

# Where did that water come from—

*Mindful Connections: Rivers, Lakes, Groundwater Watersheds*

*Paul McGinley*

*University of WI-Stevens Point*





**Where did that water come from—**

*Mindful Connections: Rivers, Lakes, Groundwater Watersheds*

Lake





**River**



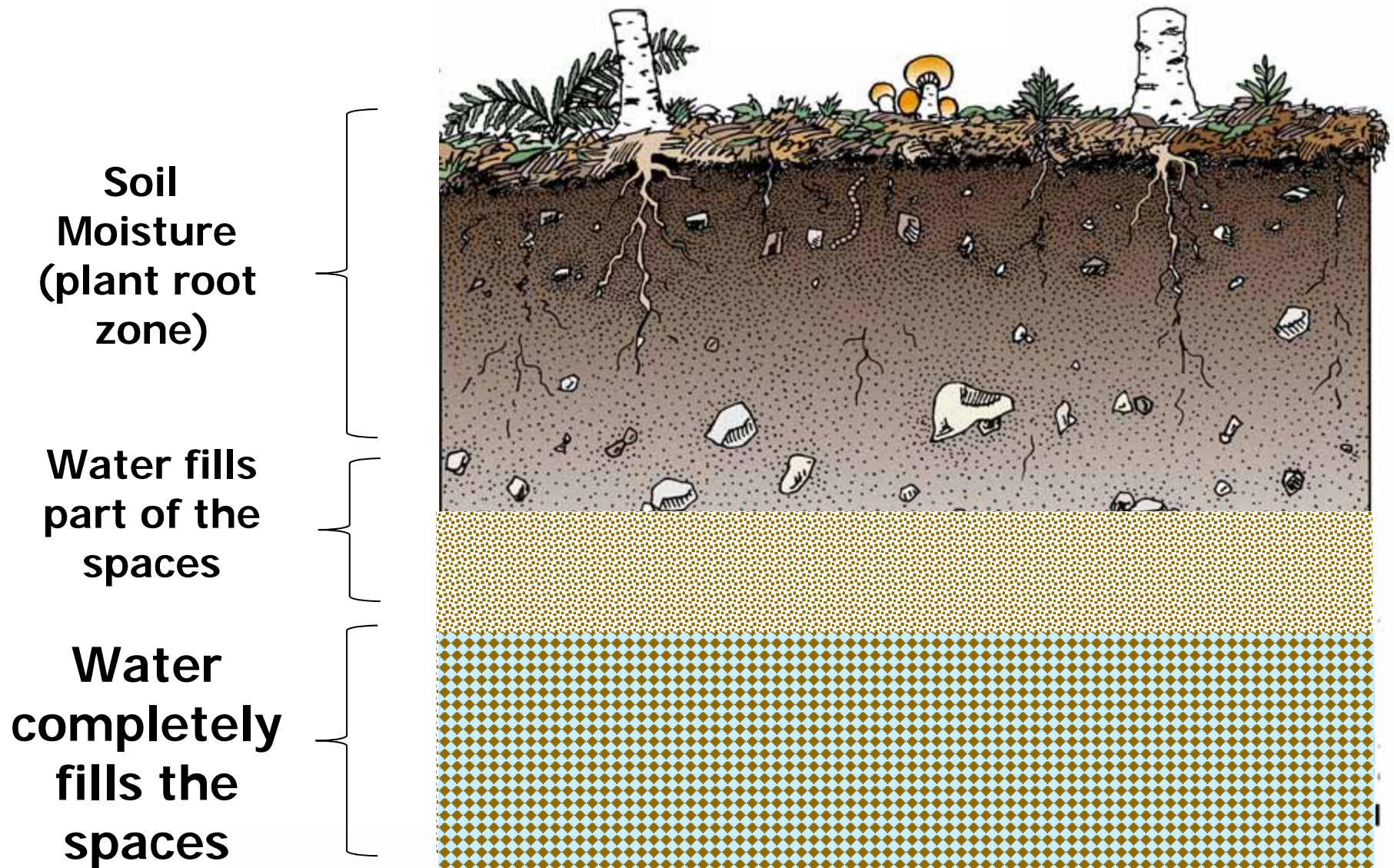


***This Morning--Water***

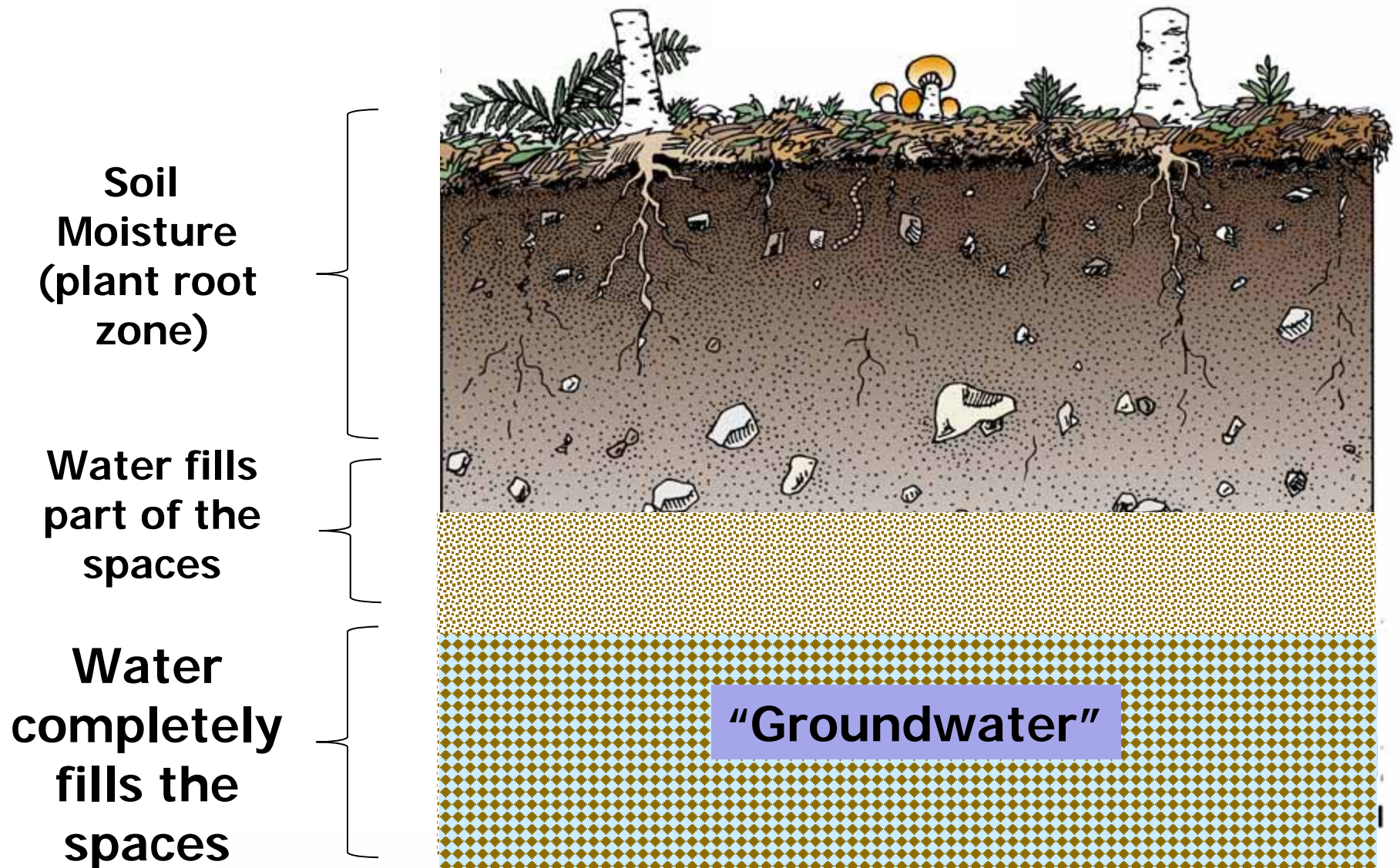
- ***How much?***
- ***Where does it come from?***
- ***Where is it going?***



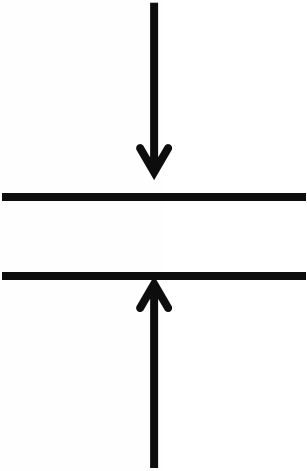
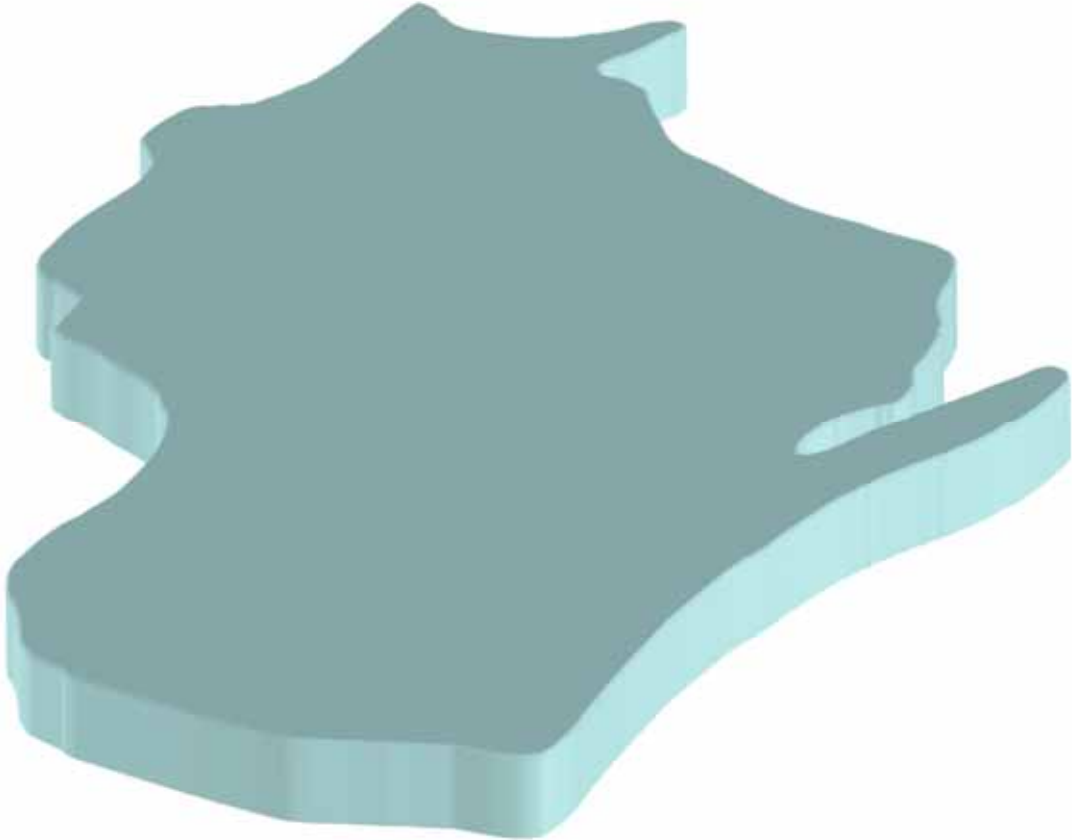
# Let's Introduce Groundwater



