

# 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



# 1 The What, Why, and How of Threshold Channels



Credit River Tributary at  
Chinguacousy Road, ON

## 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?

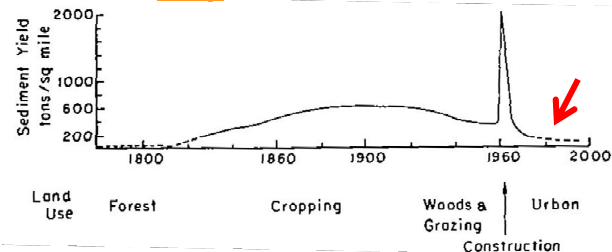


1. Restrictions on the areas available for stream restoration



## 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?



Augmented  
Riffle



## The What, Why, and How of Threshold Channels

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



Log and  
Boulder  
Constructed  
Riffle



## 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



## The What, Why, and How of Threshold Channels



**But, do Threshold Channels  
“work” for those who use it  
most?!**



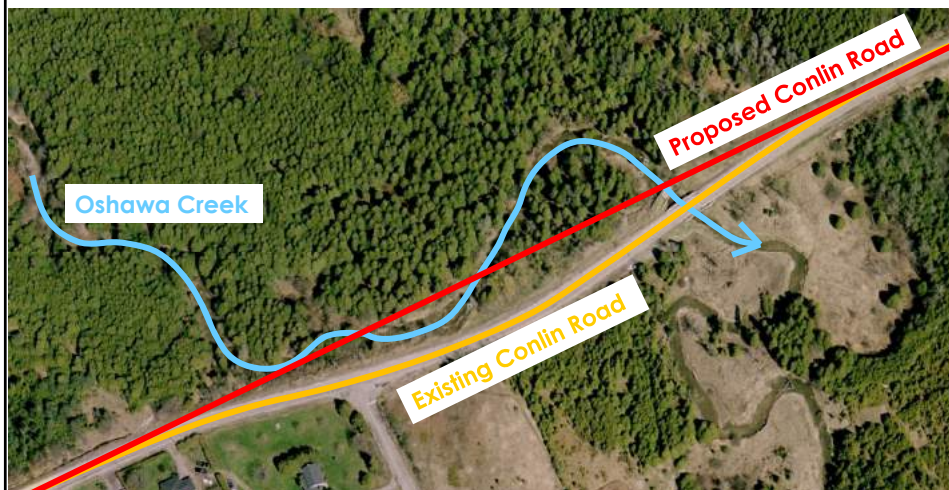
## 2 Case Study – Oshawa Creek



### Case Study: Oshawa Creek



## Case Study: Oshawa Creek



- Channel realignment associated with proposed road widening



## Case Study: Oshawa Creek

**Existing Conditions – some issues...but not that bad!**





## 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!



September, 2015

### 3 Summary and Next Steps



### Summary and Next Steps



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

Threshold channels can work for fish passage and spawning

