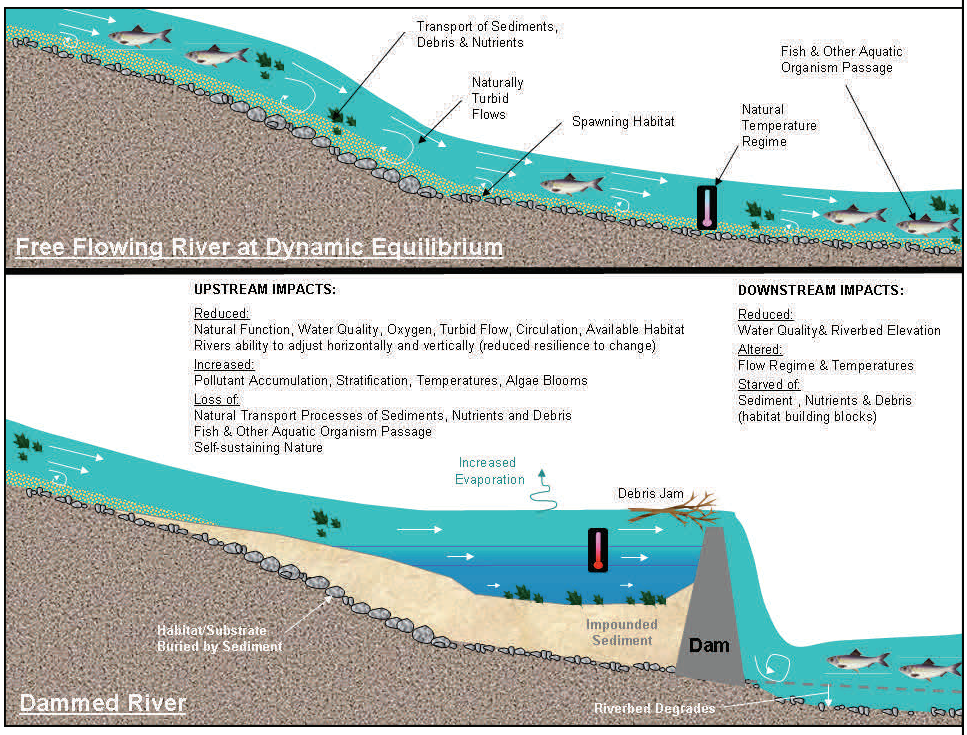
How a Dam Affects a River

Building a dam can affect a river in many ways. Fundamentally, the dam is a barrier that interrupts the natural river dynamics. The impoundment that forms behind the dam loses many of its riverine characteristics, impacting species that depend on river habitat for their survival.



Graphic courtesy of American Rivers

	Free-flowing river	Dammed river
Temperature	Natural temperature regime	Greater surface area of impoundment and surface release often results in higher water temperatures in impoundment and downstream
Dissolved oxygen	Turbulent flow and shallower water depths result in high dissolved oxygen concentration	Loss of turbulent flow may reduce dissolved oxygen concentration; impoundment may stratify, further reducing dissolved oxygen
Habitat	Riverine coldwater habitat	Habitat is more lake-like and often unsuitable for coldwater fish species
Fish movement	Fish and other organisms free to move upstream and downstream, including migratory fish such as Atlantic salmon	Access to habitat blocked or fragmented
Flow regime	Natural flow regime	Modified flow regime
Sediment	Natural transport processes maintained	Trapped in impoundment—natural substrate buried by sediment in impoundment, downstream channel erosion may result to "replace" trapped sediment
Pollutants	Metals and organics are distributed downstream	Metals and organics are concentrated in fine sediments trapped in impoundment
Nutrient transport	Nutrients are transported downstream	Portion of nutrients trapped in impoundment
Woody debris	Woody debris is transported downstream to create habitat	Portion of woody debris trapped in impoundment

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