Trinity River Restoration Program Overview

Briefing for
CVPIA Annual Work Plan
Public Meeting
February 17, 2011

The Compelling Problem:

Impacts of Trinity Dam on Natural Processes

Confined channel near Douglas City

Decades of low flows from the dam

↓

Encroached riparian vegetation & fine sediment in upper 40 miles

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Reduced access to floodplain & loss of critical habitat

↓

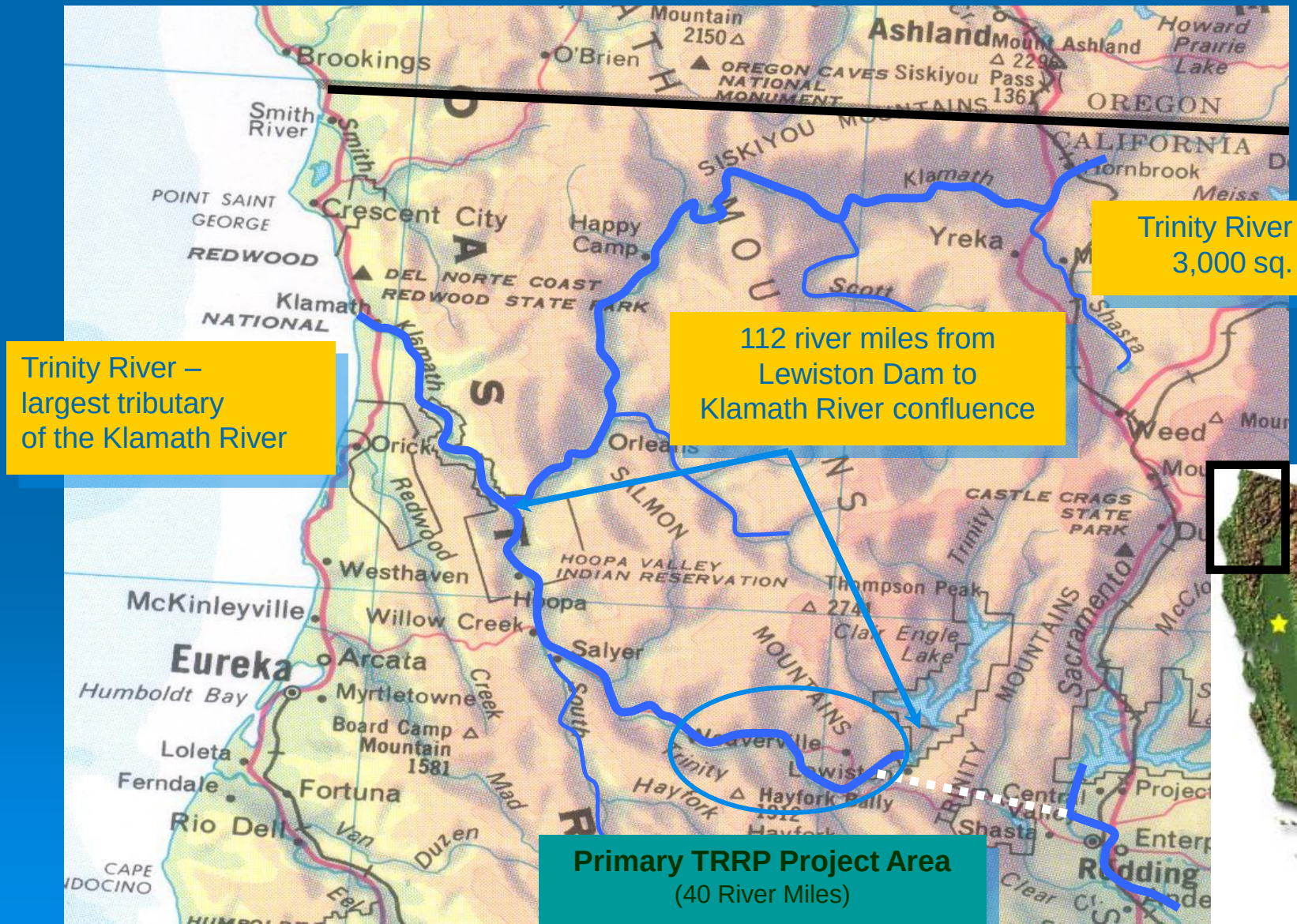
Major declines in naturally spawning anadromous fish populations by mid-1970s

Program Goals and Objectives:

"System-Wide Change" – From Dam to Estuary

- Restore populations of naturally spawning salmon and steelhead to pre-dam levels.
  - Implementation:
    - Natural and variable flow releases.
    - Create sufficient suitable habitat through achievement of healthy river attributes.
  - Science and Monitoring:
    - Predict, measure, and evaluate progress toward long-term program goals; use to influence short-term management actions.

