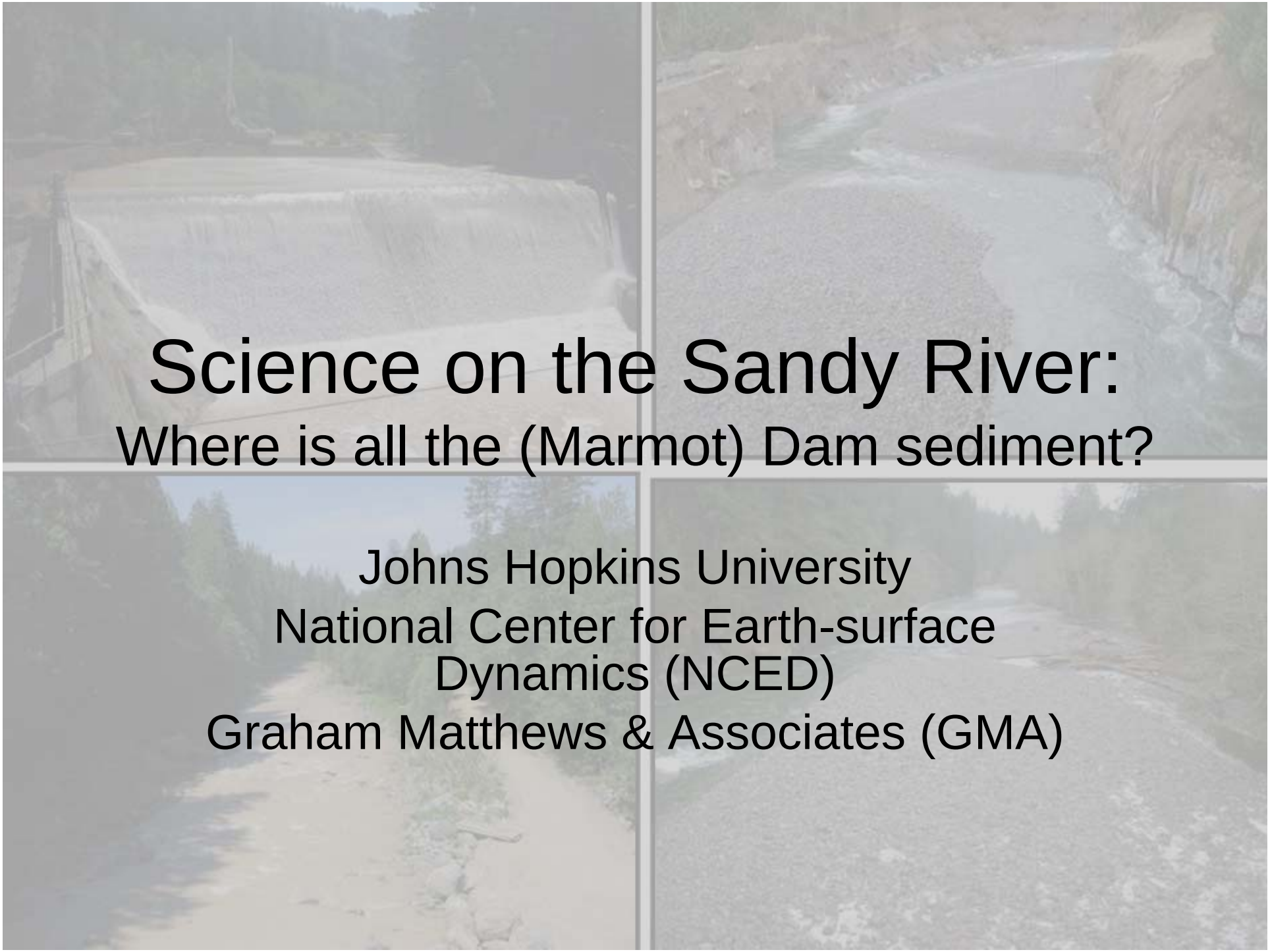


Science on the Sandy River:
Where is all the (Marmot) Dam sediment?

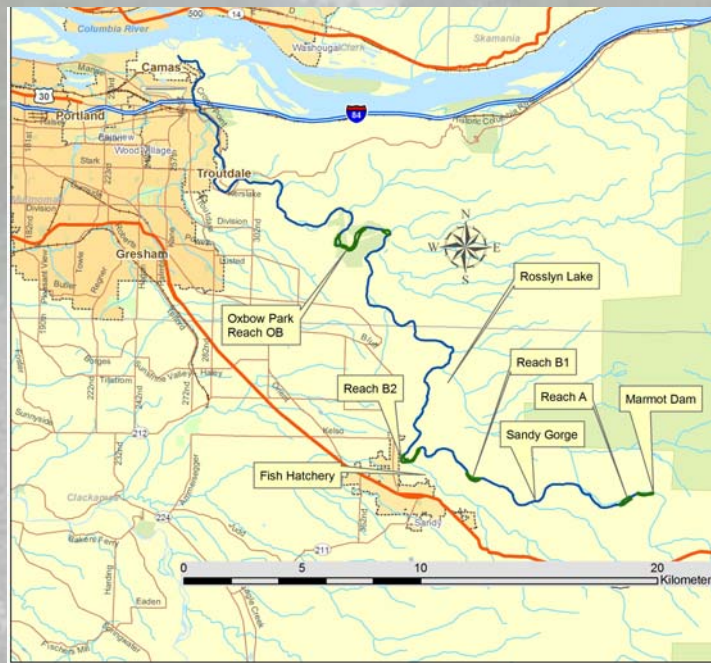
Johns Hopkins University
National Center for Earth-surface Dynamics (NCED)
Graham Matthews & Associates (GMA)

Overview

- Introduction
  - Russ Plaeger – Sandy River Basin Watershed Council
  - Dr. Peter Wilcock – Johns Hopkins University
- What's been done before
  - Chuck Podolak – Graduate Student, Johns Hopkins University
- Current Science
  - Goal
  - Where
  - Who
  - How
    - Smokey Pittman – Geomorphologist, GMA
- Our Results
- What's next
- Closing / Questions
  - Bottom Line – What's changed downstream – not much below Revenue, quite a bit above the gorge