# Let's Introduce Groundwater

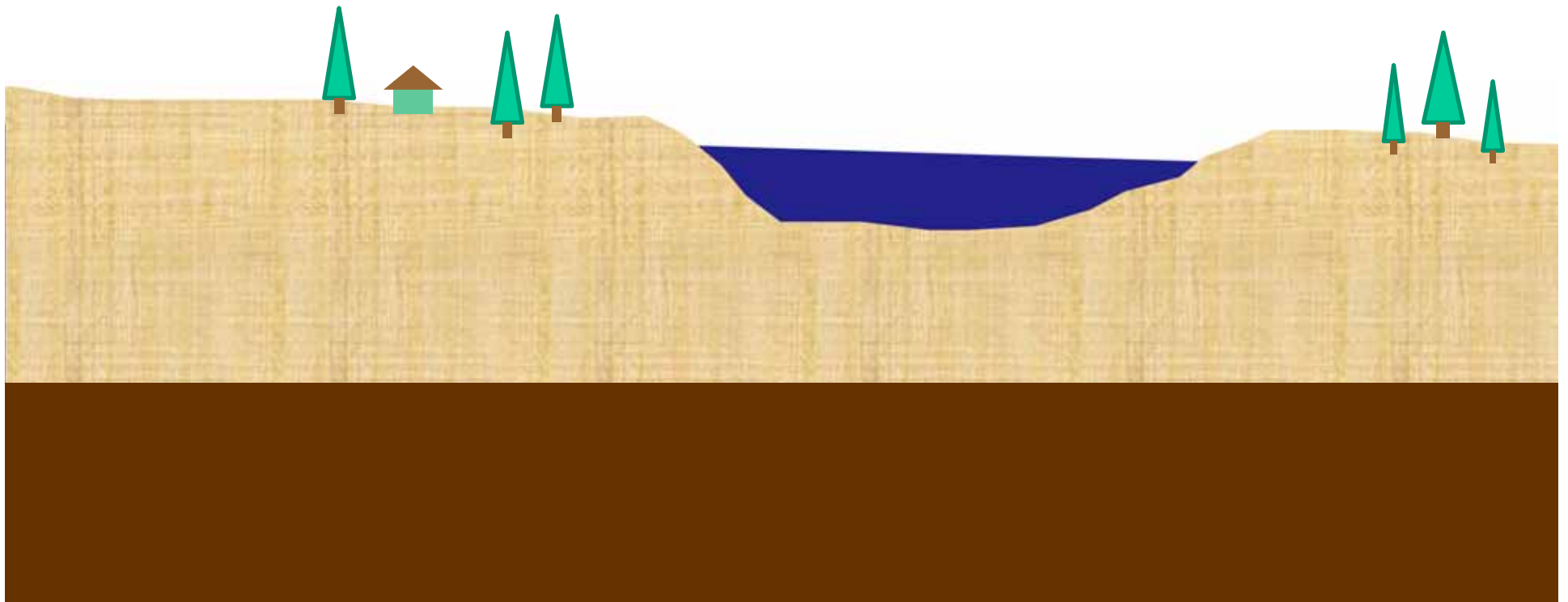


# Groundwater



100 feet?

**Lakes and Rivers ...allow us  
to “see” this groundwater**





*How much and where is it going?*



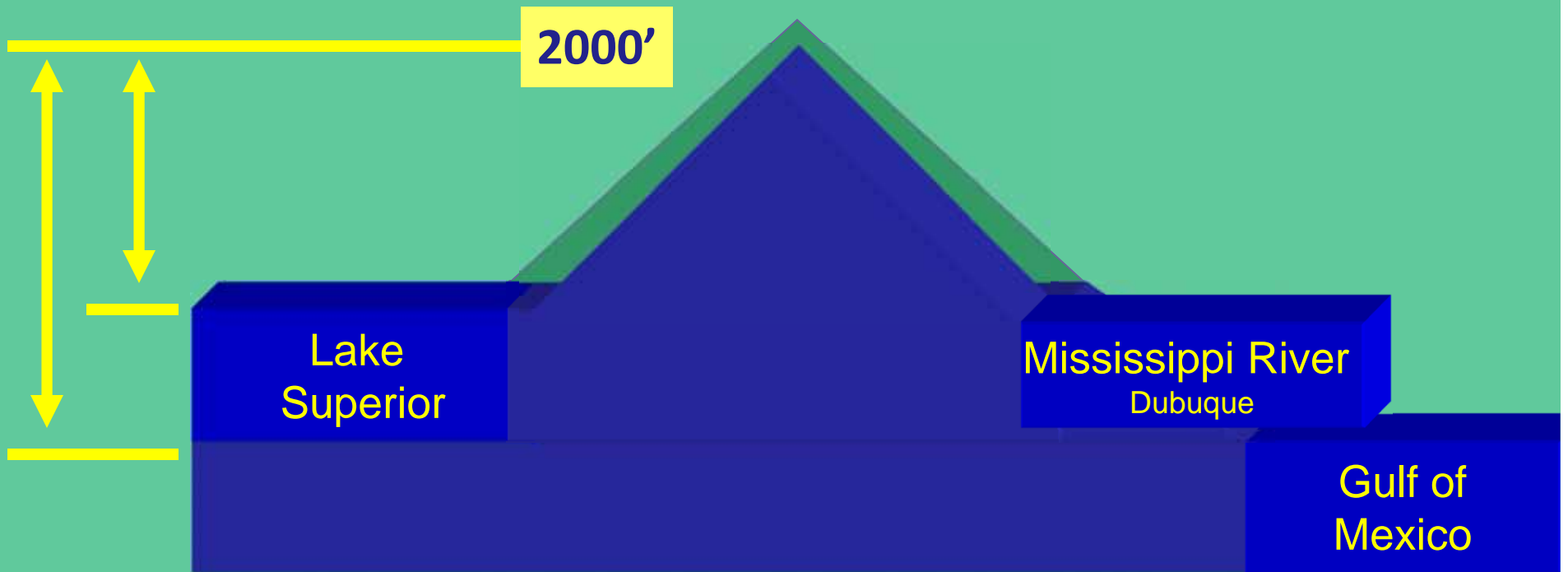
Greetings from  
Wisconsin...?

