Determining an Ordinary High Water Mark on Shorelines of the State

Presented by:

The Washington Department of Ecology

18 October 2011

So, where's the OHWM?

Or, When the Water is High, Where is it?

THE ORDINARY HIGH WATER MARK IS NOT REALLY A LINE!

- It is a legal definition of a physical feature on the landscape.
- At best it is a transition zone between the aquatic and terrestrial environments.
- In some places it is narrow and easily defined.
- In others it is a broad and gradual change that can be near imperceptible.
- It can change with time.
- Using the appropriate indicators, there should be consistency between professionals.
- But it is not a line – Unfortunately.

"ORDINARY HIGH WATER MARK"

on all lakes, streams, and tidal water is that mark that will be found by examining the bed and banks and ascertaining where the **PRESENCE AND ACTION OF WATERS** are so common and usual, and so long continued in all ordinary years, . . .

Chapter 90.58 RCW, Shoreline Management Act of 1971

"ORDINARY HIGH WATER MARK"

. . . as to **MARK UPON THE SOIL** a character distinct from that of the abutting upland, . . .

Chapter 90.58 RCW, Shoreline Management Act of 1971

"ORDINARY HIGH WATER MARK"

. . . IN RESPECT TO VEGETATION . . .

Chapter 90.58 RCW, Shoreline Management Act of 1971

"ORDINARY HIGH WATER MARK"

. . . as that condition exists on June 1, 1971, **as it may naturally change** thereafter, **or as it may change thereafter in accordance with permits** issued by a local government or the department:…

Chapter 90.58 RCW, Shoreline Management Act of 1971

"ORDINARY HIGH WATER MARK"

. . . PROVIDED, that in any area where the ordinary high water mark cannot be found, the ordinary high water mark adjoining salt water shall be the line of **mean higher high tide** and the ordinary high water mark adjoining fresh water shall be the line of **mean high water**.

Chapter 90.58 RCW, Shoreline Management Act of 1971

"ORDINARY HIGH WATER MARK"

Means . . .

- **PRESENCE AND ACTION OF WATERS**
- **MARK UPON THE SOIL**
- **IN RESPECT TO VEGETATION**

“Mark Upon the Soil”

"Shorelands" or "Shoreland Areas"

Means those lands extending landward for two hundred feet in all directions as measured on a horizontal plane from the **ORDINARY HIGH WATER MARK**; . . .

RCW 90.58.030 Definitions and Concepts

"Shorelands" or "Shoreland Areas"

. . . floodways and contiguous floodplain areas landward two hundred feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter; **THE SAME TO BE DESIGNATED AS TO LOCATION BY THE DEPARTMENT OF ECOLOGY**. . .

