



TETRA TECH

complex world | **CLEAR SOLUTIONS™**

HYDROVISION 2011
SEDIMENT
TRANSPORT AND
CHANNEL-FORMING
PROCESSES
PANEL

Mike Harvey PhD,
PG

www.tetratech.com



HYDROPOWER IMPACTS

➤ HYDROLOGY

- Peak flows
- Base flows
- Rates of change
- Timing of flows

➤ SEDIMENT REGIME

- Bed material supply
- Sediment transport
- Channel morphology



Typical Changes in Hydrology and Sediment Loads

River	% Change Pre-Post Dam 2-yr Peak	% Change Pre-Post Dam 100-yr Peak	% Change Pre-Post Dam 50% Duration	% Change Pre-Post Dam 90% Duration	% Change Pre-Post Dam Suspended Sediment Load
Rio Grande at Albuquerque	-21	-32	+28	+35	-90
Green River at Jensen	-29	-24	+40	+39	-54
Colorado River at Cameo	-22	-13	+14	+14	-35
Rio Chama at El Vado	-50	-25	+168	+114	-20

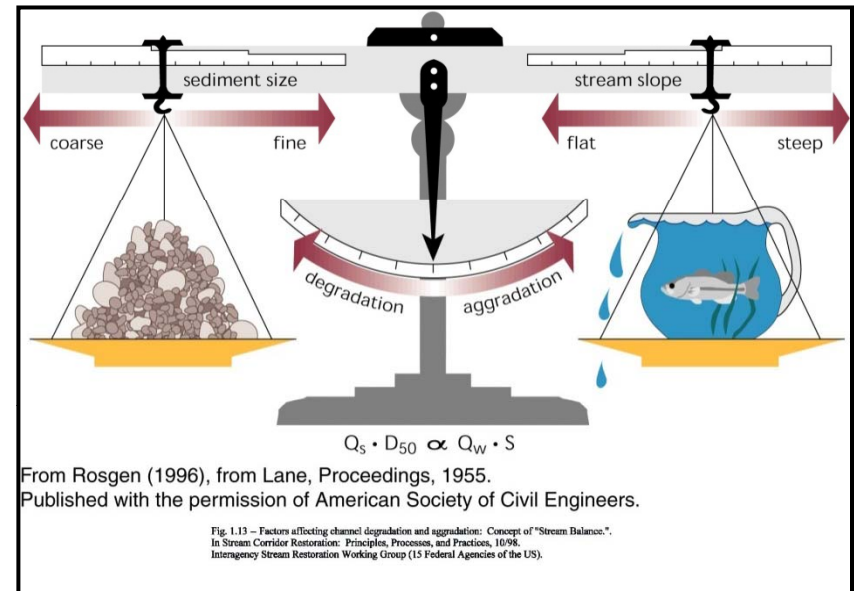
DOWNSTREAM IMPACTS

➤ GEOMORPHIC

-Constrained rivers

-Alluvial rivers

(Williams & Wolman, 1984)




DOWNSTREAM IMPACTS

➤ ECOLOGICAL

- In-channel (macroinverts, macrophytes, fish)
- Channel margin (flora and fauna)



PANEL MEMBERS

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- Mike Harvey, PhD, P.G. – Tetra Tech Inc.
 - Yantao Cui, PhD – Stillwater Sciences
 - Bob Mussetter, PhD, P.E. – Tetra Tech Inc.
 - Scott McBain, P.E. – McBain and Trush Inc.
 - Lon Mikkelsen, – Inter-fluve Inc.

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PRESENTATIONS

➤ Yantao Cui:

Sediment Transport Modeling

➤ Bob Mussetter:

Downstream Sediment Impact Continuum

➤ Scott McBain:

Coarse Sediment Augmentation

➤ Lon Mikkelsen:

Standard of Practice for River Restoration

