



More Rain, More Runoff, More
Recharge = Water Quality Impact?

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Heavy rainfalls are stressing Minnesota infrastructure

MPR News Staff · Aug 18, 2016

Weather



Heavy rains and wind hit Shoreview, Minn., last month. Regina McCombs | MPR News

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Weather

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323 reindeer killed in lightning storm in Norway 3 hours ago

Steamy Monday: Gully washers north, metro storm chances 8 hours ago

Scattered t-storms northern MN overnight, steamy Monday 17 hours ago

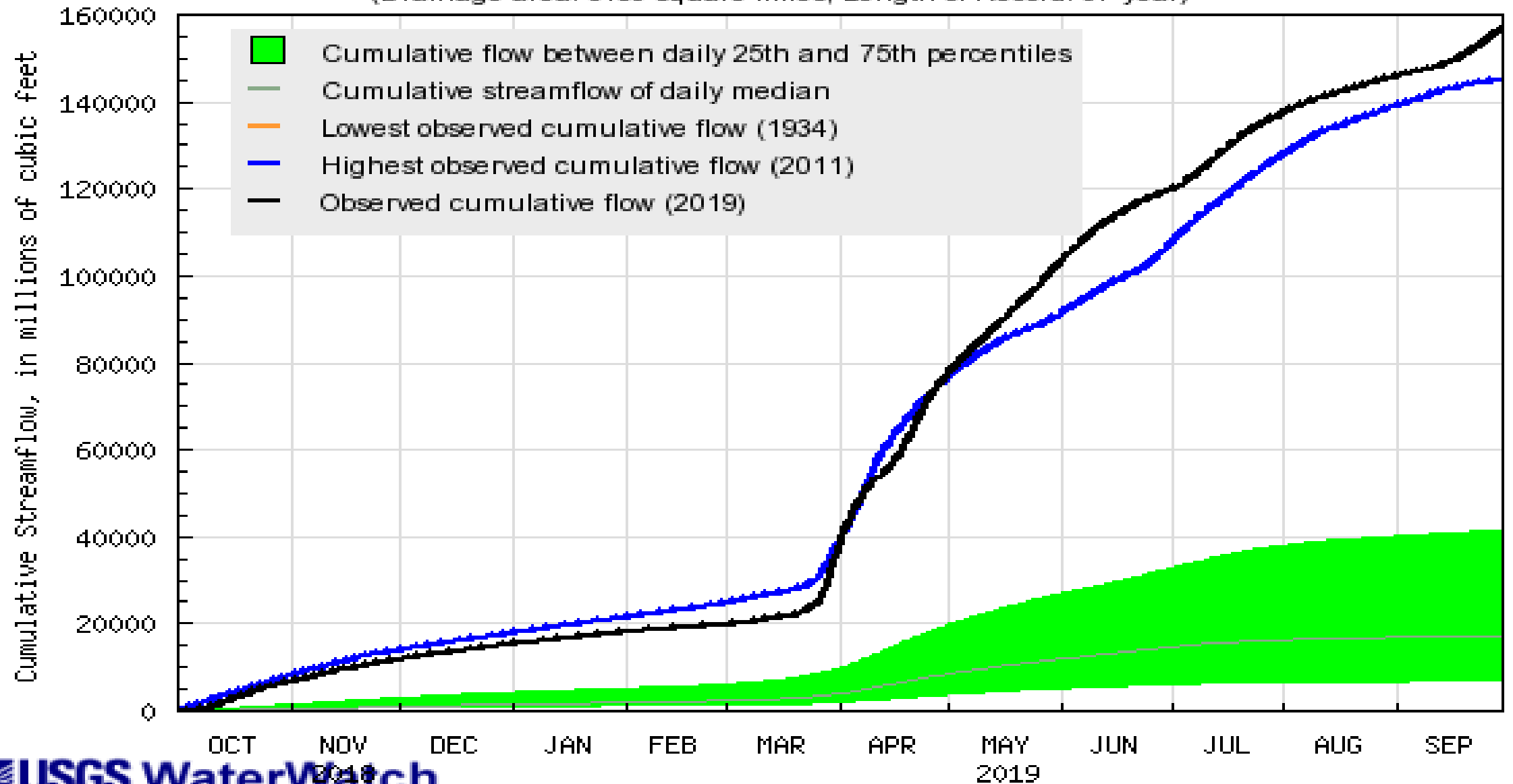
Warmer, with a chance of thunderstorms 1 day ago

