



FINAL Steering Committee Meeting Notes

Remote Meeting

Monday, November 16, 2020 1 pm – 3:30 pm

More info: tpokorny@co.jefferson.wa.us or 360-379-4498

Welcome/Introductions

Attendees:

Tami Pokorny, Jill Silver, Tim Abbe, Pat Crain, Jean Fletcher, Jess Helsley, Jessie Huggins, Julie Ann Koehlinger, Luke Kelly, Mike Ericsson, Theresa Powell, Wendy Largent, Bridget Kaminski Richardson, Frank Hanson

Agenda Changes/Additions

No additions or changes.

Approval of October 19, 2020 Draft Meeting Summary

Luke noted the addition of Tami Pokorny's name to the attendees list on the 10/19/2020 meeting notes document. No further additions or changes. Meeting summary was approved by consensus

Announcements/Comments

None

Old Business

None

New Business

Hoh River Processes Part III – Tim Abbe, Natural Systems Design (NSD)

Tim continued his presentation: Forest areas erode more slowly – showed a graph of 'normalized erosion rates' for young vs old forest classes. Point being, young riparian forests generally erode faster vs older forest with larger trees.

Why?:

- Root cohesion from living trees
- Larger trees are generally on higher surfaces (e.g. terraces)
- Larger trees grow on erosion resistant substrate
- Larger trees are more likely to form stable snags and therefore stable banks via increased bank roughness and deflect erosive flows

Tim showed photos of large trees function and remaining in the channel vs a photo of small trees on the upper bank but none on lower bank (trees too small and swept away). Tim also showed aerial photos of

Fletcher ranch from 11/9, showing much erosion. An estimated 30-40' of Fletcher's pasture lost to erosion in just the last week!

Management issues in river valleys:

Assets: critical aquatic habitat, transportation infrastructure, private property

Hazards: Flooding, Erosion, Landslides, Debris flows (flooding and erosion are very different things)

Solutions: 1) Develop science and community focused plan

2) Assess hazards

3) Describe potential actions

Relocation out of hazard areas

Protective measures (e.g. levee, bank protection)

Improved crossing design

Land acquisitions and easement

Restoration of natural elements processes

Tim highlighted again: Flooding and erosion are very different things. FEMA and flood insurance programs are focused on flooding and not erosion. This is an issue for identifying and dealing with hazards. No regulatory aspect to erosion hazard maps, however County can have erosion-related regulations.

Tim showed an example of road management response to natural channel migration (road was constructed straight through bend in Hoh River (boundary pond on Upper Hoh Road). The image showed the multiple years of road work, as the river tried to find its equilibrium.

Showed example of a plan that addresses these management issues: Upper Sandy River – River Corridor Plan (Clackamas County, Oregon). Addressed historical flooding, e.g. 1964, addressed development in the floodplain, identified erosion areas, avulsion pathways. This project helped prioritize actions and land planning.

Tim shared some of his work from UW. Image showed a tree with root wad and how it affects fluid dynamics. As flow approaches an object (tree, bridge pier, etc.) the water is deflected around. This changes the flow pattern in three dimensions and causes scour in some areas and deposition in others.

Stress Partitioning – influenced by slope, depth, and wood/trees. Where there is very little wood, there is much more shear stress acting on the grains (or streambed), and this increases chance of erosion. Large wood in channel is very good at partitioning shear stress. Wood can reduce the duration and depth of scour (banks, etc. but also salmon eggs/redds).

Elwha engineered log jams example – Tim showed a graph of before vs after large wood installation. This resulted in a huge reduction in grain size (better spawning gravels).

Showed example of scour depth study from the Hoko River. The graph showed the flows/hydrograph



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over six months and scour depths. Several peaks in flow showed bed scour right down through the depth of salmon redds. Graph showed 10-fold increase in duration of bed mobilization and five-fold increase in magnitude of scour.

Incision – A loss of roughness in channel can lead to channel incision (downcutting), which disconnects the river from its floodplain. Roughness examples: sinuosity, substrate, vegetation, islands, and wood.

