

# Observed Mainstem Sediment Transport Rates

TRRP Sediment Lessons Learned Workshop

9-16-16

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# Development of ROD Rec's for High Flow and Gravel Augmentation

## 1) Set High Flow Magnitude

Target = Variable bed scour across years; Cap at 11,000 cfs

1997 Lewiston  
Rating Curve

## 2) Set High Flow Duration

Target = Transport Tributary Sediments; Flush Sand

Duration = 5 Days  
(Dry to Ex. Wet Years)

1997 Lewiston  
Rating Curve

Volume (cu. yards)  
Annual = 0 – 64,000  
Average = 10,400

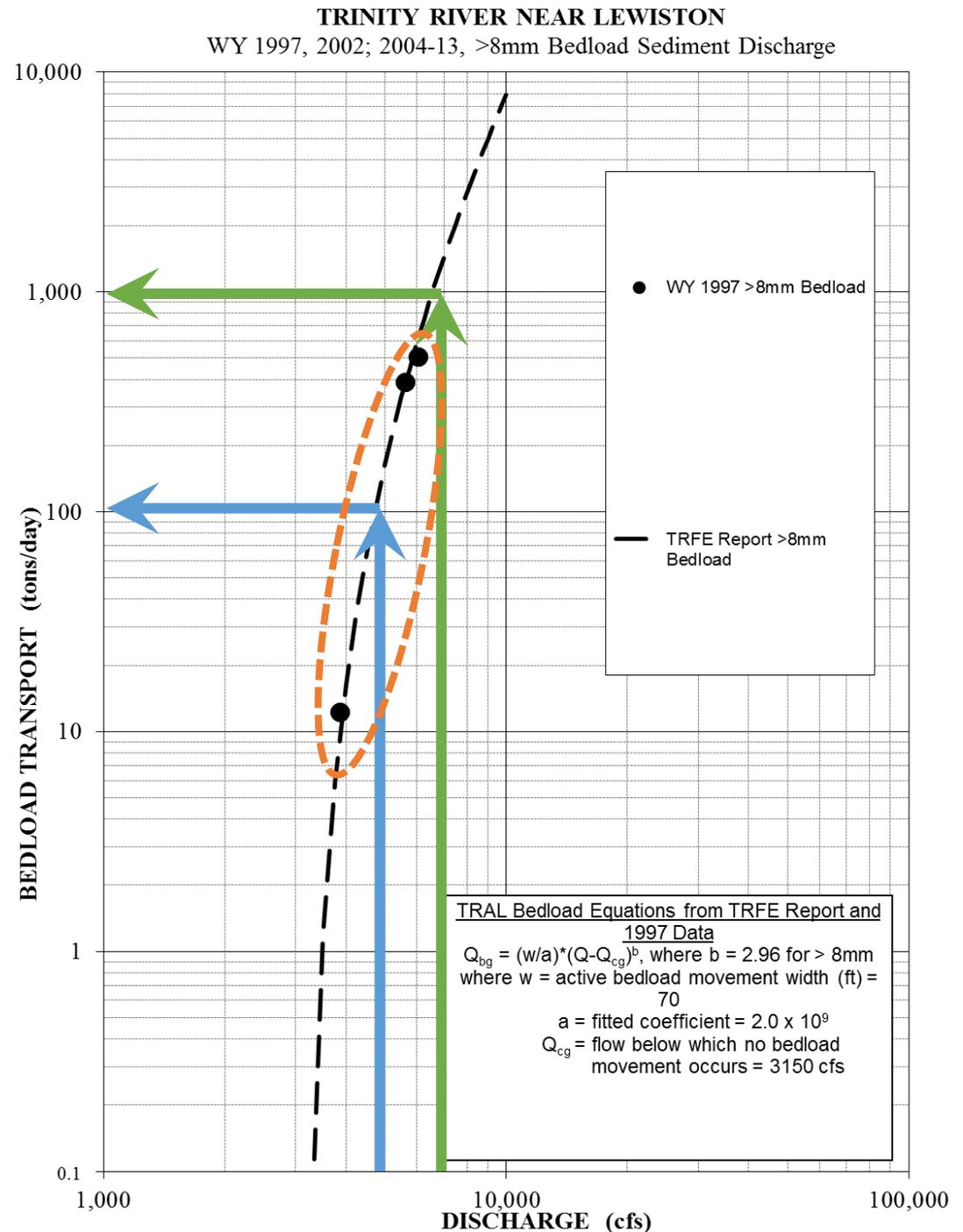
## 3) Set Gravel Augmentation

Target = Balance transport by ROD flows

# 1997 Rating Curve at Lewiston

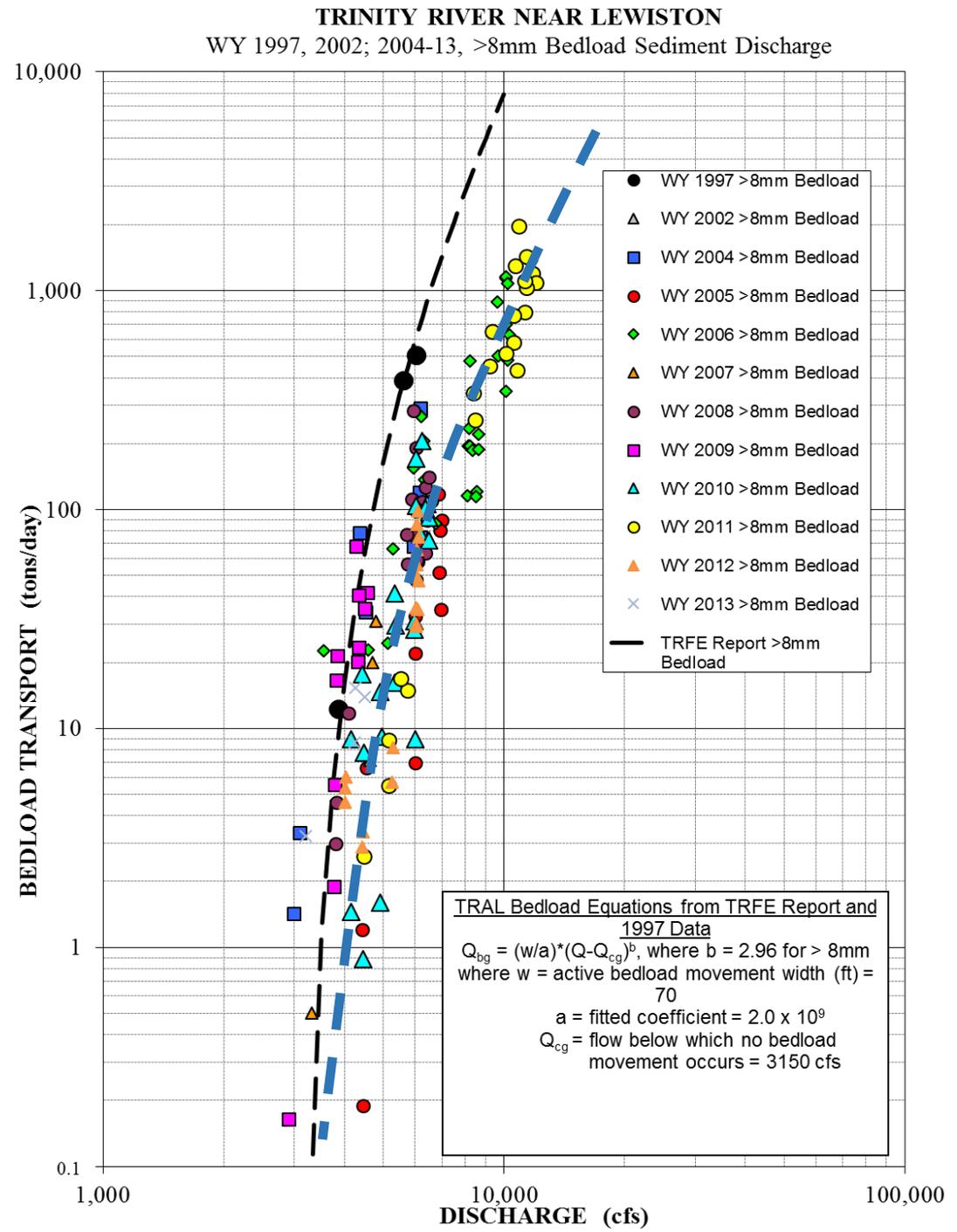
(Coarse sediment bedload >8mm)

