

① 4/18 PAIRED WATERSHED COMPARISONS
 ZEGRE - NWU FOREST
 Forest Practice on watersheds

"TYPE N" = non fish bearing
 "TYPE F" = fish bearing

HINKLE Creek - ~~Forest Practice~~
 WESTERN CASCADES

RESULTS
 Peak Q > with cutting
 > clear cut > peak Q
 > "quick flow" = storm response
 > monthly Q

PAIRED WATERSHEDS / MONTANA

Downstream EFFECTS
 - no change in peak flow
 - > monthly Q

ALSEA, IDA, Canyon CK, Hinkle CK

CASPAR CK, CA

Forest Harvest Practice

Hinkle CK.

Hinkle CK. - 2-3 cuttings, long harvest cycle
 - BASALT + PLYWOOD; Clearing

HARVESTING
 5 clearcuts
 12.2 mm bf
 3200 log loads
 2008
 Lentic 2008
 Denudation
 Harvest
 PEAK

Time Series Analysis -

Western CASCADES - Dory fir

Growth Q > in spring & summer

1500 cm / yr rain

N. Fork reference

1 meter/day snow

S. Fork treatment

1-2nd order sub-basins

"OUTLET RESPONSE"

9-10 km² sub-basins
 3rd order catchments

WEIR - stage-flare
 - SAGE ROCKING
 2 USGS

MEAN MONTHLY
 Streamflow

MAX INSTANT.
 PEAK FLOW

10 min
 The peaks
 are
 SAGE

- BASE FLOW / Stream
 Analysis
 - MEAN MONTHLY FLOW

no drag skyline logging

Buffer strips - no cut across seasons
Clear cut adjacency - leave space between

② Aone SKANGPOT

HIMLE Creek - Settlement 1/1620

Response to disturbance

Peak Time Turbidity + main structure

Peak Binding
↓
Skyline Logging

Are Replant
Habitat
2 site prep
for replant

Habitat process
- debris
- creep

measuring SITES → ②
+
Turbidity
Flow measuring

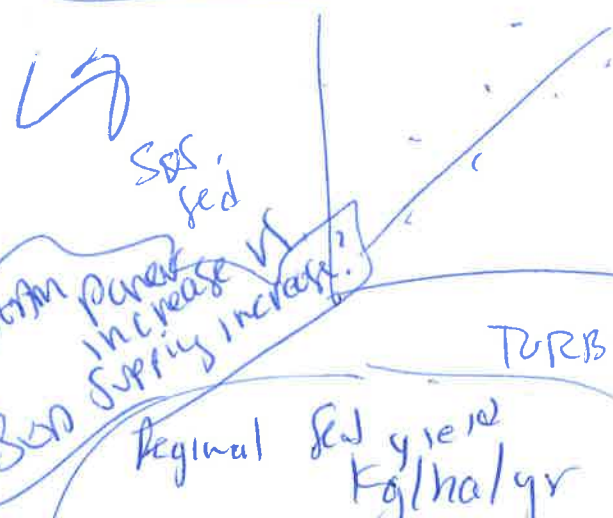
Stream Sampling
Instrument

connecting
up roads to
streams

Time

Turbidity Normal to some suspension sediment

Turbidity Peak occurs before Peak ②



$$R^2 = 0.76$$

② is needed
to calculate
SS fed
with
turbidity

Regional Sed yield
kg/ha/yr

H/A	18
Cayor	77
Ascar	162
CNSP m	295

Sed. Yield
Analysis
Proximity

Sed yield mimics
within ②

2500 > Sed yield
in some cases -
artifact?
chron cuts > Sed. Yields

historic
studies

(3)

Scott - Hunter Creek

NUTRIENTS vs Harvest Treatment

monthly to seasonally "nutrients"

NH₄, N, P, Na, Ca, Pb, Mn, K, Mg, Cu, Si

fish bearing vs. non fish-bearing

fertilizer vs. no fertilizer for tree growth

NITRATE increased

Treatment < Na, Ca, Mg, K flux
the nutrients < with harvest

"Attenuation"
of
Cancer risk
NITRATE

"UPTAKE"
NITRATE

clearance
slope

conversion
> fertilizer
> NITRATE
conc.
in stream

N=5
clearcut
strip forest ??
> NITRATE
why ??

④

CRASH RAMPY GROWTH
COT-THUNT TRWT vs. Treatment

1st Harvest

No Diff. between control &

2nd Harvest

UPPER LIMIT LOGGING IN N. S. MEAN

no effect on biomass
F. S. MEAN

Clear Cut
Light > Q,
> fish production

No buffers -
> fish production

Double Bottoms
Biomass to

O+ fry - not separated
10 hand 10 10

ANADROMY
ANADROMY
GROWTH + MASS

DISPERSED
Fish biomass

Resident Fish

Community
NO DIFF.

- Proportion of wetted
channel
in five sed.

no change

- Fine Sed. on Bed

- "Poor Habitat"

Most COT THUNT IN POOLS

After Harvest
#2

> biomass

> growth rates

> Size - prevalent
in trib.

- Little change in
habitat
composition

- MAX Pool Depth

- MAX Pool Area

- % Boulder Substrate

OR Forest Practice

minimizes

harvest
effects

on
trout