# WISCONSIN?

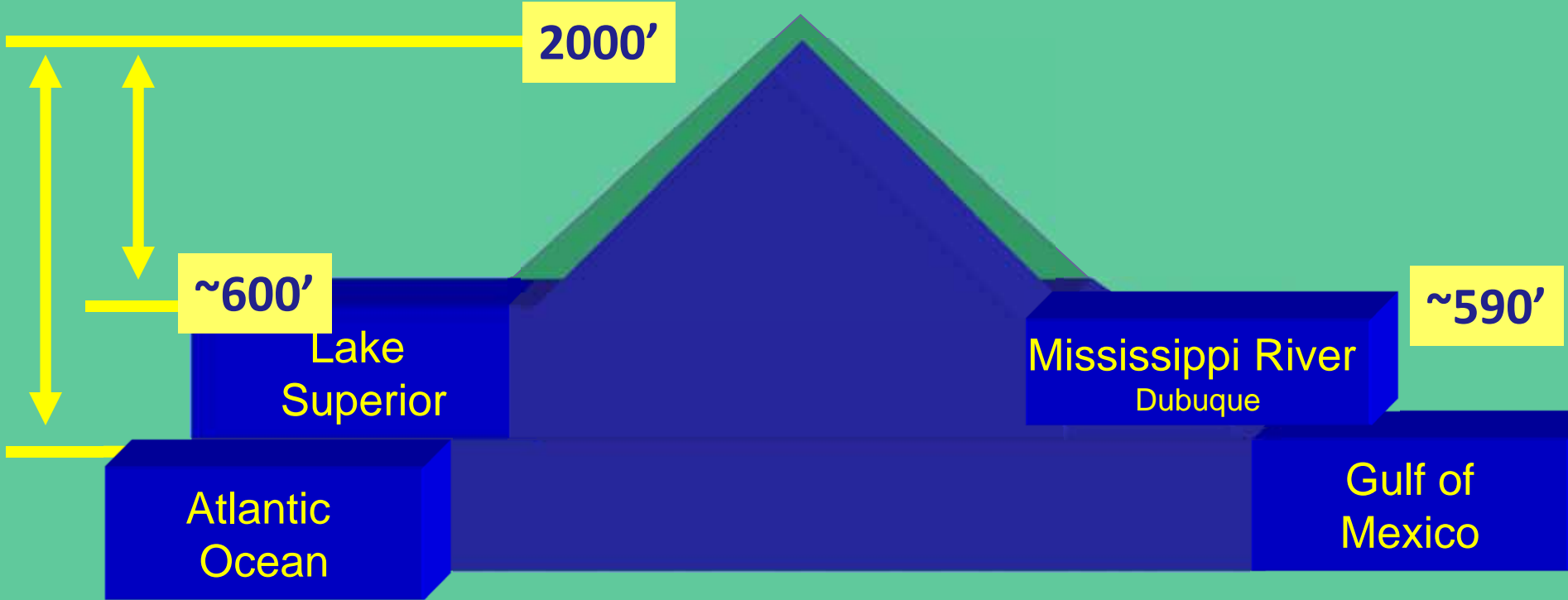




# WISCONSIN?

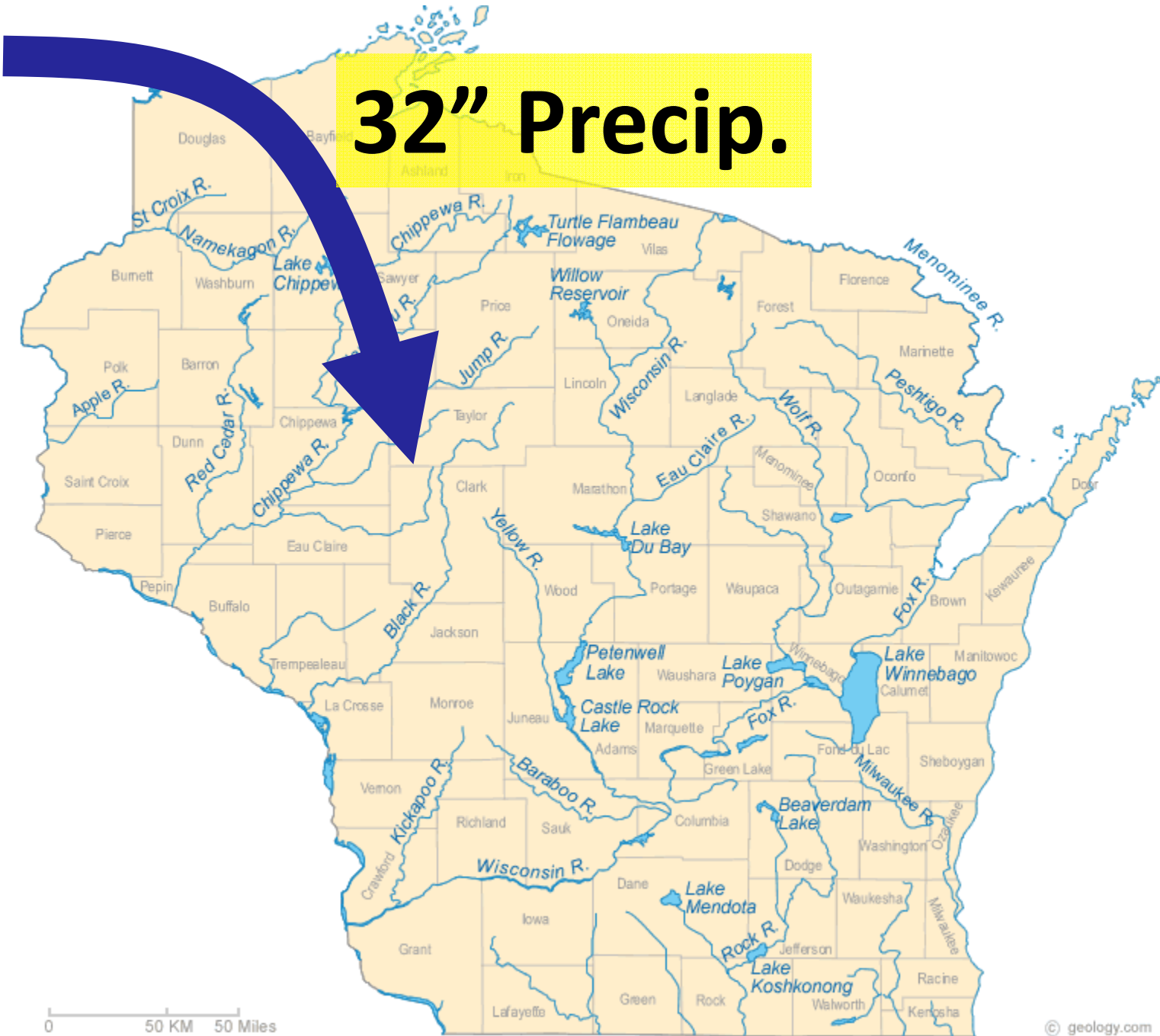


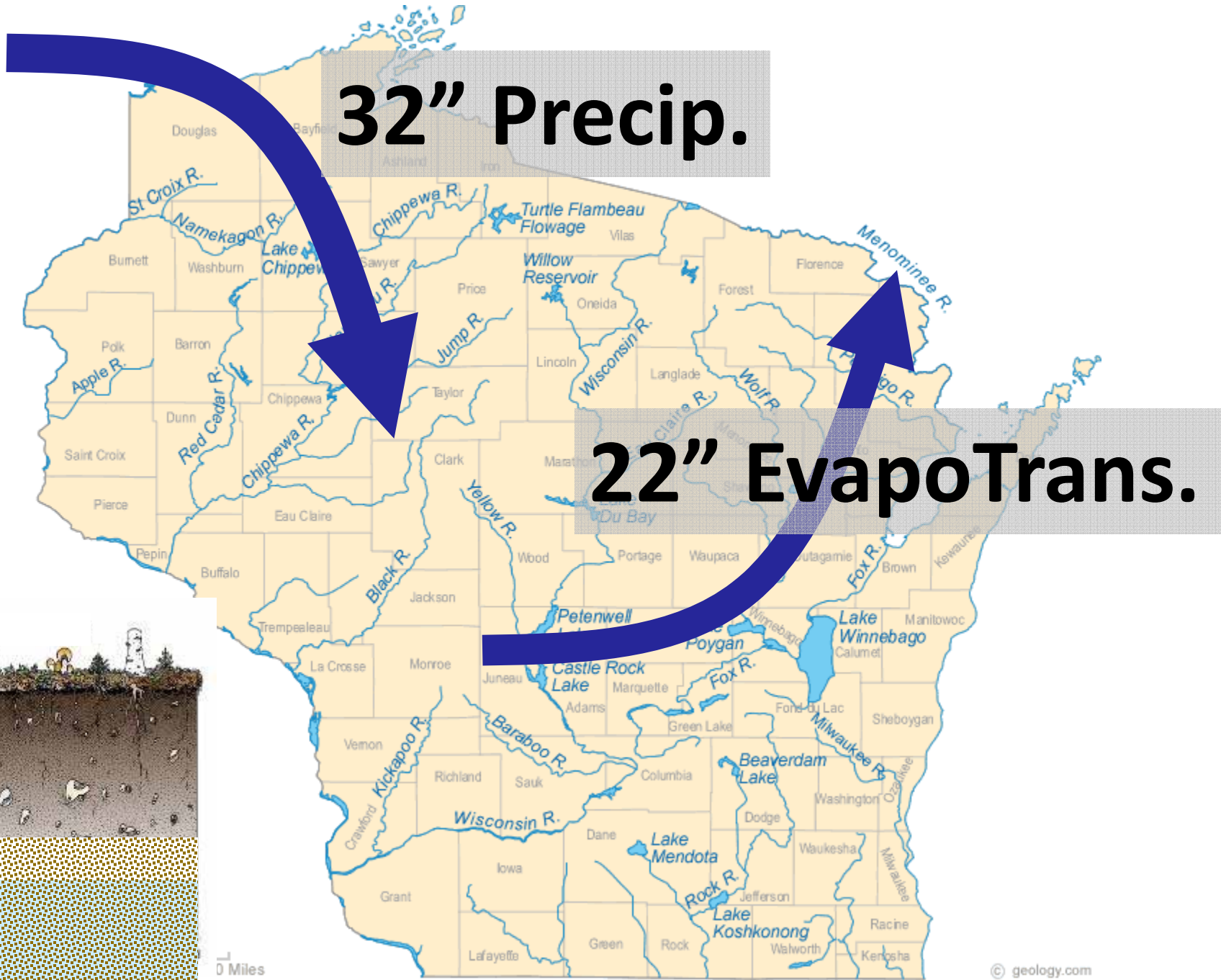
# WISCONSIN?



