Trinity Riparia

Wildlife and Riparian Work Group

June 5, 2012

- Introduction
- Riparian PITA 1 & 2 Timeline
- Importance to the future of the program

Coho fry near placed LWD, Necanicum R., OR (photo credit: Tualatin Valley TU)

Riparian Values

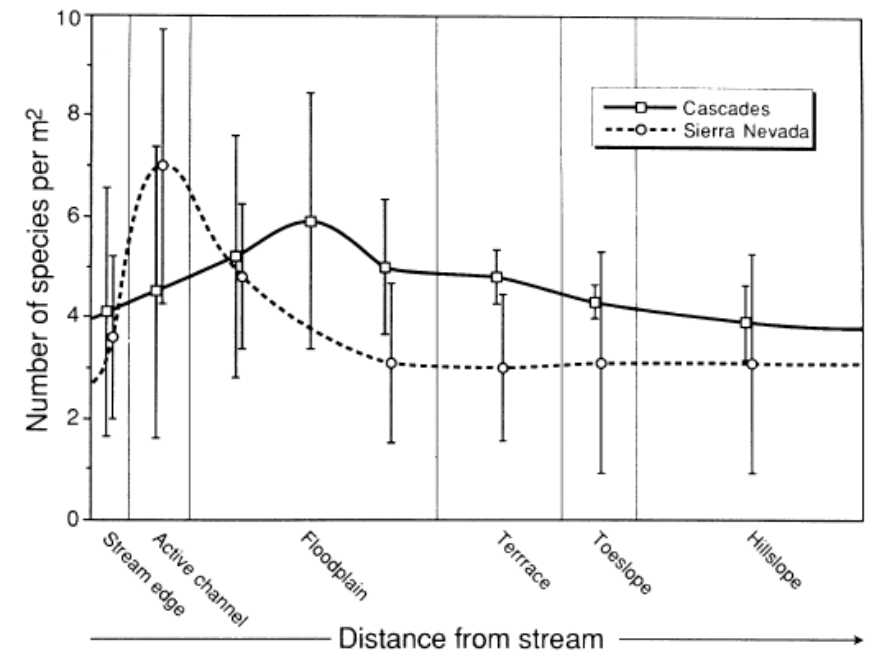


Figure 7. Gradients of species richness along lateral transects from the stream channel to upper hillslopes along three streams on the west slope of the Cascade Mountains of Oregon and three streams in the Sierra Nevada of California (from unpublished data). Richness is expressed as number of species in one-square-meter plots sampled in longitudinal, one-meter × five-meter belt transects. Points represent means for more than 45 transects per surface; bars represent standard deviations.

Species Richness

[Source: Gregory et al. 1991, Bioscience 41(8)]

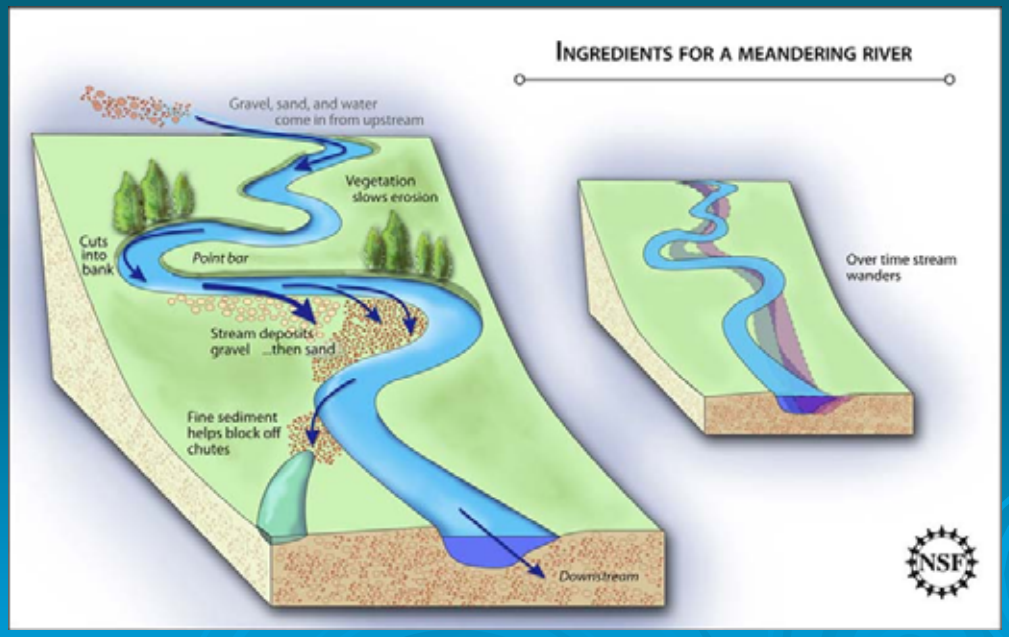
"The riparian systems of California are clearly far more productive than any of that state's communities which are dependent on their local climate can be. Maximal riparian productivity more closely approaches that of eastern deciduous forests in summer and of tropical rain forests throughout the year. It is not surprising, then, that California's riparian forests share some features with exotic ecosystems which are absent, rare, or poorly developed elsewhere in the state."