RCW 90.58.030 Definitions and Concepts

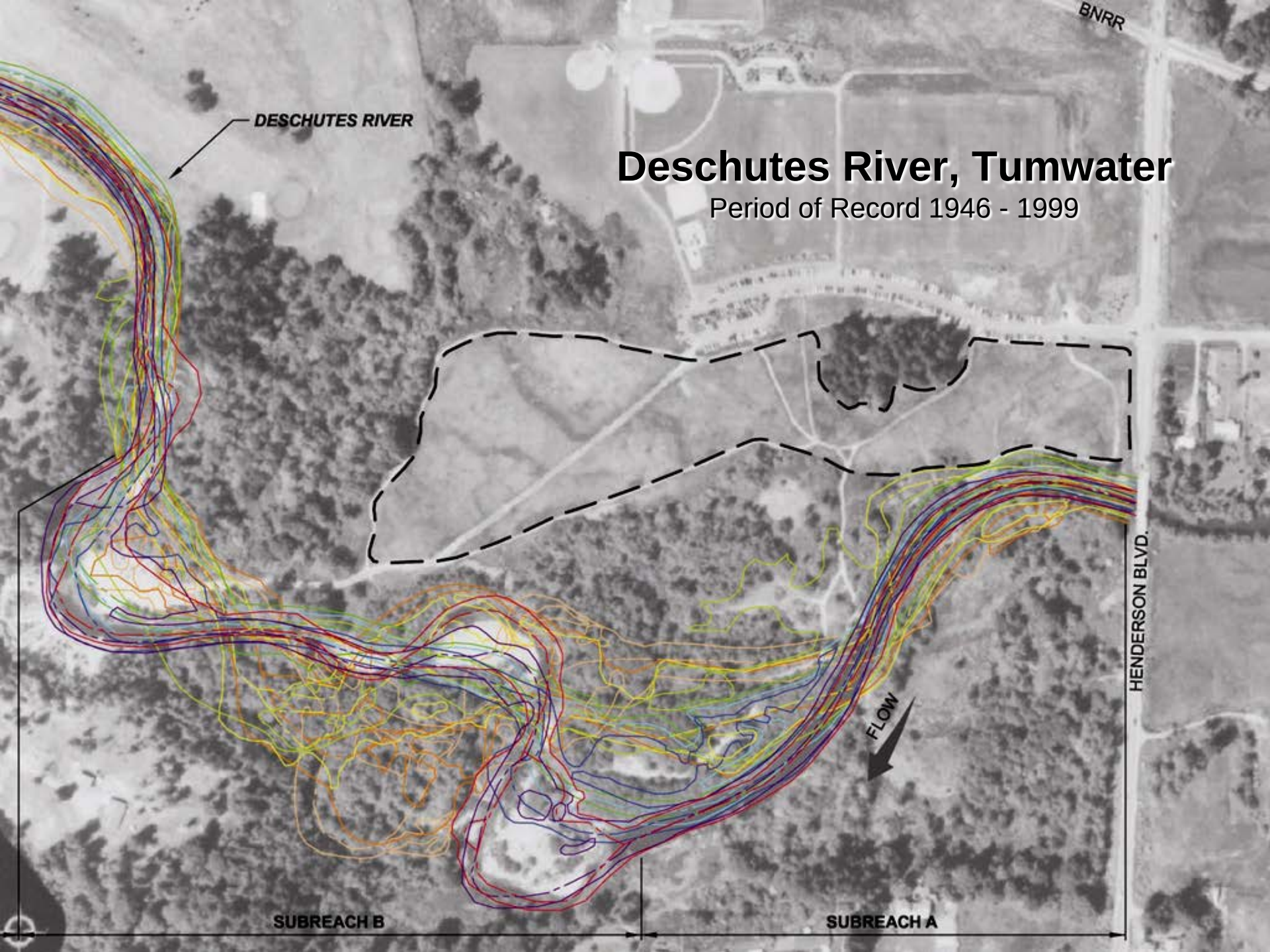
Proximity and Influence v. OHWM

The Marram Grass Line

European Beach Grass (Amopholia arenaria)

