THE GUALALA RIVER WATERSHED COUNCIL

Jam' in for salmon…

where we are...

Cooperative Monitoring Program

- **37 monitoring reaches**
- **110 water quality monitoring sites**
- **16 years of quantitative data collection using State approved protocols**

Sediment Reduction Program

- **263 miles of road upgraded**
- **5 CalWater Planning watersheds**
- **56,000 dump truck loads of sediment prevented from entering the river.**

Jam' in for Salmon

- **858 log and rootwad structures**
- **15 streams with increased salmonid habitat**

focus...

- 5 planning watersheds
- 15 tributaries with wood placement
- Draining 17,000 acres

monitoring…

Salmonid habitat

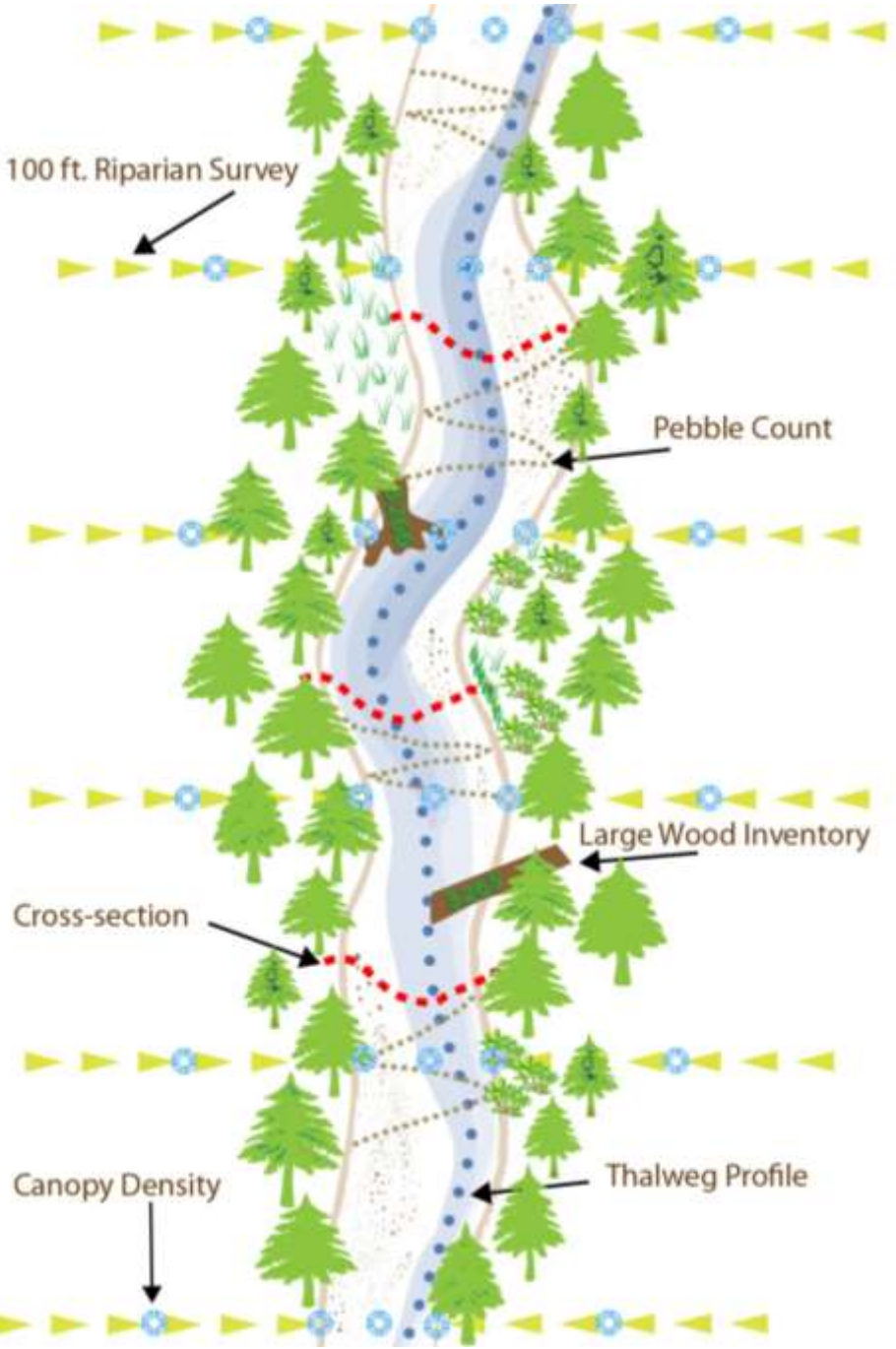
- **Channel morphology**
- **Stream bed composition**
- **Large wood inventory**
- **Riparian composition**

