The Dynamic Landscape: Shifting Habitat Mosaics from Headwaters to Estuaries

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## Intrinsic Potential: Oregon Coastal Province



# Life-History Variation

Juvenile Chinook Salmon Moving Past Humphrey Trap, Elk River, Oregon



# Fall Chinook Salmon Life-History Types Elk River, OR

Life-History - Type	Juvenile Rearing Habitat		
	Tributaries	Mainstem	Estuary
1	brief	brief	brief
2	brief	1-2 MO.	brief
3	brief	1-2 MO.	3-4 mo.
4	5-6 mo.	brief	brief
5	ıy	brief	brief

From: Reimers (1973)

## Life-history response of Coho Salmon to changes in estuarine habitat Salmon River, OR



Full diking

Post-diking

From: Jones et al. 2014

From: J. Asel



## "Reference Conditions"



#### The River Continuum Concept (Vannote et al. 1980)



FPOM is fine particulate organic matter; CPOM is coarse particulate organic matter; P/R is the production/respiration

### Rosgen Channel Classification (Rosgen 1992)



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## The Aquatic Landscape?





From: Naiman et al. (1992)



#### Fine overbank alluvium

#### Channel gravels

#### Coarse charcoal

#### **Channel gravels**

Limber Jim Creek, Upper Grande Ronde River basin





From: K. Yazzi, unpubl.

## Ecological States of Aquatic Ecosystems in the Oregon Coast Range













From: Naiman et al. (1992)



o to 30 yrs

30 to 60 yrs

60 to 90 yrs

> 90 yrs

## **Time Since the Previous Debris Flow**

From: May & Gresswell 200

# Thinking Big Each spatial/ecological level has unique features

- Recognize importance of time
- Lower levels more variable than higher levels



# Thinking Big

- Each spatial/ecological level has unique features
  - Recognize importance of time
  - Lower levels more variable than higher levels
- Change is more important than stability
  - Ecosystems are complex & dynamic in space and time
  - Periodic disturbances are important



Decades of misguided forest management policy set the stage for an inferno that challenged the old rules of fighting wildfires Hopefuls offer clear difference to voters

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# Thinking Big

- Each spatial/ecological level has unique features
  - Recognize importance of time
  - Lower levels more variable than higher levels
- Change more important than stability
  - Ecosystems dynamic in space & TIME
  - Disturbances important
- Focus conservation on biological diversity
  - It takes a landscape

From: J. Asel

# Go big (space & time), or go home!