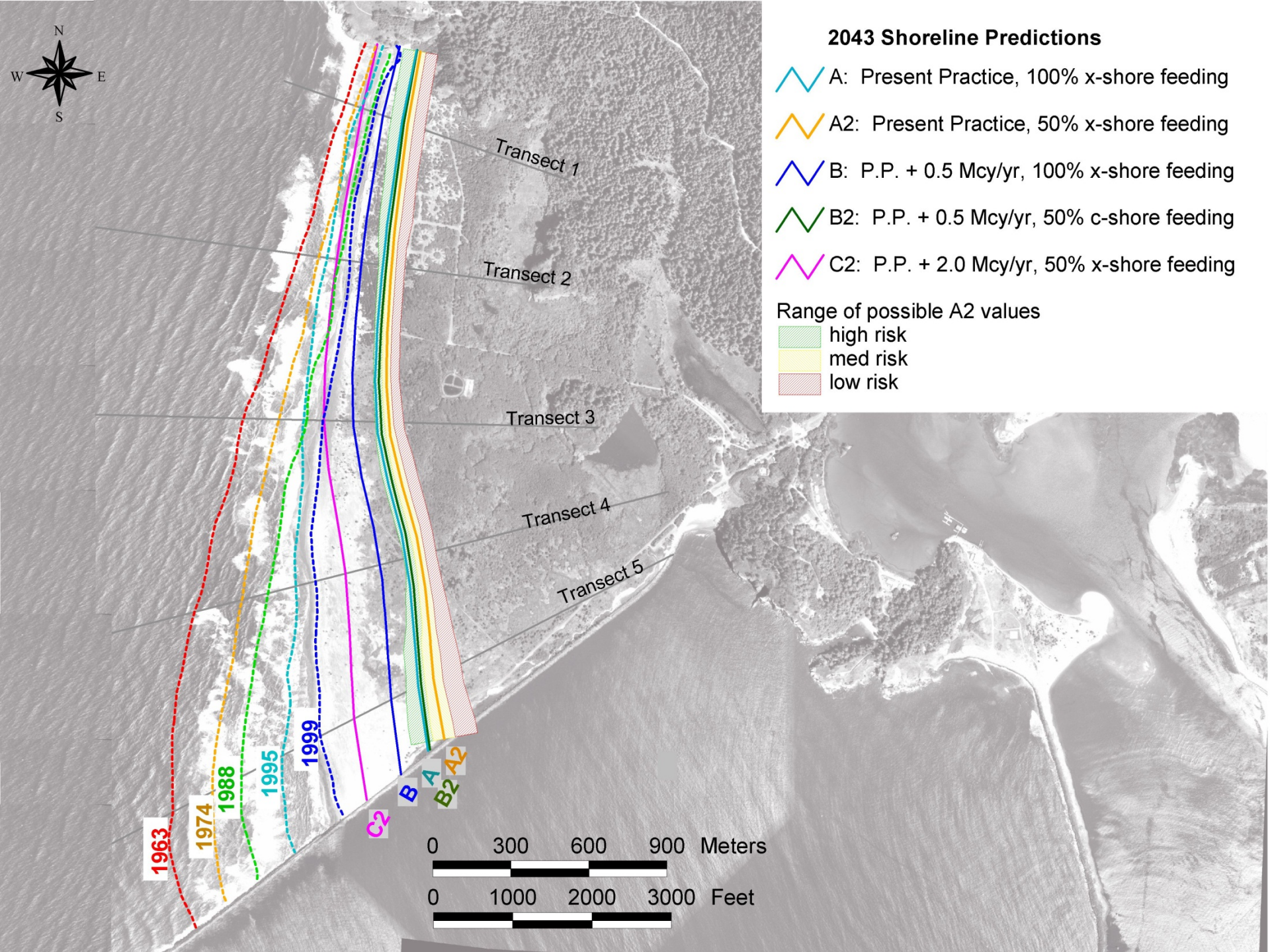
Moclips, WA 2001

Moclips, WA circa. 1979



Deschutes River, Tumwater

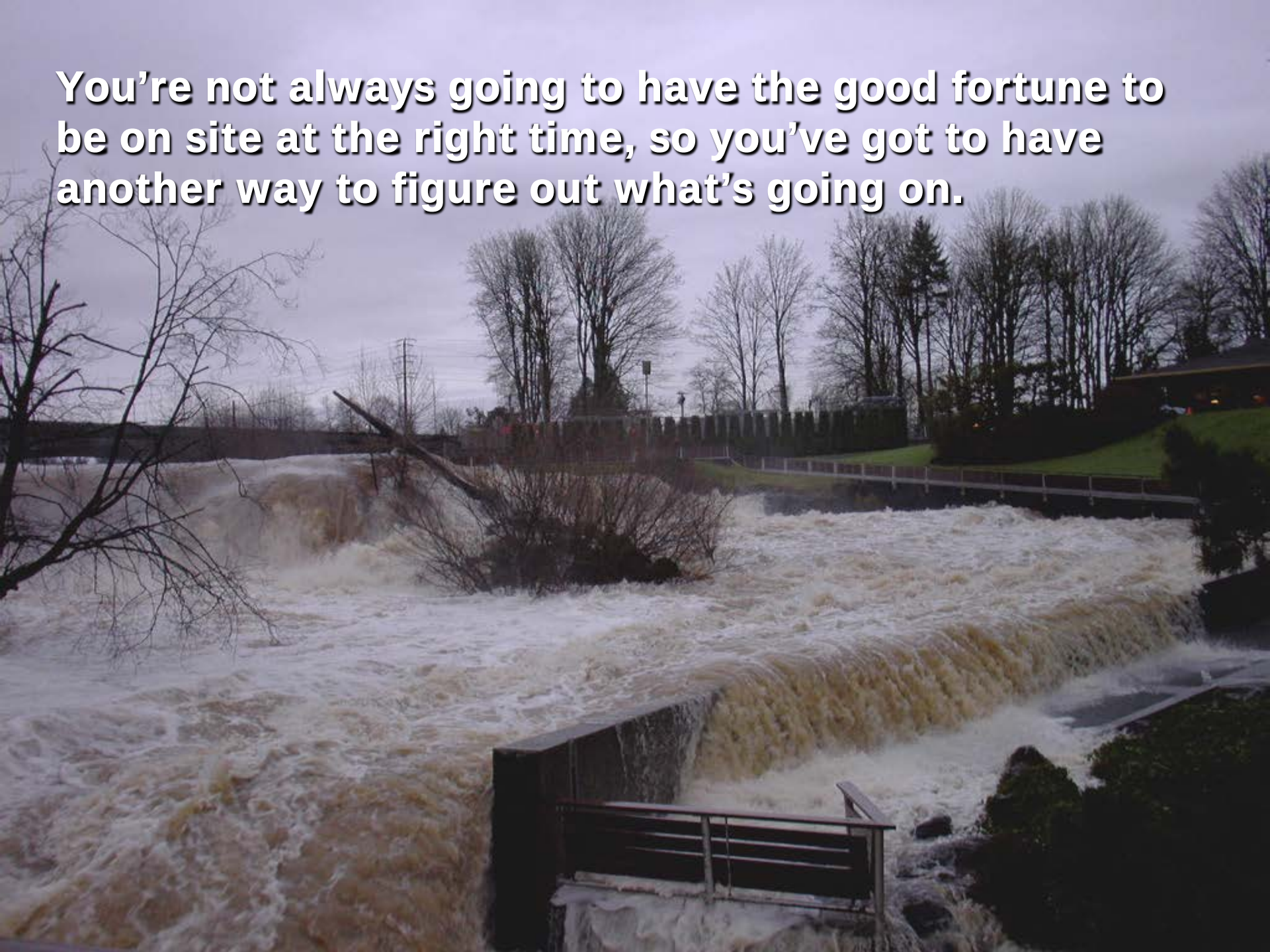
Period of Record 1946 - 1999


N
W
E
S
Transect 1
Transect 2
Transect 3
Transect 4
Transect 5
1963
1974
1988
1995
1999
C2
B
A
B2
A2
0 300 600 900 Meters
0 1000 2000 3000 Feet
2043 Shoreline Predictions
A: Present Practice, 100% x-shore feeding
A2: Present Practice, 50% x-shore feeding
B: P.P. + 0.5 Mcy/yr, 100% x-shore feeding
B2: P.P. + 0.5 Mcy/yr, 50% c-shore feeding
C2: P.P. + 2.0 Mcy/yr, 50% x-shore feeding
Range of possible A2 values
high risk
med risk
low risk

Conflicts Between Designations and Criteria

