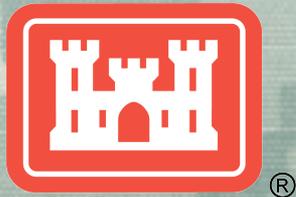


Status of the Research into the Effects of Woody Vegetation on Levees

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**Presented to Puget Sound Partnership
Workshop on Levee/Vegetation Issues
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Research Schedule for FY12

Completed

- Research and Development (R&D) Workshop 13-14 Dec 2011 in Sacramento, CA
- Webinars to discuss results of workshop and provide next steps in R&D
 - ▶ 23 Feb 2012 – SPD, NWD, POD
 - ▶ 24 Feb 2012 – MVD, LRD, SWD
 - ▶ 28 Feb 2012 – NAD, SAD

Scheduled

- Vegetation Data Collection (FY12 – FY14)
- Prediction of Large Woody Vegetation Impacts on Scour near Levees (FY12 – FY14)
- Predicting Void Dimensions from Overturned Trees (FY12)



*Support USACE
Policy Guidance Letter*



Purpose of R&D Workshop

Intent: Promote a national scientific discussion on the direction of future research to improve decision-making about existing, noncompliant vegetation on levee performance.

Objectives:

- Share key highlights of levee vegetation research
- Share suggested high priority research areas
- Identify and prioritize topics for future research of woody vegetation on levees
- Initiate a development plan for the research topics discussed at the workshop



Vegetation Data Collection

Objective

- Consolidate USACE experiences with woody vegetation on levees into a single document

Research Gap

- A comprehensive document of USACE documented observations of woody vegetation on levees does not exist

Research Approach

- Collect data from national resources (Risk Management Center, National Levee Database)
- Contact and visit USACE districts and levee sponsors
- Analysis and interpretation of data collected
- Record interim vegetation management practices



Deliverable

- Provide a consolidated report of both USACE and levee sponsors experiences with documented observations related to woody vegetation on levees.

Prediction of Large Woody Vegetation Impacts on Scour near Levees (FY12 – FY14)

Requirement in PGL

- In the hydraulic analysis, an appropriate method shall be used to provide a quantitative assessment of the maximum extent of erosion and local scour potential

Research Gap

- Scour prediction equations include variables that are not pertinent to scour in the vicinity of large woody vegetation

Research Approach

- Review and evaluate existing scour models
- Review and evaluate existing field data
- Enhancement of existing scour models
- Conduct flume studies for validation of modified scour prediction models.



Deliverable

- Provide data necessary for predicting maximum scour depth in the vicinity of trees on or near levee embankments.



Predicting Void Dimensions from Overturned Trees (FY12)

Requirement in PGL

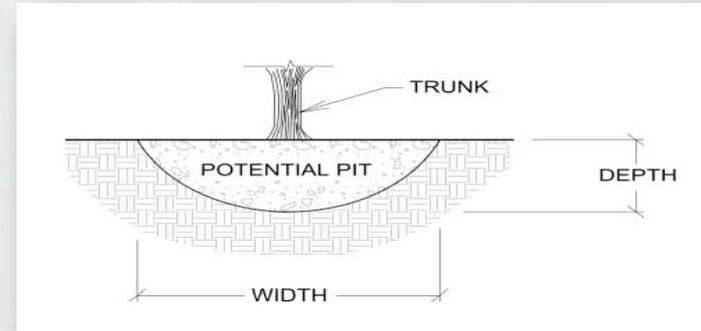
- In the cross section analysis, the drawings must show that no tree-overthrow pit will penetrate the levee prism.

Research Gap

- No scientific literature focused solely on this issue from an engineering perspective

Research Approach

- Collect data that supports the development of a relationship between tree characteristics and root void dimensions



Deliverable

- Provide scientific basis for use of void dimensions in cross sections