Water quality & quantity

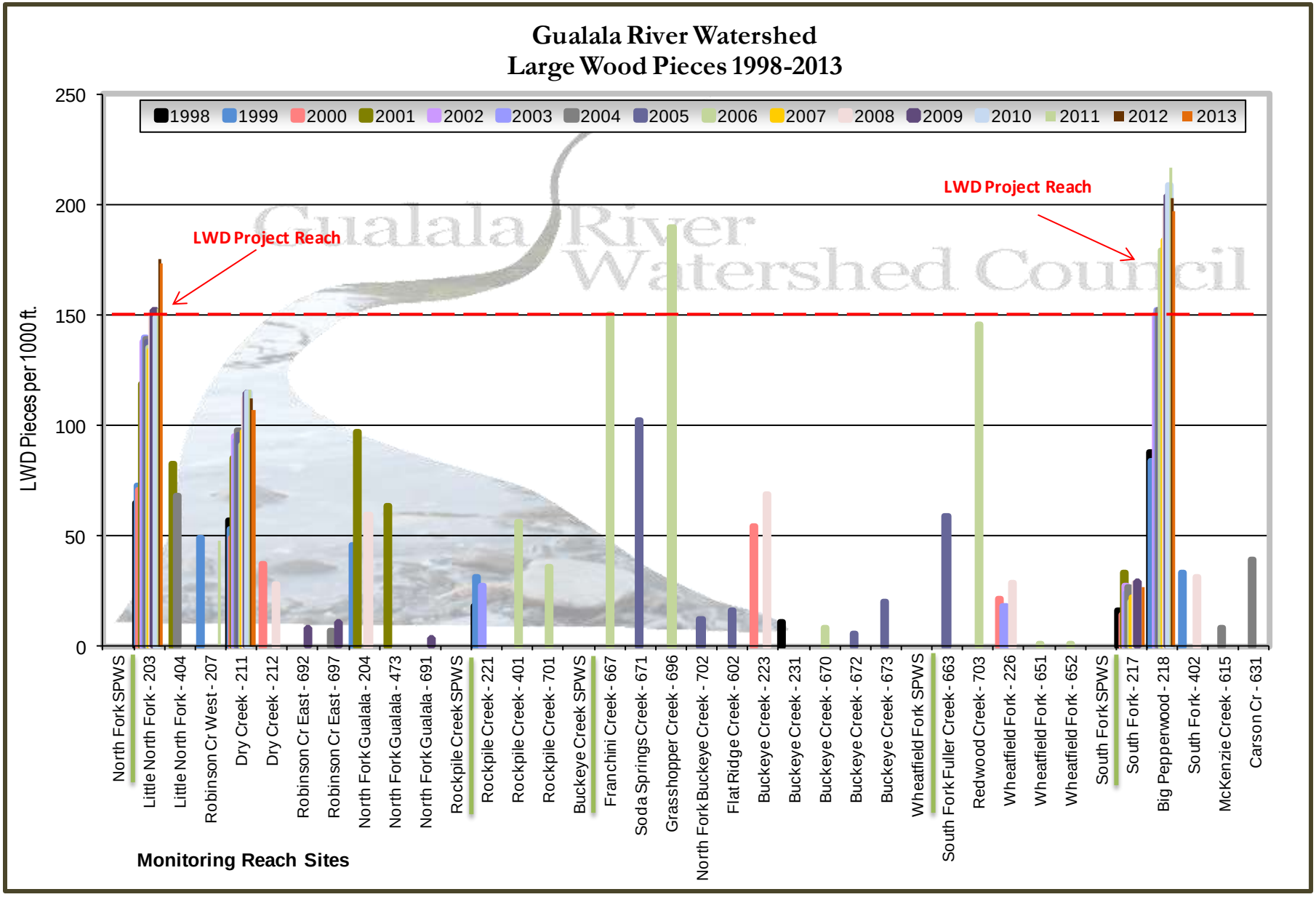
- **Temperature**
- **Flow**
- **Rainfall**

Biological

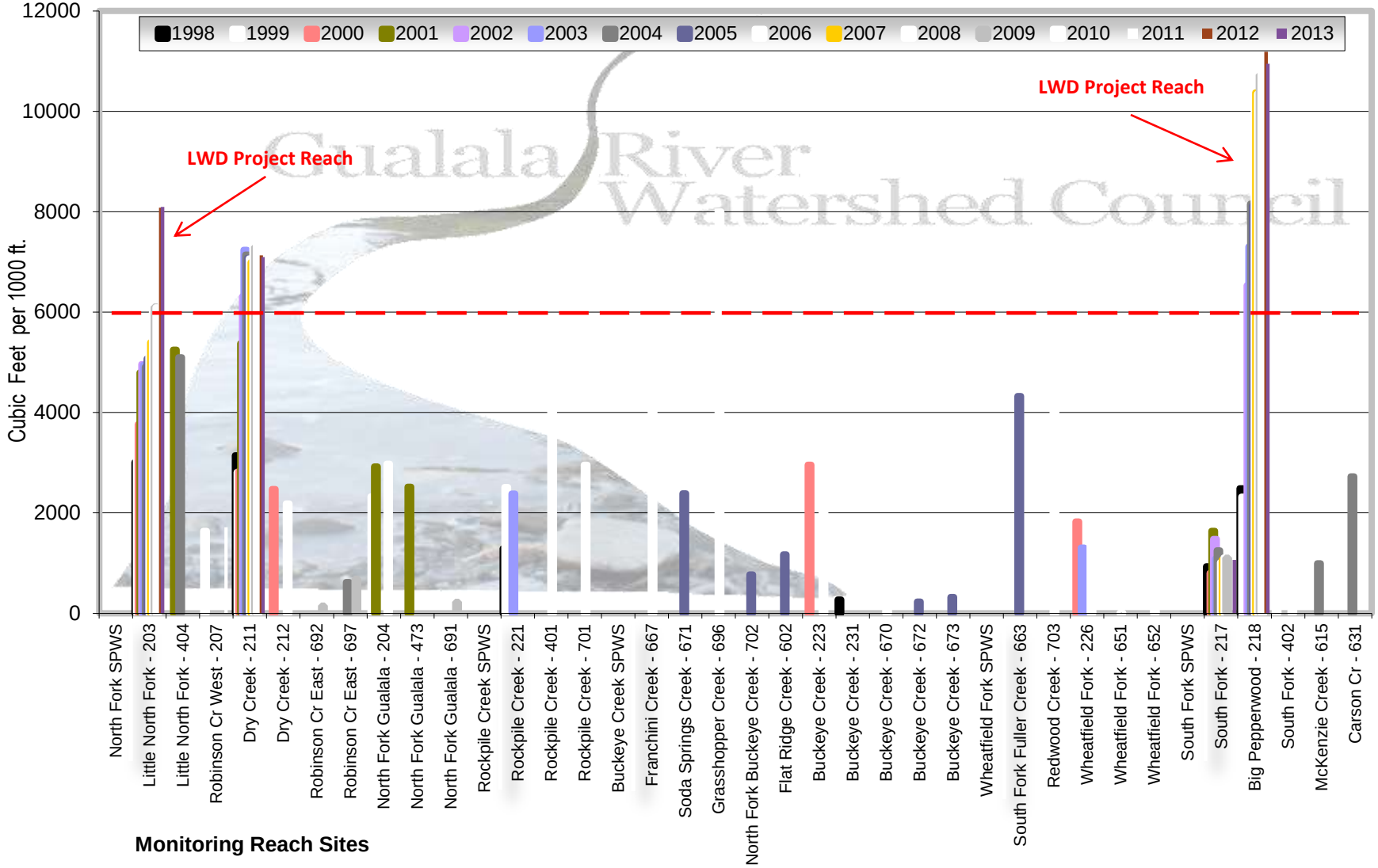
- **Spawning surveys**
- **Snorkel surveys**