In the event that any of the wetland designations shown on the maps adopted in WAC 173-22-060 conflict with the criteria set forth in this chapter **the criteria shall control**. The boundary of the designated wetland areas shall be governed by the criteria set forth in WAC 173-22-040.

WAC 173-22-055


You’re not always going to have the good fortune to be on site at the right time, so you’ve got to have another way to figure out what’s going on.

Why Field Indicators?

"Ordinary high water mark"

….. is that mark ….. upon the soil ….. distinct from that of the abutting upland,

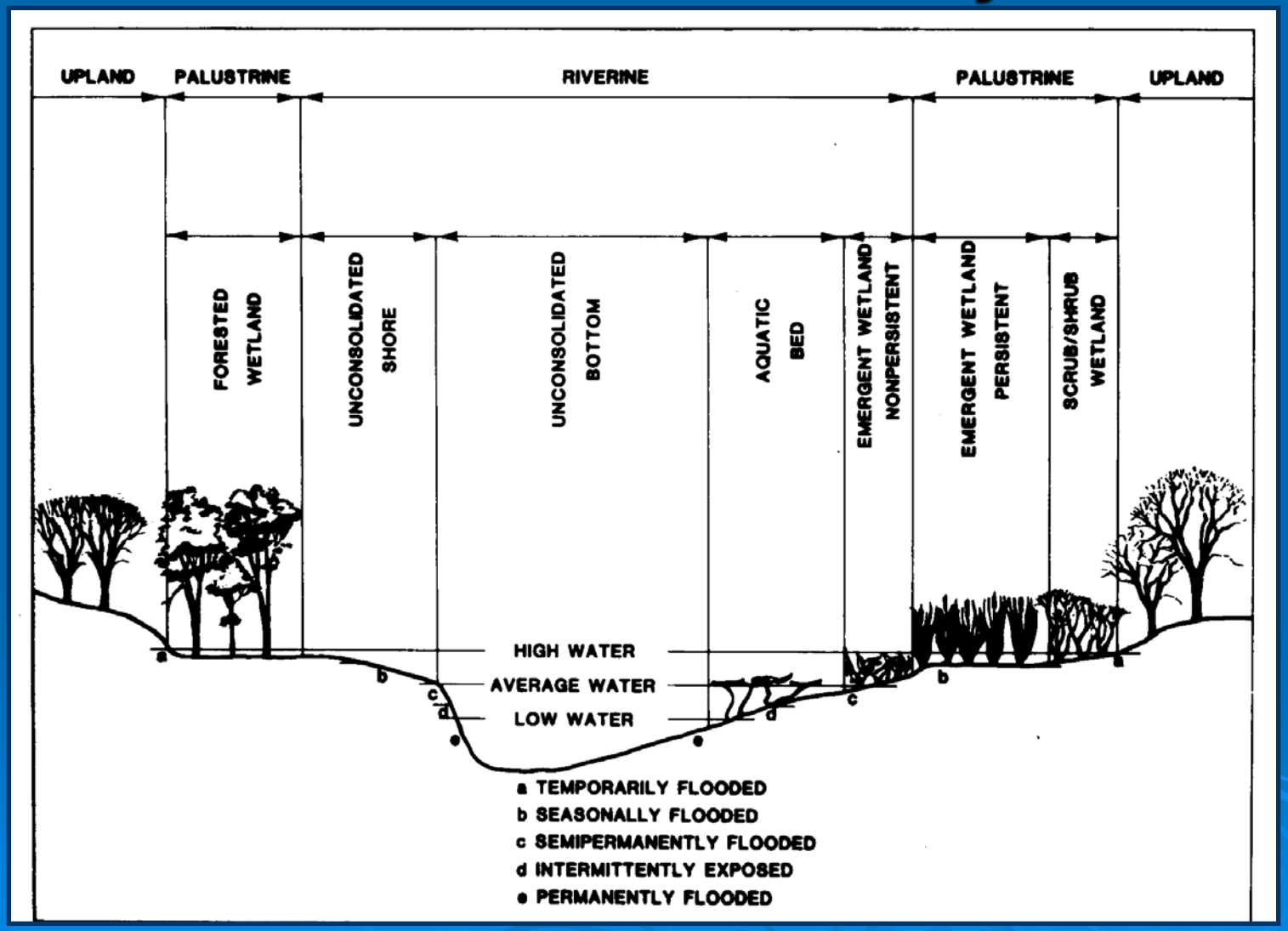
in respect to vegetation …..

