



Cedar River Watershed Habitat Conservation Plan



January 18, 2002

City of Seattle 

Cedar River Watershed HCP

Ecosystem Management Overview: Monitoring & Research

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Watershed Management Objectives

- Three Major Objectives:
 - Protect water quality
 - Long term: Restore natural ecological functions in aquatic, riparian and upland habitats
 - Short term: Improve habitat for at-risk species covered by HCP

Species of Concern: Wildlife

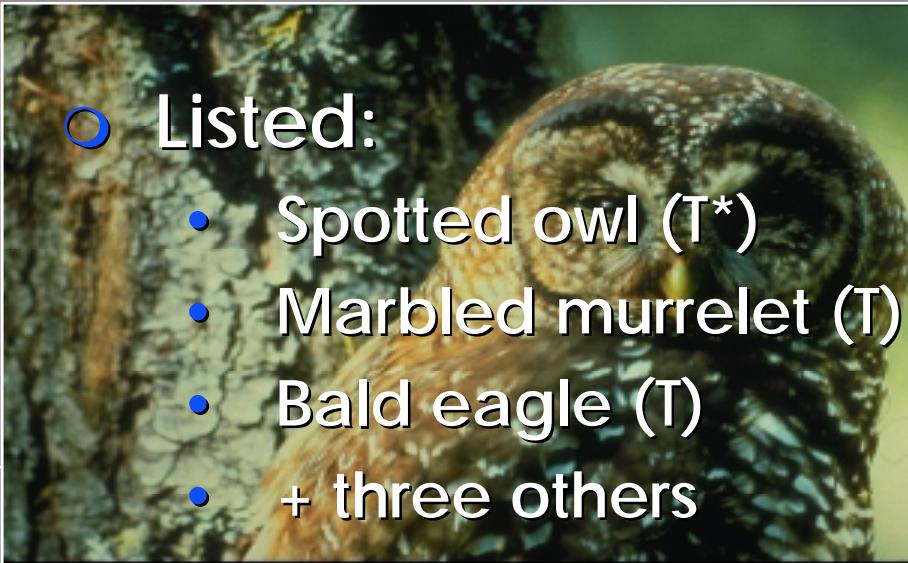
- Listed:

- Spotted owl (T*)
- Marbled murrelet (T)
- Bald eagle (T)
- + three others

- Candidates & others

- Frogs and salamanders
- Birds and mammals
- Invertebrates

* T = threatened



Species of Concern: Fish

- Reservoir:

- Bull trout (T*)
- Pygmy whitefish



- Downstream:

- Steelhead trout
- Chinook salmon (T)
- Coho salmon
- Sockeye salmon



* T = threatened

Watershed Management *HCP Commitments*

- 
- No harvest for commercial purposes
 - Protection of all remaining old growth
 - Road decommissioning, reengineering
 - Replacement of fish-blocking culverts
 - Restoration of instream habitat
 - Restoration of riparian and upland forest habitat (thinning and planting)
 - Research and monitoring

