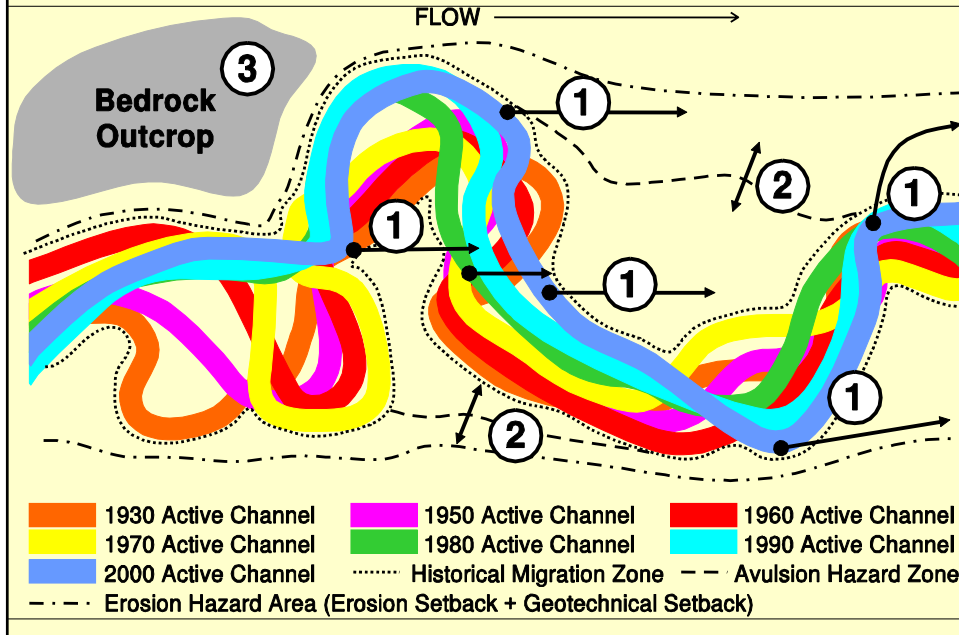
GS = Geotechnical Setback from edge of ES

DMA = Disconnected Migration Area

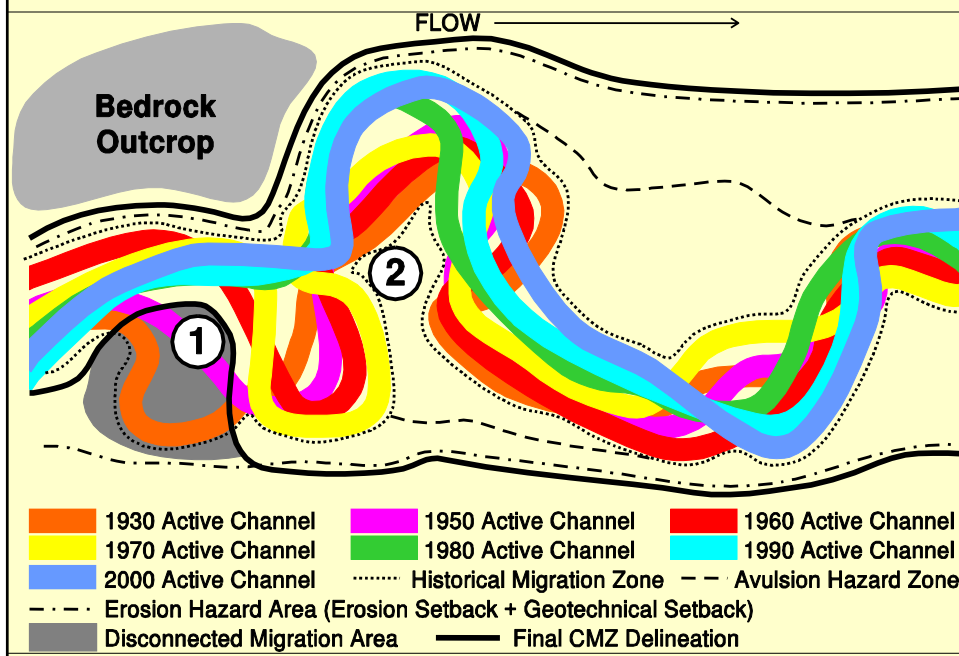


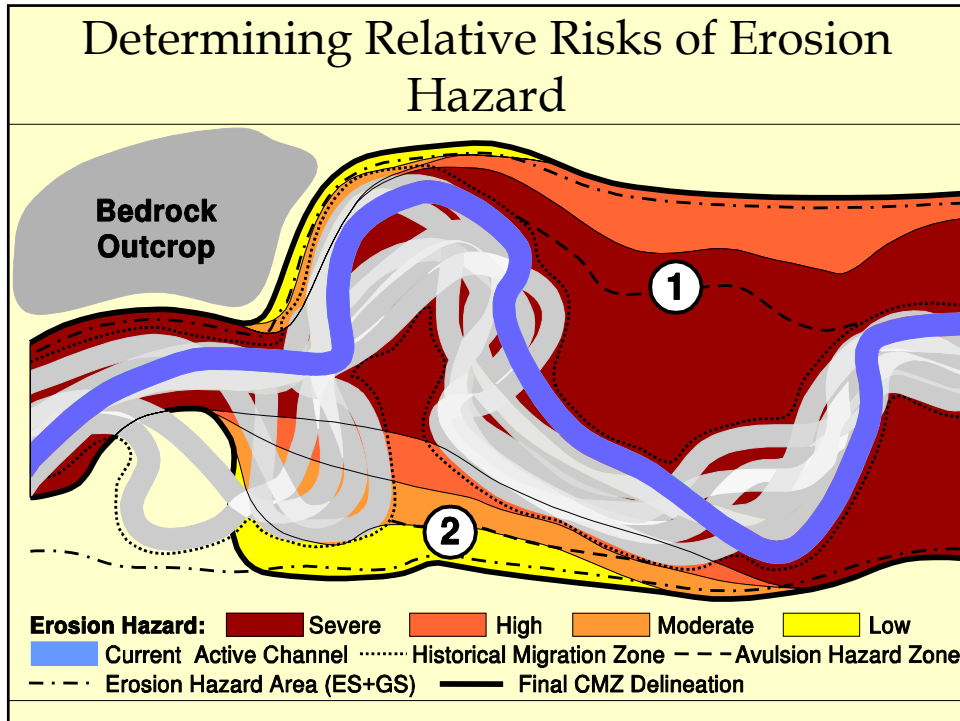


Delineating the Erosion Hazard Area



Delineating the Disconnected Migration Area





Summary

- FIRMs have limited application in planning areas safe for development
- CMZ delineations help reduce risks to human communities by guiding development away from areas at risk of channel erosion
- Channel migration is not limited to areas below 100-year flood elevation
- Channel migration may not be limited to HMZ
- CMZ delineation allows planners and managers to weigh the relative risks of human development with habitat preservation over time

Next Steps

- Development of case studies by local jurisdictions and consultants
- Revision and finalization of Final Report based on case studies (December 2004)