Shape of wood is important. Shape is critical to stability, and a large log with root wad attached is much more stable vs a tree without root wad. Driving forces (on wood stability): Buoyancy (wood density, shape, size, water depth). Tim showed a diagram of a log with root wad and all of the forces impacting it and its response based on different water depths/flows. Tim also showed a diagram of a log with root wad digging itself into the streambed, due to scour and deposit of sediment (making it more stable).

Tim noted the quantity of wood in larger channels increases, not decreases.

Next time, Tim will continue presentation and get into channel patterns (islands, meanders, etc.)

Channel Migration Zone (CMZ) Delineation Approach and Examples – Tim Abbe and Mike Ericsson, NSD

Mike presented the updated Channel Migration Zone (CMZ) map

NSD is nearly done (~95%) with CMZ map. First step was looking at historic locations of the Hoh River Channel. This resulted in a map of the Historic Migration Zone (HMZ). Then used LiDAR to further inform the CMZ map revisions.

Worth noting, the channel is much more dynamic in some reaches vs others. FEMA flood zone (area of 100 year flood) lines up closely with active CMZ in most cases.

Erosion Hazard Areas are identified in the CMZ and are informed by geology/erodibility, height of bank, size of trees, etc. Note, any part of the CMZ that abuts a high bank may be included due to threat of slope failure (caused by toe erosion).

This work extended up the tributaries a little bit. Focused on mainstem Hoh, but wanted to capture tributary sections that flowed through valley bottom.

Notes on Owl Creek – very distinct difference in topography (between Maple Creek to West and Owl Creek to East). Bluffs and uplands on Maple Ck appear much more stable vs Owl Creek uplands appear quite unstable. Also noted this may be caused by the presence of a historical glacial moraine (which deposited unstable material). Jill noted that Maple Creek and Owl Creek have a different past. Owl Creek has experienced several debris flows caused by rain on snow events and slope failures upstream.

Tami asked how NSD will integrate the fish habitat data collected. Mike answered the fish habitat data will be compiled on different maps.

2-Dimension Hydraulic Model Development and Calibration – Tim Abbe and Mike Ericsson, NSD



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Mike presented slides showing the hydraulic model outputs. Mike noted the 100 year flood boundaries. In some areas the NSD modeled 100 year flood boundary and FEMA 100 year flood boundary agree and some places the boundaries do not agree. Reasons for this is likely due to FEMA using 1D model, where NSD is using a 2D model. In particular locations there are some significant discrepancies between boundaries (NSD is working with Jill to address these discrepancies, example locations: Lewis Ranch on the North side and just West of Young's Slough on the South side). For example (noted by Jill and Tim), the Lewis Ranch inundation could be caused by tributary(s) discharging much less than the 100 year flow. FEMA and NSD flood/inundation models are focused on flow from the mainstem Hoh River. Tim noted that the local residents and stakeholders can help address these discrepancies by comparing maps to (flood) events they can relate to.

Tami asked how this mapping relates to the BOR flood maps. NSD is planning to compare differences between these maps.

Mike noted the modeled 100-year flood flow is 72,000 Cubic Feet per Second (CFS). At the upper end of project reach the 100-year flow is estimated at 53,000 cfs and at Oxbow Canyon it is 72,000 cfs.

Many noted the Hoh experienced a major flooding in 1961 and 1999.

Restoration Capacity Chapter Update – Luke Kelly, Trout Unlimited

Luke gave a brief update on the chapter progress. Restoration practitioners will receive surveys in the next couple weeks.

Newsletter and Story Map Update – Tami Pokorny, JCPH

Tami gave an update on the newsletter and story map work. She showed the story map website, and how the site has maps, satellite imagery, geo-references photos, etc. This will be a good tool when discussing particular areas in the project reach. Tami noted the newsletter will highlight Roger Oak's Lander Family story, summary update on the Middle Hoh Project, the 700 year-old Fletcher tree, etc.

Announcements/Comments

None

Next Agenda

Monday, December 21, 1pm – 3:30 pm Remote Only. No objections, and the group plans to meet on the 21st.

Adjourn