Productivity

[Source: Warner and Hendrix 1984, Univ. of Ca Press]

Riparian Values

- Provides services to fish, wildlife, humans
- Reciprocal interactions between geomorphic processes and riparian succession



Braudrick, Detrick, et al., UC Berkeley

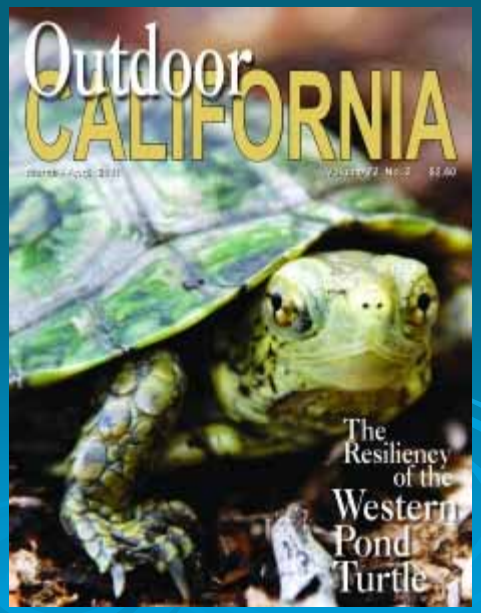
TR Flow Evaluation Study Recommendations

- Ten Healthy Alluvial River Attributes
- No. 9 “Self-sustaining, diverse riparian communities”

“Natural woody riparian woody plant establishment and mortality, based on species life history strategies, culminate in early- and late-successional stand structures and species diversities (canopy and understory) characteristic of self-sustaining riparian communities common to regional unregulated river corridors”

TR Flow Evaluation Study Recommendations

- Recommended objectives that would decrease channel simplification, maintain early-successional riparian, and rehabilitate off-channel wetland communities



TR Flow Evaluation Study Recommendations

- Desired biological responses included an increase in woody riparian species and age-class diversity and greater habitat availability for early-seral wildlife

TR Mainstem Fishery Restoration EIS (1999)

- Riparian vegetation flow thresholds:
  - Removal of individual mature trees- 14,000-30,000 cfs
  - Scour of most established seedlings- 8,500-14,000 cfs
  - Scour of most initiating seedlings- 6,000 cfs
  - Seed deposition on floodplains- 5,000-6,000 cfs
  - Prevent seedling germination on lower bar surfaces- 1,500-2,000 cfs

Note: other flow thresholds were defined for other attributes, such as groundwater recharge