Project Location:



Program Context:

Statutory, Administrative & Legal Mandates

1955 –Trinity Division of Central Valley Project authorized

1964 – Trinity/Lewiston dams completed and filled

1970s – Salmon populations decline significantly

1981 – Interior Secretary requires Flow Evaluation Study

1984 –TR Fish & Wildlife Mgt Act passed by Congress

1992 – CVPIA enacted by Congress, established 340,000 AF min. flows

Program Context:

Statutory, Administrative & Legal Mandates

1999 – Flow Study completed, basis for Preferred Alternative in EIS/EIR

2000 – Record of Decision signed

2002 – Program Office opens in Weaverville

2005 – First unconstrained ROD flows released, first rehab site completed

Program Partners:

Key Players – Numerous & Diverse

TMC
("Board of Directors")

- Bureau of Reclamation
- California Resources Agency
- Fish & Wildlife Service
- Forest Service
- Hoopa Valley Tribe
- NOAA Fisheries
- Trinity County
- Yurok Tribe

TAMWG
(Federal Advisory Committee)

- Big Bar Community Development Group
- Redwood Regional Audubon Society
- California Trout, Inc.
- Northcoast Environmental Center
- Environmental Defense
- Friends of the Trinity
- Glen Colusa Irrigation District
- Tehama-Colusa Canal Authority
- Natural Resource Conservation Service
- City of Redding Electric Utility
- Safe Alternatives for Forest Environment
- 6 Rivers Outfitters & Guides Association
- County Residents & Landowners
- Trinity County Resource Conservation District
- Willow Cr. Community Services District

