

What does all this science mean for Riparian Management and Silviculture?

(A private lands perspective)



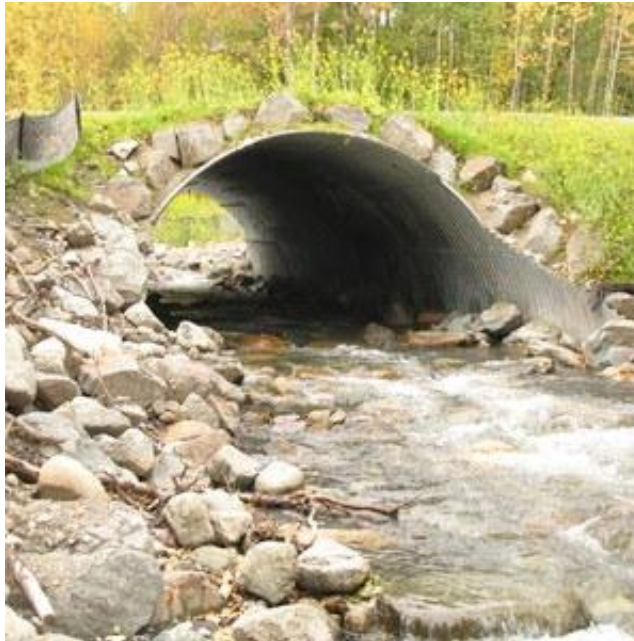
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May 1, 2014

Outline

- **Some history of Stream Rules in Oregon**
- Future of stream management?
 - Science (both new and older)
 - Water quality standards
 - Rule making standards
- Silviculture

Three-pronged approach to protect water quality and fish habitat

- A centralized land-use planning process
- Science-based forest protection laws
- Voluntary efforts



1971 The Oregon Forest Practices Act

- The Nation's first comprehensive forest practice act.
- Rules set specific standards for:
 - Reforestation
 - Road construction and maintenance
 - Timber harvesting
 - Chemical application
 - Slash disposal
 - Streamside buffer strips

Oregon Department of Forestry
Forest Practice Administrative Rules and
Forest Practices Act

CHAPTER 628
Forest Practices Administration



"TO ENHANCE OUR FORESTRY"

January 2010

This publication includes the text of the Forest Practices Act and the Forest Practice Administrative Rules as they exist on January 1, 2010.

Divisions 610 through 658 of the forest practice rules are published in separate publications upon request. State Forester, hearings, procedure, practice committees, and the record.

The Secretary of State publishes the

The rules and statutes are also available at <http://legweb.oregon.gov/CDPI> as well as <http://www.oregon.gov/oregonrules> and the Oregon State Legislature's website.

Rule and statutory language changes listed below.

Changes:

The following rules were amended in this edition of the rules:

In 2008, OAR 628-620-8400 was amended. The changes were effective 2008 edition of this publication. The changes have not been adopted as proposed to the form in which they are.

This table of contents for the Forest Practices Act is on page 6.

Water Protection Rules

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Nearly half of
FP OAR text!

Riparian Management

- Riparian Management Area Widths for Streams of Various Sizes and Beneficial Uses

Table 1. Riparian Management Area Widths for Streams of Various Sizes and Beneficial Uses (OAR 629-635-0310)

	Type F	Type D	Type N
LARGE	100 feet	70 feet	70 feet
MEDIUM	70 feet	50 feet	50 feet
SMALL	50 feet	20 feet	Apply specified water quality protection measures, and see OAR 629-640-0200.

*From Forest Practices Rule Guidance, Water Protection Rules November 15, 2007

We have come a long way since 1970

- Thanks to the work of the WRC we can discuss efficacy of our stream rules based on data
- Fish Response
- Hydrology
 - Temperature change
 - and cumulative effect
 - Sediment
 - Total discharge (seasonal)
- Food (bugs)
- Shelter (shade/wood/pools etc)