Log – Log Plot  
 Axis are Order of Magnitude



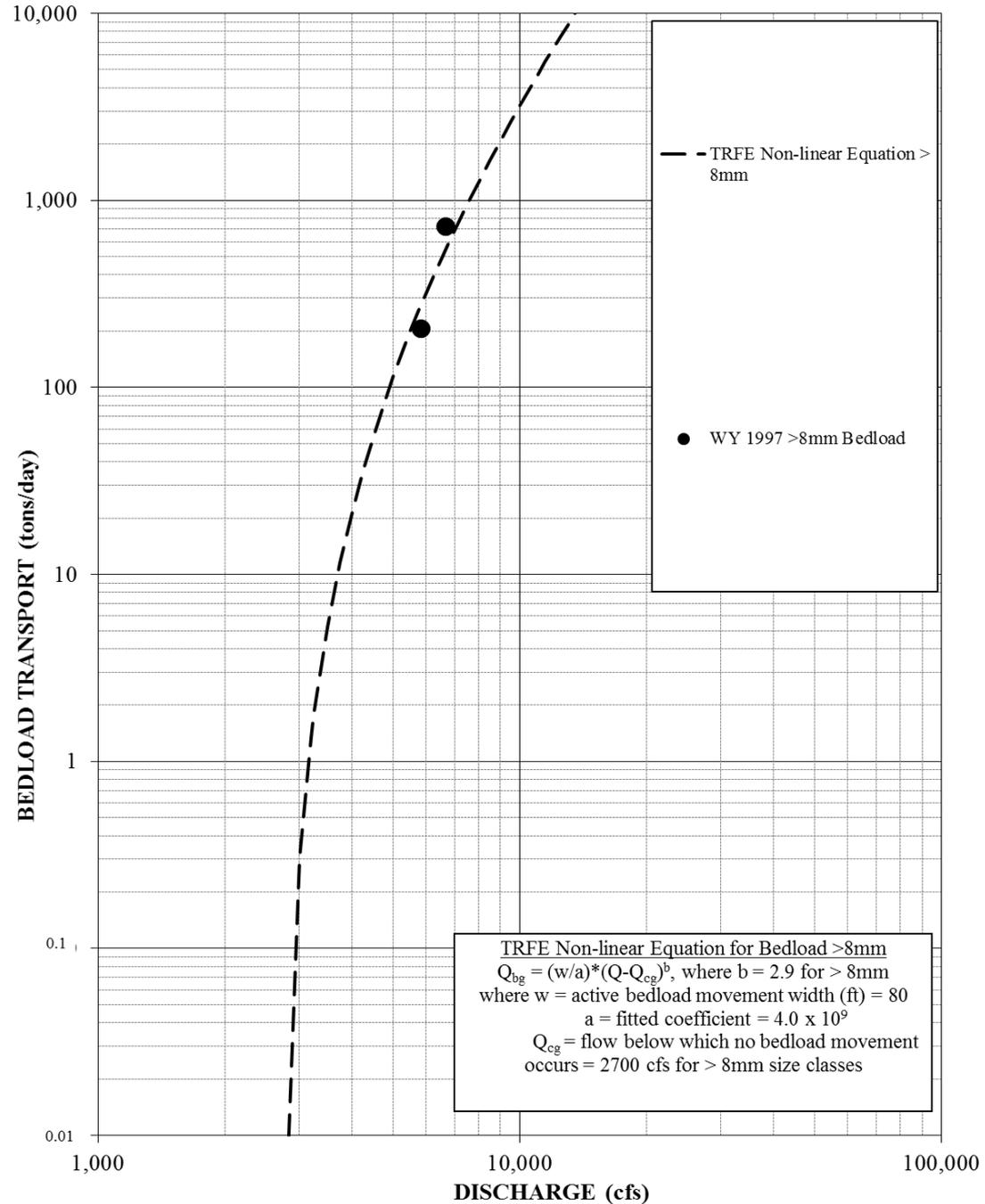
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(Coarse sediment bedload >8mm)



