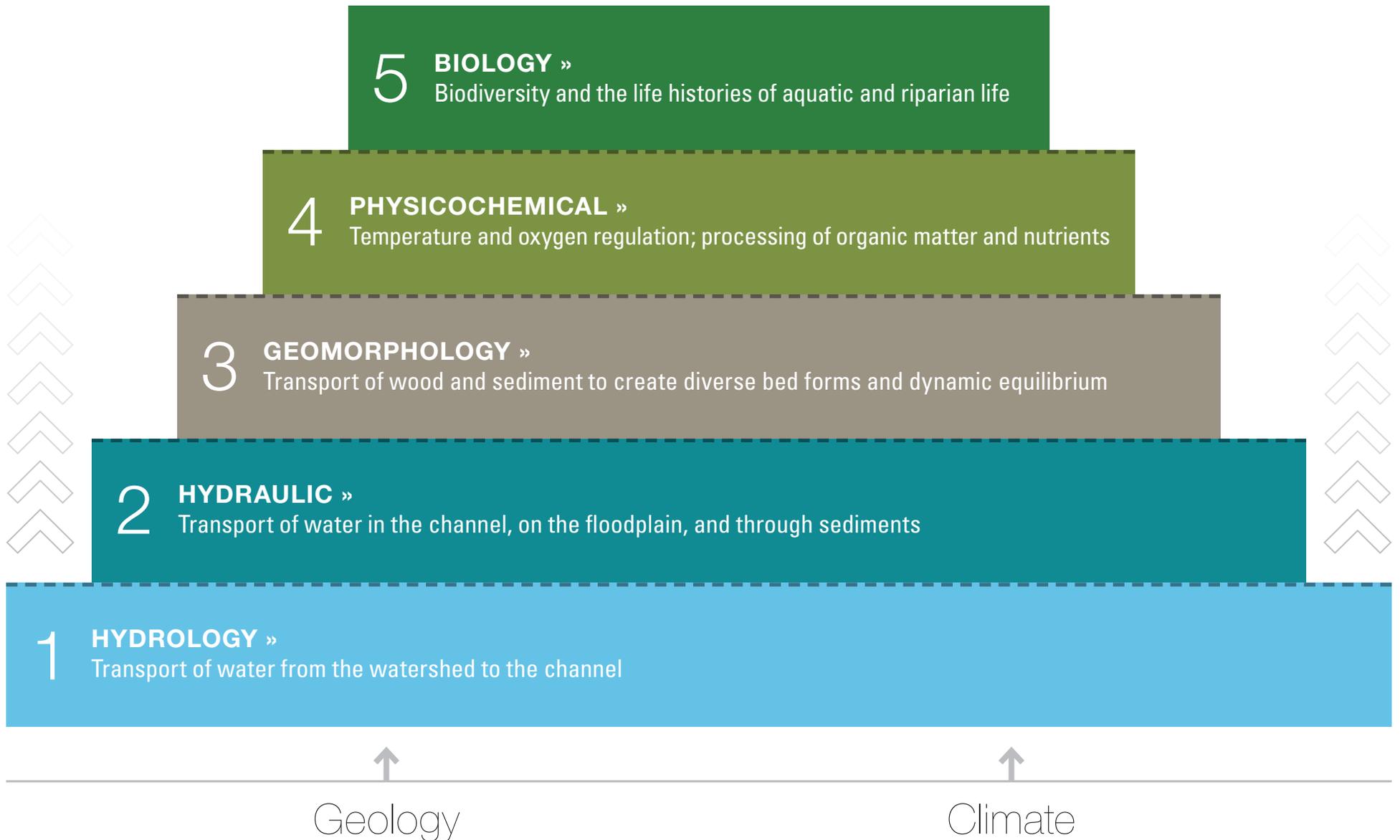


Stream Functions Pyramid

A Guide for Assessing & Restoring Stream Functions » OVERVIEW



Stream Functions Pyramid

A Guide for Assessing & Restoring Stream Functions » FUNCTIONS & PARAMETERS



**Stream Functions Pyramid Framework
Draft Functional Uplift Table**

		Functional Category ^(a)																	
		1) Hydrology		2) Hydraulics				3) Geomorphology					4) Physicochemical				5) Biology		
Functional Statement ^(a)		Transport of water from the watershed to the channel		Transport of water in the channel, on the floodplain, and through sediments				Transport of wood and sediment to create diverse bed forms and dynamic equilibrium					Temperature and oxygen regulation; processing of organic matter and nutrients				Biodiversity and the life histories of aquatic and riparian life		
Function ^(b)		Water delivered to the stream via overland flow and subsurface flow ⁽¹⁾	Stream flow ⁽²⁾	General hydrodynamic balance ⁽²⁾	Floodplain inundation and storage ⁽¹⁾	Maintain surface/subsurface water connections and processes ⁽²⁾	Sediment continuity ⁽²⁾	Maintain substrate and structural processes ⁽²⁾	Sediment and wood transport and storage ⁽¹⁾	Riparian processes ^(1&2) and succession	Stream Evolution Processes ⁽¹⁾	Erosion and sediment supply ⁽¹⁾	Maintain chemical processes and nutrient cycles ⁽²⁾	Maintain water and soil quality ⁽¹⁾	Organic matter transport and storage ⁽²⁾	Temperature and oxygen regulation	Maintain trophic structures and processes ⁽²⁾	Support biological communities and processes ⁽²⁾	Maintain landscape pathways ⁽²⁾
Function-Based Parameters ^(a)	Channel-Forming Discharge	●	○	○	○	○	○	○	○	○	○	○							
	Precipitation/ Runoff Relationship	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Flow Duration	●	○	○		○		○					○	○	○	○	○	○	○
	Floodplain connectivity			○	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Flow dynamics		●	●			○	○	○	○	○	○	○	○	○	○	○	○	○
	Groundwater/ surfacewater exchange		○	○		●		○		○			○	○	○	○	○	○	
	Sediment transport competency						●	○	●		○	○			○		○	○	
	Sediment transport capacity						●	○	●		○	○			○		○	○	
	Large woody debris transport and storage						○	○	●		○	○	○		○	○	○	○	
	Channel evolution						○	○	○	○	●	○	○	○			○	○	○
	Bank migration/ lateral stability						○	○		○	○	●	○	○	○	○	○	○	○
	Riparian vegetation									●	○	○	○	○	○	○	○	○	○
	Bed form diversity						●	●	●		○			○	○	○	○	○	○
	Bed material characterization							●	○			○					○	○	
	Water quality												○	●		●	○	○	
	Nutrients												○	○			○	○	
	Organic carbon												○	○	●		○	○	
	Microbial communities																●	○	
	Macrophyte communities																○	●	
	Benthic macroinvertebrate communities																○	●	
Fish communities																○	●		
Landscape connectivity																		●	

Legend

- Function-based parameter that directly represents the corresponding function.
 - Denotes functions that are supported by the function-based parameter with the ● symbol.
- Practitioner Note: Manipulation of function-based parameters in Levels 1 - 3 denoted with a ● may lead to functional uplift of other functions denoted by ○ for that same parameter.

- a Terminology from *A Function-Based Framework for Stream Assessment and Restoration Projects* by Harman et al.
- b Functions from *Functional Objectives for Stream Restoration* by Craig Fischenich and *Stream and Watershed Restoration*, edited by Philip Roni and Tim Beechie
- 1 Functions from *Functional Objectives for Stream Restoration*
- 2 Functions from *Stream and Watershed Restoration*