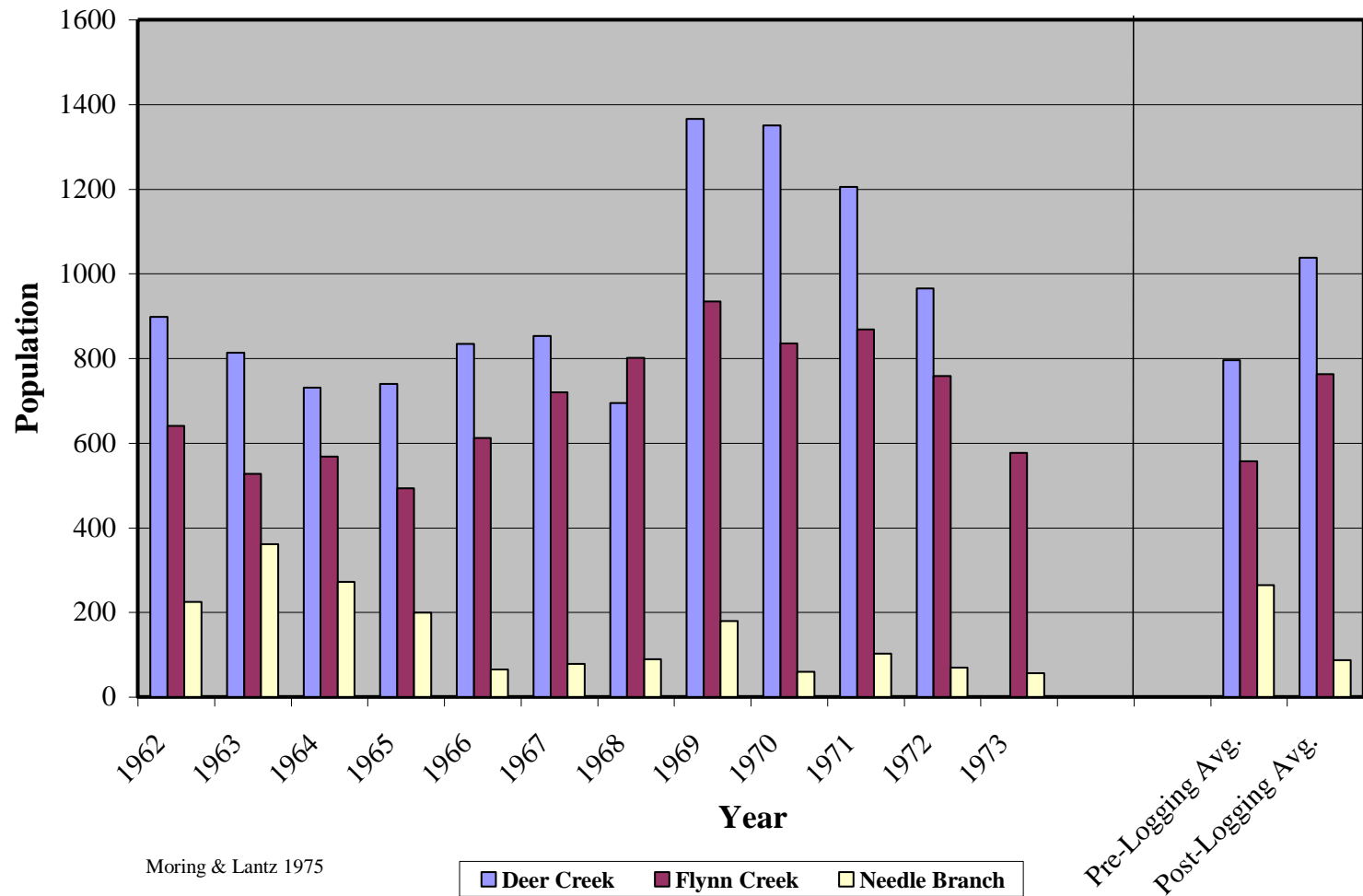


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Alsea Watershed Study #1

Population estimates for cutthroat trout in Deer Ck., Flynn Ck., and Needle Branch during 1962-1973. Logging occurred during 1966. (From Appendix 11)