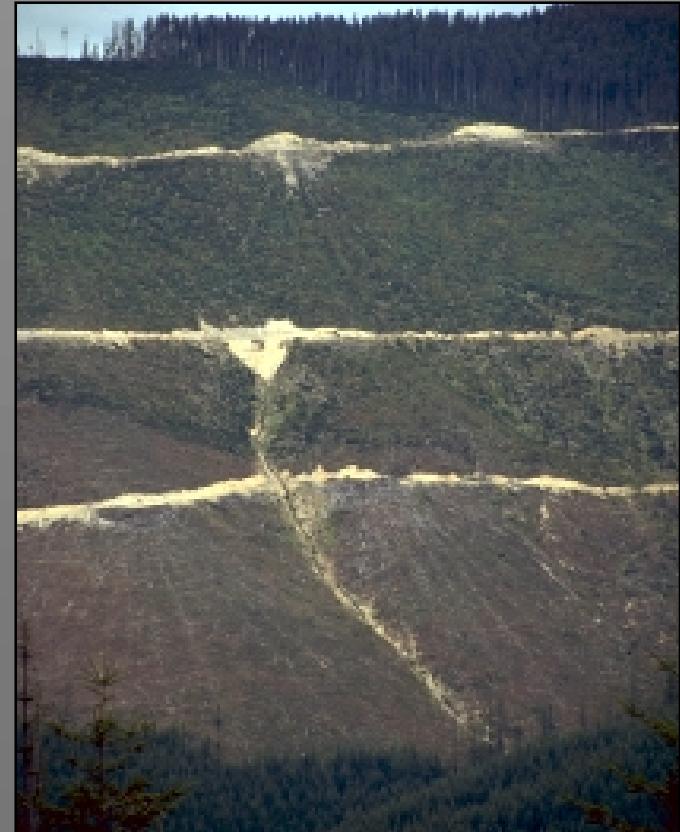
Forest Roads Decommission and Improve



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HCP Objectives for Roads:

Reduce sediment loading to streams to improve water quality and aquatic habitat



More than 12 miles of road decommissioned HCP year 1 (2001)

AQUATIC AND RIPARIAN RESTORATION



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Culvert Replacement

Fish Passage & Peak Flow Conditions



Webster Crk. (2001): kokanee, coho, cutthroat, rainbow trout
Shotgun Crk. (2001): bull trout, rainbow trout



Riparian Zone

Experimental
underplanting
multiple species
of conifer



Wetland Restoration

Woody debris placement
Conifer planting on logs

MONITORING AND RESEARCH

Aquatic/Riparian Systems



Monitoring
Projects
Trends
Research
New information and understanding
Impacts

Kokanee in Webster Creek



- Small population in Walsh Lake system
- Preliminary DNA analysis indicates possible link to “native” stock
- Spawn in Webster Creek (Sept. - Nov.)
- 1,700 ft of “new” habitat available

Stream/Aquatic Ecology

- Habitat recolonization
 - Kokanee, coho salmon
- Interspecific competition
 - Cutthroat trout, coho salmon
- Species distribution
- Habitat utilization
 - Juvenile rearing (bull trout)



Chester Morse Lake

“Informed Water Management”