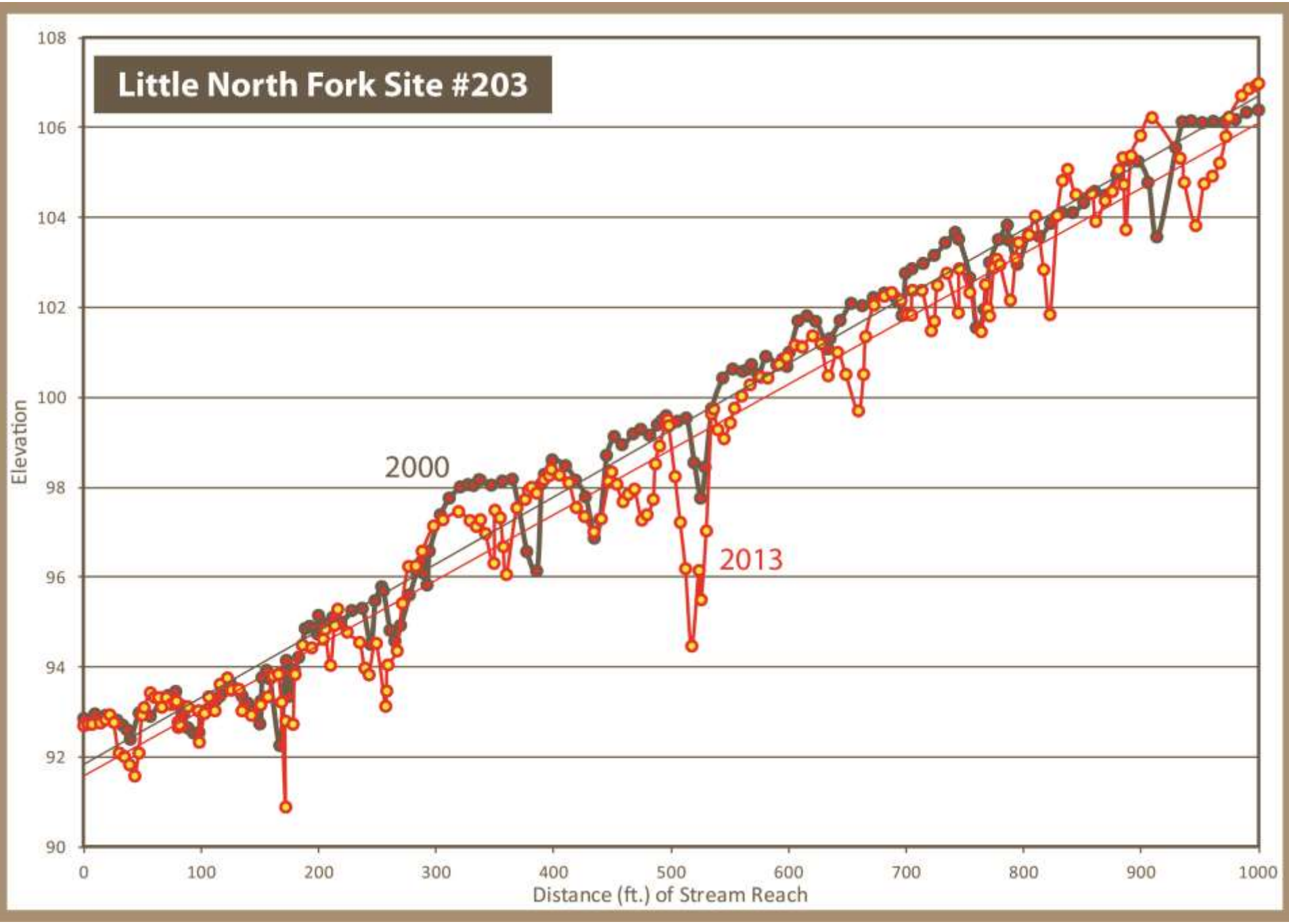
Gualala River Watershed
Large Wood Pieces 1998-2013



Gualala River Watershed
Bankfull Wood Volume 1998-2013




Large wood key pieces
40
38
36
34
32
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
Natural Wood
Project Wood


Little North Fork Site #203
108
106
104
102
100
98
96
94
92
90
Elevation
2000
2013
0
100
200
300
400
500
600
700
800
900
1000
Distance (ft.) of Stream Reach

Comparing large wood placement pre-project data and post project data demonstrates increasing wood levels in stream reaches generates increased pool formation.