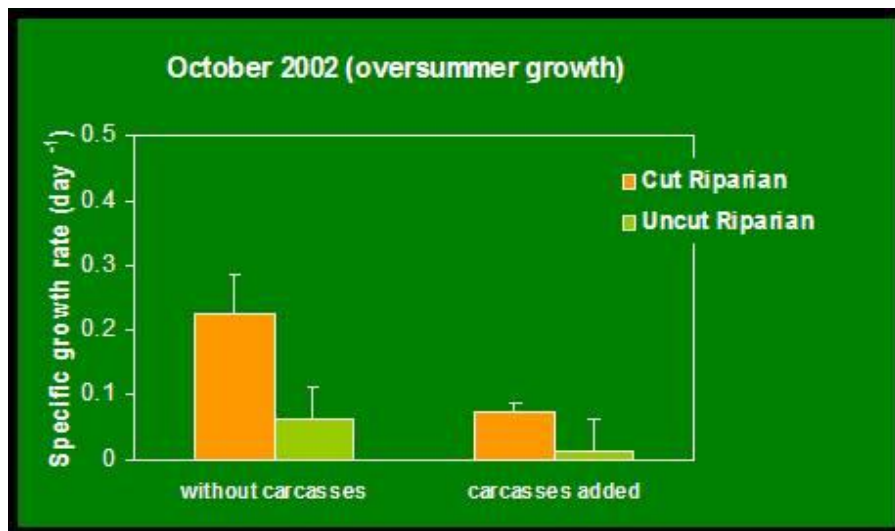
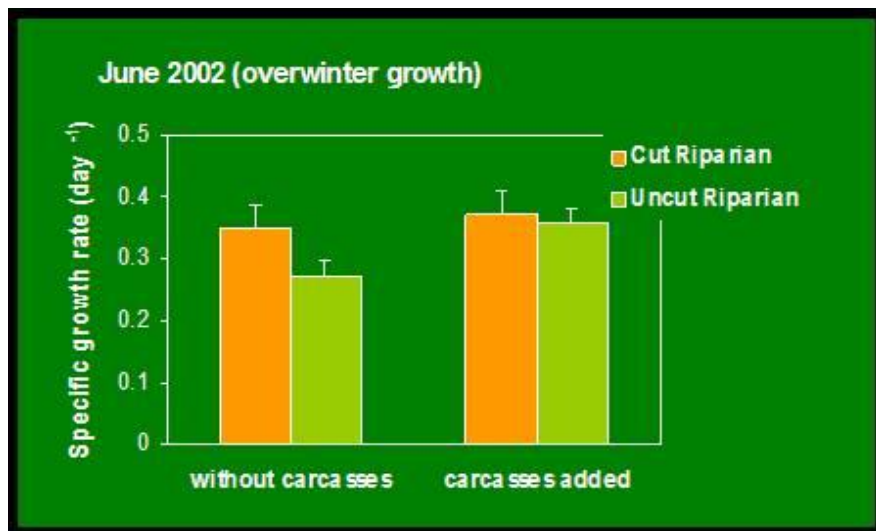
Steelhead Response to Carcasses and Canopy Opening

- Northern California experimental study of juvenile steelhead response to salmon carcass addition and reduction in riparian shade
- 12 stream reaches – all combinations of carcass addition and canopy opening



Steelhead Growth Rates

- Difference in average weekly max temperature did not exceed 1°C – no significant differences cut/uncut
- There were small increases observed during hot weeks – up to 1.5°C



Significant Treatment Effects:

- ✓ riparian (open > closed canopy)
- ✓ date (overwinter growth > oversummer)

No carcass effect

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Water Quality Standards

The Forest Practices Rules must achieve the WQS to the maximum extent practicable

