

Stream Restoration Through the Years: A National Perspective

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1980's

Future

Hard
Armoring

Bioengineering

Natural
Channel
Design
(NCD)

Process
Based

The
Unified
Method



Late 1980's and Early 1990's



Bioengineering

- Focus was on bank stabilization.
 - Rock or something to ensure a stable bank toe.
 - Vegetation methods for remainder of the bank.
 - Many techniques



**Mostly ignored
channel geometry.**

1990's

- Natural Channel Design (Rosgen Method).
- Started in Colorado but quickly became a national method.
- Focus was on creating a stable channel that could transport the water and sediment delivered by the watershed.
- Addressed problems with channel geometry.
 - Dimension, Pattern, and Profile





Why the national appeal?

- Well documented method (NRCS, NEH 654).
- Training available (Wildland Hydrology courses).
- Applicable to a wide range of landscapes, condition, and problem.
- A focus of fish habitat.
- The result is near an evolutionary endpoint and can easily be measured and tied to performance standards.

2000's

- Process Based Approach starts to gain national recognition.
- Started in the West, mostly the Pacific Northwest in rural landscapes.
- Concern with the rigid approach of NCD and the “armoring” that often happened with rock structures.

Process-Based Restoration

- Came from a desire to have more holistic restoration efforts that focus on the root cause of degradation with more cost-effective restoration methods.
- Aim is to restore normative rates and magnitudes of physical, chemical, and biological processes that create and sustain river and floodplain ecosystems.

Process-Based Restoration

- A philosophy first. “Let the river do the work.”
- Out of this philosophy have come specific approaches.
 - Beaver Dam Analogs
 - Stage Zero
 - Let the River do the Work
 - Wood placement

Process Based Restoration



Photo Credit: Joe Wheaton



Photo Credit: Matt Varner

Why the national appeal?

- Strong emphasis on the river corridor.
- Emphasis on restoring anastomosed (multi-thread channel with stream/wetland complex) systems.
- Focus on a mosaic of lentic and lotic processes.
 - Biodiversity
- Allowing beavers to thrive.
- More functional bang for the buck.

Present / Future

The Unified Stream Restoration Approach



Unified Stream Restoration Approach

- Doesn't really exist. 😊
- But it is happening, quietly, in the background.
- Practitioners are increasingly using a wider range of tools to solve the problems at their project site, caring less about what it is called and more about the results achieved.
- Know why!