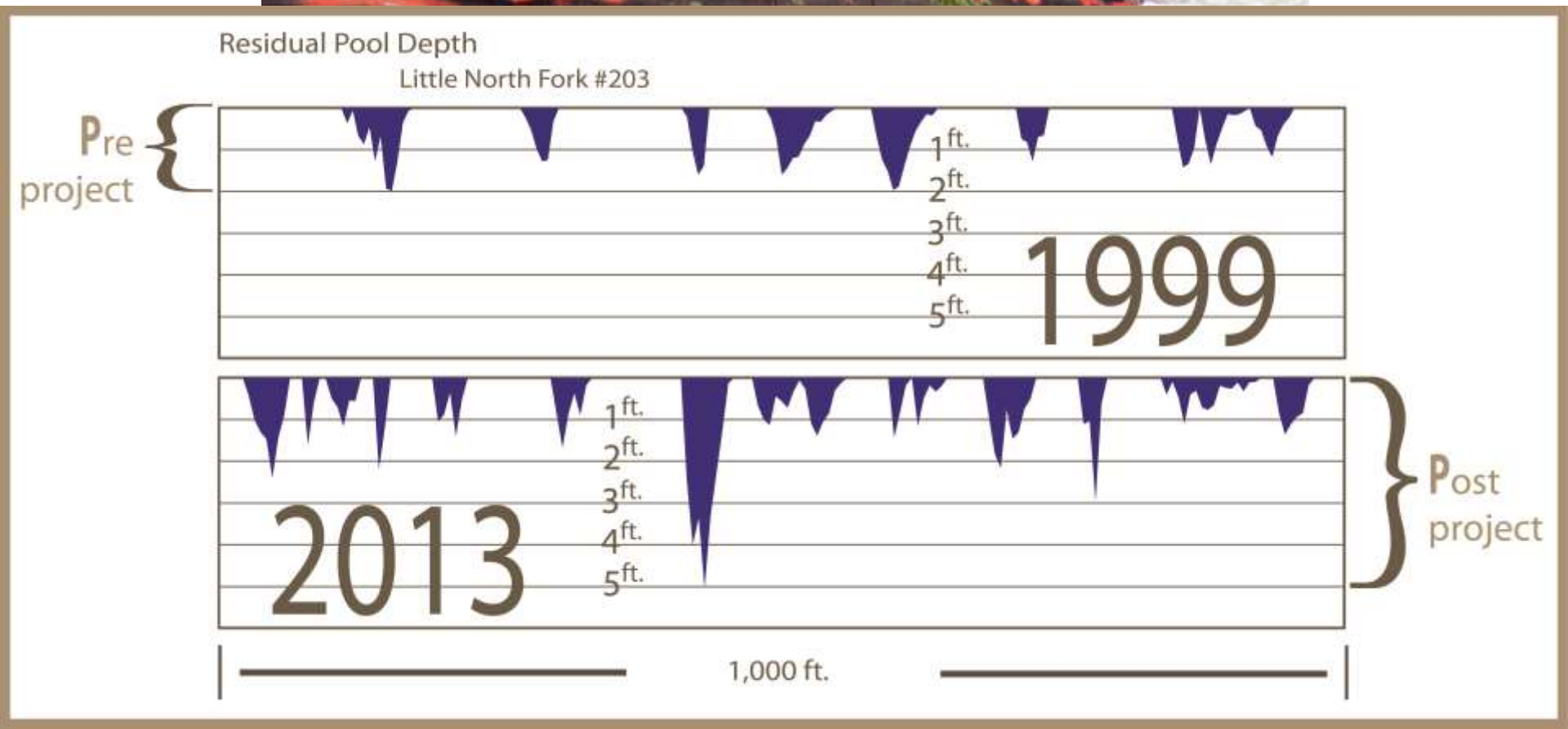
Pre-project data

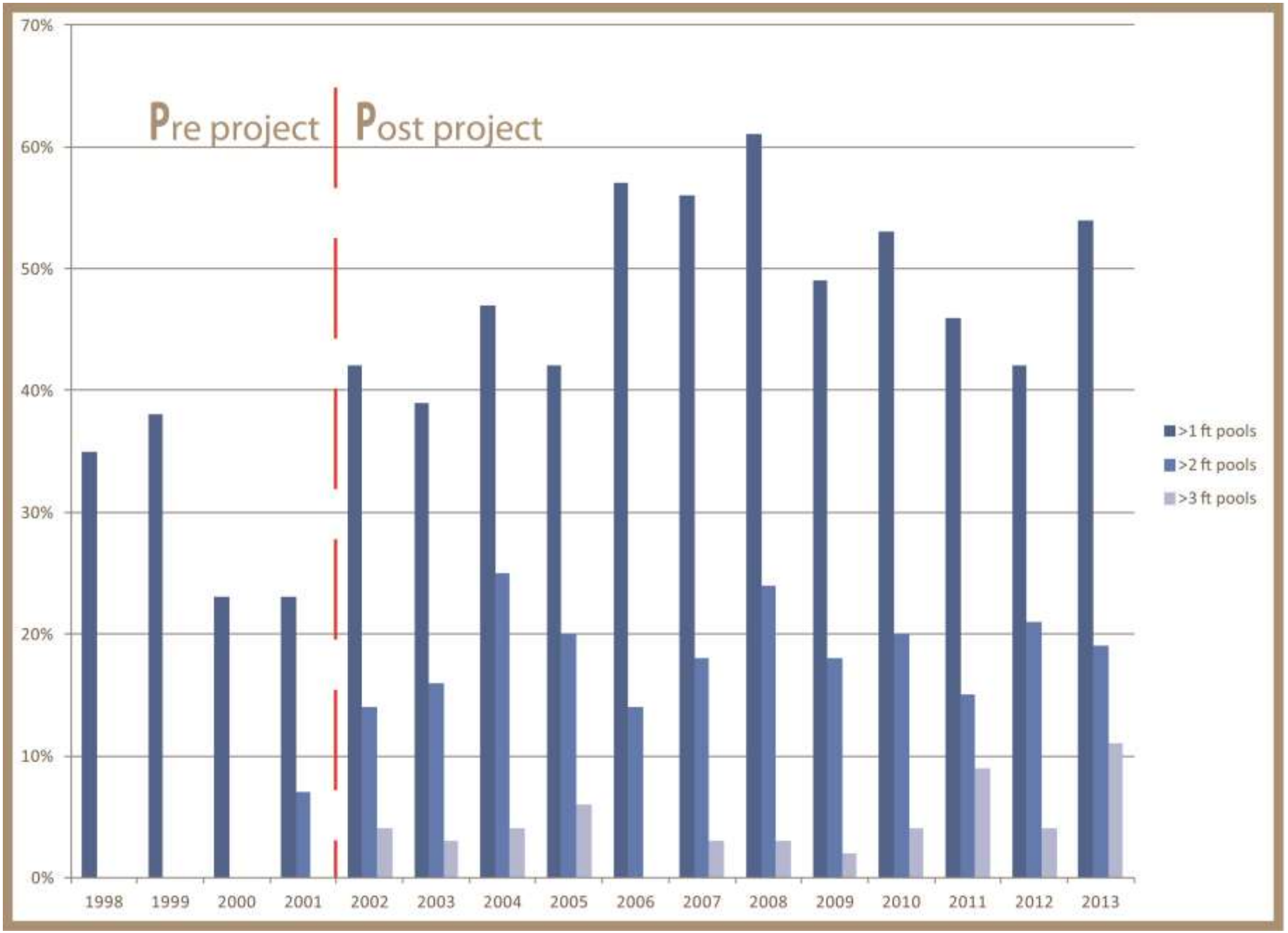
Forty-one (41) logs have been placed in Little North Fork Reach (#203) increasing the number of logs by 