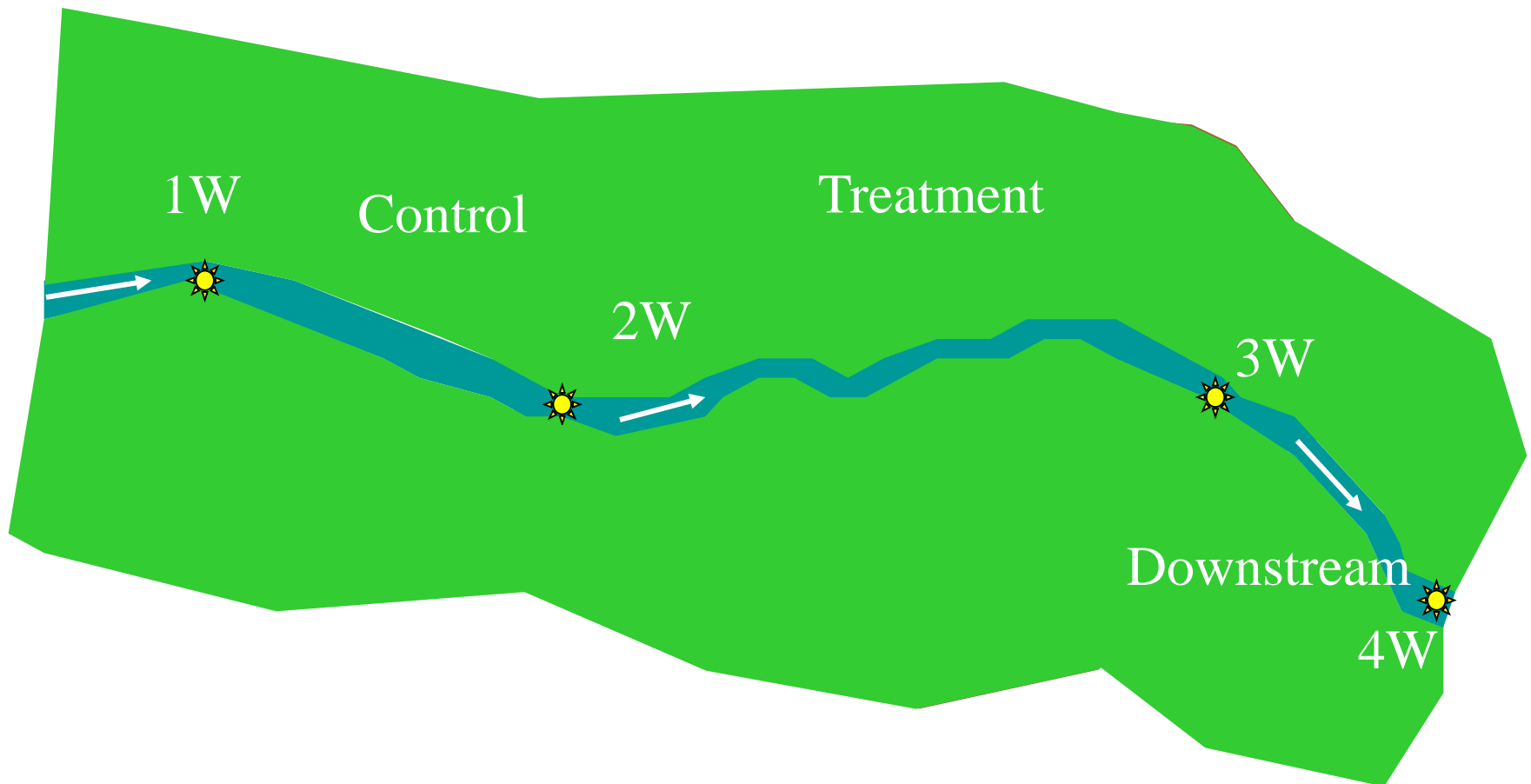
Temperature is addressed through

- Numeric Criteria for Beneficial Uses
- **Protecting Cold Water Standard (PCW)**

Temperature

- RipStream
 - 0.7 degree C average increase on private lands
 - Point of maximum impact
 - Context
 - Downstream impacts?
 - Temporal impacts?
 - Did not evaluate the effect on fish
- There are other studies that quantify spatial and temporal recovery and fish response.

RipStream Study Design



Application of PCW

- **Consideration and context (limiting factors)**
 - What is the effect on fish?
 - Concept of optimal temperature
 - We can not “maximize” productivity for all species with any one prescription
 - Photosynthesis and food
 - Aquatic invertebrates are an important and often dominant food for salmonids (Hawkins, 83)
 - Interactions with other riparian components
 - How do the policies affect the renewal of conifers within riparian areas?