Funding Recipients

Science and Monitoring

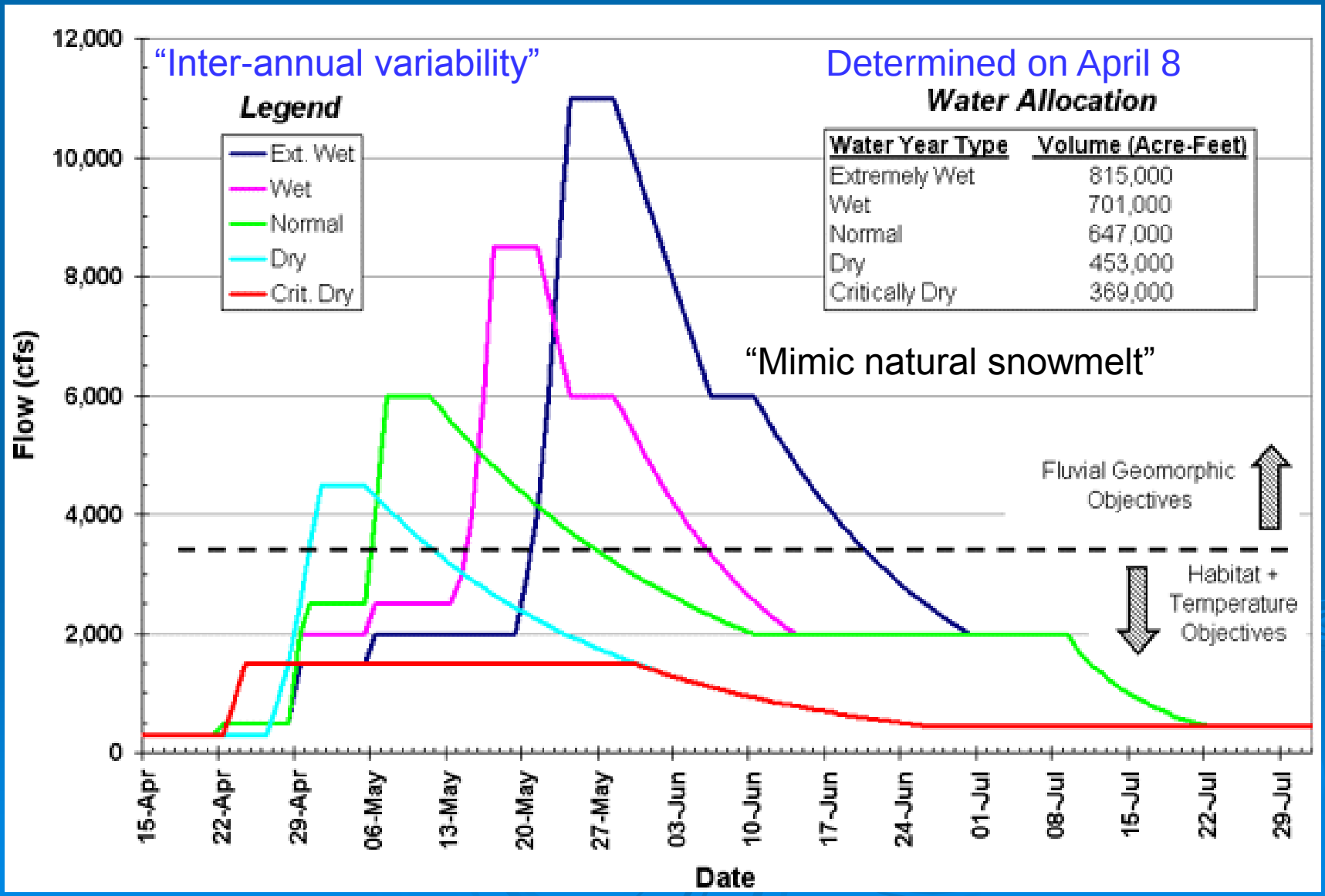
- Basis of the Science aspect of the Program
  - Alluvial river systems are complex and dynamic. Our understanding of these systems and our ability to predict future conditions are continually improving.
  - Adaptive management is intended to not only monitor changes in the ecosystem, but also develop and test hypotheses about the causes of those changes, in order to promote desired outcomes.
- Integrated Assessment Plan
- Integrated Habitat Assessment Plan
- Online Document Library at www.trrp.net

