

Effects of Dams on Hudson River Tributaries

Opportunities For Restoration

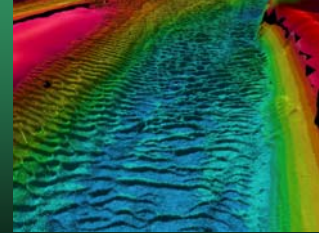


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Hudson River Estuary Program- Habitat Restoration

- Tidal Wetlands
- Shorelines
- SAV and Benthic Habitat
- Anadromous fish passage (tributaries)



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Hudson River Watershed an Ecosystem Perspective

- 13,390 square miles
- 315 miles long
- > 62 tributaries to tidal estuary

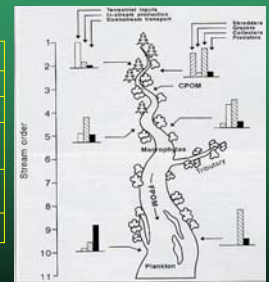


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Stream Continuum Concept

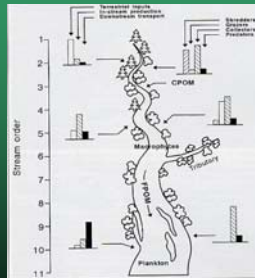
Stream Gradients		
	Upstream	Downstream
Benthos	Course	Fine
Water Quality	Clear, cold, high D.O.	Turbid, warmer, lower, D.O.
Exposure	Forested/ Shaded	Exposed
Nutrient	CPOM	FPOM



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Sawkill Creek



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Effects of Dams on Streams

- Creates an impoundment (river to lake environment)
- Disrupts the stream continuum
 - Altered sediment transport
 - Habitat changes/fragmentation
- Reduces dissolved oxygen
- Reduces sustainability



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Dams on Tributaries to the Hudson River Estuary

- 357 dams in Hudson River Tributary Watersheds
- 106 in Dutchess County
 - 64 Class A (low hazard)
 - Average age = 65 years



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Hudson River Tributaries- Dam Observations

- Many obsolete dams in state of disrepair
- Many low hazard class dams
- Few serve economic or ecological purpose



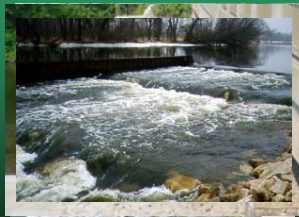
= opportunities for restoration

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Dam Mitigation Options

- Partial breach
- Removal of structure
- Installation of fishway
- Rock Ramps



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Possible Effects of Tributary Dam Removal

- Restore migratory fish spawning habitat
- Restore stream continuum
 - Improve water quality
 - Restore sediment transport regimes
 - De-fragment in-stream communities



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Dam Removal Trade-offs

- Restored stream channel vs. wetland and impoundment resources
- Sediment transport vs. sediment retention
- Historic and cultural resources vs. ecological restoration



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Restore America's Estuaries Principle #1 of Habitat Restoration

"Preservation of existing habitat is critical to the success of estuarine restoration"

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