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Necessary Findings

- **ORS 527.714 (5)**
 - Certain rules must meet evidentiary criteria:
 - Monitoring evidence of resource degradation
 - Rule reflects available scientific information
 - Objectives clearly defined and restrictions on practices substantially advance the objective
 - Consider alternatives, including non-regulatory approaches, and chose “least burdensome”
 - Resource benefits achieved are proportional to the harm cause by forest practices

*from ODF, Board of Forestry Meeting, John Day, Oregon, Nov. 7, 2012

Overview

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Riparian Silviculture

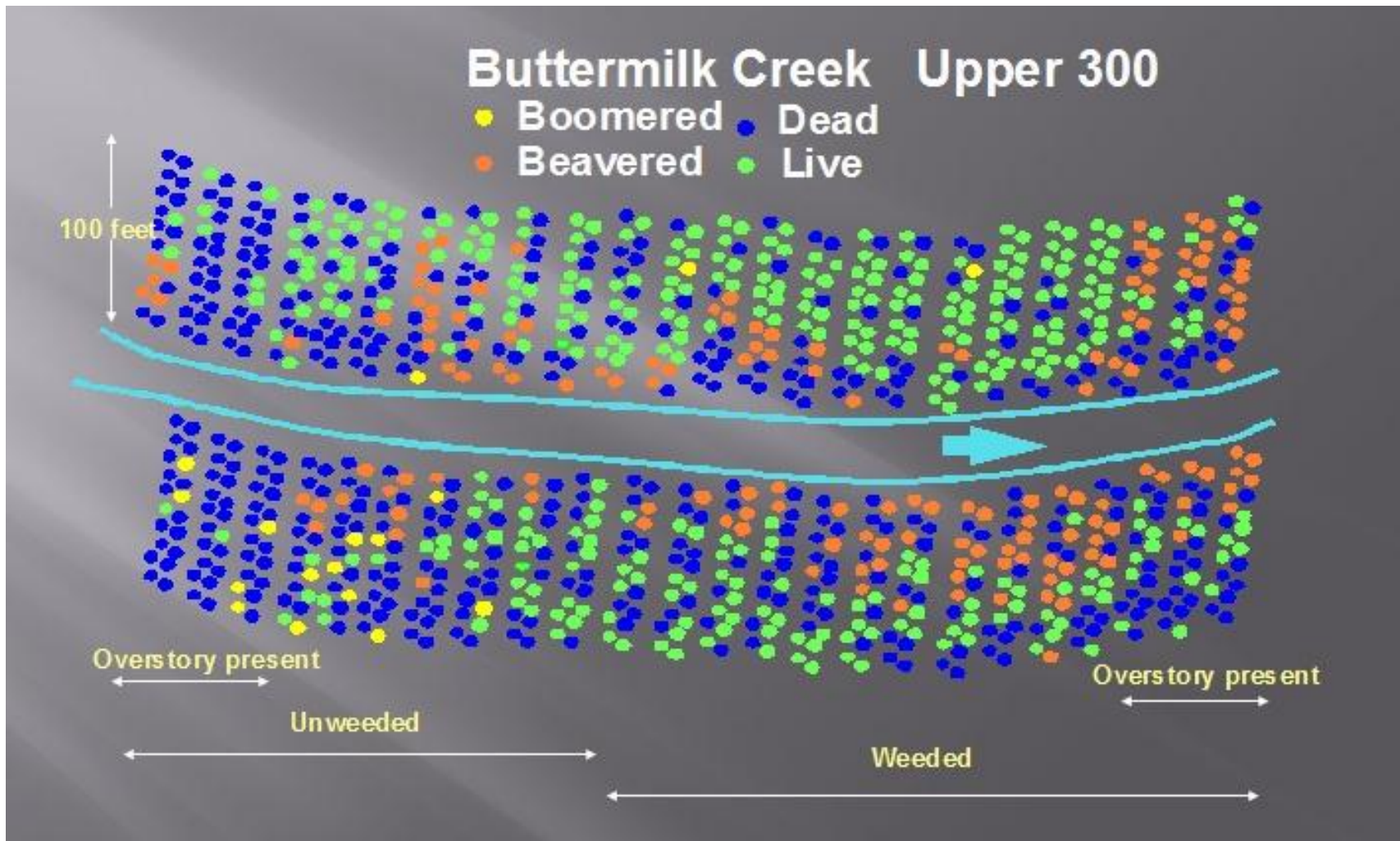
Riparian silviculture is affected by policies to protect beneficial uses.