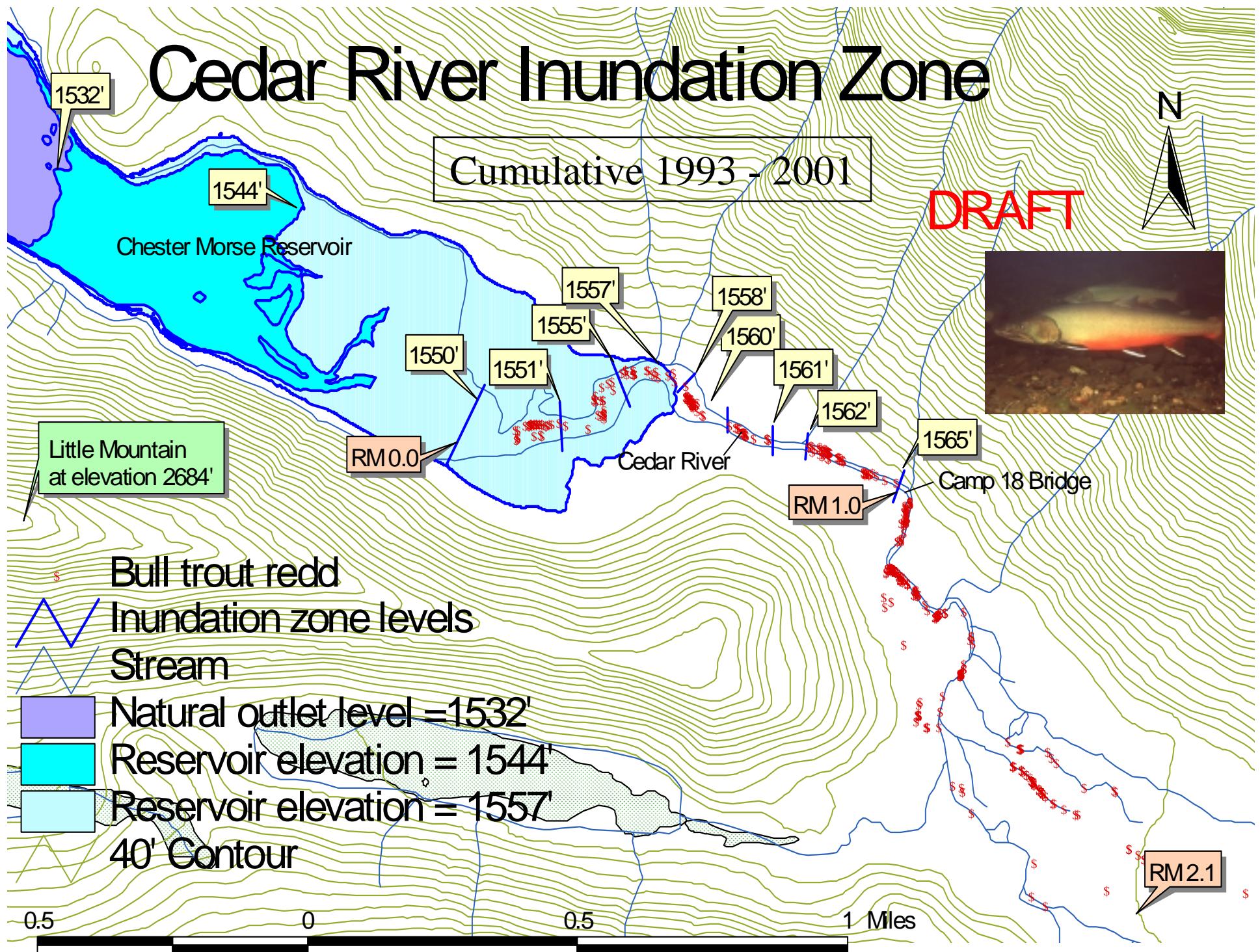


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Cedar River Inundation Zone

Cumulative 1993 - 2001

DRAFT



Chester Morse Reservoir

Rex River Inundation Zone

Cumulative 1993 - 2001

D R A F T



Bull trout redd
Inundation zone levels
Stream

Natural outlet level = 1532'

Reservoir elevation = 1544'

Reservoir elevation = 1557'