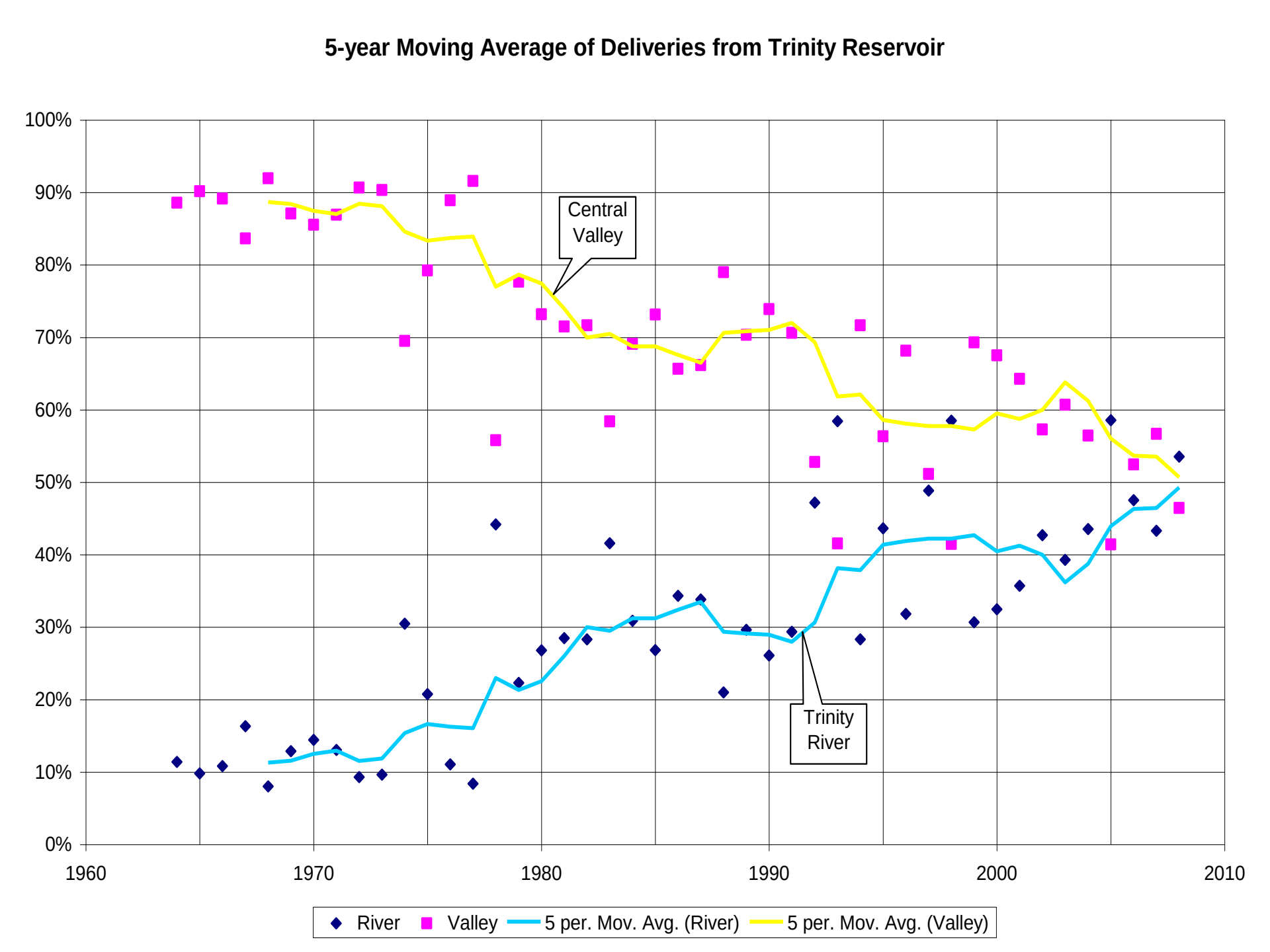
Implementation

- Flows Releases / Floodplain Structures
- Mechanical Channel Rehabilitation
- Sediment Management
  - Coarse Sediment Augmentation
- Watershed Restoration
  - Fine Sediment Reduction

Higher Flows:

Five Water Year Types

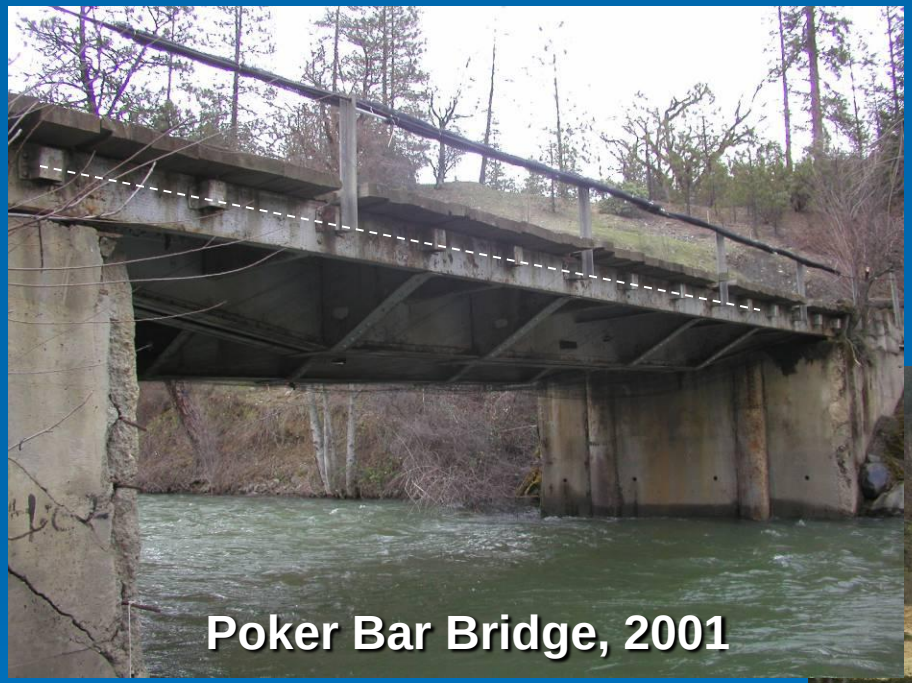



5-year Moving Average of Deliveries from Trinity Reservoir
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
1960
1970
1980
1990
2000
2010
Central Valley
Trinity River
River
Valley
5 per. Mov. Avg. (River)
5 per. Mov. Avg. (Valley)