Growing trees in riparian areas:

- Important for creating shelter
- Growth Potential may be high if challenges can be overcome
- Barriers to plantation establishment in RMAs
 - Survival and growth limited by shade from over-story, vegetation management challenges and beavers
 - Risk/reward of investment
- Hardwood conversion option partially removes barriers

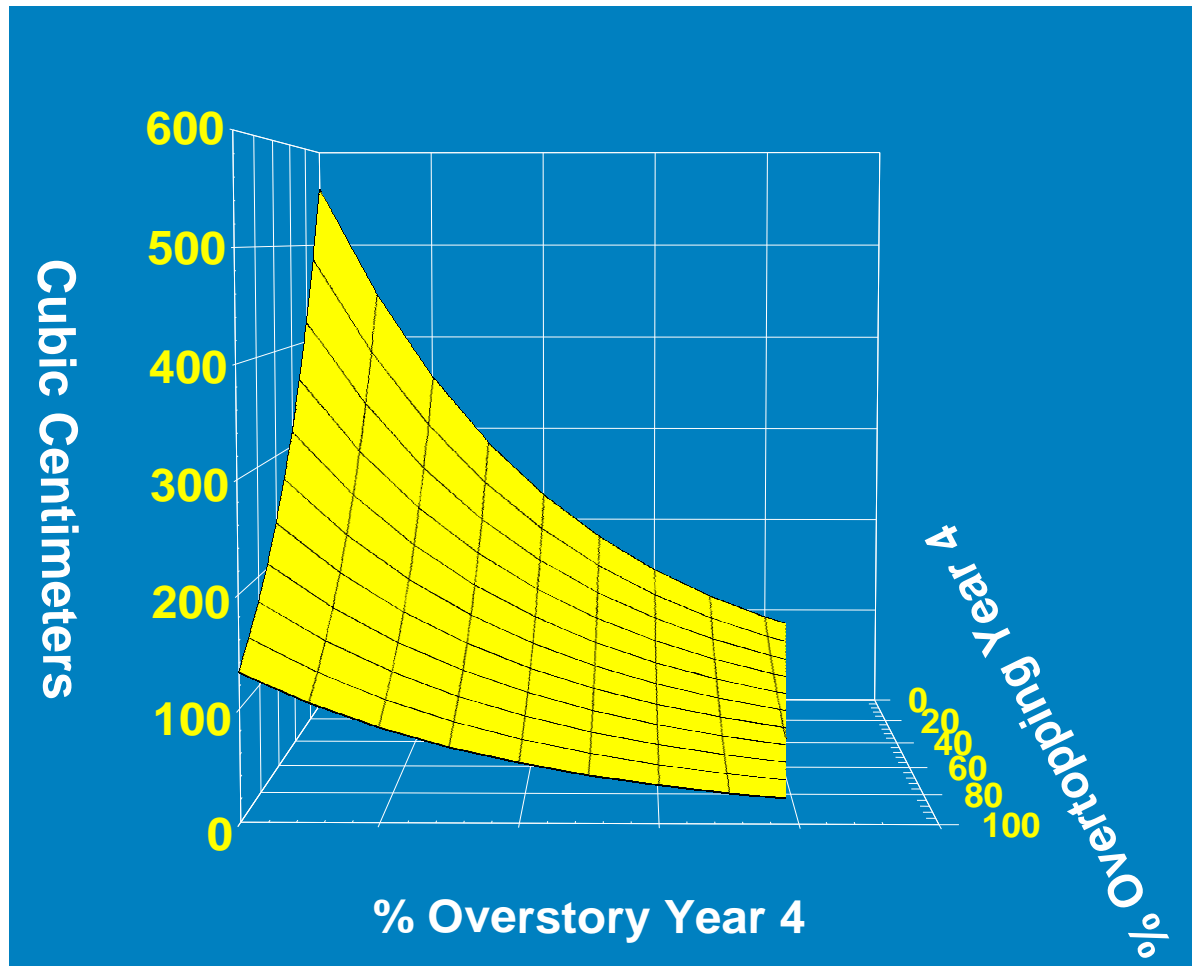
Survival in RMAs

Buttermilk Creek



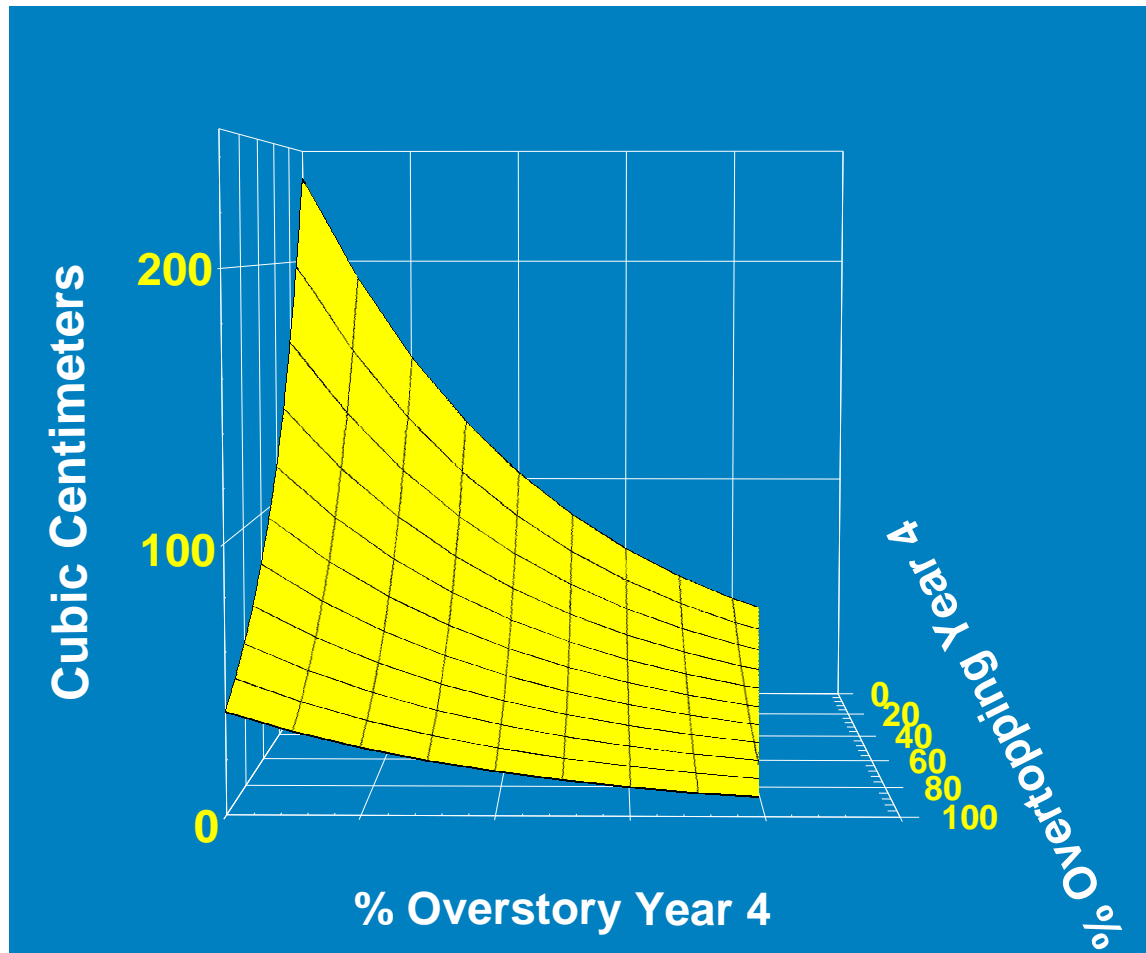
Growth of Planted Seedlings Ames Creek

Large Unbrowsed Douglas-fir (4th-year Stem Volume Index)



Growth of Planted Seedlings Ames Creek

Unbrowsed Cedar (4th-year Stem Volume Index)



Concluding Thoughts

- The WRC has added greatly to our knowledge
- The forest practices rules are effective
- Adaptive Management is working
 - The forest sector has shown support for science and science-based protection
 - I do not see a scientific basis why we cannot create a win/win for growing both trees and fish
 - We will continue to learn and practice adaptive management!