40' Contour

0.2

0

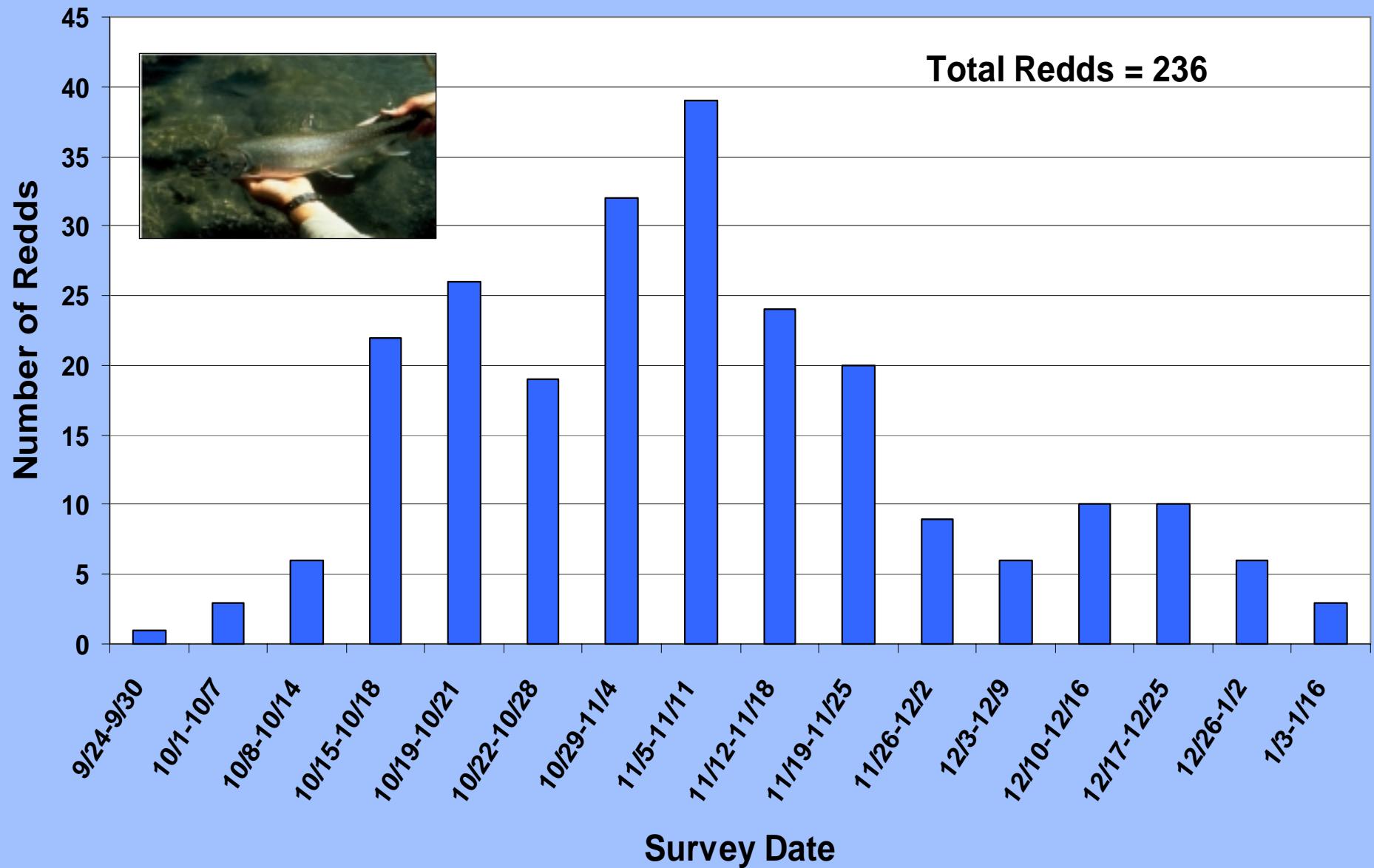
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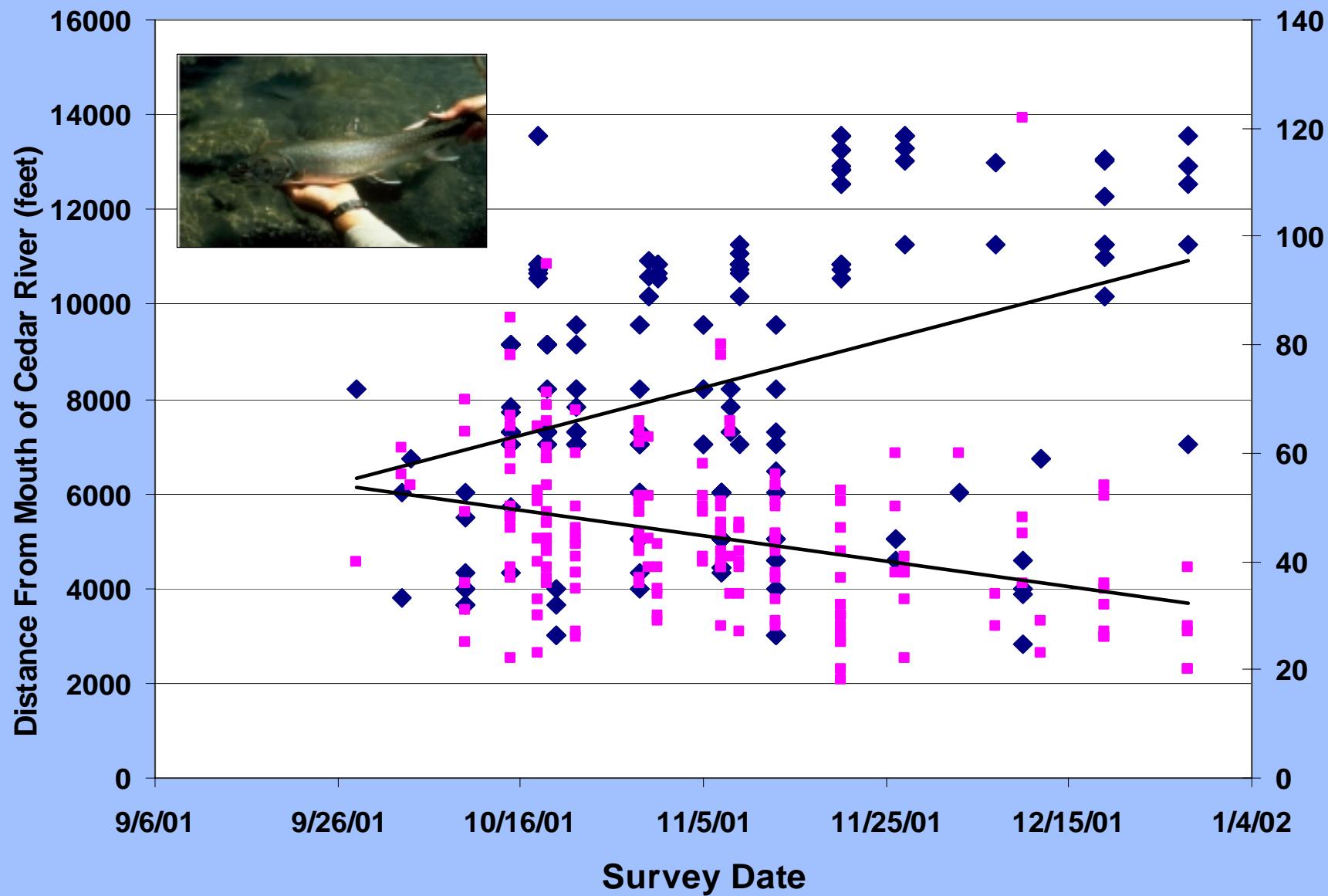
Miles

