How Do Logjams Fail?

River Restoration Northwest
2008 Symposium

Tracy Drury, PE
Engineered Log Jam: Definition

- **Design Premise**
  - Emulate naturally occurring wood structure in rivers

- **Construction Materials**
  - Large wood compiled to function as a unit

- **Ballast Materials**
  - Natural local riverbed
Failure?

- **Expectations**
  - What were the pre project expectations

- **Performance**
  - Did the project perform as intended

- **Stability**
  - Did the project elements stay in place
Hoh River As-built conditions
Post flood conditions
Potential unraveling of individual members

Scour beneath ELJ

Dislodging from bank

Potential flanking of the ELJ

Failure?

or

No Failure?
Flood conditions
Failure?
or
No Failure?
How Do Logjams Fail?

Expectations
- Misunderstanding about expectations

Performance
- Physical and Biological responses

Stability
- Founding the structure is the key
What Can We Do About It

Try Something New

Innovate
Take Home Messages

- Decade of implementation has produced valuable lessons learned
- Not all Engineered Log Jams are created equally
- Can be constructed with all natural materials
- Incorporating other materials and techniques can improve performance and lower costs
Long Live Wood in Rivers

Tracy Drury, PE