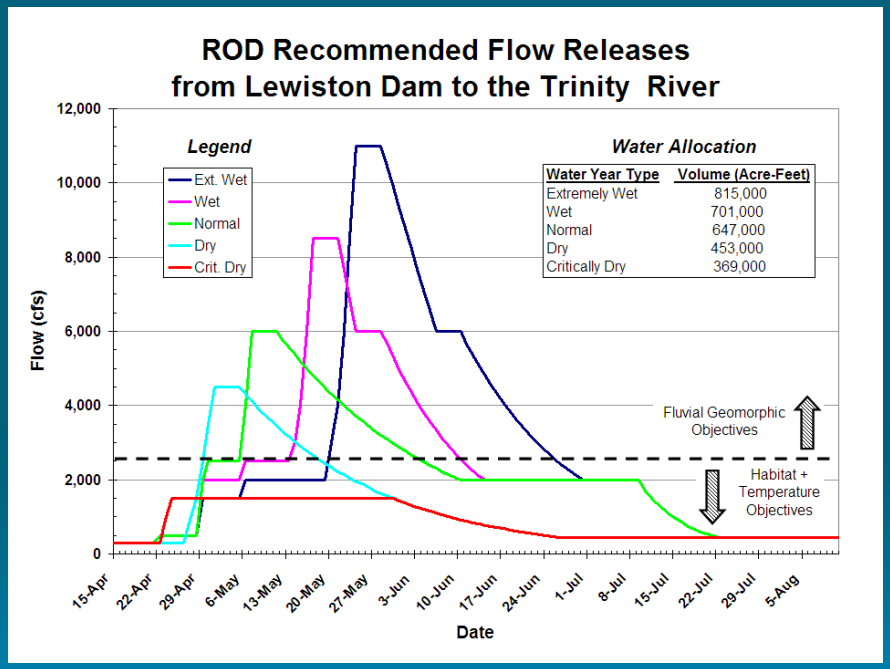
TR Mainstem Fishery Restoration EIS (1999)

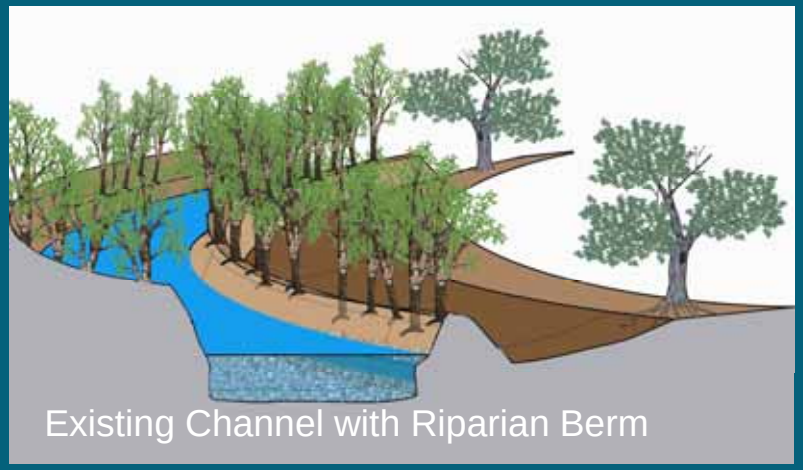
- Threshold significance:
  - Increased woody riparian overstory and understory diversity
  - Increased patchwork of riparian stands
  - Increased age diversity of riparian stands

TR Mainstem Fishery Restoration EIS (1999)

- Restoration focuses on ecosystem processes and functions
  - Riparian initiation
  - Riparian establishment
  - Riparian mortality
- Adopted an adaptive management strategy