Floodplain Structures - Bridges

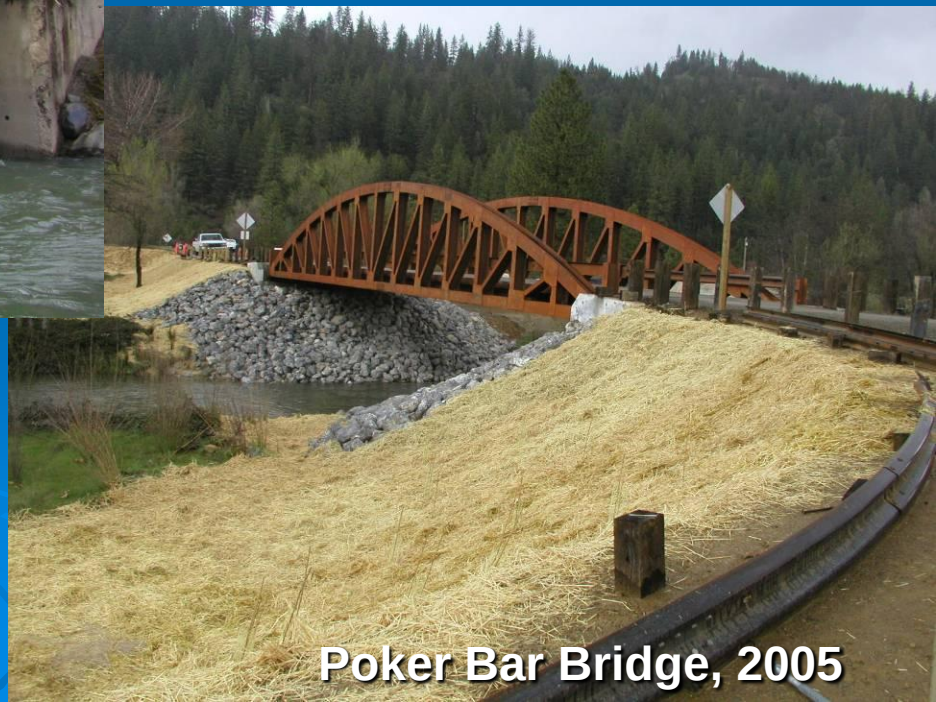
Bridge Replacement

Two contracts; $10 million for planning, design, and construction; completed in three years



Poker Bar Bridge, 2001

11,000 cfs



Poker Bar Bridge, 2005

Four new river crossings provide safe access to over 120 homes during maximum fishery flows