Introduction

- Russ Plaeger – Sandy River Basin Watershed Council
- Dr. Peter Wilcock – Johns Hopkins



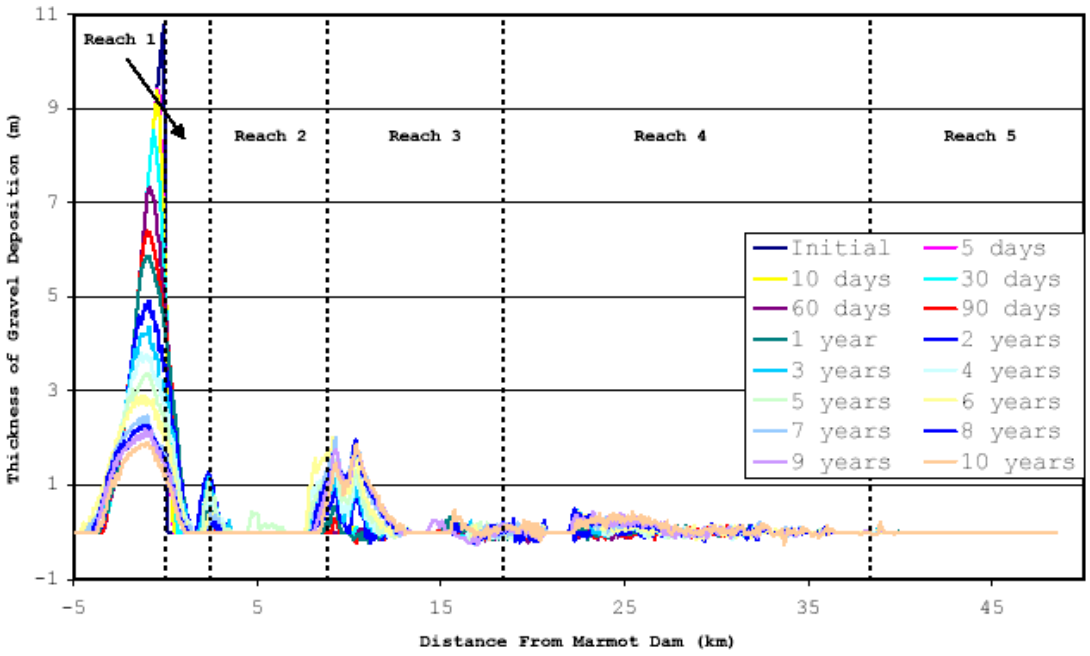
What are people looking at?

- Goal: Where does the Marmot Dam sediment go, and how does it affect the bed of the Sandy?
  - Why?
    - Pools / Riffles / Eddies = fish habitat & migration paths
    - Pools / Eddies / Bars = recreation spots & boating routes
    - River bed changes can influence flooding patterns

Previous Work

- Oregon State University / US Forest Service
- Stillwater Sciences / PGE

Figure 13b. Thickness of gravel deposition following removal of Marmot Dam (Alternative B - Run 1: Average hydrology and grain size)