You've got to get out there and look on the ground.

What are Field Indicators?

Field indicators are physical evidence of present or past hydrologic events, e.g., location, duration, and height of flooding.

Distinguishing Features and Examples of Habitats in the Riverine System



From Cowardin, et. al.

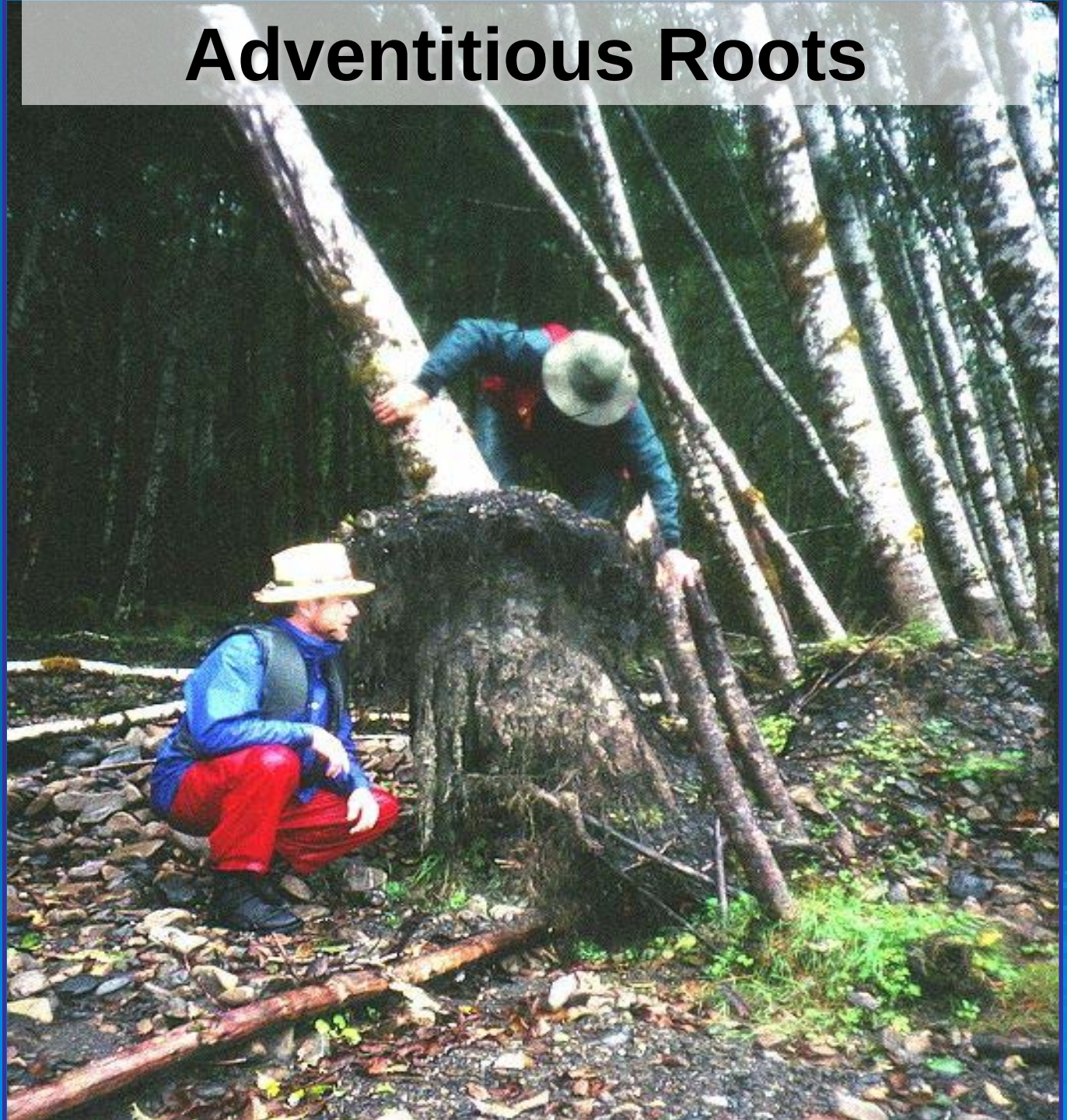
Geomorphic and Hydrologic Processes in Riparian Areas