24% and the volume of large wood in the channel by 50%.

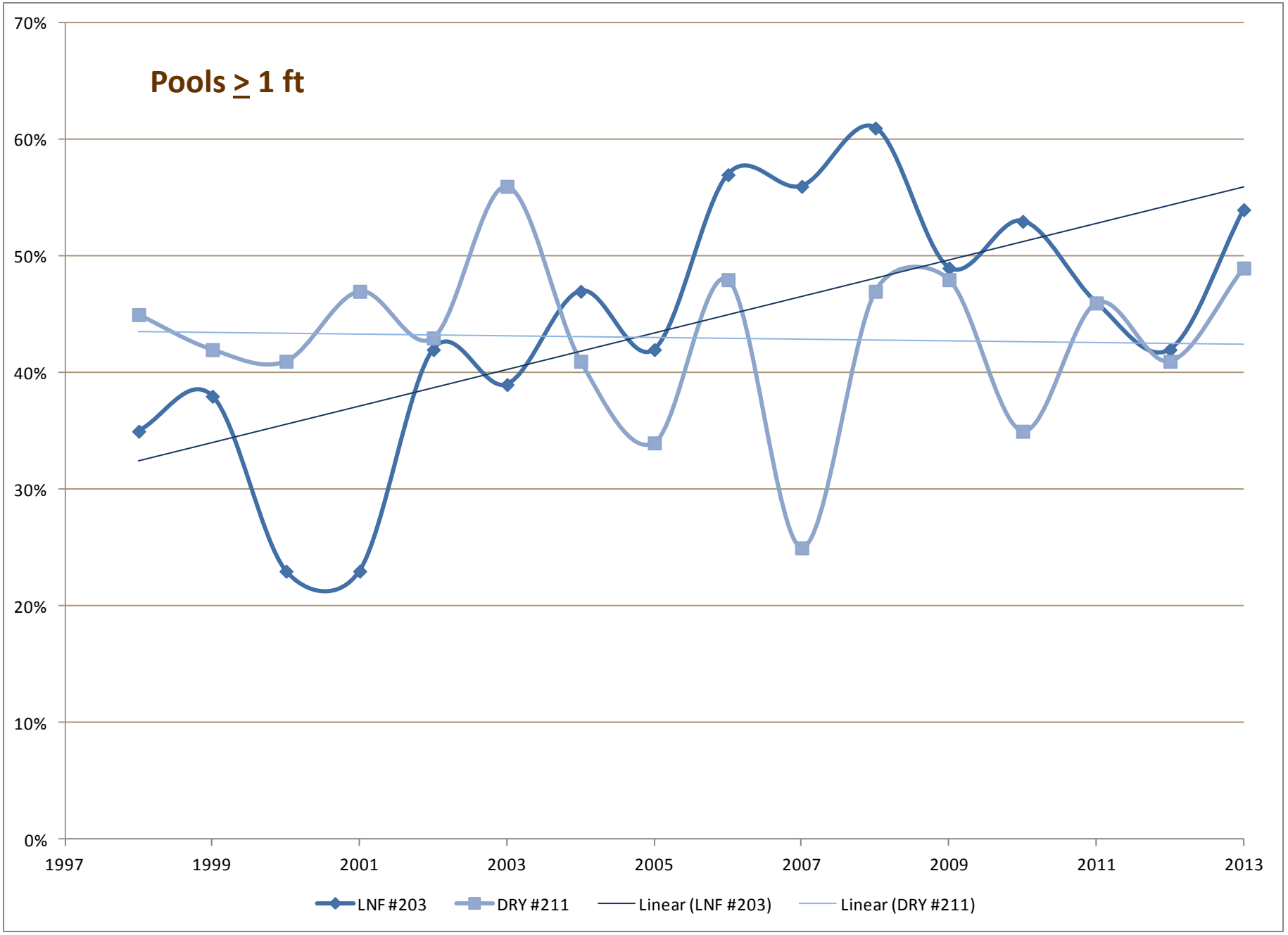
Large wood placement has doubled the number of pools and increased the maximum pool depth by three (3) feet.