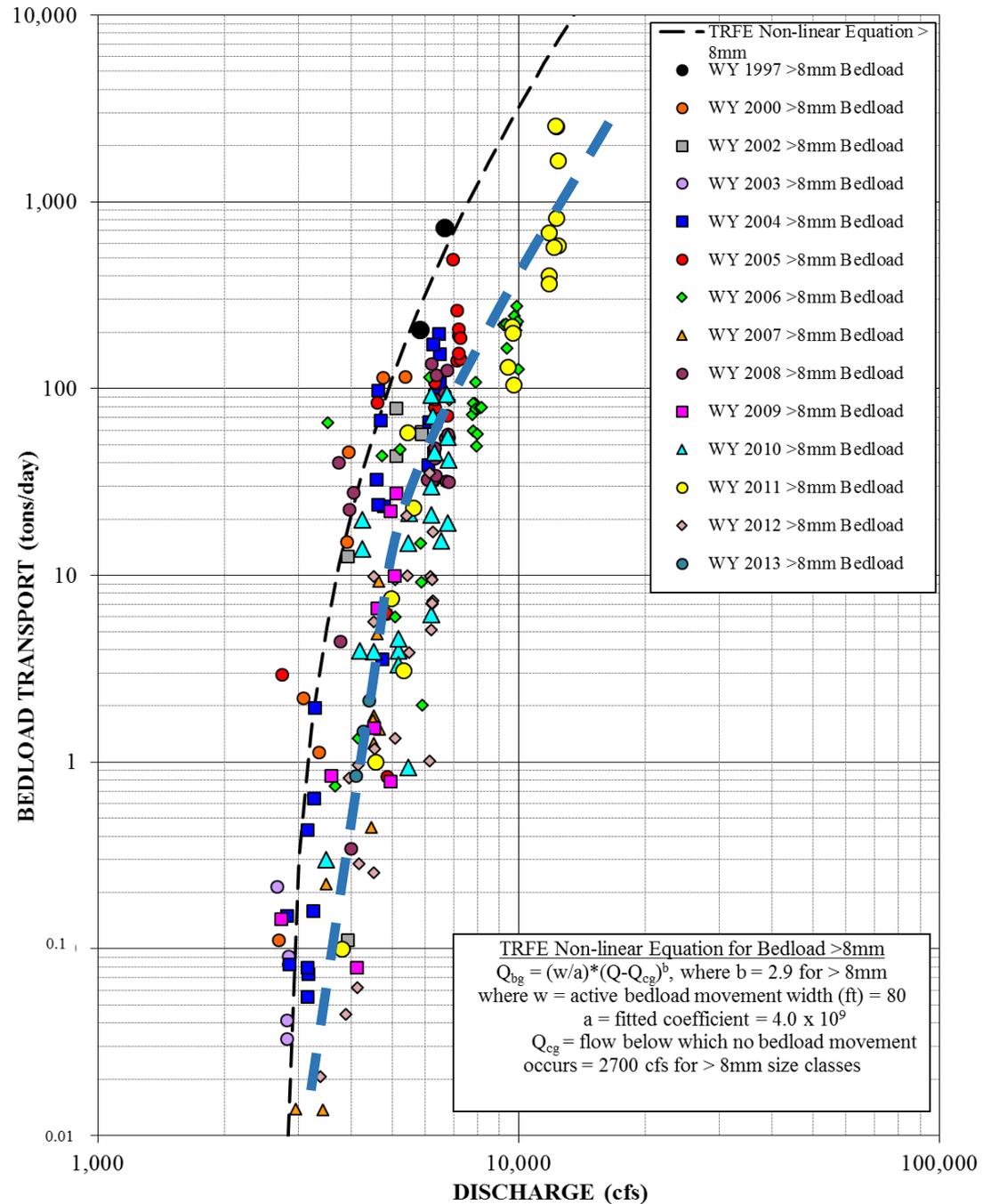
# 1997 Rating Curve at Limekiln Gulch (Coarse Sediment bedload >8mm)

TRINITY RIVER BELOW LIMEKILN GULCH -- 11525655  
WY 1997, WY 2000, and WY 2002-13, >8mm Bedload Discharge



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WY 1997, WY 2000, and WY 2002-13, >8mm Bedload Discharge



# Lessons Learned

- Observed transport (bedload >8mm) since 2002 is an order of magnitude less than predicted by 1997 rating curves, especially at higher flows

# Potential Explanations for Lower Bedload Transport

- Potential explanations
  - 1997 rating curve: small sample size / extrapolation issues
  - Changed in sediment sampler starting 2004
  - Channel geometry changes
  - Sediment supply changes
    - Coarse and fine sediment
- Explanations not yet investigated.

# Management Implications

- Sediment transport rate affects
  - Channel dynamics, planform, and associated habitat
  - Rate of change
- Management Implications
  - Reduced gravel augmentation needed to balance coarse sediment budget (Dave's Talk)
  - Implications for the broader flow and gravel augmentation regime needed to meet fundamental restoration goals have yet to be fully considered