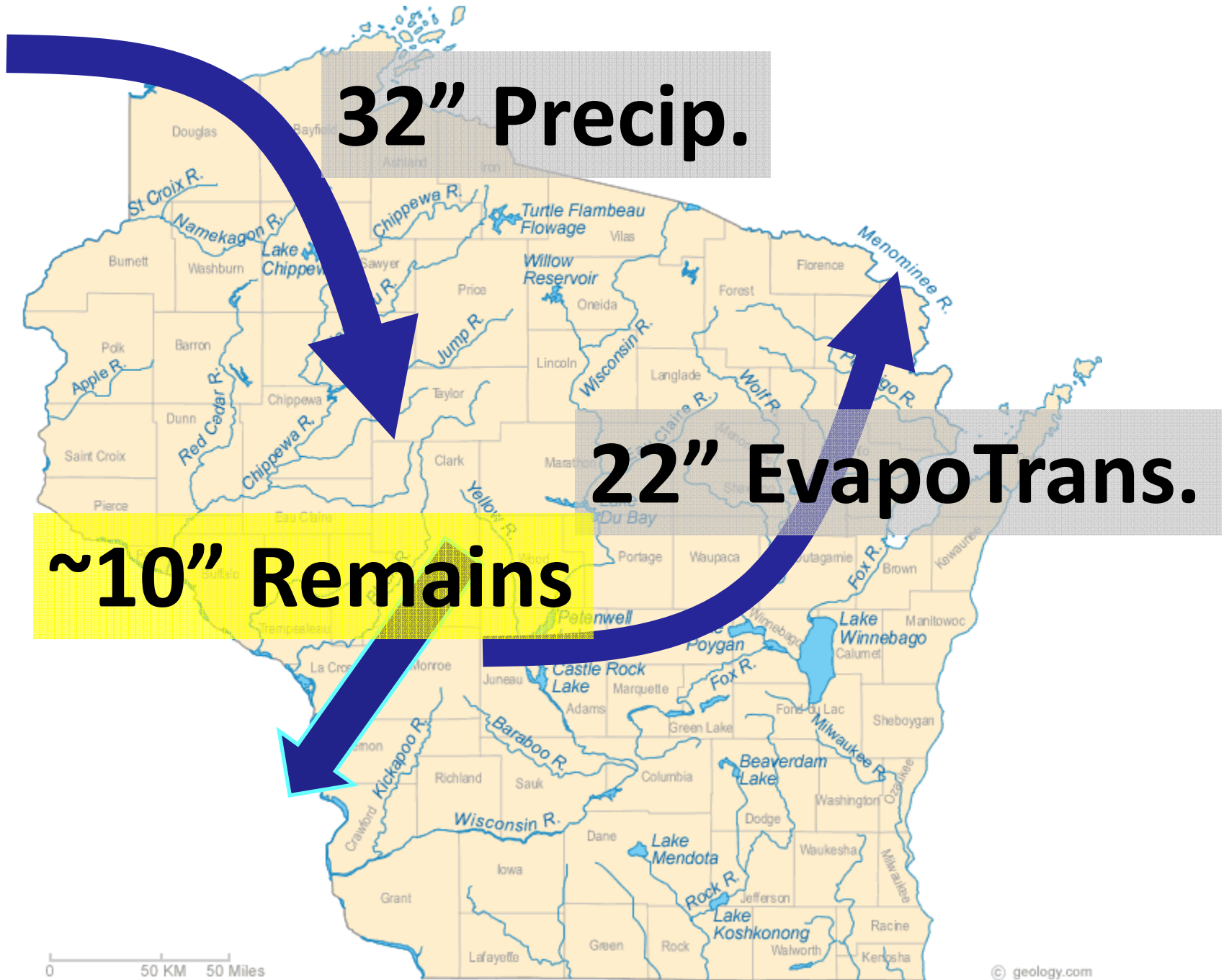


**32" Precip.**

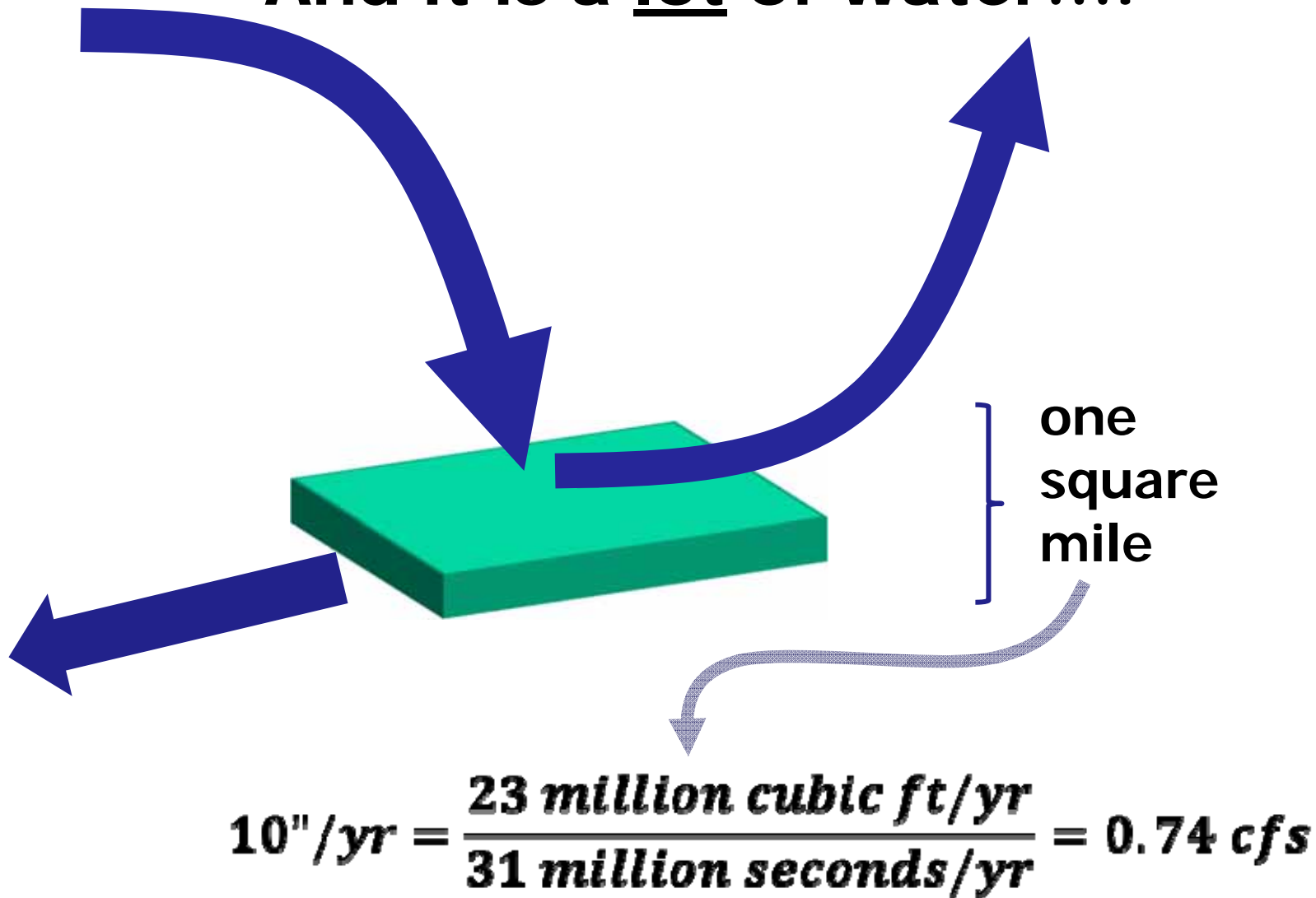




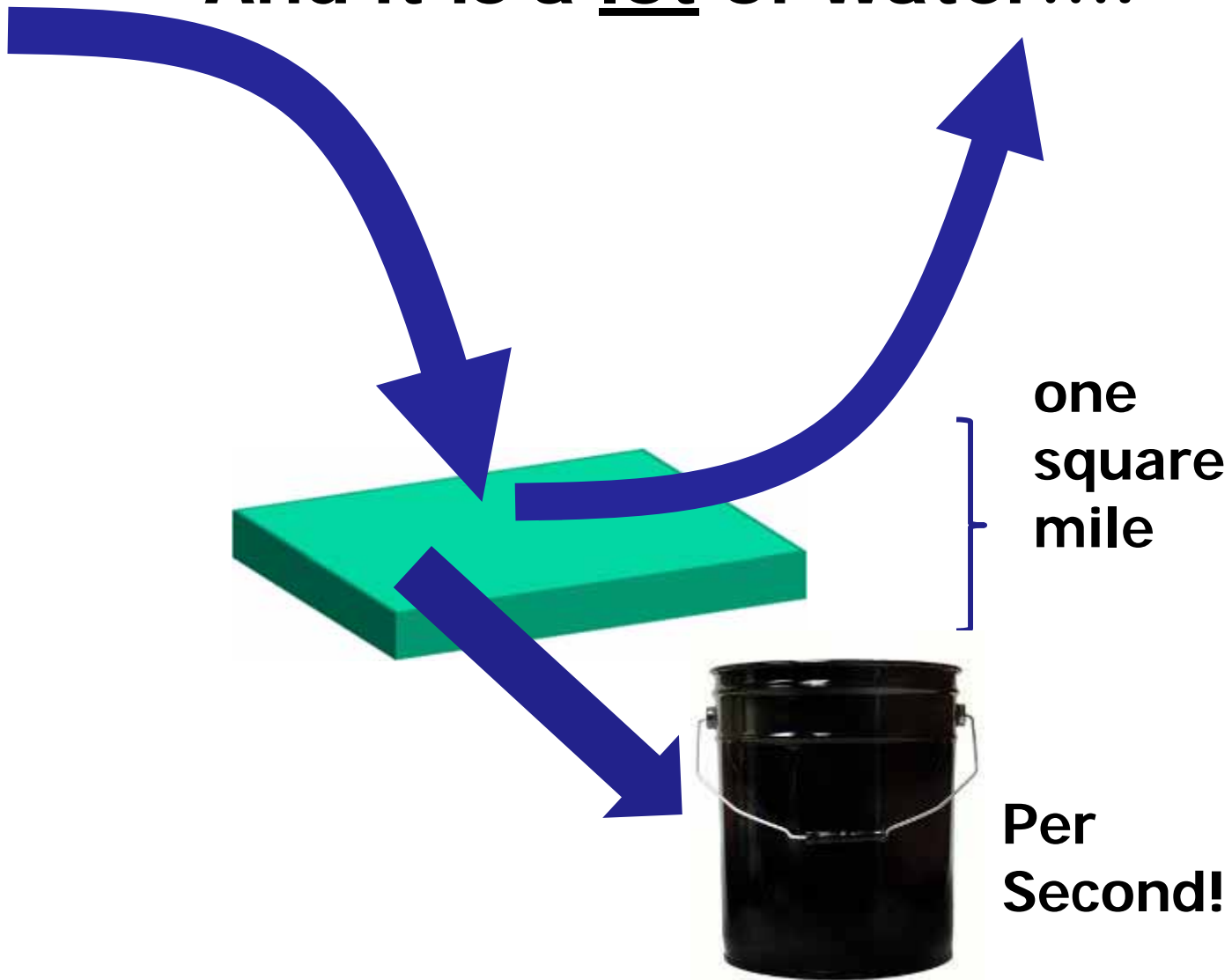




And it is a lot of water....



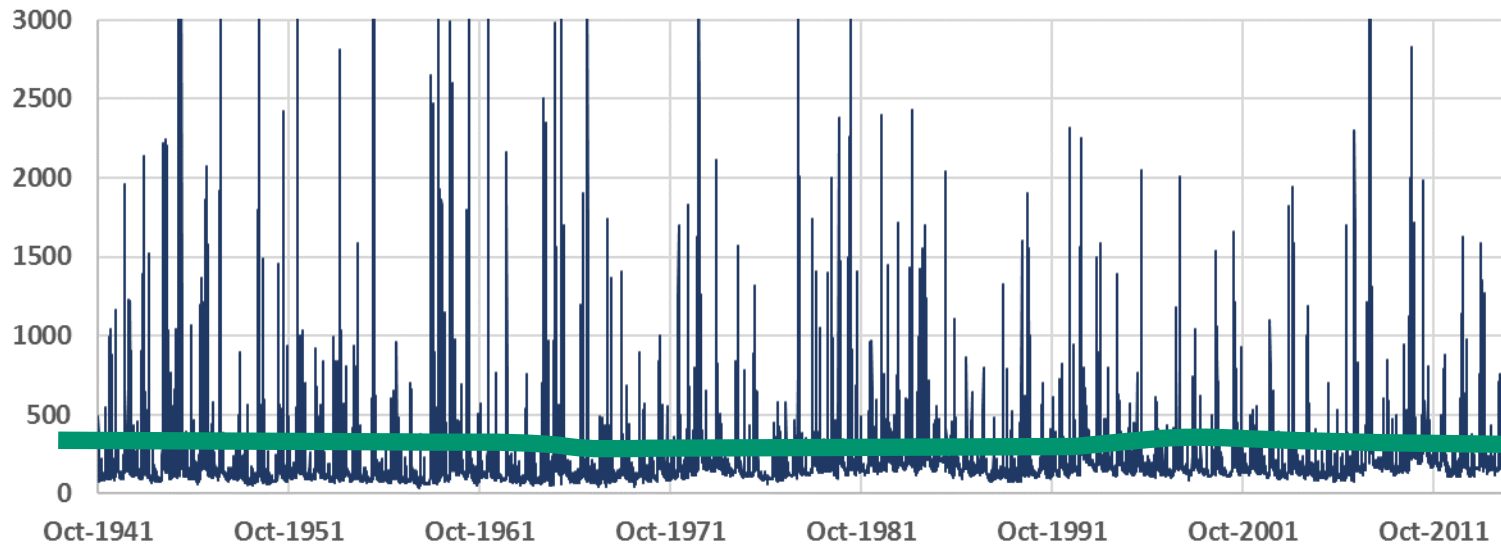
And it is a lot of water....





# Really?

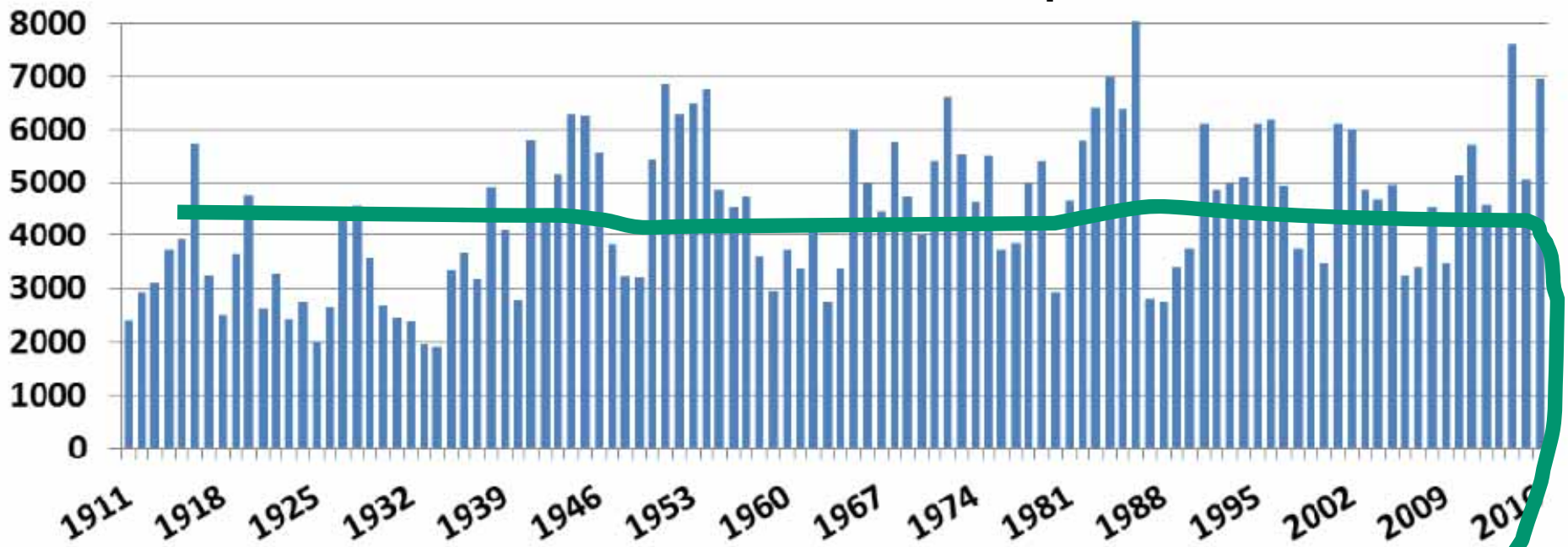
- **USGS KICKAPOOO R AT LA FARGE, WI**
- **DRAINAGE AREA.--266 square miles.**