Floodplain Structures - Other

House Removal

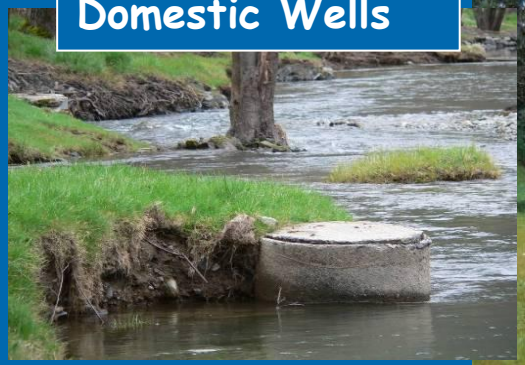
11,000 cfs →

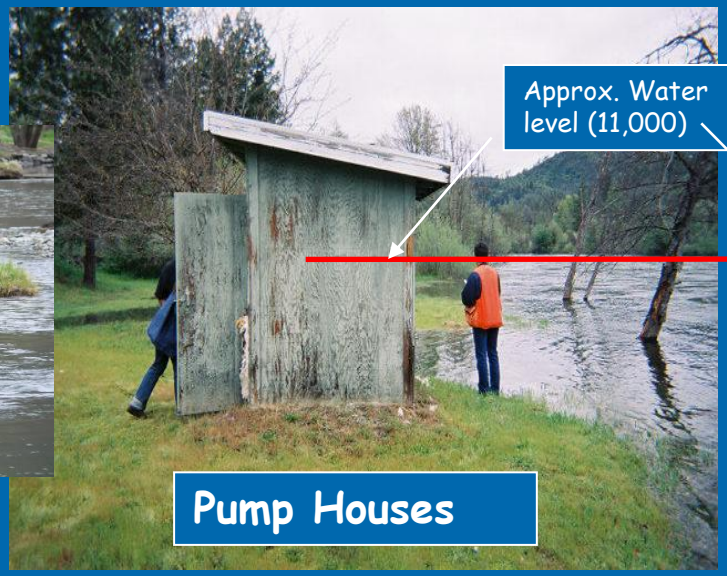
8,500 cfs →

Floodplain Structures - Other

Many Small Structures

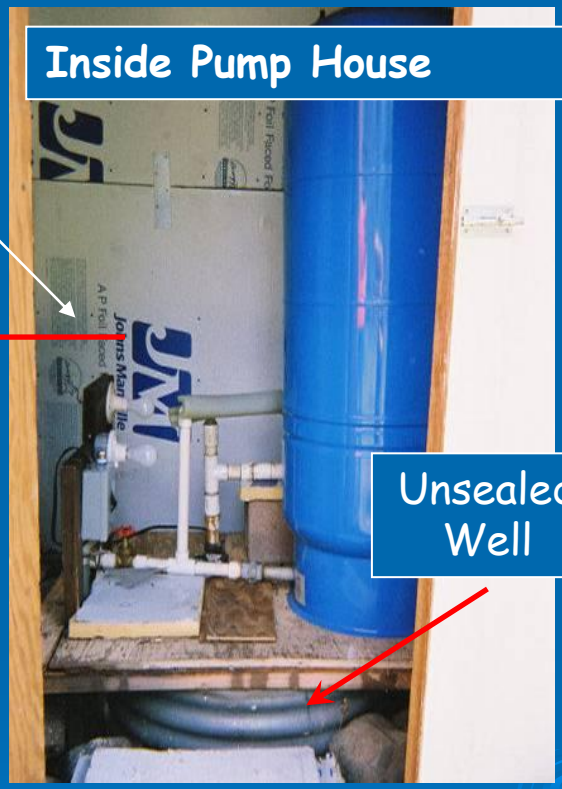
Domestic Wells





Pump Houses

Inside Pump House



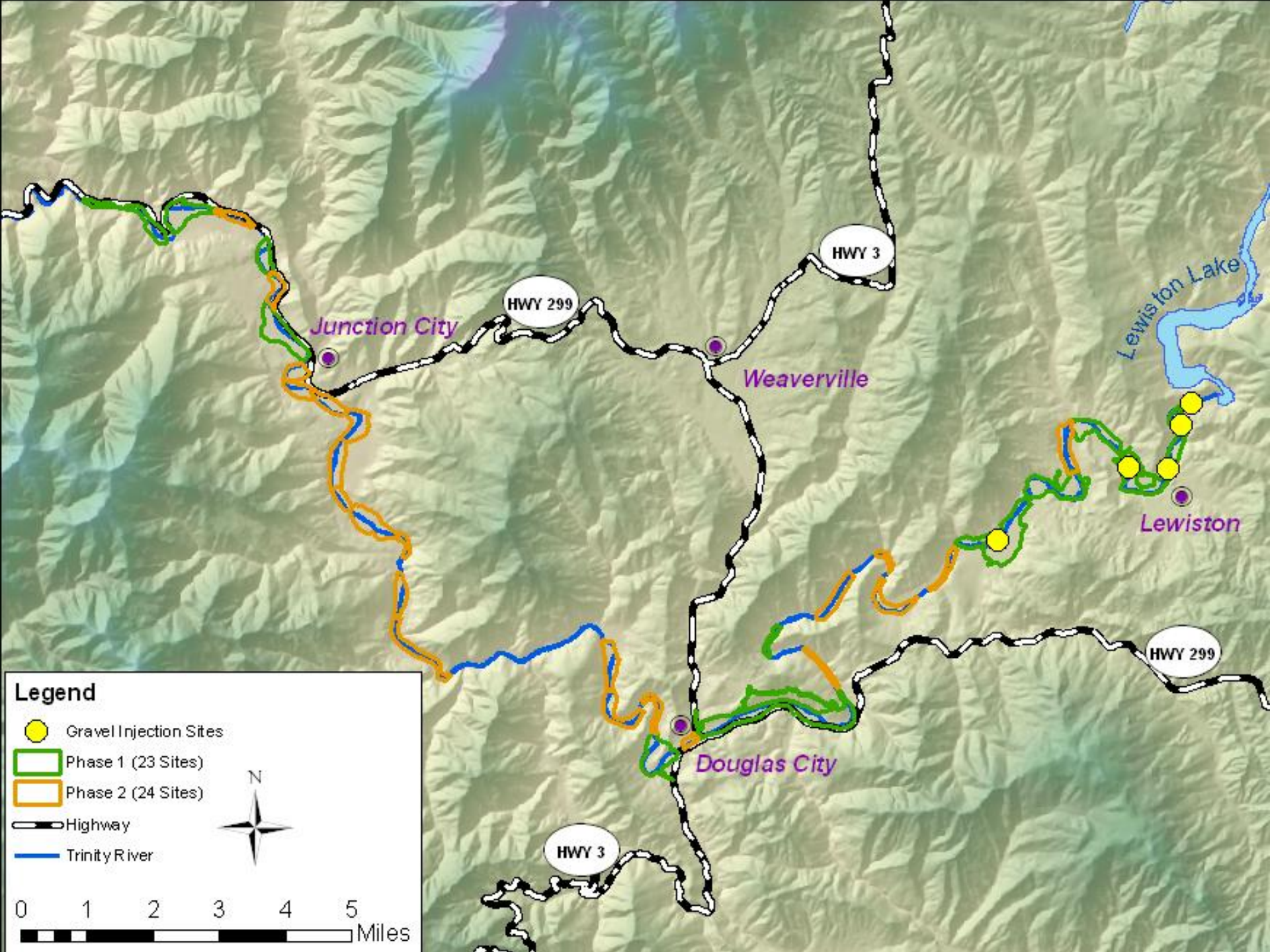
Electrical Connections

Decks

Waiver of liability secured & recorded from over 120 landowners for floodplain structure modifications, including domestic water and sewage disposal systems, at a cost of $1,600,000.

Mechanical Channel Rehabilitation

- Record of Decision
  - Complete 44 bank rehabilitations and 3 side channels
- Progress
  - Completed Phase 1 (50% compete overall)
    - Phase 1 actually included 16 bank rehabilitations and 12 side channels
    - Duration: 2005 - 2010
  - Phase 2 Planning is the focus in 2011
    - Assumed to be a similar level of effort as Phase 1
    - Duration: 2011 - 2015


