Through the Looking Glass

South Fork Nooksack
Temperature TMDL

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Acme/Van Zandt Subzone
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The evolution of a simple project

• Temperature TMDL should be easy – allocate the shade from site potential tree height buffers.

• If criteria isn’t met we can call SPV natural conditions.

System Potential Vegetation
100 year tree for the site, based on DNR mapping
Orientation

Rkm 0 ~ RM 34
Simply shade it

Where we are

Where shade can get us
The problem with shade only

• 100 year site potential underestimates the natural climax forest
• Other factors that have changed, affect temperature

Sensitivity of Nat. Conditions

• Cooler headwaters
• Channel width
• Climax forest
• Hyporheic flow

Photo by Alan Cressler
If we could do it all!

Where we are

Where shade can get us

Where our most optimistic “natural condition” can get us
EPA pilot examination of climate change
‘Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!’

-Red Queen
If we stand still (do nothing)

Where we are

Where we could be in 2080
If we trot along (Shade only)

Where we are

System Potential Shade

Where we could be with SPV in 2080
If we run as fast as we can

Where we are

All sensitivity to Natural Conditions

Medium Prediction for 2080 Optimistic Natural Conditions
Implementation

- Shade
- Lateral connectivity (flood plain access)
- Longitudinal connectivity (fish blockage)
- Enhance ground water (wetlands)
- Hyporheic exchange (log jams)
- Refugia (more log jams)