**Average flow ~186 cubic feet per second**

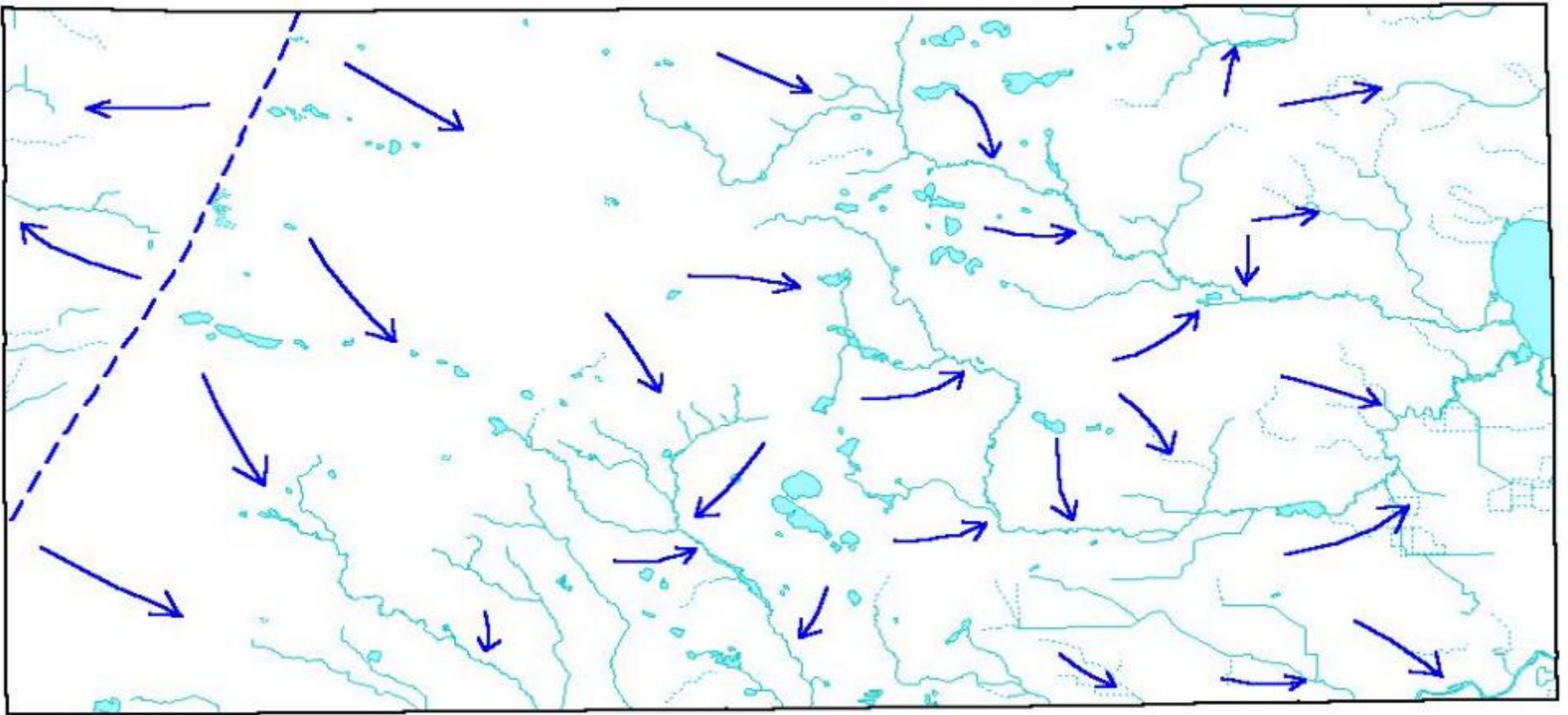
# Really?

- **USGS 05340500 ST. CROIX RIVER AT ST. CROIX FALLS, WI**
- **DRAINAGE AREA.**—6,240 square miles.



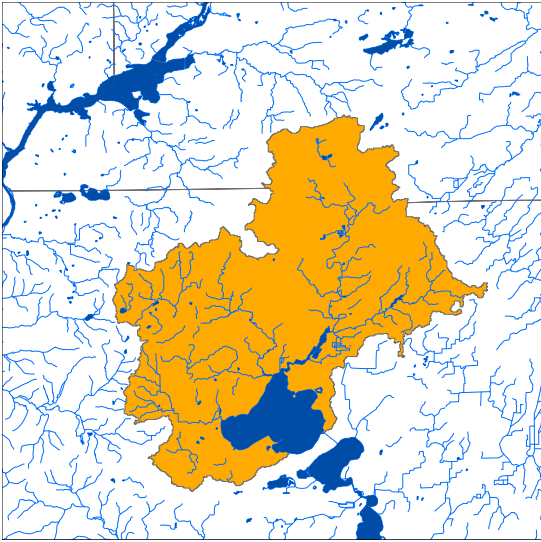
**Average flow ~4,432 cubic feet per second**

# Following the Water ...at your lake

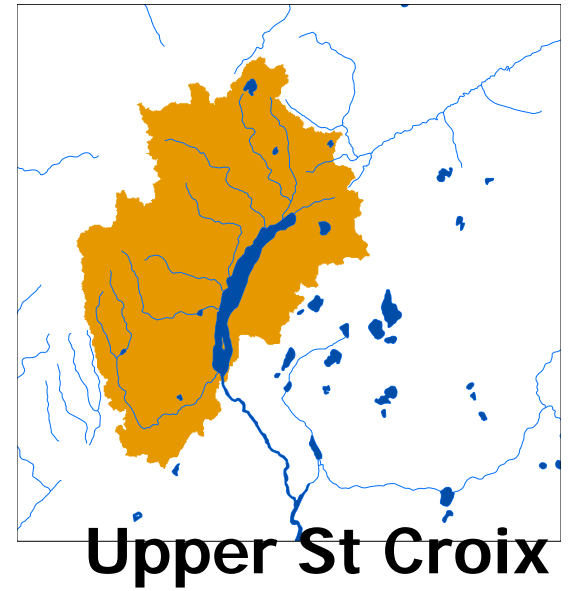




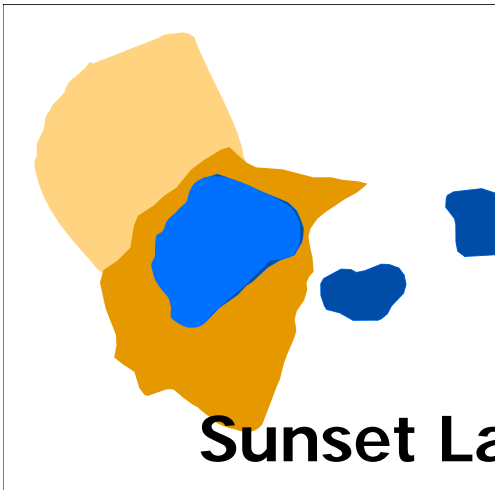
# Lakes have “WATERSHEDS”