HWY 3
HWY 299
Junction City
Weaverville
Lewiston Lake
Lewiston
HWY 299
Douglas City
HWY 3
Legend
Gravel Injection Sites
Phase 1 (23 Sites)
Phase 2 (24 Sites)
Highway
Trinity River
N
0 1 2 3 4 5
Miles

Mechanical Channel Rehabilitation Summary

Rehabilitation Site	# Sites	Dirtwork (CY)	Gravel (CY)	LWD (Trees)	Mainstem Length (Miles)	Edge Treated (Miles)	Acres Treated	Construction Cost
Hocker Flat	1	83,000	0	0	1.0	1.0	26	$850,564
Canyon Creek	4	91,000	0	100	1.7	2.0	40	$1,160,383
Indian Creek	3	77,800	0	200	2.8	2.5	31	$1,647,560
Lewiston-Dark Gulch	8	56,900	10,700	200	3.7	2.5	42	$2,000,000
Sawmill	1	87,750	5,700	260	0.8	2.0	25	$2,056,780
Lowden Ranch	*1*	*102,600*	*19,000*	*150*	*2.4*	5.2	36	
Trinity House Gulch	*2*	*32,300*	*3,500*	*50*				
Reading Creek	*2*	*67,690*	*5,900*	*100*				$4,900,000
Phase 2 - TBD	4 - 8							
Phase 2 - TBD	4 - 8							
Phase 2 - TBD	4 - 8							
Phase 2 - TBD	4 - 8							
Totals	47	599,040	44,800	1,060	12	15	200	$12.6 M