Pool Metrics for 1,000 ft. of Stream Reach Pre & Post Large Wood Placement Little North Fork Reach #203

Year	Total Number of Pools	≥ 1ft. Pool Depth	≥ 2 ft. Pool Depth	≥ 3 ft. Pool Depth	MAX Pool Depth	Linear Pool Area Sq. ft.
1998	8	35%	0%	0%	2.0	264
1999	9	38%	0%	0%	2.0	275
2000	7	23%	0%	0%	1.9	150
2001	7	23%	7%	0%	2.1	161
2002	**12**	**42%**	**14%**	**4%**	**3.2**	**304**
2003	**13**	**39%**	**16%**	**3%**	**3.2**	**363**
2004	**13**	**47%**	**25%**	**4%**	**3.1**	**374**
2005	**11**	**42%**	**20%**	**6%**	**3.0**	**386**
2006	**15**	**57%**	**14%**	**0%**	**2.9**	**436**
2007	**15**	**56%**	**18%**	**3%**	**4.4**	**452**
2008	**14**	**61%**	**24%**	**3%**	**4.4**	**482**
2009	**14**	**49%**	**18%**	**2%**	**4.3**	**434**
2010	**14**	**53%**	**20%**	**4%**	**3.9**	**423**
2011	**13**	**46%**	**15%**	**9%**	**5.4**	**462**
2012	**9**	**42%**	**21%**	**4%**	**5.2**	**416**
2013	**14**	**54%**	**19%**	**11%**	**5.0**	**458**


Residual Pool Depth
Little North Fork #203
Pre project
1 ft.
2 ft.
3 ft.
4 ft.
5 ft.
1999
2013
Post project
1,000 ft.