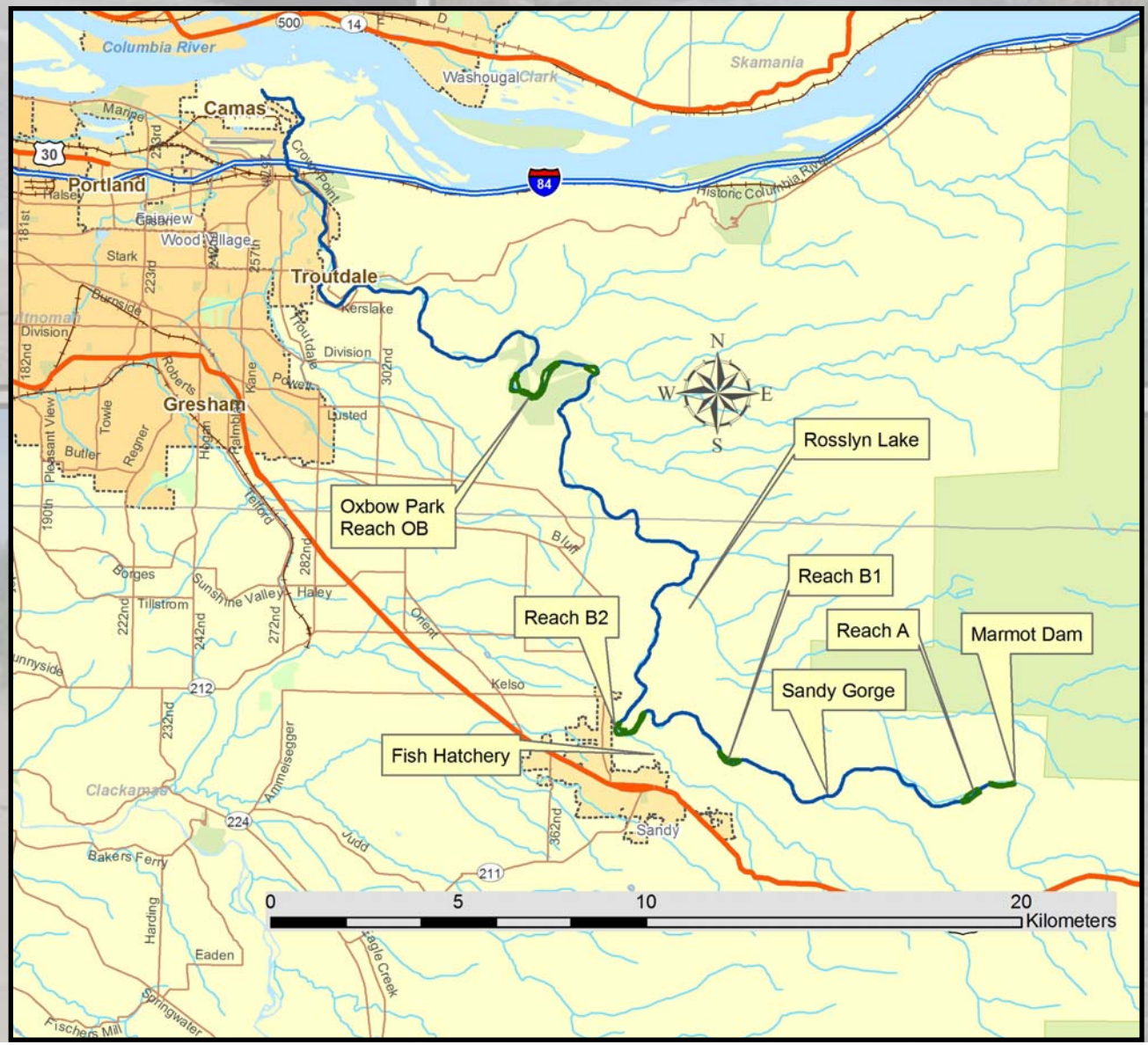


Current Science

- Who:
  - Johns Hopkins / NCED / GMA / SRBWC
  - USGS
  - OSU
  - Bureau of Reclamation
  - OR Department of Fish and Wildlife
  - Others:
    - Reed
    - Whitman
    - and more…
  - Assisted by:
    - PGE
    - US Forest Service
    - Landowners

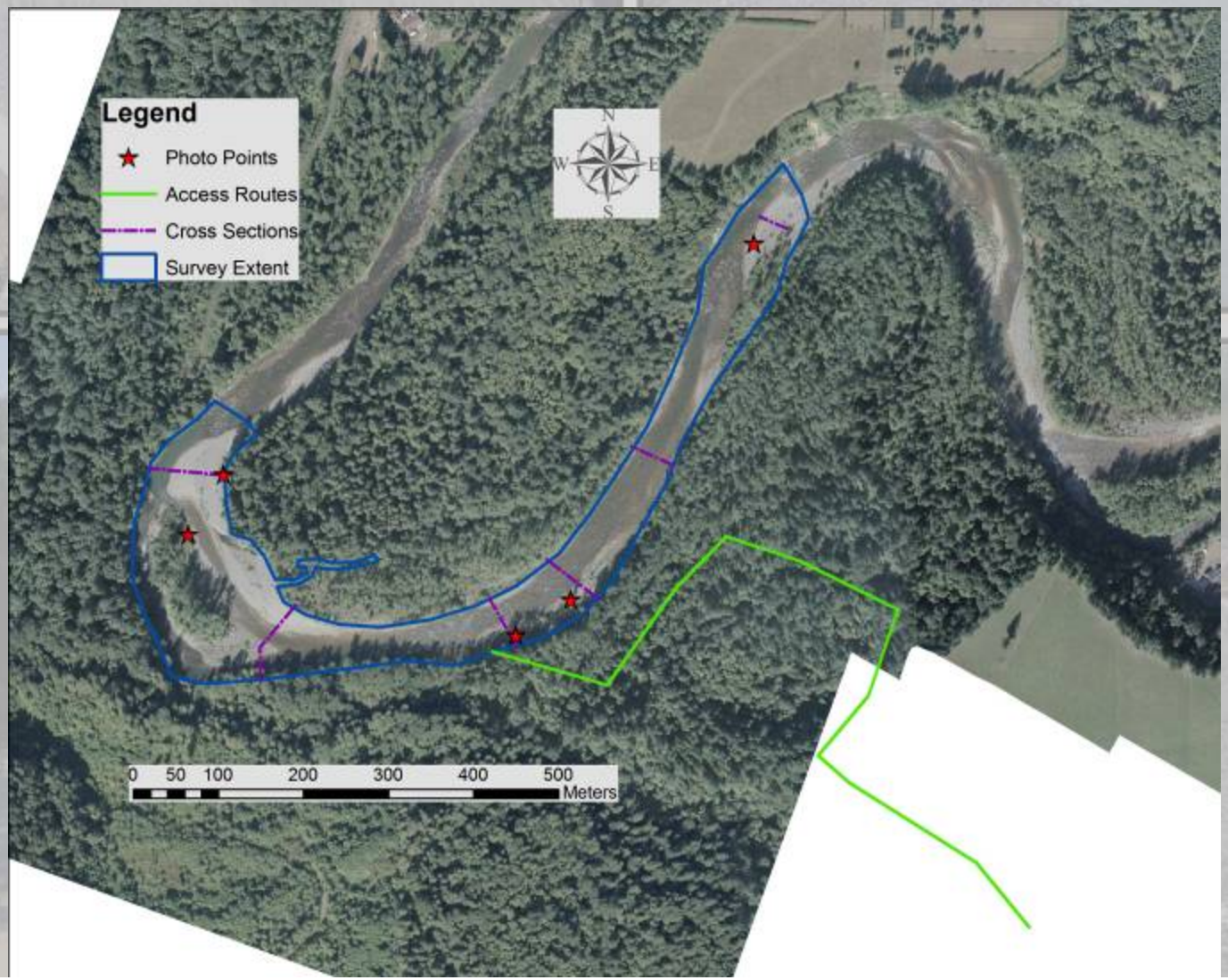
Current Science

- Where:



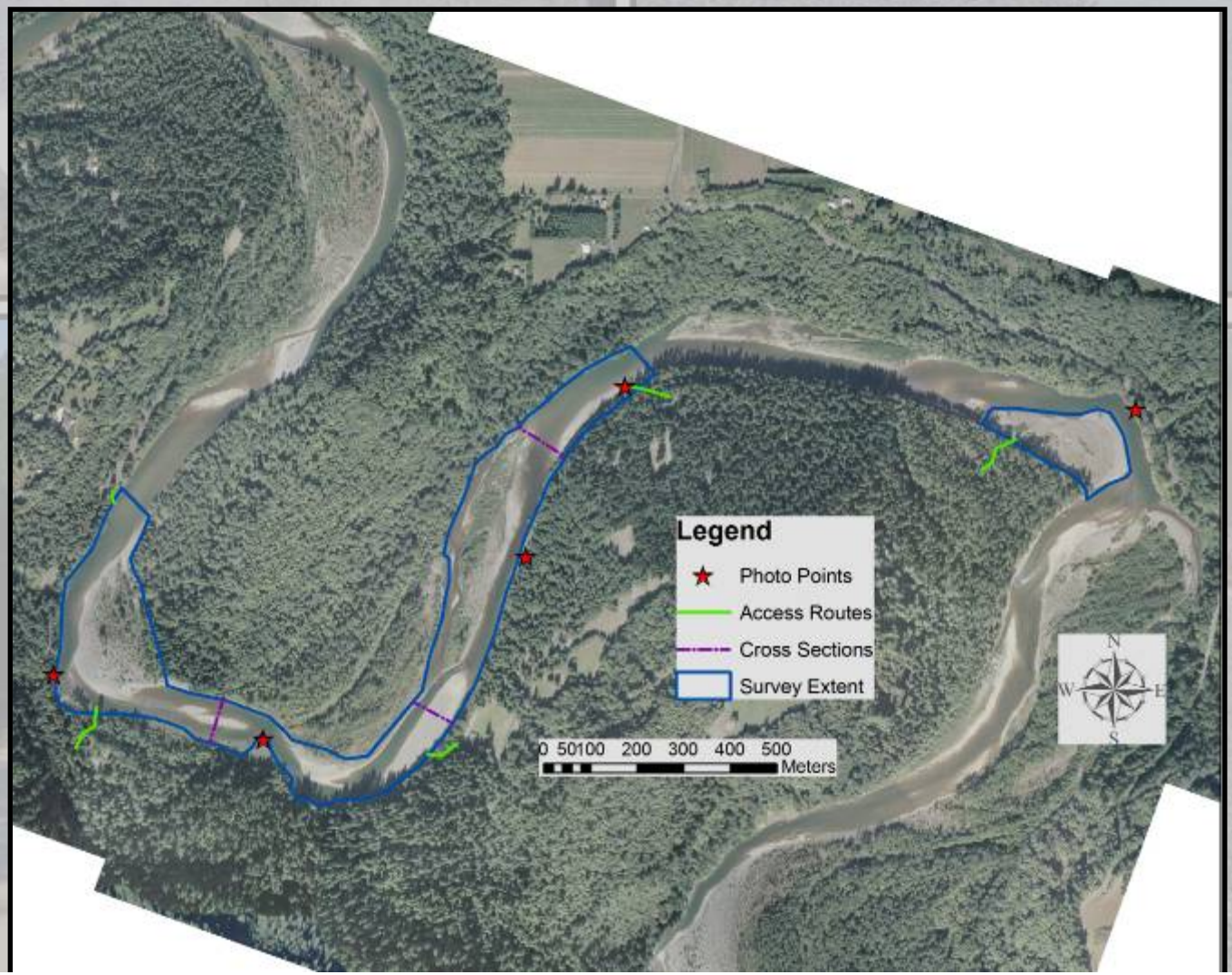
Current Science

- Where: Cedar Creek



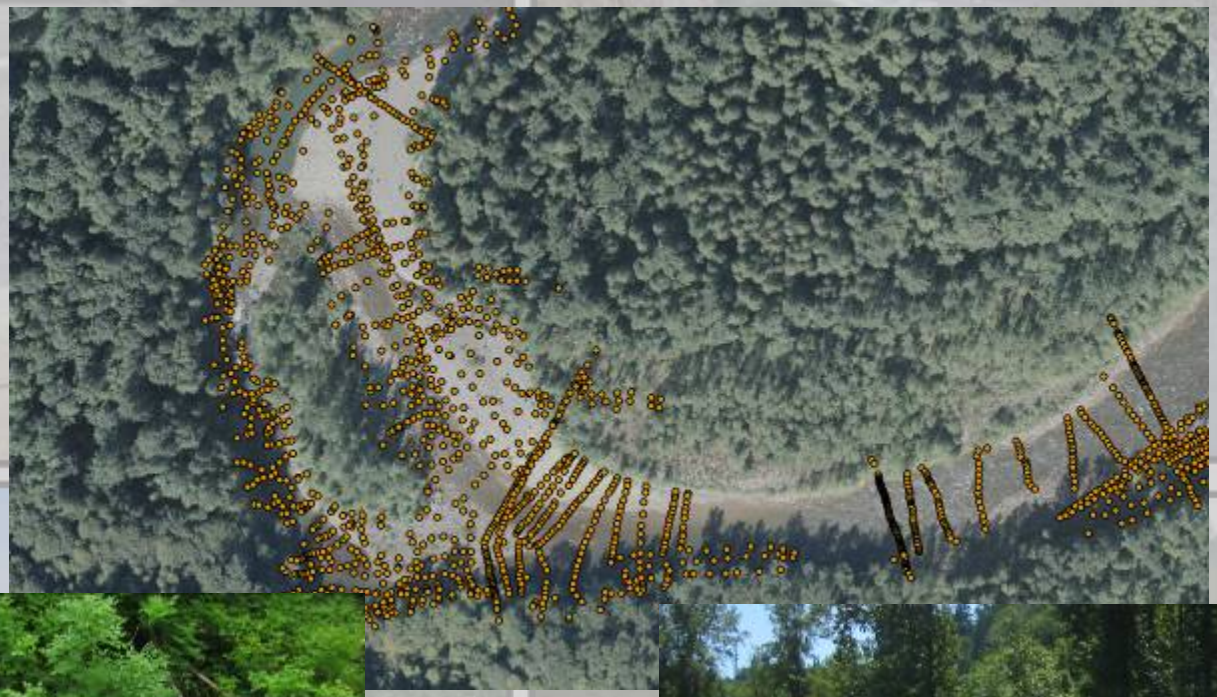
Current Science