169 redds totals since 9/92 in the Rex system, all are shown.

Bull Trout Redd Temporal Distribution in 2001-02



Bull Trout Redd Position in Cedar River and Length of Redd "Core" Survey Area (2001-02)





Cedar River

December 03, 2001

Pygmy Whitefish - “Spawning”

Common Loons

Monitoring - Research

1990 -2001

21 platform nests
9 natural nests



1990 -2001

23 chicks - platform
7 chicks - natural

OTHER ACTIVITIES

Monitoring

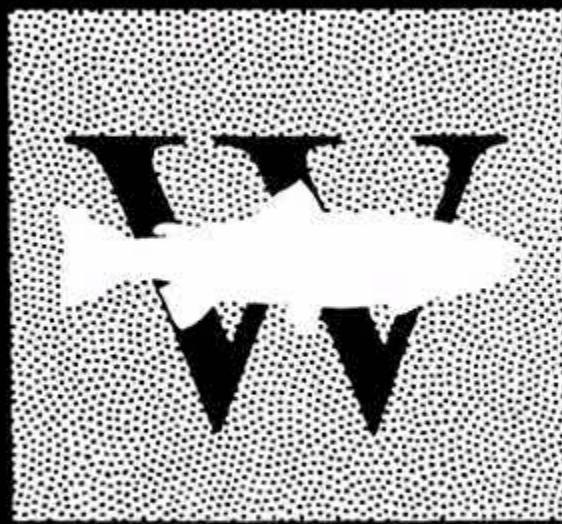
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- Restoration project monitoring and adaptive management
 - Designing approach
 - LWD, riparian thinning/planting, bank stabilization, roads/sediment, wetlands, ...
 - Trend monitoring
 - Stream habitats: BIBI (with USGS)
 - Riparian habitats
 - Bull trout, kokanee, coho

OTHER ACTIVITIES

Research

- Collaborative research (to date)
 - Salmon recolonization (NMFS)
 - Channel scour study (UW)
- Research to increase knowledge
 - Bull trout distribution and habitat use
 - Pygmy whitefish/rainbow trout ecology
 - Amphibian distribution and habitat use
 - Biodiversity (invertebrates, ...)
- Research on impacts of operations
 - Bull trout redd inundation

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