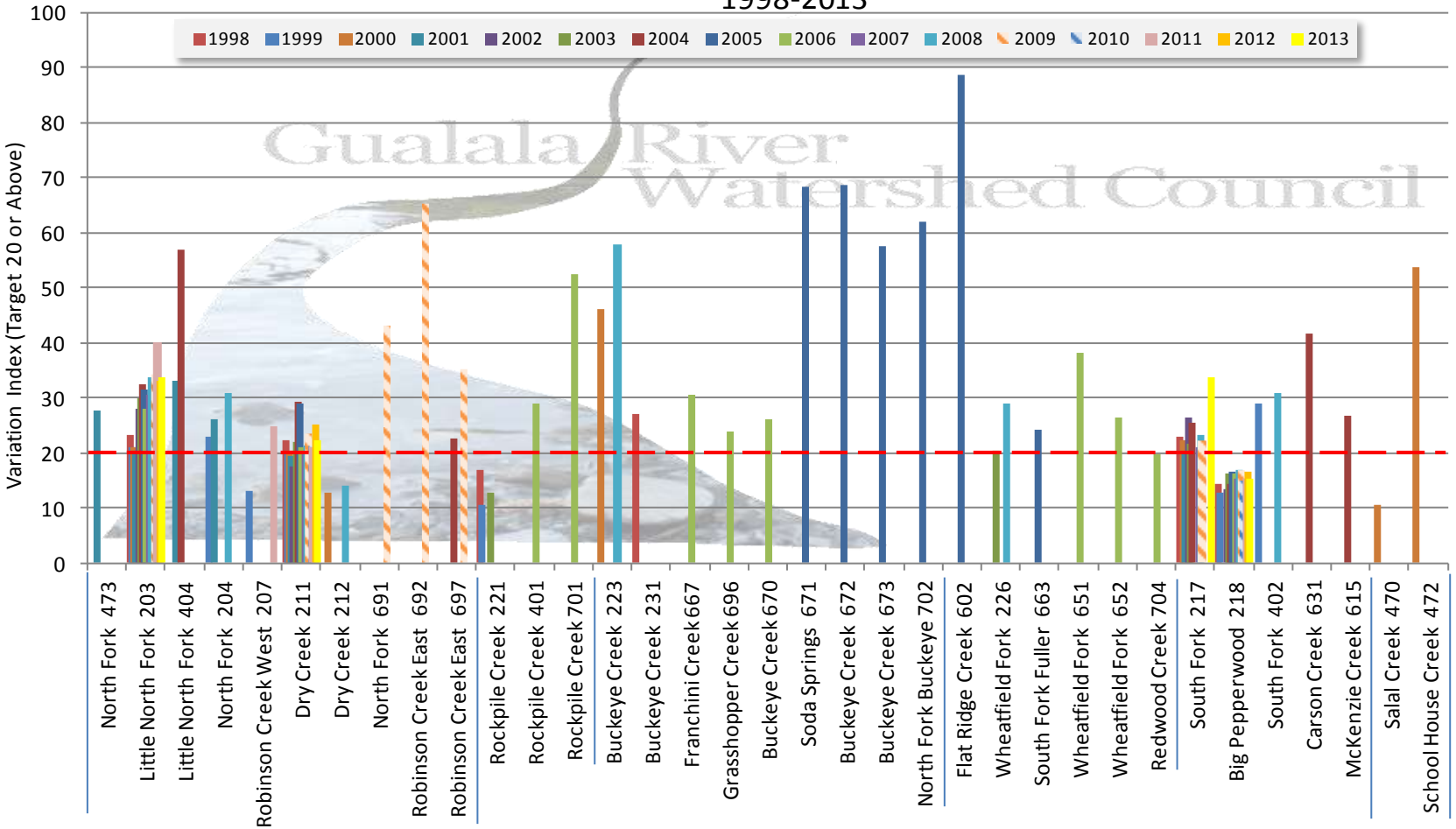

70%
60%
50%
40%
30%
20%
10%
0%
Pre project
Post project
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
>1 ft pools
>2 ft pools
>3 ft pools


Pools ≥ 1 ft
70%
60%
50%
40%
30%
20%
10%
0%
1997
1999
2001
2003
2005
2007
2009
2011
2013
LNF #203
DRY #211
Linear (LNF #203)
Linear (DRY #211)

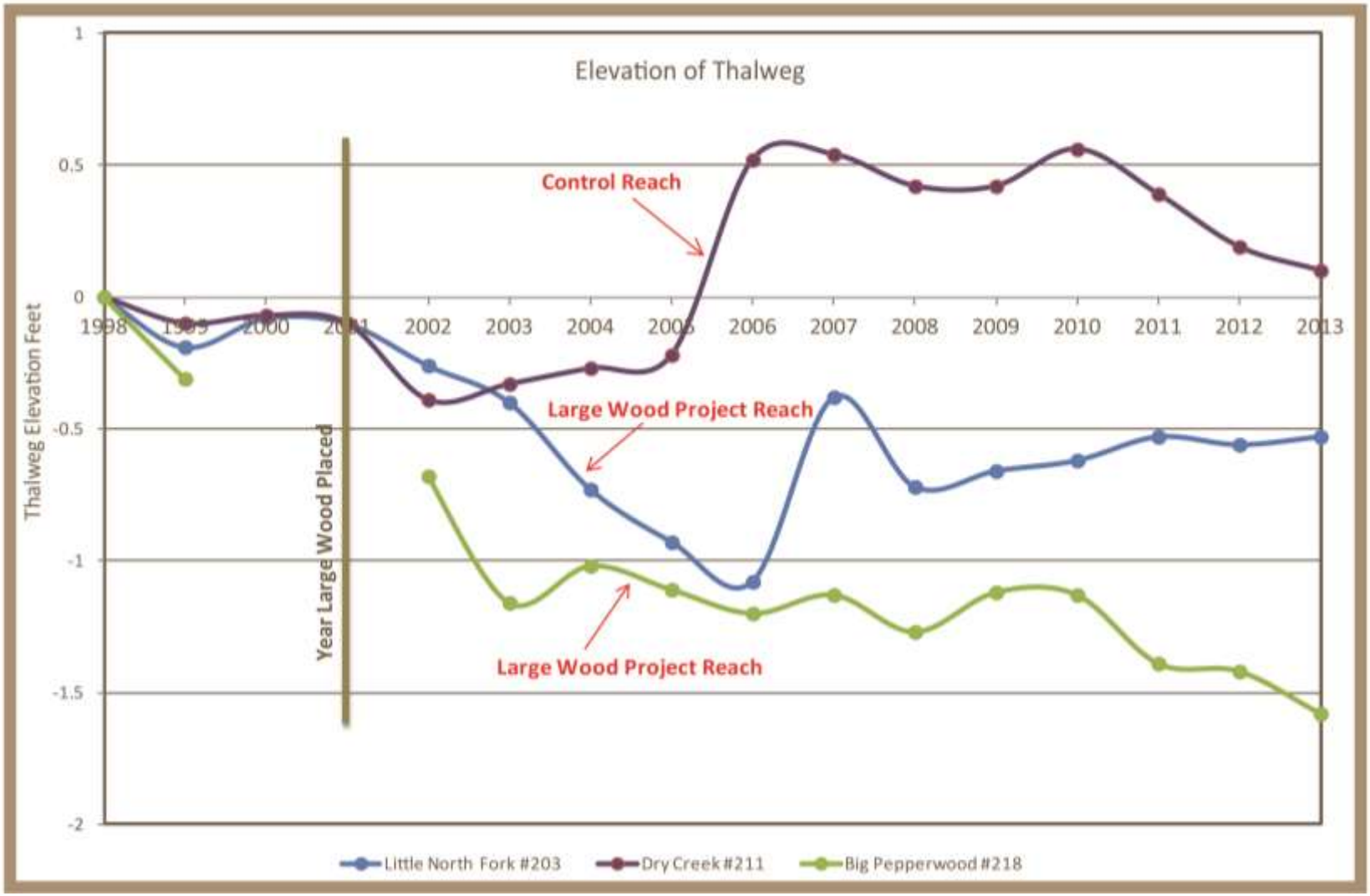
Gualala River
Thalweg Variation Index*

*MARY ANN MADEJ
US Geological Survey Western Ecological Research Center

1998-2013



*Developed by MARY ANN MADEJ
US Geological Survey Western Ecological Research Center


