The “Threshold” of Habitat: Spawning Salmon in a Restored Threshold Stream

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Outline

1 The What, Why, and How of Threshold Channels
2 Case Study: Oshawa Creek
3 Summary and Next Steps
The What, Why, and How of Threshold Channels

What is a Threshold Channel?

“…a channel in which movement of the channel boundary is negligible during the design flow.”

-USDA (2007), Chapter 8, National Engineering Handbook

i.e., Watercourses which maintain their pattern and profile due to large, erosion resistant particles and established vegetation.
The What, Why, and How of Threshold Channels

Why do we use Threshold Channels?

1. Restrictions on the areas available for stream restoration

2. Limited sediment supply (i.e., “sediment starved” systems)
The What, Why, and How of Threshold Channels

How do we design and build Threshold Channels?

INSTREAM STRUCTURES
The What, Why, and How of Threshold Channels

**How do we design and build Threshold Channels?**

Log and Boulder Constructed Riffle

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The What, Why, and How of Threshold Channels

**How do we design and build Threshold Channels?**

Log Step Pool Structure
The What, Why, and How of Threshold Channels

**How do we design and build Threshold Channels?**

Wood
Debris Toe Protection,
Live Stakes,
and Vegetation Transplants

But, do Threshold Channels “work” for those who use it most?!
Case Study: Oshawa Creek

- Channel realignment associated with proposed road widening

Existing Conditions – some issues… but not that bad!
Case Study: Oshawa Creek

Stream Design

- Wood Debris
- Augmented Riffle
- Log and Boulder Constructed Riffle

Project Sequence

2004 – Existing Conditions
2013 – Pre-Construction
2014 – Construction I
2014 – Construction II
2015 – Post-Construction
Case Study: Oshawa Creek

**Restored Stream**

Year 2 – Wood Toe Wash-Out
1. No Construction Administration by Stream Personnel During Construction
2. No As-Built Survey Completed

Case Study: Oshawa Creek

**Build it (properly…) and they will come!**

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Threshold channels can work for fish passage and spawning.

Designs work when integrated teams of biologists, engineers, and geomorphologists work together.
Questions?