More Weather >



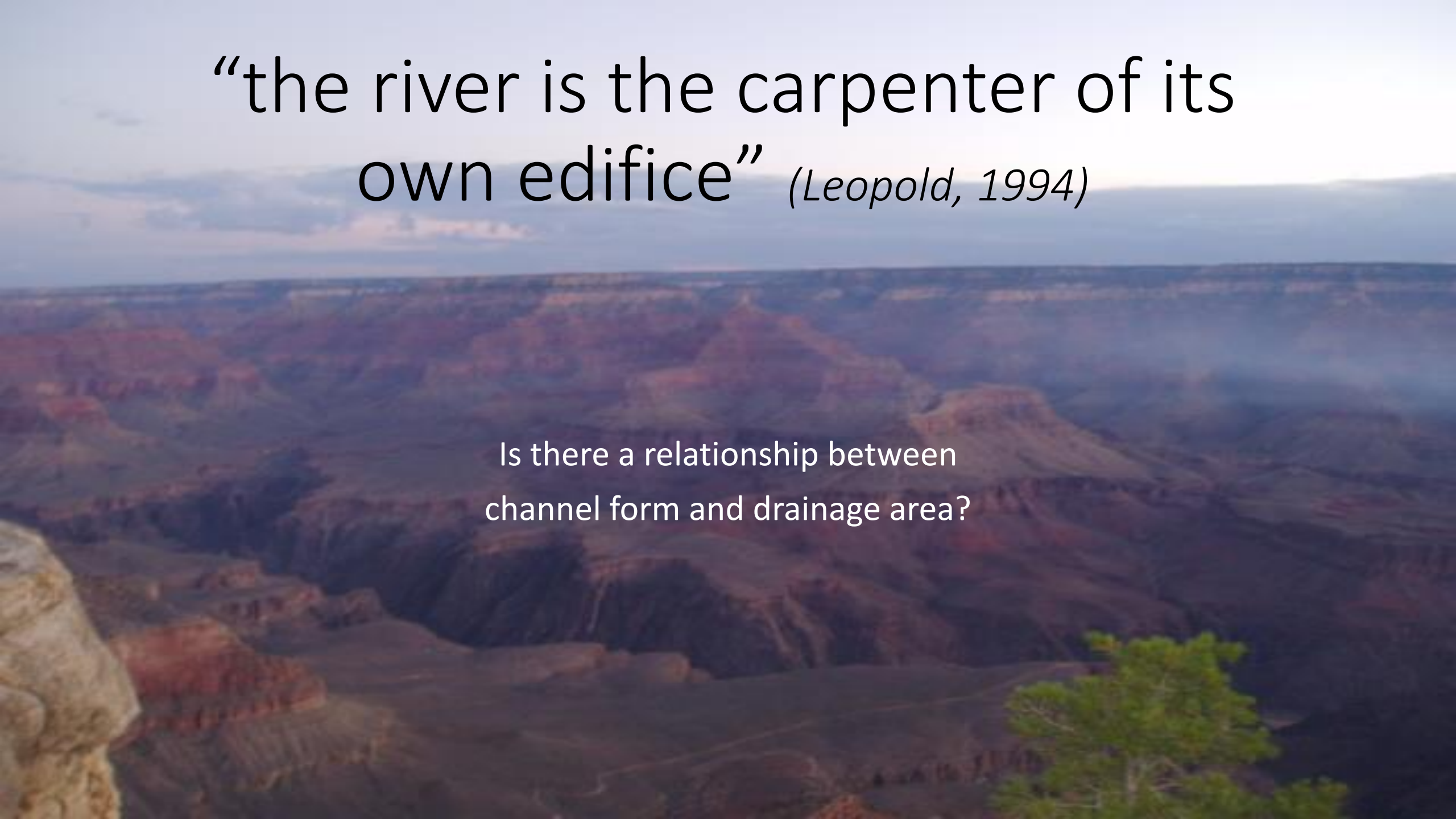
Long-Term USGS Gage Station -
Destroyed |

USGS 05311000 MINNESOTA RIVER AT MONTEVIDEO, MN
(Drainage area: 6180 square miles, Length of Record: 97 year)