Elevation of Thalweg
Thalweg Elevation Feet
1
0.5
0
-0.5
-1
-1.5
-2
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Control Reach
Large Wood Project Reach
Large Wood Project Reach
Year Large Wood Placed
Little North Fork #203
Dry Creek #211
Big Pepperwood #218

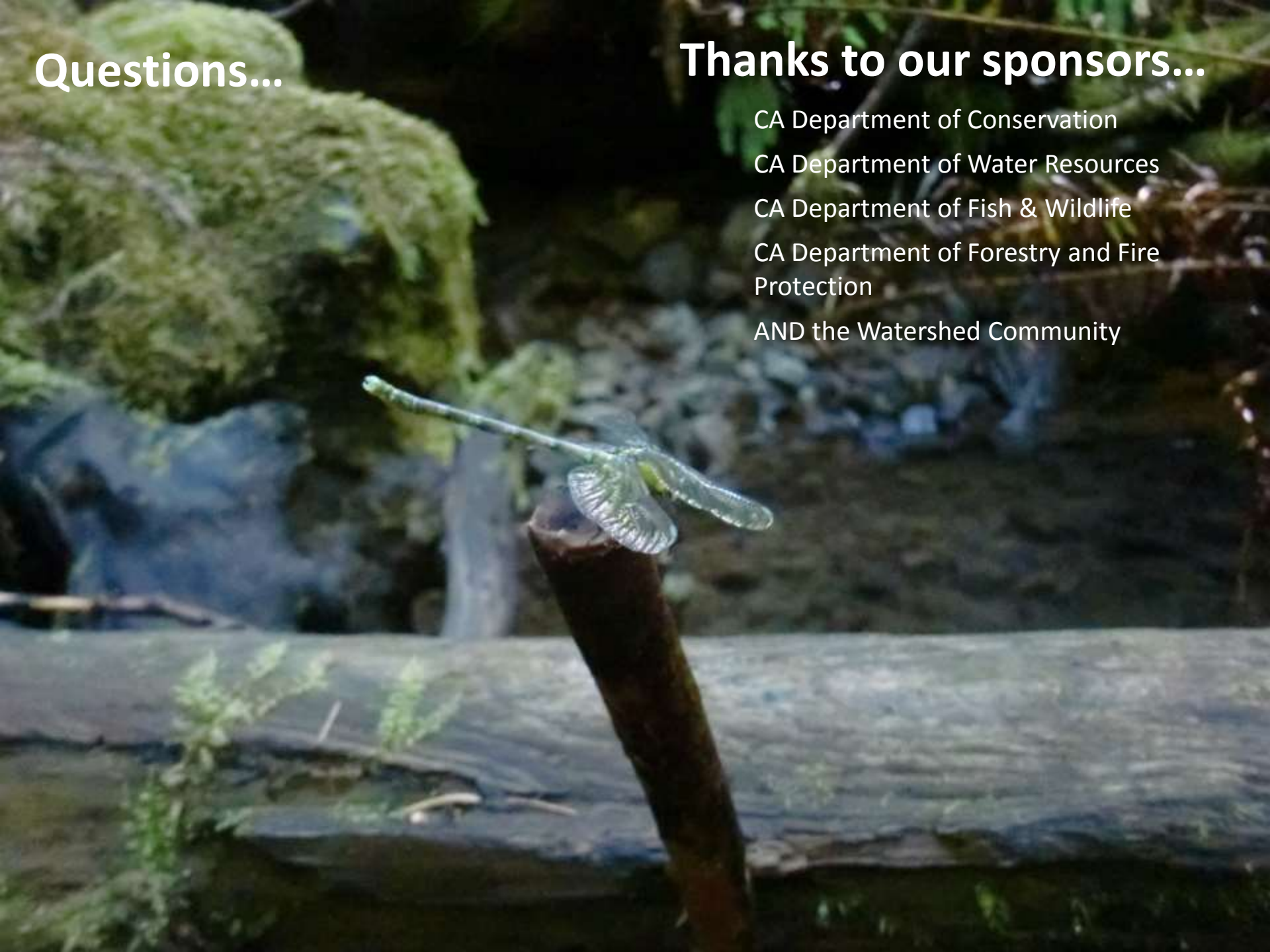
what it all means…

Good News

- 40% decrease in-stream sediment since 1984
- Increase in channel complexity
- Temperatures trending down
- Riparian corridors maturing

Bad News

- Pool formation and quality not improving - except in restoration areas
- Sub-surface flows due to high stream sediment loads and drought conditions
- North coast salmonid population are still declining



Questions…

Thanks to our sponsors…

- CA Department of Conservation
- CA Department of Water Resources
- CA Department of Fish & Wildlife
- CA Department of Forestry and Fire Protection
- AND the Watershed Community