PROCESS	Physical Effect	Ecological Consequences
Flooding		
Inundation	Soil Anoxia (no available oxygen) Saturation of Soil	Selects Plants Tolerant of Anoxia Increases Soil Moisture
High-Velocity Flow	Scour of Seedlings Physical Damage to Plants Bank Erosion Undercutting of Mature Plants	Prevents the Establishment of Woody Vegetation in Channel Selects for Tolerant Plants Creates New Habitats for Colonization
Deposition	Burial of Plants Sand-Gravel Bar Deposition Fine-Grained Overbank Deposition	Selects for Tolerant Plants Provides Silty/Sandy Substrates for Colonization
Stream-Groundwater Interactions		
Drainage from Hill Slope	Maintains High Water Table Recharges Alluvial Water Table	Supports Vegetation Independent of Streamflow
Bank Storage	Maintains Base Flow	Supports Vegetation Provides Water Downstream

Adaptations

- **Plant adaptations for life in saturated soils includes:**
  - **Morphological adaptations**
  - **Physiological adaptations**
  - **Reproductive adaptations**

Adventitious Roots



Field Indicators and Time of Year


Alnus rubra - Red Alder
(FAC)
Upstream Side - Sediment Buildup


Downstream Side - Scour

Look for as Many Clues as You Can Find

Characteristics of a Disturbance Regime

Consider the Degree of Disturbance

- Extent (area)
- Frequency and Timing (season)
- Intensity (depth, duration)

Quality (+/-) of the Habitat Conditions (opportunity)

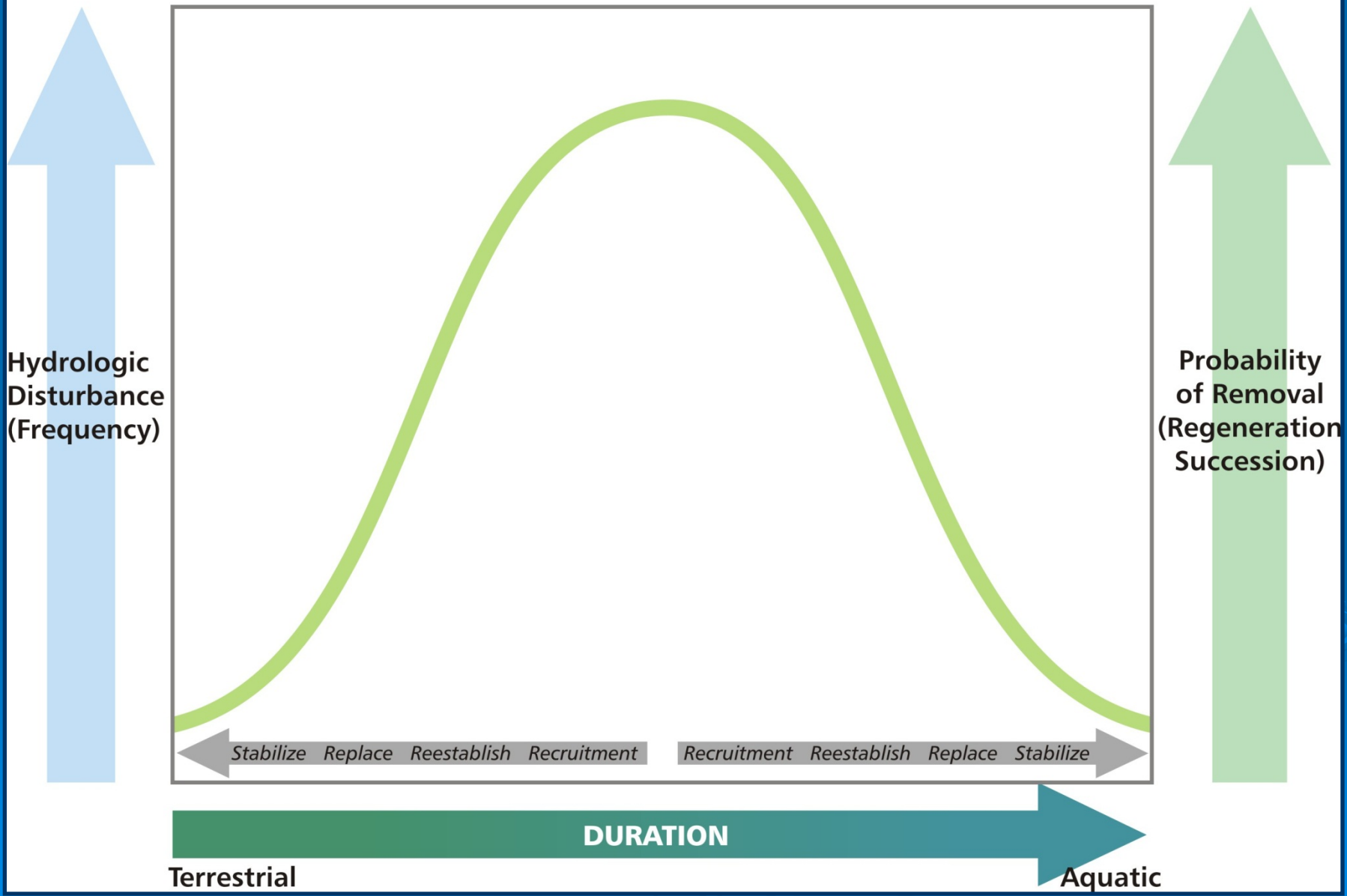
- Landscape Position and Configuration
- Source and Availability of Propagules
- Life History