Restoration Toolbox





Existing Channel with Riparian Berm

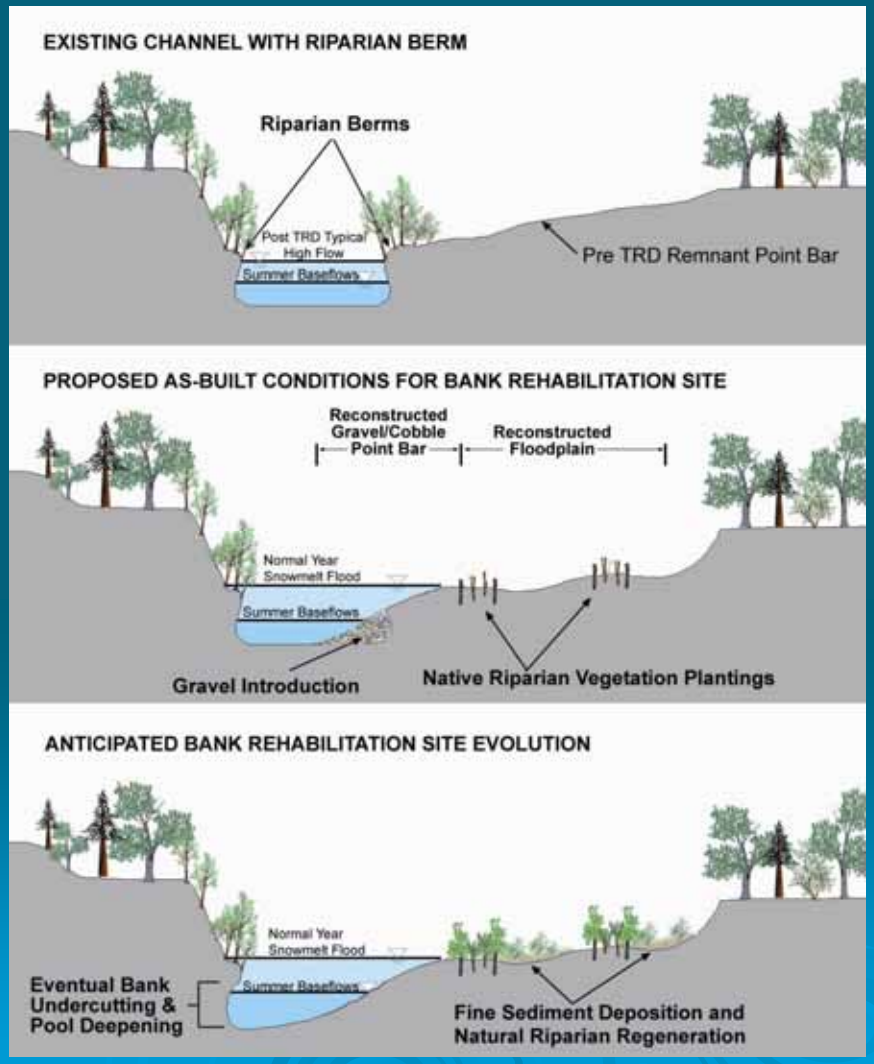
After Restoration

Restoration Toolbox

Gravel Augmentation

Fine Sediment Reduction

Anticipated Long-Term Evolution



Towards what end?

- Focus of the program is on restoring ecological processes to reach programmatic goals
- Riparian and Wildlife Objectives (IAP)
  - Objective 5: “Establish and maintain riparian vegetation that supports fish and wildlife”
  - Objective 6: “Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation”

PITA 1

- Define desired riparian vegetation conditions and quantitative targets, linked to a suitable ecological model describing how desired conditions should be achieved and maintained
- What are the desired plant species, vegetation patterns, structure, composition, and spatial extent of the future riparian corridor

PITA 2

- How to define the risk of encroachment
- What are the units of encroachment? Is encroachment risk a probability or index? What is the temporal sensitivity of risk (e.g., 3-year window)

PITAs 1&2- “in other words”

- Based on the ability of restored processes to create a healthy alluvial river, what can we *specifically* ask of riparia to better achieve the programmatic goals?
- The first and last step of the AM process is: Refine ecosystem goals and objectives

PITAs 1&2- Timeline

- White paper- currently in draft outline
- First draft by early July
- Solicit and integrate work group input
- Second draft by September
- Solicit and integrate external input
- Final draft / publication January 2013

PITAs 1&2- Approach

- Use AM steps to frame the analysis
- Describe the riparian vegetation response to the restored processes
  - Technical exercise- vegetation patterns associated with geomorphic units
- Compare with desired functions
  - Work group collaboration
- Develop quantitative targets
  - Internal and external collaborators