**Lake Mendota**



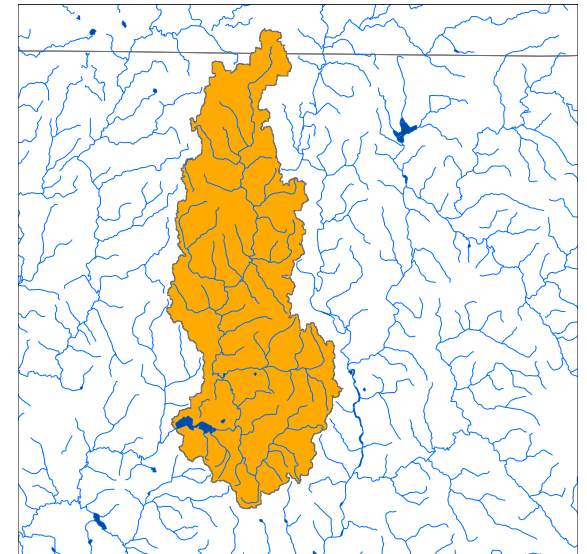
**Upper St Croix**



**Sunset Lake**



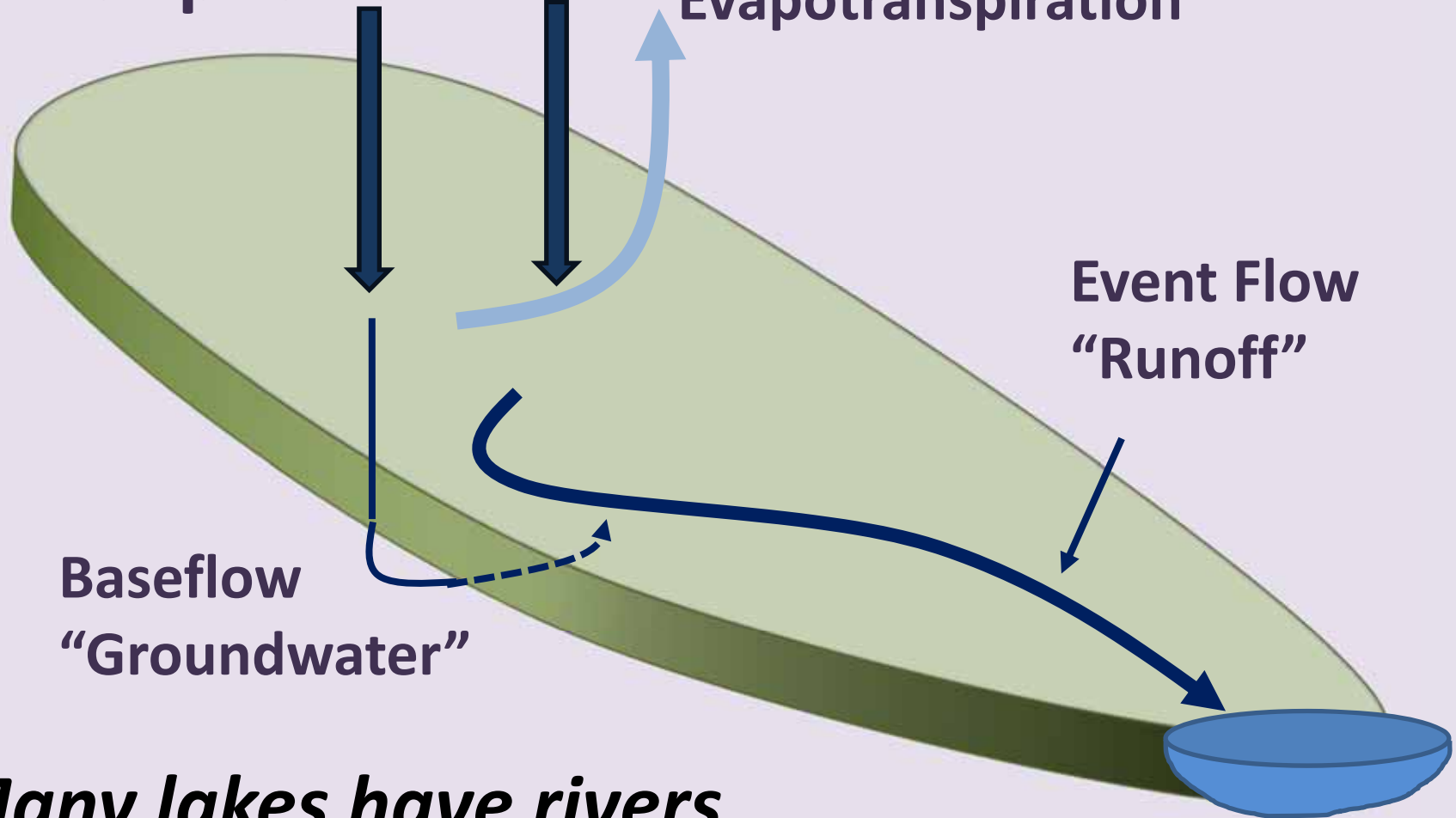
**Clark Lake**



**Mead Lake**

**Precipitation**

**Evapotranspiration**

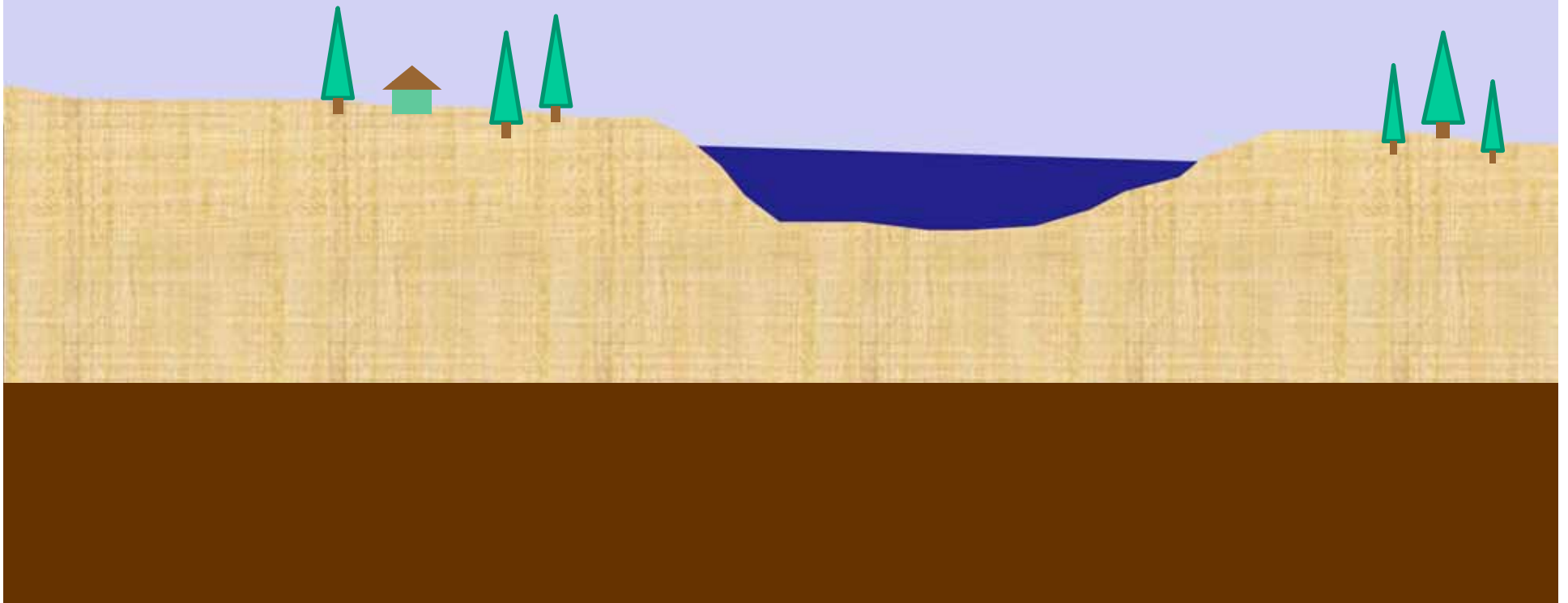


**Event Flow  
"Runoff"**

**Baseflow  
"Groundwater"**

***Many lakes have rivers  
Groundwater (& runoff) flows to the river..  
The river conveys water to the lake***

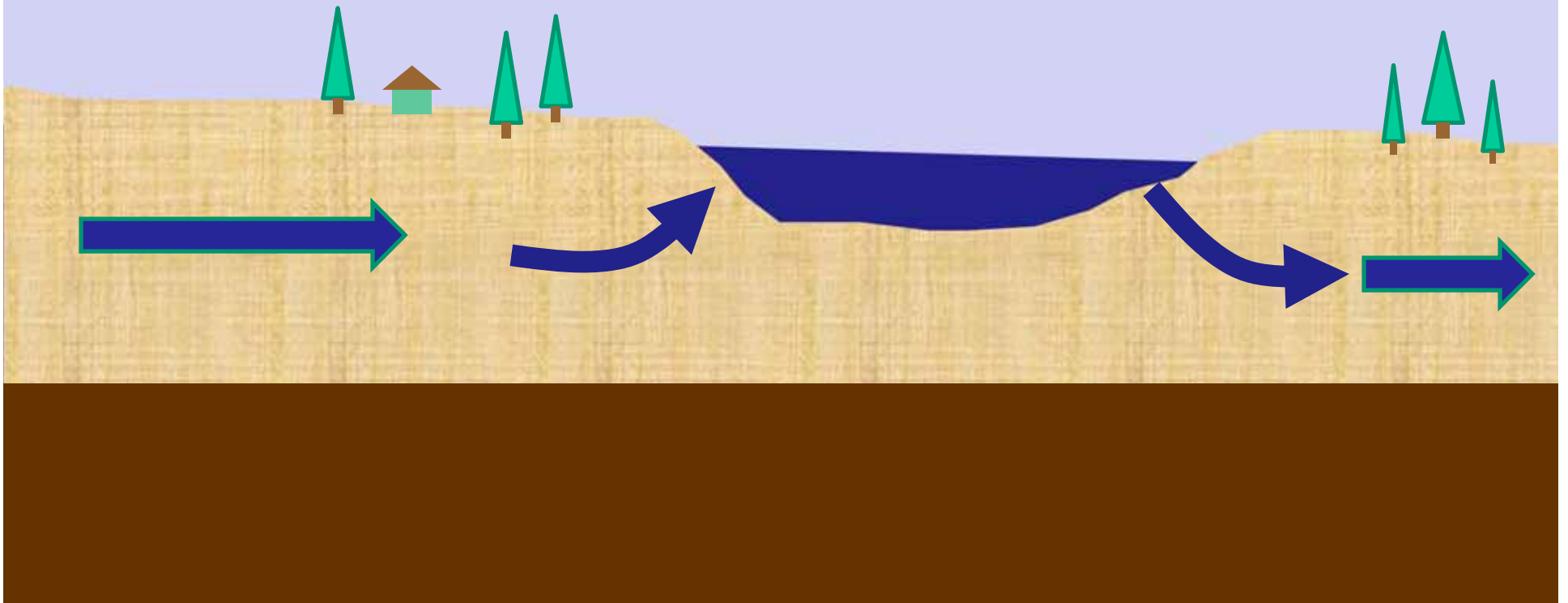
*Lakes also have groundwater  
entering the lake*

