



# LOW-TECH PROCESS-BASED RESTORATION OF RIVERSCAPES

American Fisheries Society Virtual-Based Workshop  
March 2, 2022

## Description

This half-day virtual-based workshop will be presented as part of the American Fisheries Society Continuing Education Program at the Colorado/Wyoming annual meeting. The workshop is intended to introduce resource managers, land-owners, and conservation groups to 'low-tech' process-based (LTPBR) approaches for restoring streams and their associated riparian areas (riverscapes) to benefit fish and wildlife. People that have some knowledge of LTPBR can also benefit as the instructors will be providing lessons learned from assessing, planning, and implementing dozens of LTPBR projects across a wide variety of geographic settings in multiple states. Participants will learn principles guiding low-tech process-based restoration, become familiar with basic beaver ecology, and different types of low-tech structures, including Beaver Dam Analogues (BDAs) and Post-Assisted Log Structures (PALS). The focus of the workshop will be on the guiding principles, the construction of different low-tech structures, and the impairments the structures can treat. Specific examples related to fish population responses will be presented.

A workshop website is provided which will include more in-depth information including links to digital copies of a [low-tech process-based restoration manual](#) and [pocket guide](#), and an online lecture series which can be viewed either as videos or pdf documents. We encourage workshop participants to review [Module 1](#) online or read chapter 1 from the [Low-tech Manual](#) before the workshop (see link below). Digital copies of the manual and pocket guide are available free of charge from the low-tech webpage.

## Supporting Materials Website –

General Low-tech PBR website

<http://lowtechpbr.restoration.usu.edu/resources/Topics/>

AFS Workshop specific webpage

<http://lowtechpbr.restoration.usu.edu/workshops/2022/Anabranch/AFS.html>

## How to Sign Up

To register, please contact Dan Kowalski, Aquatic Resource Specialist at [dan.kowalski@state.co.us](mailto:dan.kowalski@state.co.us); tel. (970) 252-6008

## Video Link

The virtual workshop can be accessed here:

<http://lowtechpbr.restoration.usu.edu/workshops/2022/Anabranch/AFS.html>

## What Will Be Provided

- Digital copies of LTPBR Manual and Pocket Guide

# LTPBR Field-Based Workshop - Agenda

## Instructors

Dr. Stephen Bennett

*Fish & Wildlife Biologist - Principal of Anabran Solutions and Utah State University Adjunct*



**Stephen Bennett** is a fish and wildlife biologist with a wide range of experience in river, forestry, wildlife, and fisheries science. Stephen has been the project manager of numerous watershed assessments and restoration planning projects across the western US. He has also been managing a long-term watershed-scale restoration experiment in southeast Washington where he has been developing low-tech restoration methods and evaluating habitat and fish responses to restoration. Stephen's focus has been on applying low-tech restoration approaches in a wide variety of settings using lessons learned from our more intensive research efforts.

*Expertise: Geomorphic and ESA fish assessment, restoration planning*

*Education: B.Sc. Wildlife Biology, University of Montana | M.R.M. Resource & Environmental Management, Simon Fraser University, Canada | PhD Fisheries Biology, Utah State University*

Scott Shahverdian

*Geomorphologist - Associate of Anabran Solutions and Utah State University Researcher*



Scott is a fluvial geomorphologist and leads restoration assessments, planning, implementation, and monitoring projects mainly in the Intermountain West projects. He has experience combining remote sensing and field survey data to assess conditions across multiple spatial scales. He also has experience working with diverse stakeholders, including public land managers, and private landowners to implement and assess stream restoration projects. Scott's thesis focused on evaluating the effects of wildfire on low-order streams.

*Expertise: Habitat and riparian surveys, geomorphic assessments, hydrologic analysis, reach classification, condition assessment, recovery potential, restoration planning education*

*Education: B.S. Environmental Studies, Colby College/M.S. Geosciences, Colorado State*

Brian Murphy, P.E.

*Water Resources Engineer - Associate of Anabran Solutions*



Brian is a senior water resources engineer with nearly 20 years of experience. He has a wide-ranging background in water resources planning and engineering. As a licensed professional engineer in Colorado and California, he has led and managed river engineering, watershed studies, stream management planning, and floodplain resiliency projects across the western United States. His PhD research focuses on assessing the physical condition of urban streams seeking to address the “wicked problems” caused by natural and anthropogenic changes on river hydrology and geomorphology.

○ *Expertise: Water resource planning, flood plain management (Certified Flood Plain Management) Education: B.S. Civil Engineering, Santa Clara University | M.S. Environmental Science & Engineering, Colorado School of Mines | PhD, Civil Engineering, Colorado State University (in progress)*

# ***LTPBR Field-Based Workshop - Agenda***

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## **AGENDA<sup>1</sup>**

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### **1. INTRODUCTIONS AND AGENDA**

#### **800:00-8:15: Introductions, Agenda, & Goals of Workshop - Steve**

- Introductions, Goals, Agenda, and Logistics
- Who reviewed Module 1 or read Chapter 1 of manual?

### **2. BACKGROUND & PRINCIPLES**

#### **8:15-8:30: Background and Purpose (PG p.5, DM Ch.1) - Steve**

- Scope of Problem
  - General degradation; loss and importance of structure (beavers and wood)
- Questions/Discussions 5-10 mins

#### **8:30-9:00: Guiding Principles (PG p.1, DM Ch.2) – Steve/Scott**

- Riverscape Principles – Steve; Restoration Principles - Scott
- Questions/Discussions 5-10 mins

### **3. ASSESSMENT, APPROACHES, AND IMPLEMENTATION**

#### **9:00-9:45: Connecting Observations with Goals and Objectives (PG p.7, DM Ch.3) – Scott**

- Uncertainty - Adaptive Management and Expectation Management
- Think about hydrology, geology, sediment supply, confinement, riparian, other
- Reading riverscapes - Valley Bottom, Recovery Potential, Risk Assessment
- Questions/Discussions/Exercises 10-15 mins

#### **9:45-10:00: Low-tech Approaches & Implementation (PG p.23, DM Ch.4&6) - Steve**

- Low-tech toolbox (beaver mgt, riparian mgt, forestry mgt, structures)
  - Connect these back to degradation
- Questions/Discussions 5 mins

**10:00-10:15 - BREAK**

### **4. SCIENCE AND POLICY**

#### **10:15-11:00 Science behind Low-tech process-based restoration (MOD. 1) – Steve/Scott**

- Case-studies of riparian & beaver management, and low-tech structure projects
  - Where it works – Steve; Where it does not - Scott
- Questions/Discussions/Exercises 5-10 mins

#### **11:00-11:15 CO/WY and Engineering Constraints aka FEMA (MOD. 5c) – Brian**

- Social, permitting, and legal aspects of low-tech design and implementation in CO/WY
- Questions/Discussions 5 mins

### **5. DISCUSSION AND QUESTIONS**

#### **11:15-12:00. Participant Discussion Topics/Ask a Low-tech Practitioner a Question - All**

- Class participation and discussion on material presented and other topics
  - Pre-submitted questions 15-25 mins; Live questions 15-25 mins

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<sup>1</sup> Brackets provide location of more information – PG = pocket guide, DM = design manual chapter, MOD = online lectures