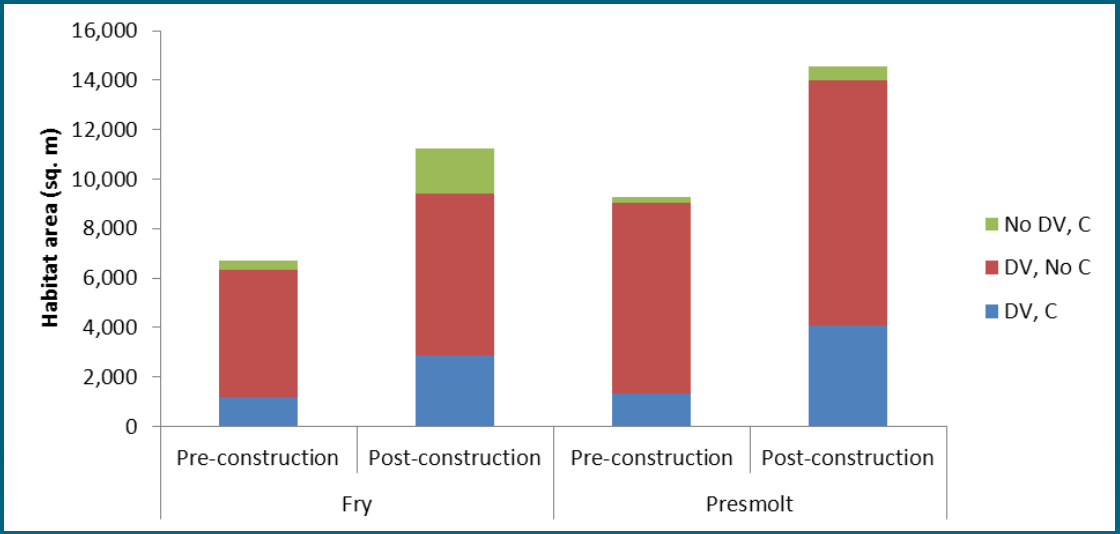
PITAs 1&2- Challenges

- Objective basis for defining “desired conditions” and “risk of encroachment”
- Difficulties of setting quantitative targets that are both meaningful and realistic