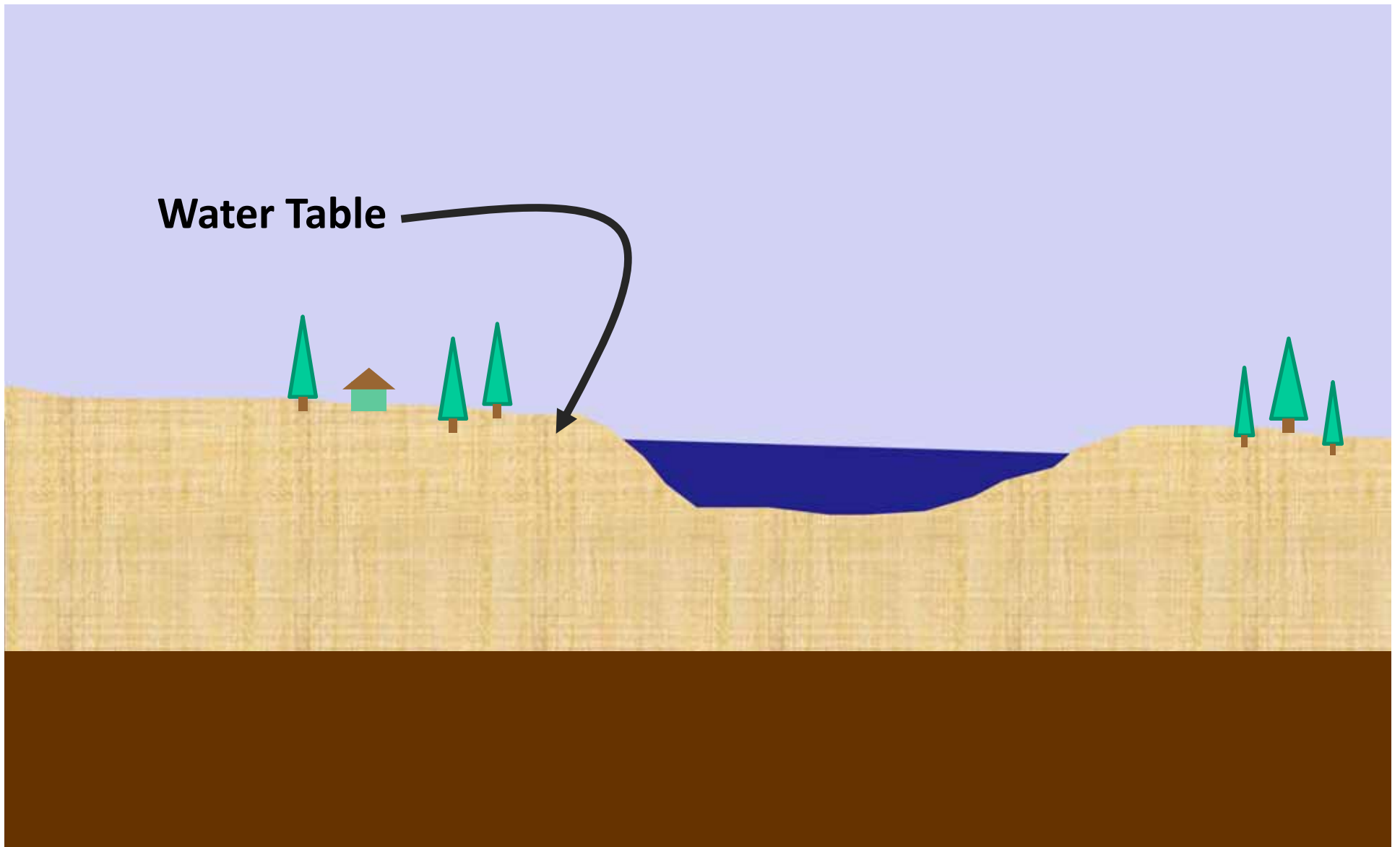


**If it's an important part of the overall water  
total...See page "spring-fed" Lake**



**The groundwater flows downhill  
.... flows through the lake  
.... and eventually drains to streams**



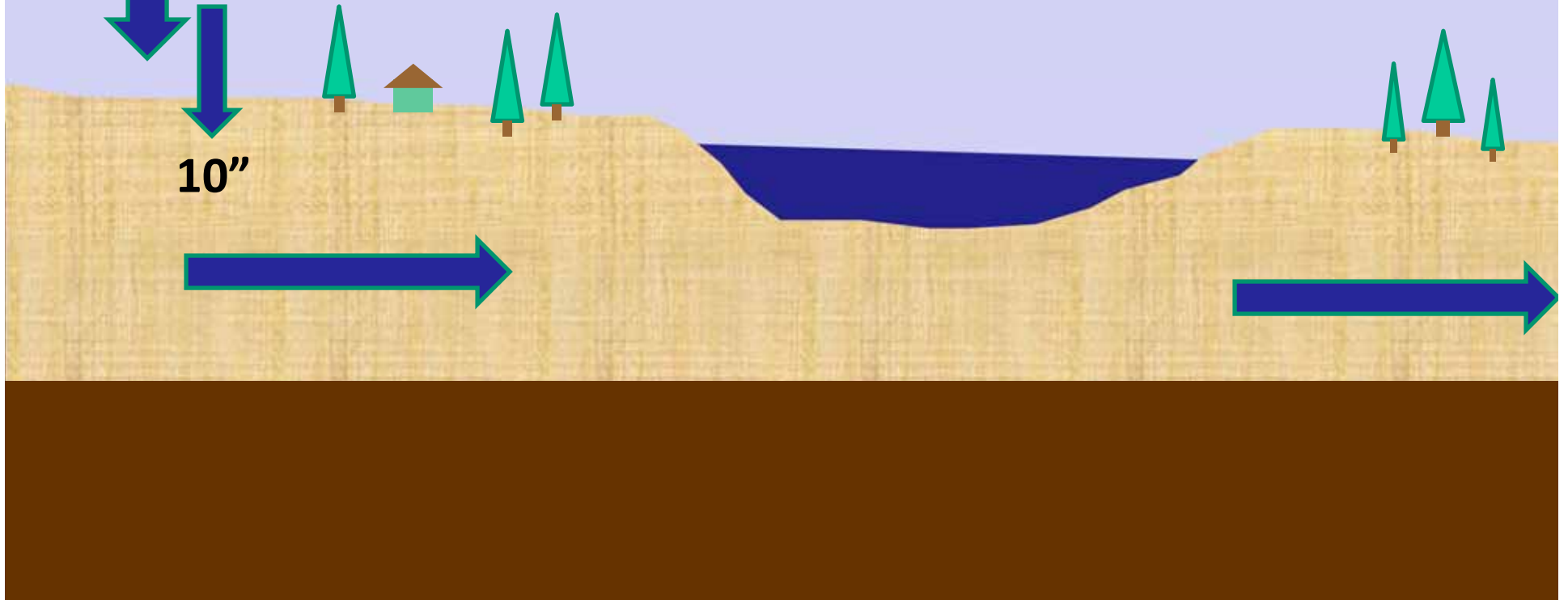


**Water Table**

**Seepage lakes reflect the groundwater level**

32"  
22"  
10"

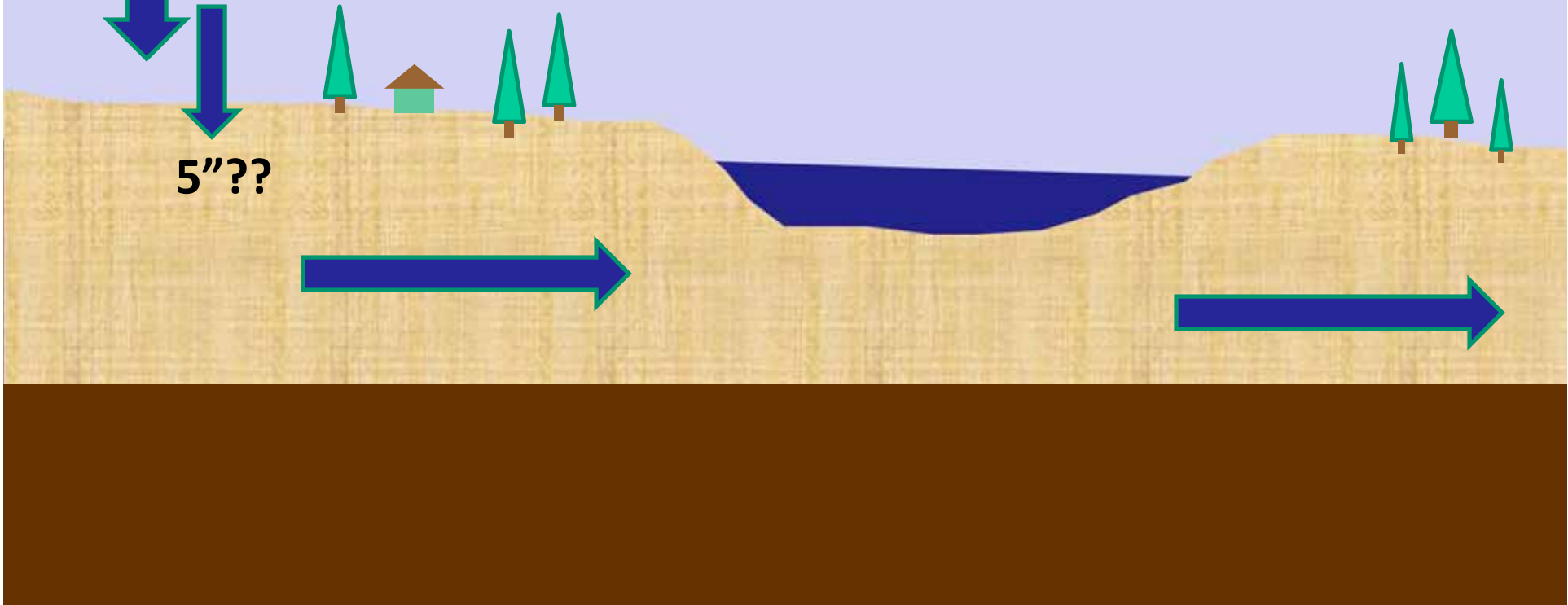
**New water added...  
And water flows out...**





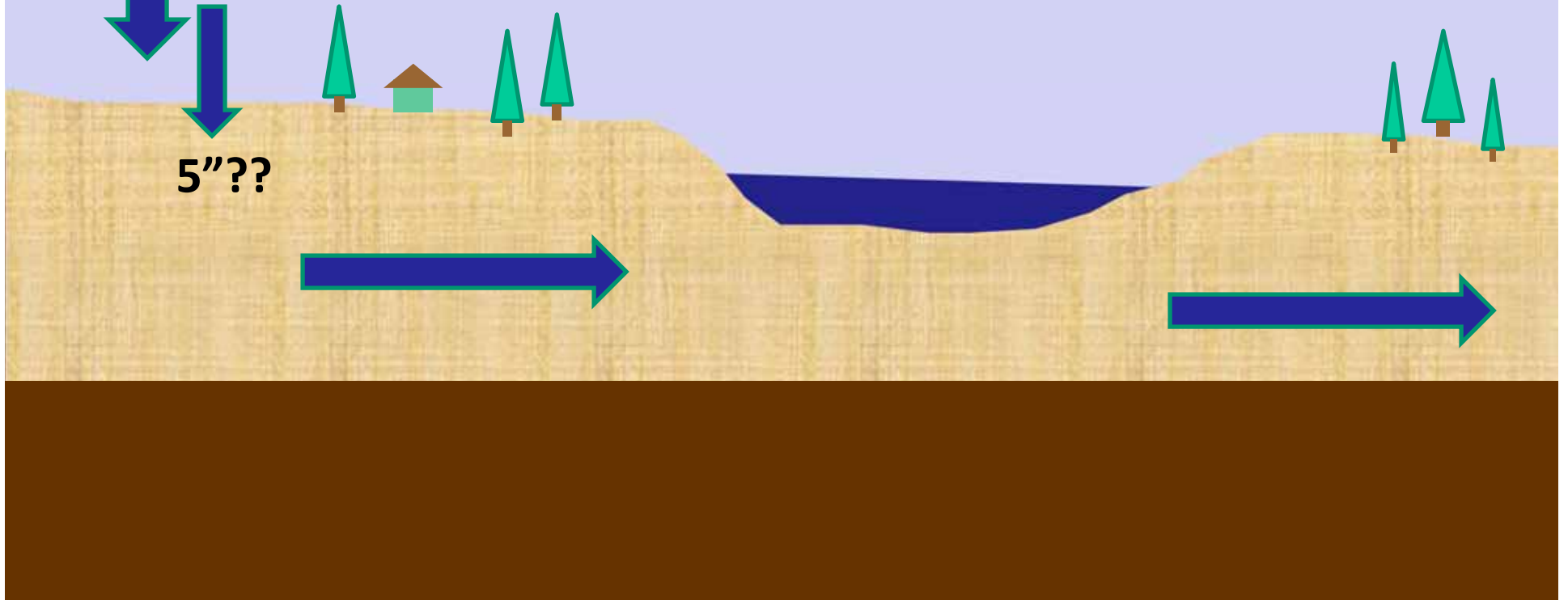
25"  
20"  
5"??

What if you get less precipitation?



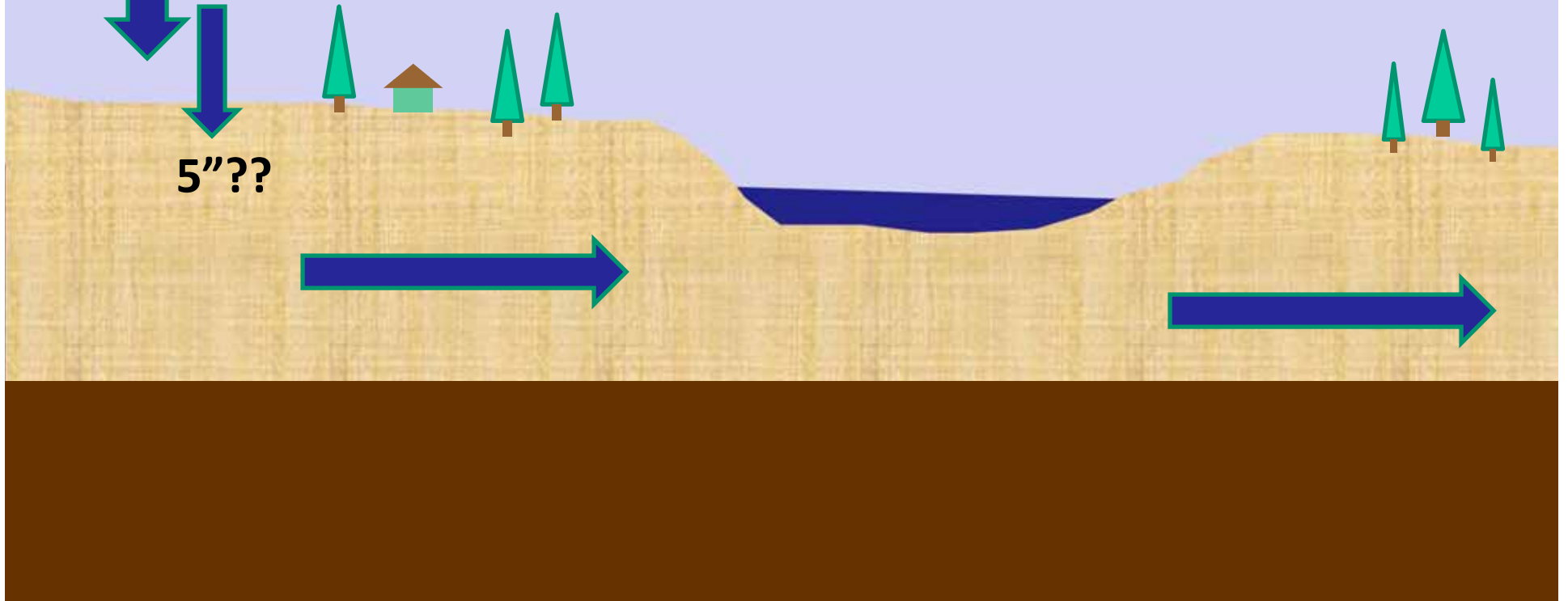
25"  
20"  
5"??

What if you get less precipitation?



25"  
20"  
5"??

What if you get less precipitation?