- Where: Oxbow Park



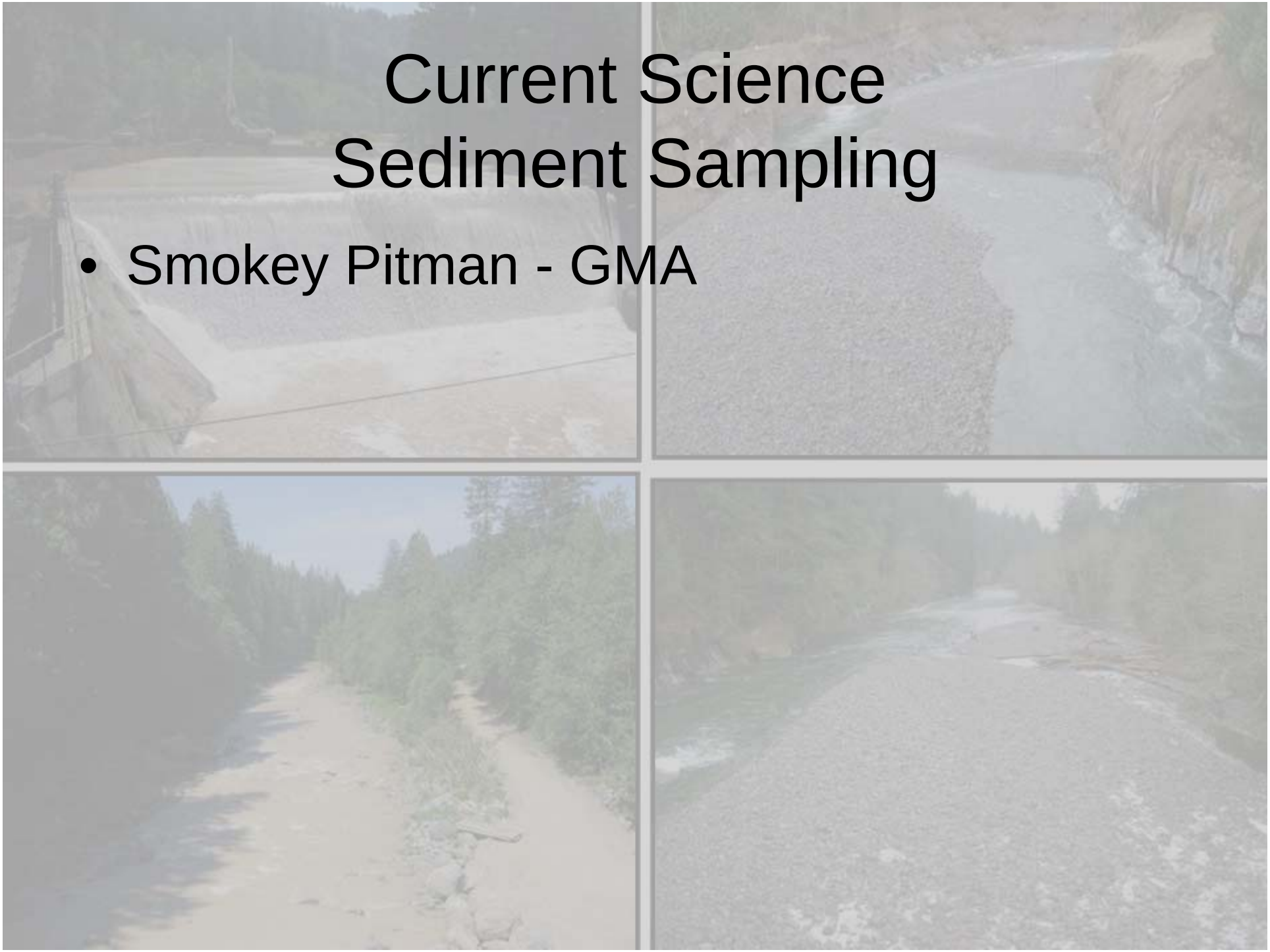
Current Science

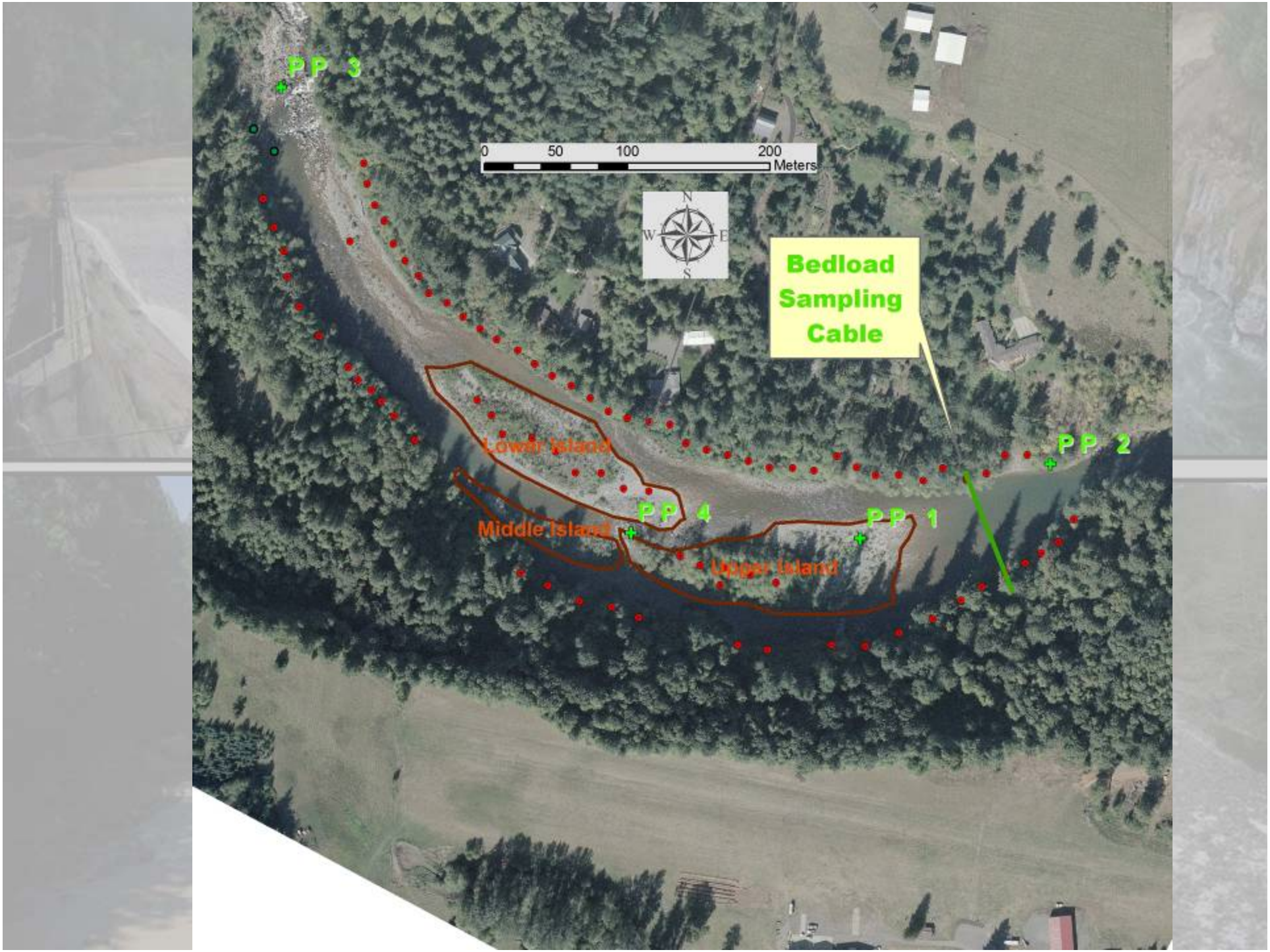
- How:



Current Science
Sediment Sampling

- Smokey Pitman - GMA

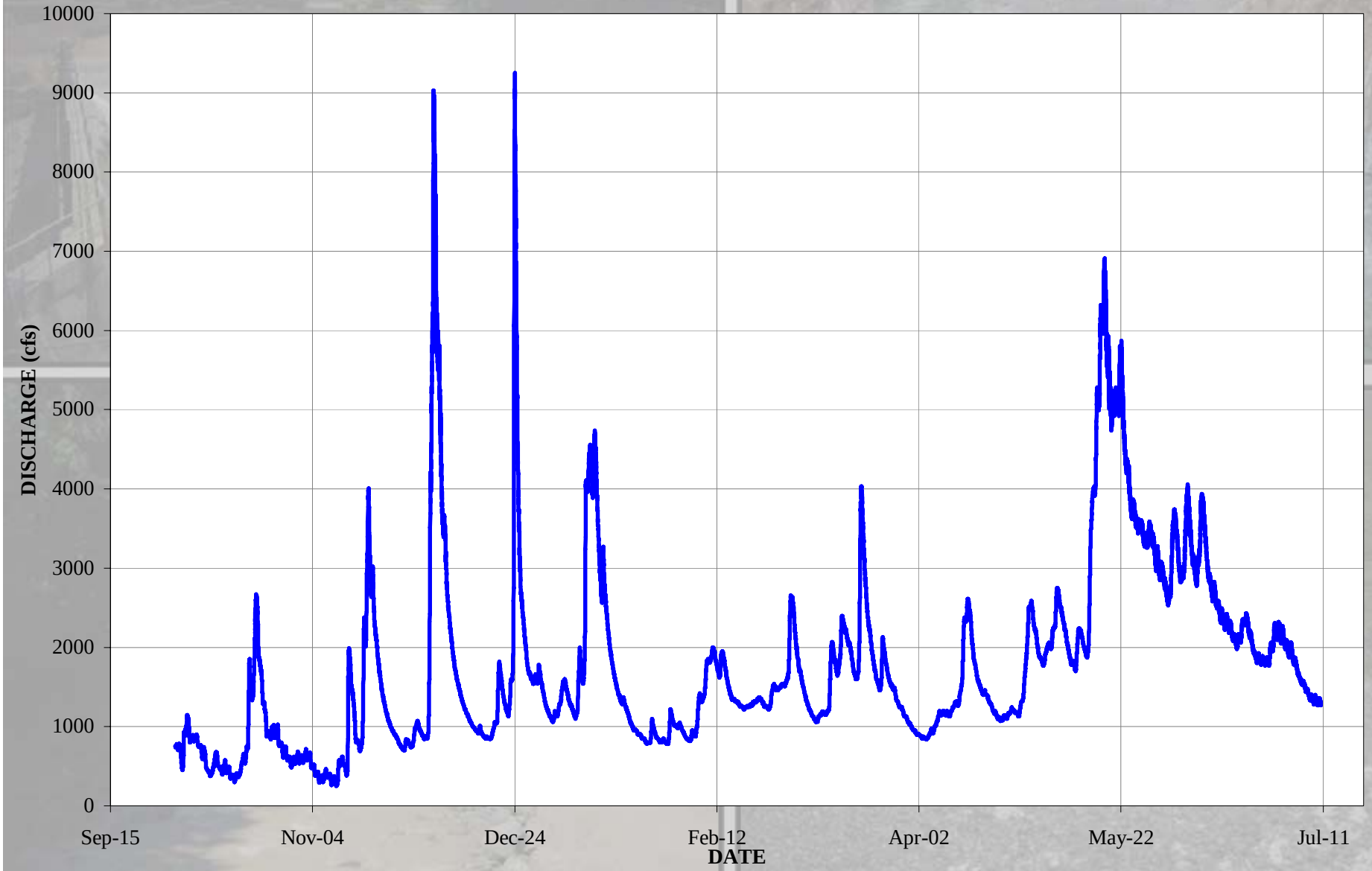


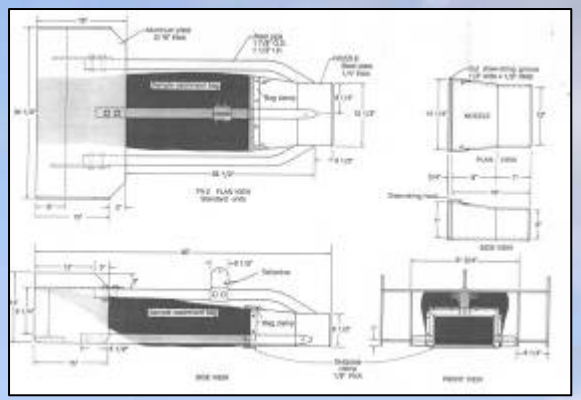

PP 3
0 50 100 200
Meters
N
W E
S
Bedload Sampling Cable
Lower Island
PP 2
PP 4
PP 1
Middle Island
Upper Island