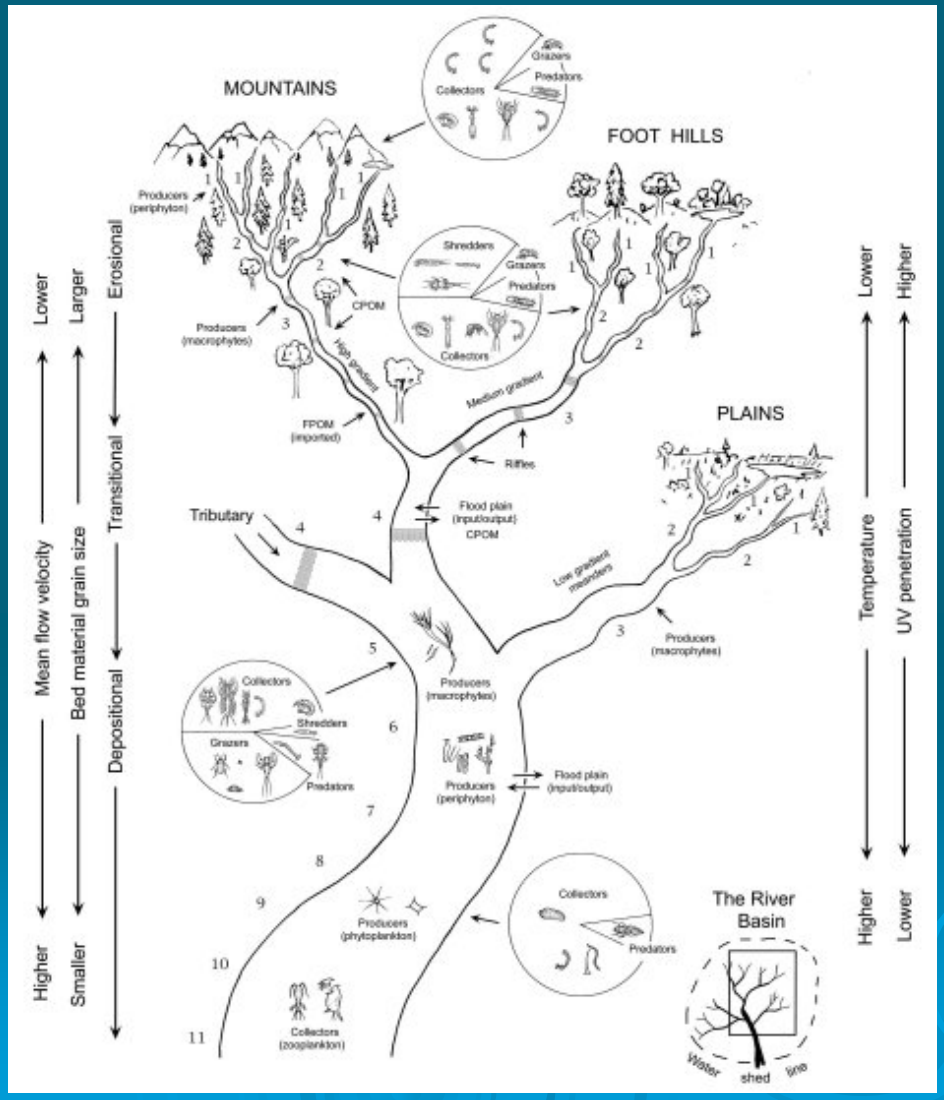
PITAs 1&2- Opportunities

- Improve our ability to integrate riparian management with fish, wildlife, and geomorphic objectives
- Improve our ability to use monitoring for answering fundamental questions about how to restore alluvial river processes

