

FLOW LEVELS AND ECOLOGICAL ROLES

Flow Level	Ecological Roles
Low (Base) Flows	<ul style="list-style-type: none"> > Provide adequate habitat space for aquatic organisms > Maintain suitable water temperatures, dissolved oxygen, and water chemistry > Maintain water table levels in floodplain, soil moisture for plants > Provide drinking water for terrestrial animals > Keep fish and amphibian eggs suspended > Enable fish to move to feeding and spawning areas > Support hyporheic organisms (living in saturated sediments)
Extreme Low Flows	<ul style="list-style-type: none"> > Enable recruitment of certain floodplain plants > Purge invasive, introduced species from aquatic and riparian communities > Concentrate prey into limited areas to benefit predators
High Flow Pulses	<ul style="list-style-type: none"> > Shape physical character of river channel including pools, riffles > Determine size of stream bed substrates (sand, gravel, cobble) > Prevent riparian vegetation from encroaching into channel > Restore normal water quality conditions after prolonged low flows, flushing away waste products and pollutants > Aerate eggs in spawning gravels, prevents siltation > Maintain suitable salinity conditions in estuaries
Floods	<ul style="list-style-type: none"> > Provide migration and spawning cues for fish > Trigger new phase in life cycle (e.g., insects) > Enable fish to spawn on floodplain, provide nursery area for juvenile fish > Provide new feeding opportunities for fish, waterfowl > Recharge floodplain water table > Maintain diversity in floodplain forest types through prolonged inundation (i.e., different plant species have different tolerances) > Control distribution and abundance of plants on floodplain > Deposit nutrients on floodplain > Maintain balance of species in aquatic and riparian communities > Create sites for recruitment of colonizing plants > Shape physical habitats of floodplain > Deposit gravel and cobbles in spawning areas > Flush organic materials (food) and woody debris (habitat structures) into channel > Purge invasive, introduced species from aquatic and riparian communities > Disburse seeds and fruits of riparian plants > Drive lateral movement of river channel, forming new habitats (secondary channels, oxbow lakes) > Provide plant seedlings with prolonged access to soil moisture