#2
AquaCalc

SANDY RIVER ABOVE REVENUE BRIDGE

GMA #14137003 -- WY2008 Discharge

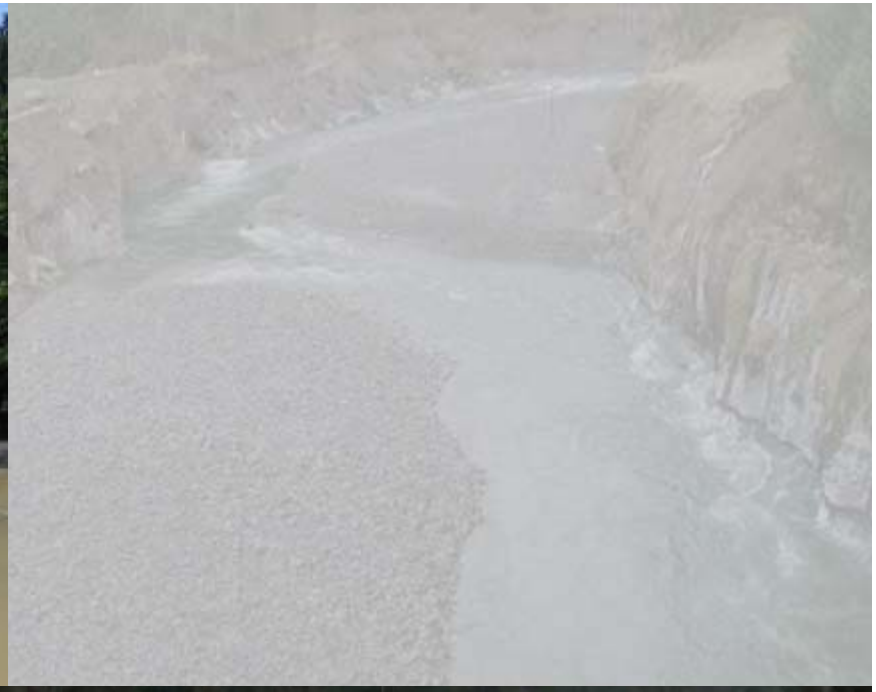




Two different TR-2 bedload samplers: Childers' USGS model (above) and Graham Matthews and Associates Trinity River model (below).