PITAs 1&2- Opportunities



PITAs 1&2- Opportunities



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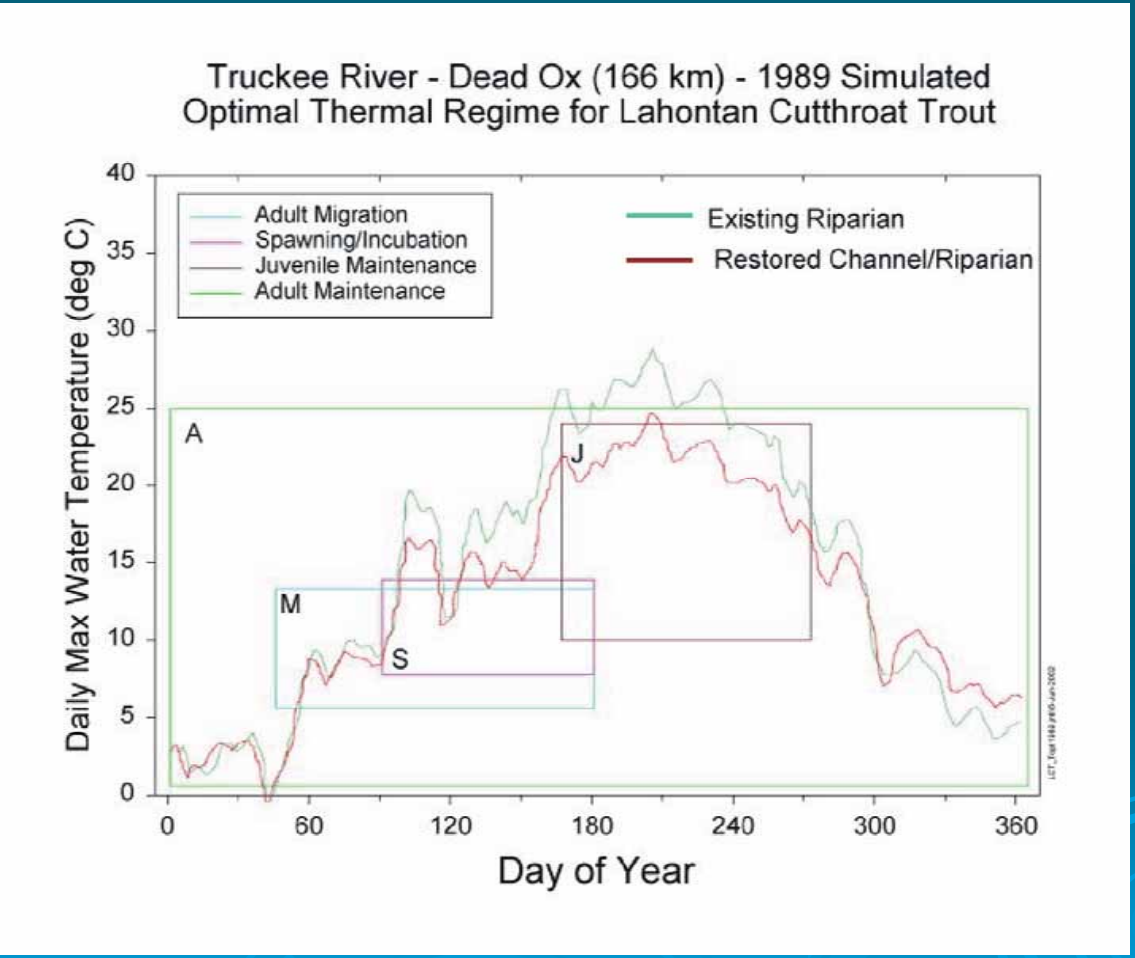
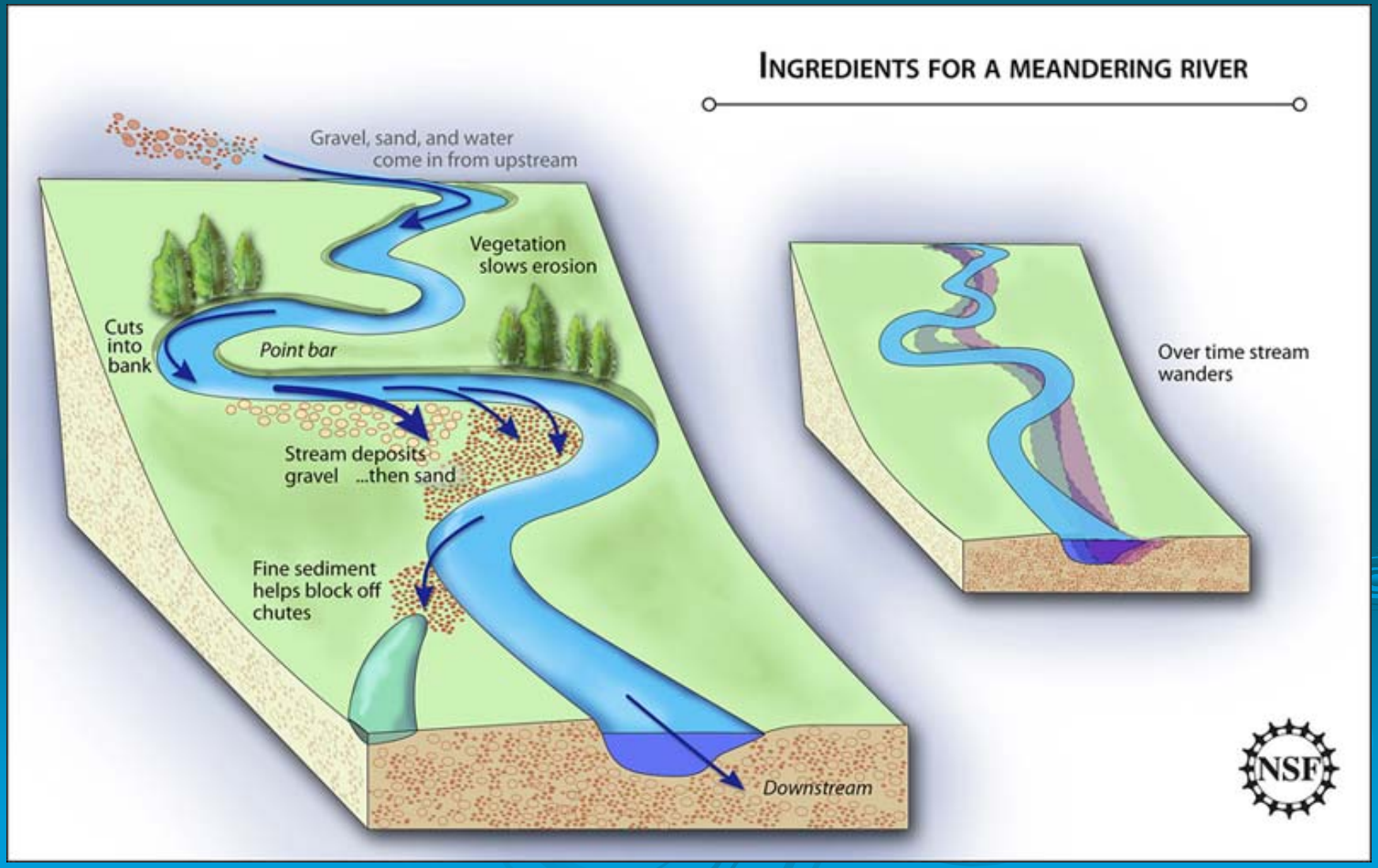


PITAs 1&2- Opportunities



Thank You

Photo Credit: Tom Munson