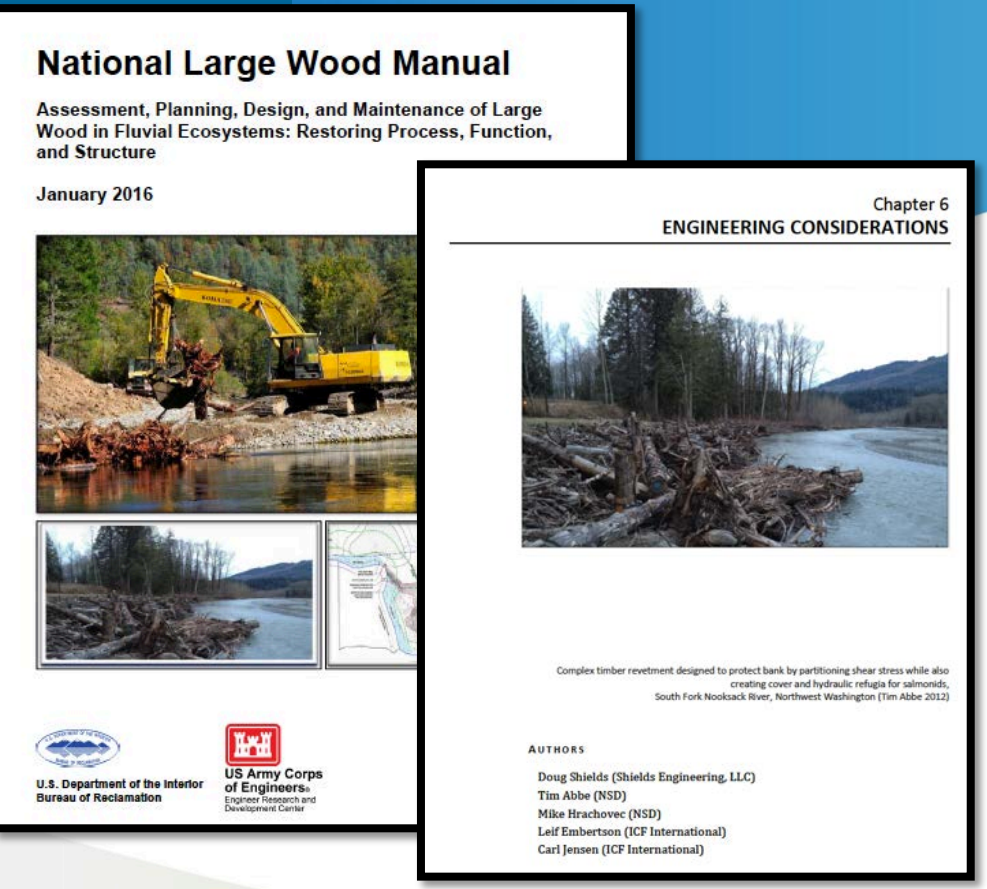

cbec eco engineering

Hydrology | Hydraulics | Geomorphology | Design | Field Services

Engineering considerations for placing large wood in streams

Doug Shields, cbec eco-engineers

April 19, 2016

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A promising beginning

Little Topashaw Creek, 1999

72 LW structures built, 2000

Initial response w… tive, but …

Jan 24, 2001

Large wood as a restoration tool: I fought the law, and the law won

STREAMS Channel Protection and Restoration Conference, October 6-7, 2003, Columbus, Ohio

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Introduction

Traditional incised stream channel stabilization projects feature combinations of grade control drop structures, riprap streambank protection structures, drop pipes, small reservoirs, and land treatment. These methods are effective, but costs for treating an entire watershed range as high as $750 ha^{-1}, and costs for channel stabilization are as high as $399 m^{-1}. Previous work has shown that stabilization of incising channels and their stream corridors can have major, positive ecological

How can **you** avoid the heartbreak of LW project failure?

- It's complicated….wood decays and floats
- Big questions should be answered first
- Better living through engineering
- Get the latest guidance

The big questions (fundamental issues)

- Active or passive?
- Location, location, location.
- Wood is a temporary measure to “bridge” to…..???
- What is our long term vision for **future** wood sources, sinks and transport?

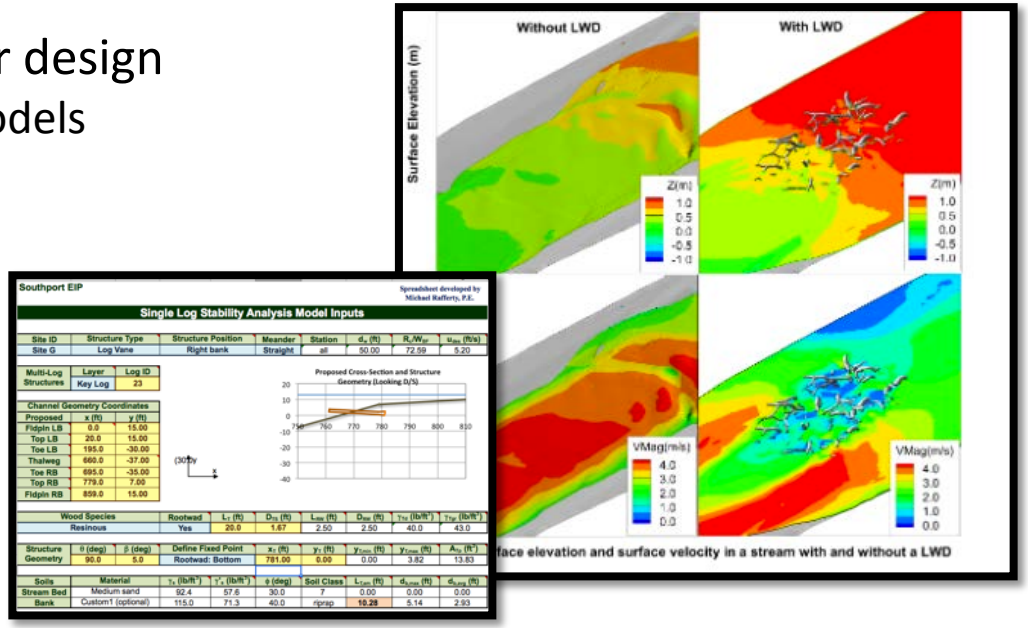
More big questions

- How well do we understand the system geomorphology?
- Is ecosystem wood limited?
- How will wood placement form and maintain desired habitat features?
- How will our restored system interact with the built environment?

American Whitewater Association

Better living through engineering

- Appropriate level of effort for design
  - Judgment/spreadsheets/models
- Conveyance
- Force and moment analysis
  - Buoyancy
  - Drag
  - Friction
  - Restraints
  - Lift
  - Ice
- Scour and sedimentation analysis



https://www.linkedin.com/pulse/cfd-modeling-lwd-hydrodynamics-liaqat-khan

Even better living through top notch implementation

Contract options/Inspection

Safety/control of adverse impacts

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