Preliminary Results

- Summer 2007 vs. Summer 2008



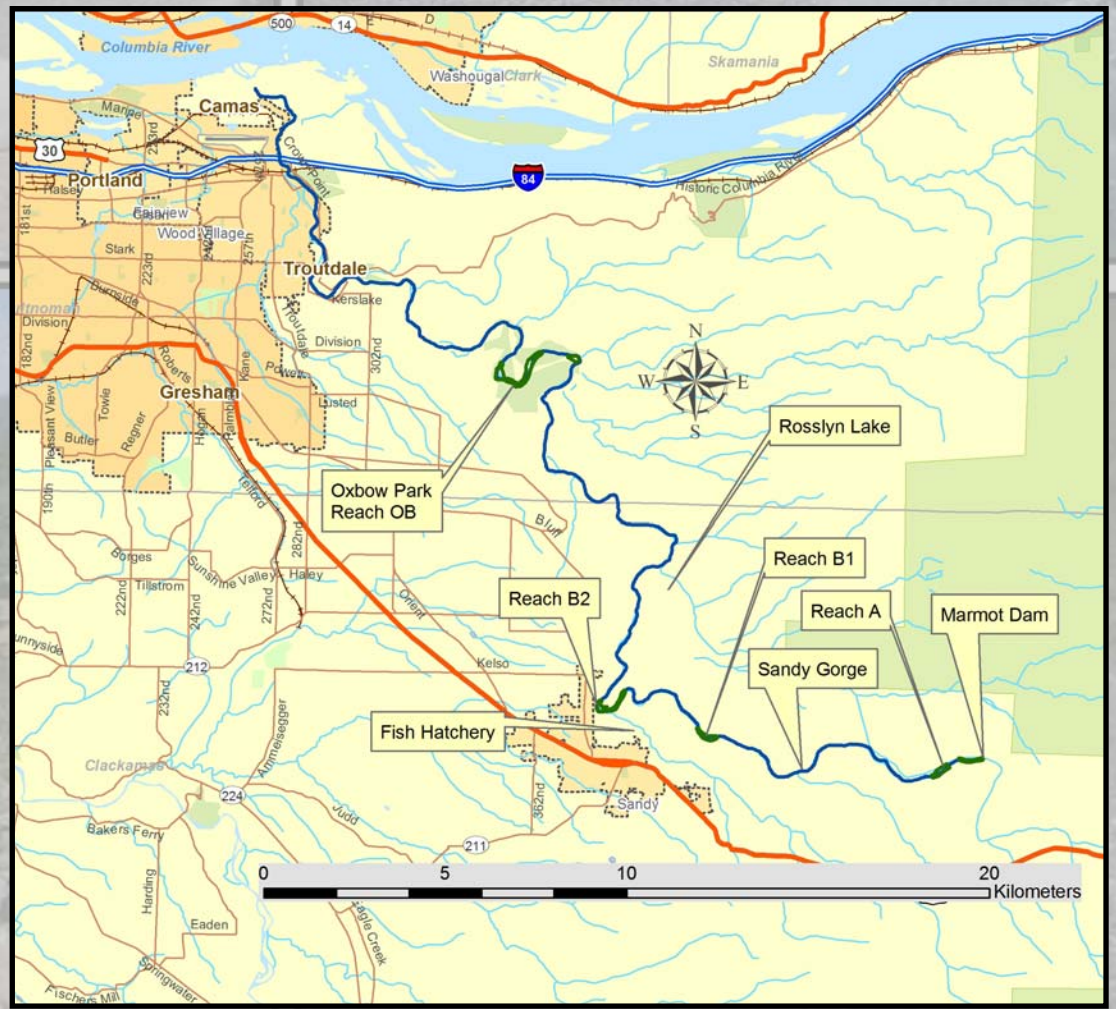
Preliminary Results

- Summer 2007 vs. Summer 2008
  - Revenue Bridge
  - Cedar Creek
  - Oxbow Park

  - Some bars have slightly more sand
  - Some small (few feet) shifting around of bars
  - Nothing new (like 2006-2007 in Oxbow)

Preliminary Results

- Where is the sediment?

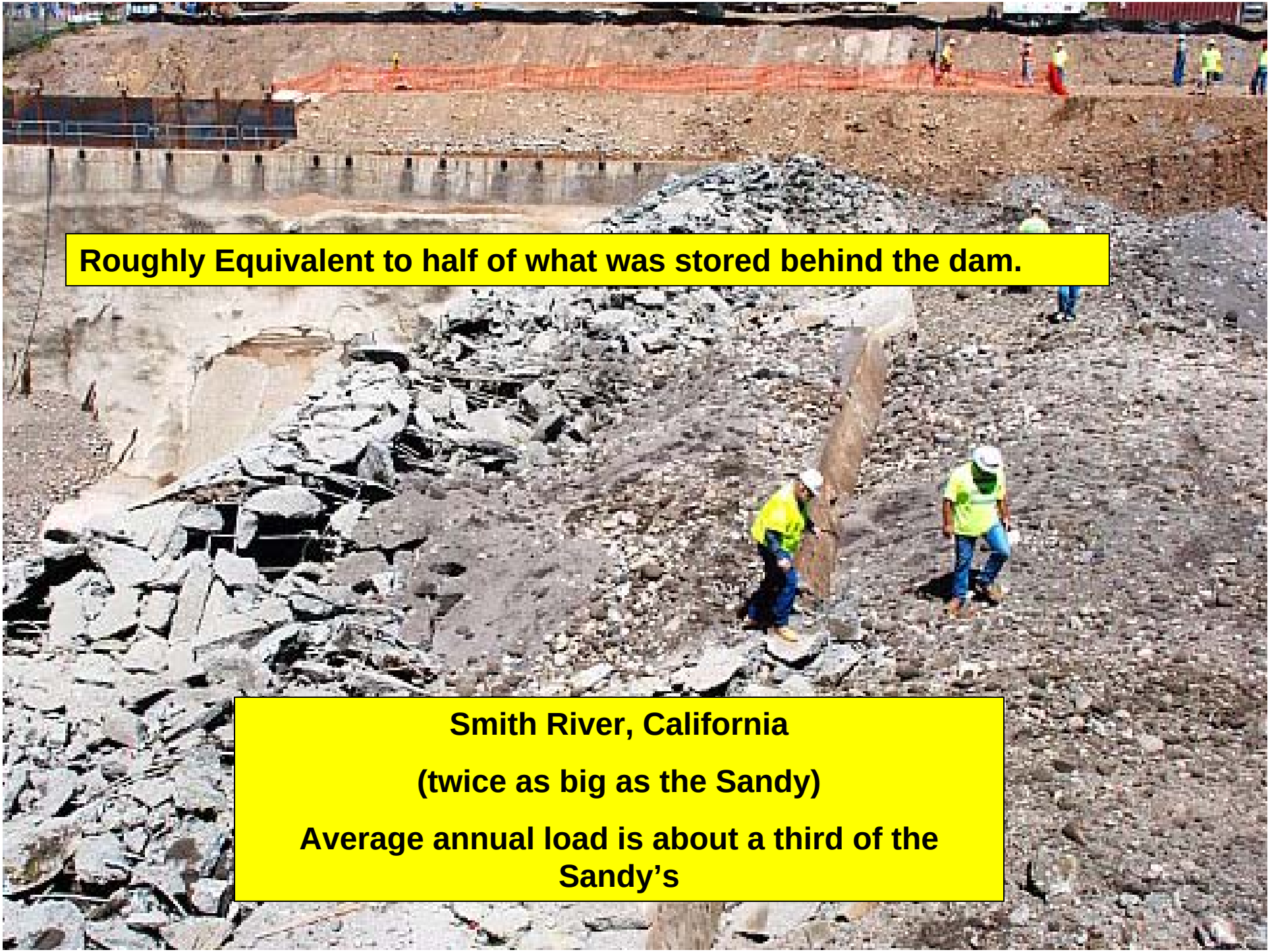


Suspended Sediment Load:

425,000 tons

Bedload: 160,000 Tons

(85% sand)


Roughly Equivalent to half of what was stored behind the dam.
Smith River, California
(twice as big as the Sandy)
Average annual load is about a third of the Sandy's

What's Next

- GMA survey – August 2008
- JHU/NCED/GMA – July 2009
- BOR survey
- Ongoing USGS / OSU work upstream
- Sediment sampling – winter 2008-2009
  - Location – TBD – help please

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- Field Assistants: Daniela Martinez, Viviano Berrios, Ramsey Coronado, Carl Ekstrand, Michaela Long, Dajana Jurk, Cecilia Palomo, Katie Trifone, Kim Devillier, Tim Shin, Kristen Sweeney
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- Bill Doran – Metro Parks
- Greg Stewart, Barbara Burkholder

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  - National Center for Earth Surface Dynamics
  - US Forest Service
  - Oregon Watershed Enhancement Board

For More

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