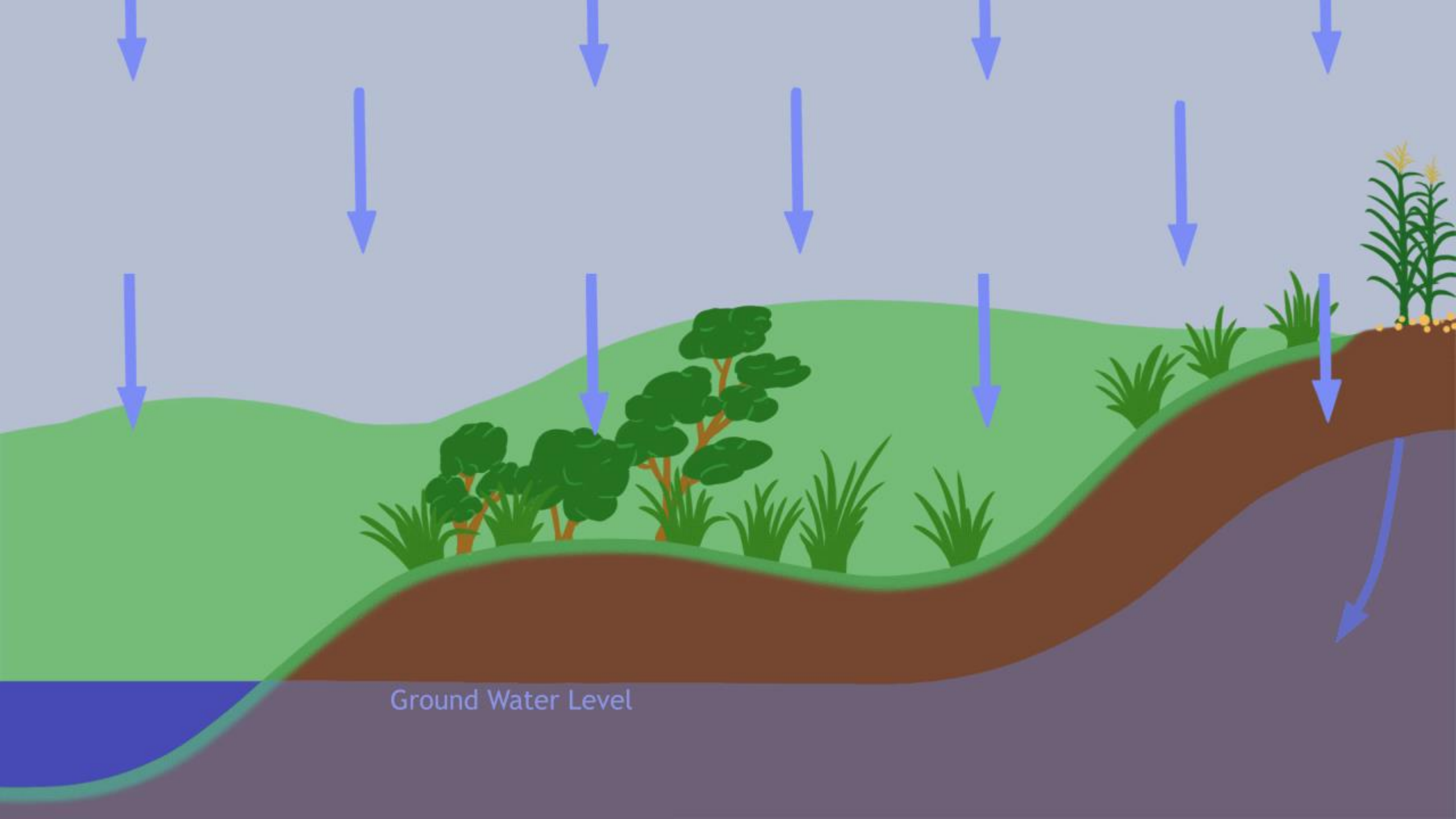
Channel Enlargement





“the river is the carpenter of its
own edifice” (*Leopold, 1994*)

Is there a relationship between
channel form and drainage area?



Ground Water Level

Riparian Cropland or Reclaimed Floodplain





Lift Station Technology

Emerging Drainage Trend:
High Nitrate Groundwater

High Nitrate Surface water
= Impaired Biota



Ground Water Discharge

Too Little Sediment, Too Much Water and
TOO MUCH NITRATE!



Questions