Characteristics of a Disturbance Regime

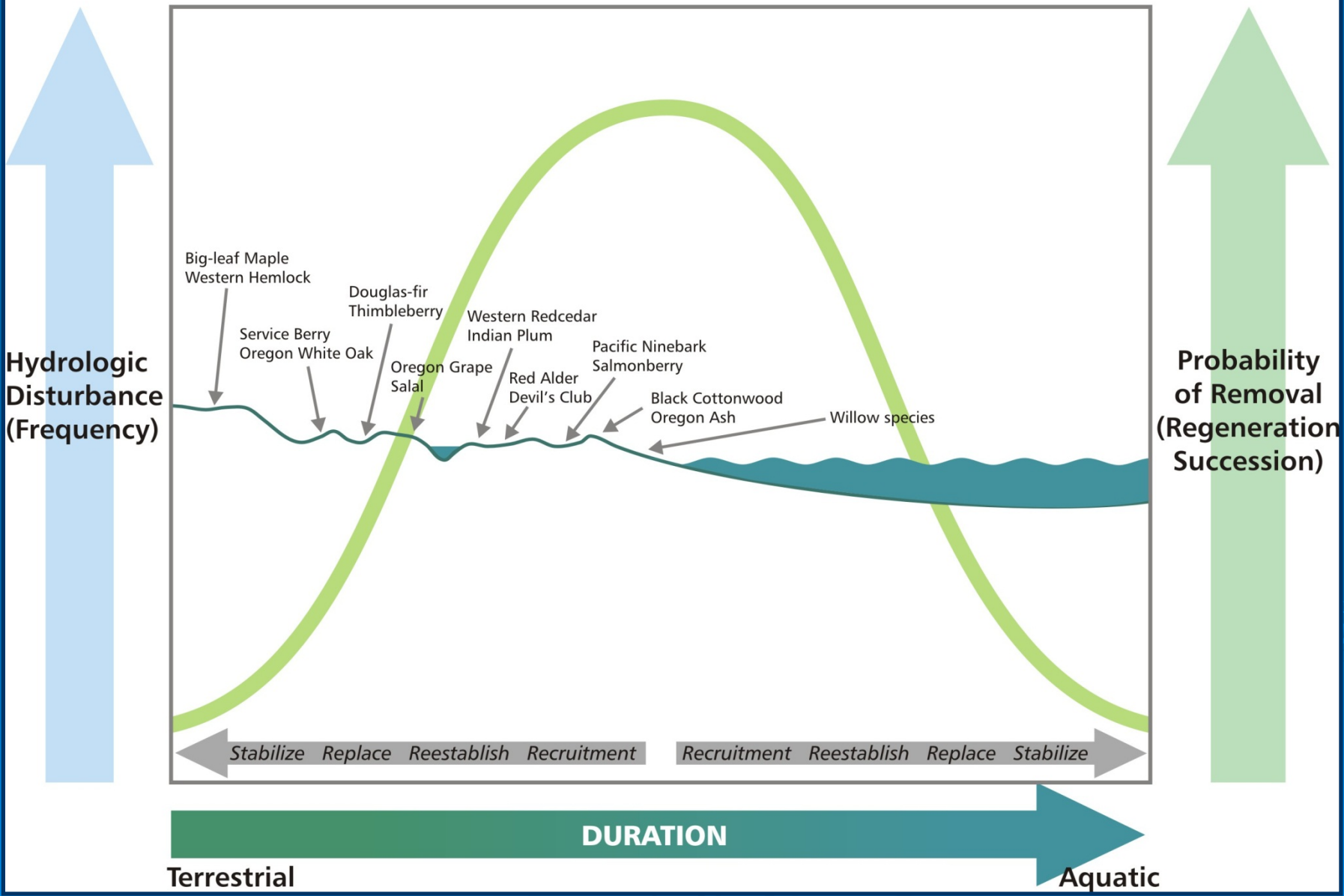
Consider the site in relation to the position in the watershed

