“Designing Sustainable Stream Restoration Projects within the Chesapeake Bay Watershed”

A STAC Responsive Workshop

May 6-7, 2014

Annapolis, MD

Participation

- Bill Stack (CWP/CBPO) and Rich Starr (USFWS) served as Co-chairs of the Planning Committee
- Gene Yagow, STAC representative
- Large planning committee (20+?)
- 60 workshop participants – mix of agency, researchers, regulatory folk, and consulting practitioners

Workshop Objective

- Create agreement among practitioners, regulators, and scientists on
  - a common language and assessment methods for designing sustainable stream restoration projects
  - that improve the functional elements of stream health to address water quality, climatological impacts, physical and biological components within the stream and adjacent riparian zone.

Agenda

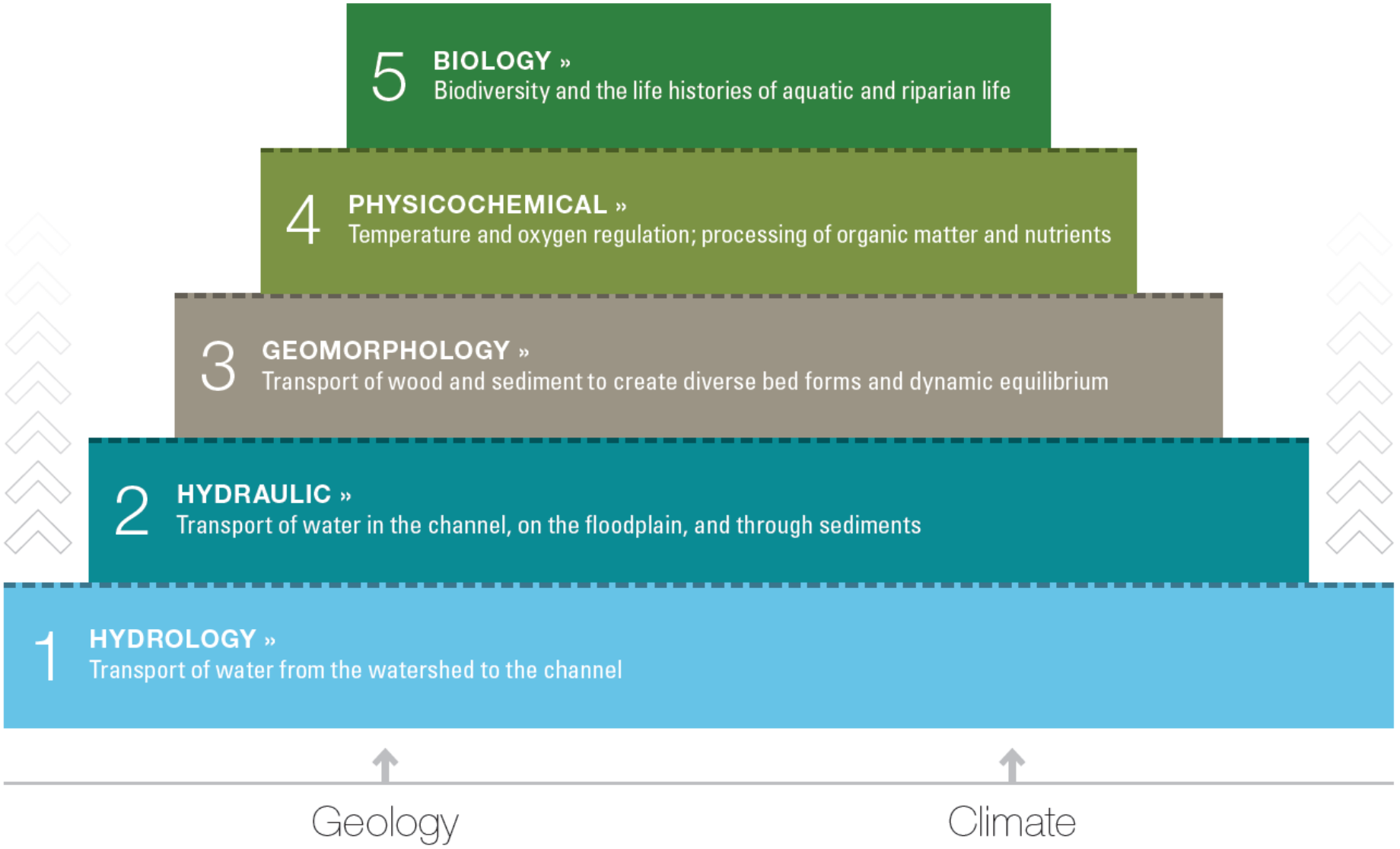
- Synthesis of Stream Restoration Projects
- Overview of Regulatory Issues
- Introduction to the Stream Functions Pyramid Framework
- Worked through a “straw man” process
  - Series of breakout groups and plenary report-backs
- Research Needs and Next Steps

Straw Man

- Based on the Stream Functions Pyramid as the organizing framework for breakout groups and discussion.
- An assumption was made that appropriate site selection and screening criteria had been used to select an appropriate restoration site.
- Focus was on the restoration site level.

Stream Functions Pyramid

A Guide for Assessing & Restoring Stream Functions » OVERVIEW



StreamMechanics

Straw Man Outline

a) Programmatic/Project Goals and Objectives
b) Watershed-scale Assessment
c) Reach-scale Assessment
d) Restoration Potential
e) Design Objectives
f) Restoration Design Approach & Design Alternative Analysis
g) Design
h) Monitoring

EXAMPLE - FUNCTIONAL ASSESSMENT TABLE (USFWS-CBFO)

Level and Category	Parameter	Measurement Method	Pre-Restoration Condition		Post-Restoration Condition	
			Value	Rating	Value	Rating
1 - Hydrology	Runoff	HEC RAS	Similar to reference watershed	Functioning	Similar to reference watershed	Functioning
	Flow Duration	HEC RAS	Similar to reference watershed	Functioning	Similar to reference watershed	Functioning
2- Hydraulics	Floodplain Connectivity	Bank Height Ratio	1.5	Not Functioning	1.0	Functioning
		Entrenchment Ratio	1.73	Not Functioning	>2.2	Functioning
	Bed Form diversity	Pool-to-pool spacing	1.5 to 9	Not Functioning	4 to 5	Functioning
		Pool Depth Variability	2.0 to 3.0	Functioning	2.0 to 3.0	Functioning
		Riffle Length to Riffle Width	2.9 to 4.3	Functioning	3 to 5	Functioning
		Riffle Slope to Reach Slope	1.2 to 3.9	Functioning at Risk	1 to 2	Functioning
		Pool Slope to Reach Slope	0.3 to 0.6	Functioning at Risk	0.2 to 0.3	Functioning

Comments from the Workshop

- How do we manage risk and uncertainty without being paralyzed by it? We have 11 years to make stream restoration achieve its specified WIP reductions.
- Site assessment and selection is key to successful stream restoration projects.
- Delays in permitting process often related to inadequate/incomplete applications. Take advantage of pre-application consultations.

More Comments

- Conceptually, the function-based process ties goals to objectives to site selection to functional metrics to target thresholds.
- Permit agencies need to be engaged separately to identify common intersections between permit and function-based processes.
- Although the workshop was a good first step, the goal to build a common language is going to take some additional work.

Status

- Notes from the plenary and facilitator breakout sessions are being summarized.
- Post-workshop online survey has been conducted to provide feedback and will be used in developing the recommendations for the report.
- Draft report targeted for September STAC meeting.