Sediment Management

- Coarse Sediment Augmentation Goals:
  - Increase the total quantity of coarse sediment stored in the Trinity River
  - Place 10,000 tons of gravel in the upper river annually
  - Achieve equilibrium between gravel additions and gravel transported out of the upper river
  - Reduce reach-averaged median bed surface grain sizes to approximately 3-inch diameter particles to facilitate bed mobility and salmonid spawning
- Fine Sediment Goals are addressed in Watershed Restoration activities

Coarse Sediment Augmentation

Calendar Year		Gravel (Tons)	Total per Year
2003	Cableway	3,000	3,000
2004		0	0
2005		0	0
2006	Hatchery	2,400	2,400
2007	Hatchery	6,500	6,500
2008	High Flow Injections	3,500	21,600
	Lewiston-Dark Gulch	18,100	
2009	High Flow Injections	3,500	12,000
	Sawmill	8,500	
2010	*High Flow Injections*	*4,600*	*47,200*
	Lowden, Trinity House Gulch, Reading Creek	*42,600*	

Total through 2010 = 93,000

Watershed Restoration

- Goals:
  - Achieve a long-term reduction in the total quantity of fine sediment stored in the Trinity River between Lewiston Dam and the North Fork Trinity River by at least **250,000** cubic yards.
  - Reduce fine sediment delivery to the upper river by **10,000 to 20,000** cubic yards per year
  - Annually transport as much or more fine sediment downstream as is delivered to the upper river from tributary watersheds.

TRRP 2010 Accomplishments

Restoration Fund

- Funded environmental mitigation such as riparian re-establishment, wetland enhancement, and associated reporting to regulatory agencies.
- Placement of 3,000 cubic yards of spawning gravel at the Diversion Pool and Grass Valley Creek delta sites during the spring 2010 high flow event.
- Funded five watershed restoration projects including: mitigation projects in areas of high sediment production, preventative maintenance to reduce the likelihood that high rates of sediment projection will develop in the future, sediment detention, enhancing fish passage at road crossings or other obstructions, and assessments for identifying and prioritizing the watershed activities that will most effectively improve aquatic habitat conditions.
- Purchased 166-32 foot logs suitable for use as habitat structures or engineered log jams and 2,500 cubic yards of coarse sediment for future rehabilitation and coarse sediment augmentation projects.

TRRP 2010 Accomplishments

Water & Related Resources (W&RR) Fund:

- Program Administration of the TRRP, including Weaverville field office, Trinity Management Council (TMC) member agencies and tribes, and the federal advisory committee Trinity Adaptive Management Working Group (TAMWG).
- Construction of Lowden Ranch Area and Reading Creek Rehabilitation Sites in Lewiston and Douglas City. Over 200,000 cubic yards of material is being excavated and 28,400 cubic yards of coarse sediment is being placed along 2.4 miles of the Trinity River. In addition, large woody debris (trees), boulders, willow clumps, etc. will be placed in the mainstem and constructed side channels for aquatic and geomorphic purposes. The project will improve approximately 5.2 miles of edge habitat and 36 acres of floodplain surfaces.
- Planning and engineering designs 60% complete for the next four channel rehabilitation sites.
- Flow schedule planning and implementation complete for WY2010.
- Ongoing monitoring/assessment tasks – approximately $4.0M obligated to conduct stream gaging, sediment transport, juvenile outmigrant and fry utilization surveys, adult run size (weirs), sport and tribal harvest, habitat assessment, juvenile/adult fish health, riparian vegetation and wildlife, etc.


KOMATSU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PC 300 LC
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PSM
A35D


KOMATSU


CAT

Planned 2011 Accomplishments

- Construct up to 3 channel rehabilitation projects
- Fund between five and ten watershed restoration projects
- Augmentation of up to 5,000 cubic yards of course sediment depending on water year type
- Flow scheduling and implementation
- Ongoing science and monitoring activities