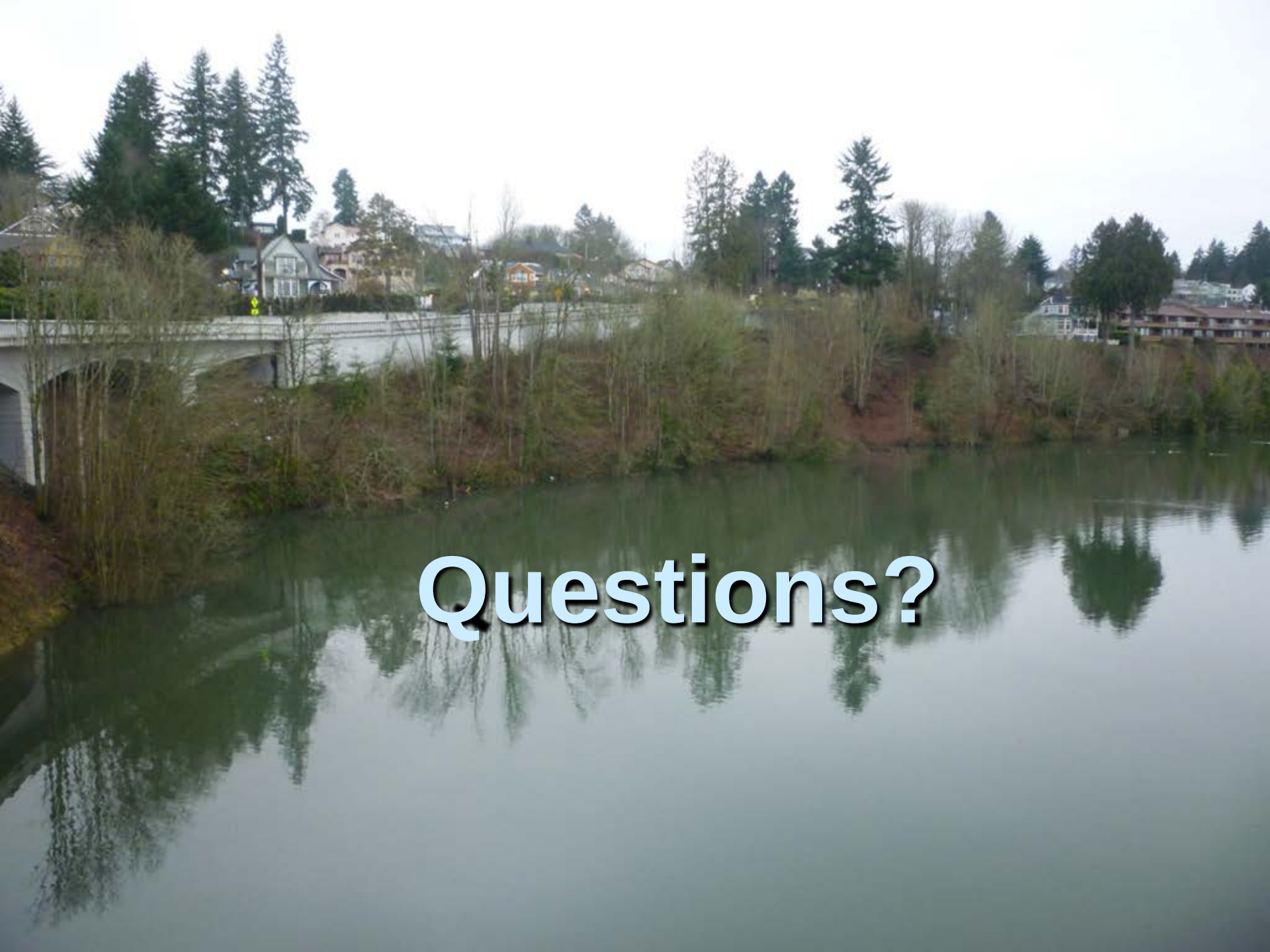
- Vegetation structure and community composition are a reflection of hydrology
- The frequency and duration of flooding are significant influences on species distribution
- Plant species distribution, community composition, and stand age can also influence localized hydrology

Disturbance Driven Systems
(Riverine)



Disturbance Driven Systems
(Riverine)




Questions?