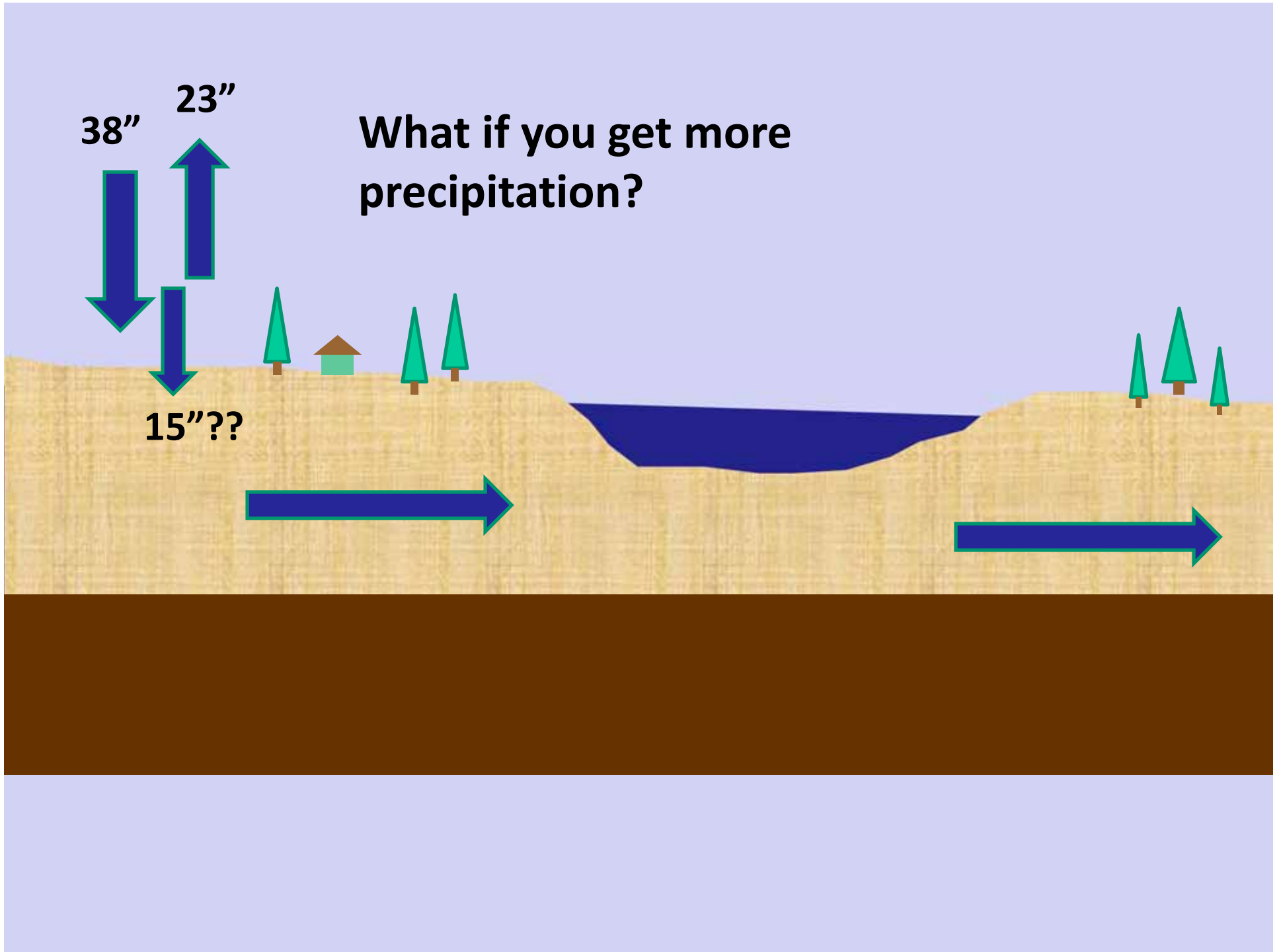




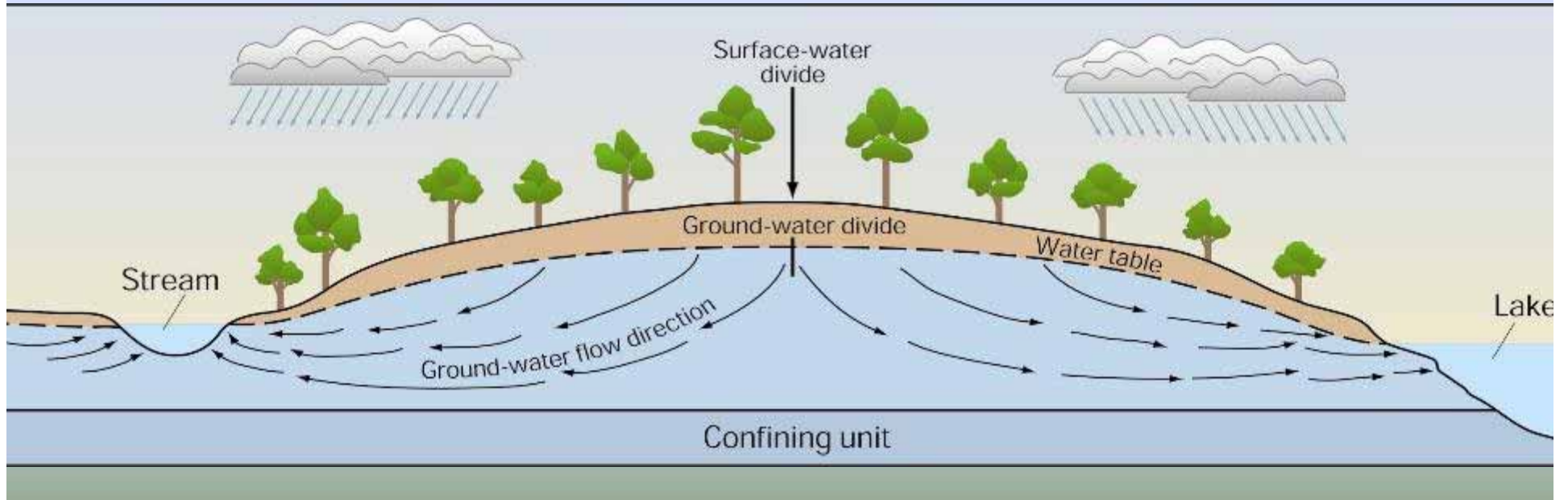
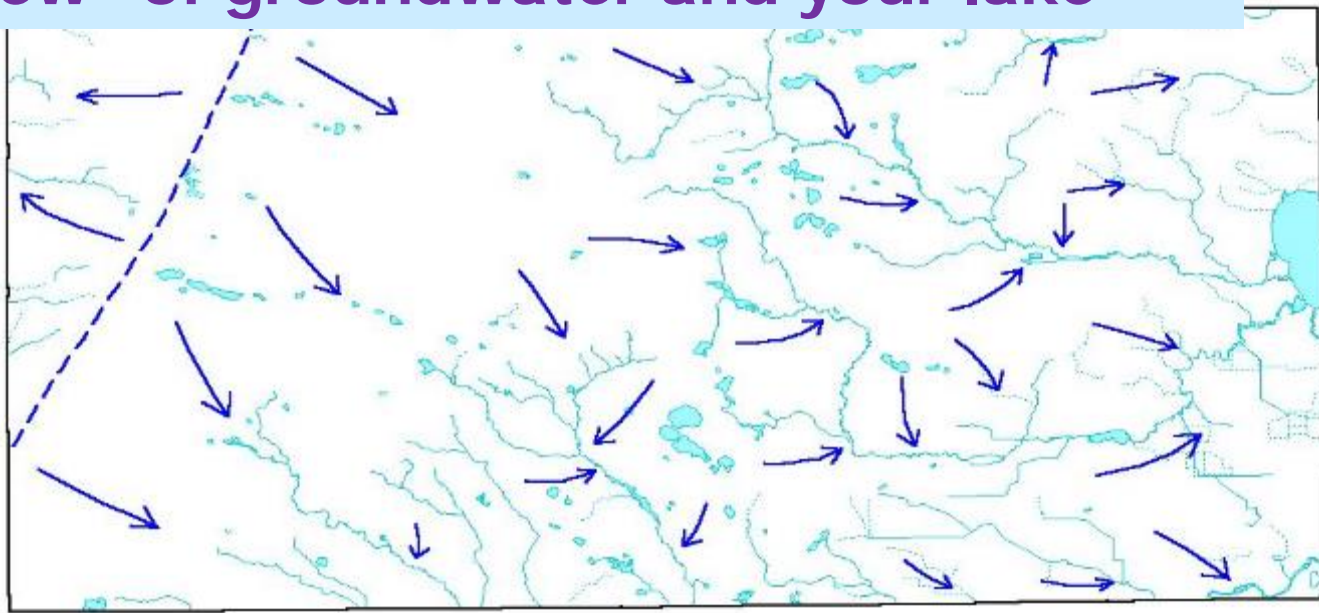
38"  
23"

What if you get more precipitation?

15"??



# Finally– Let's compare the "map" and the "side view" of groundwater and your lake

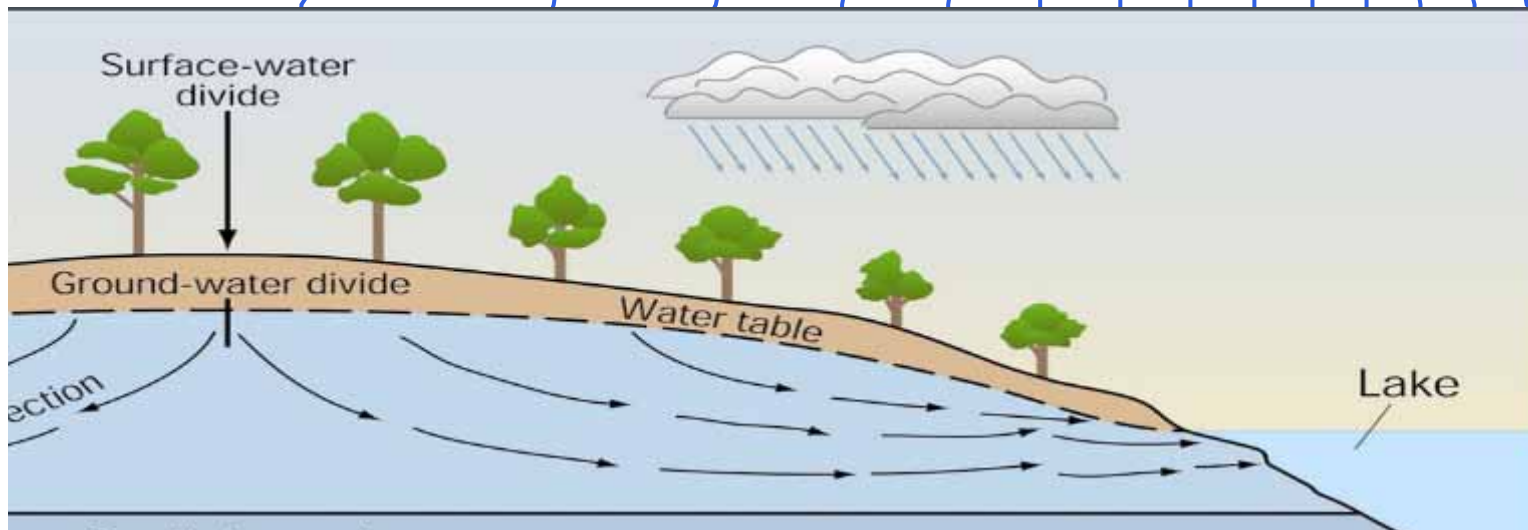
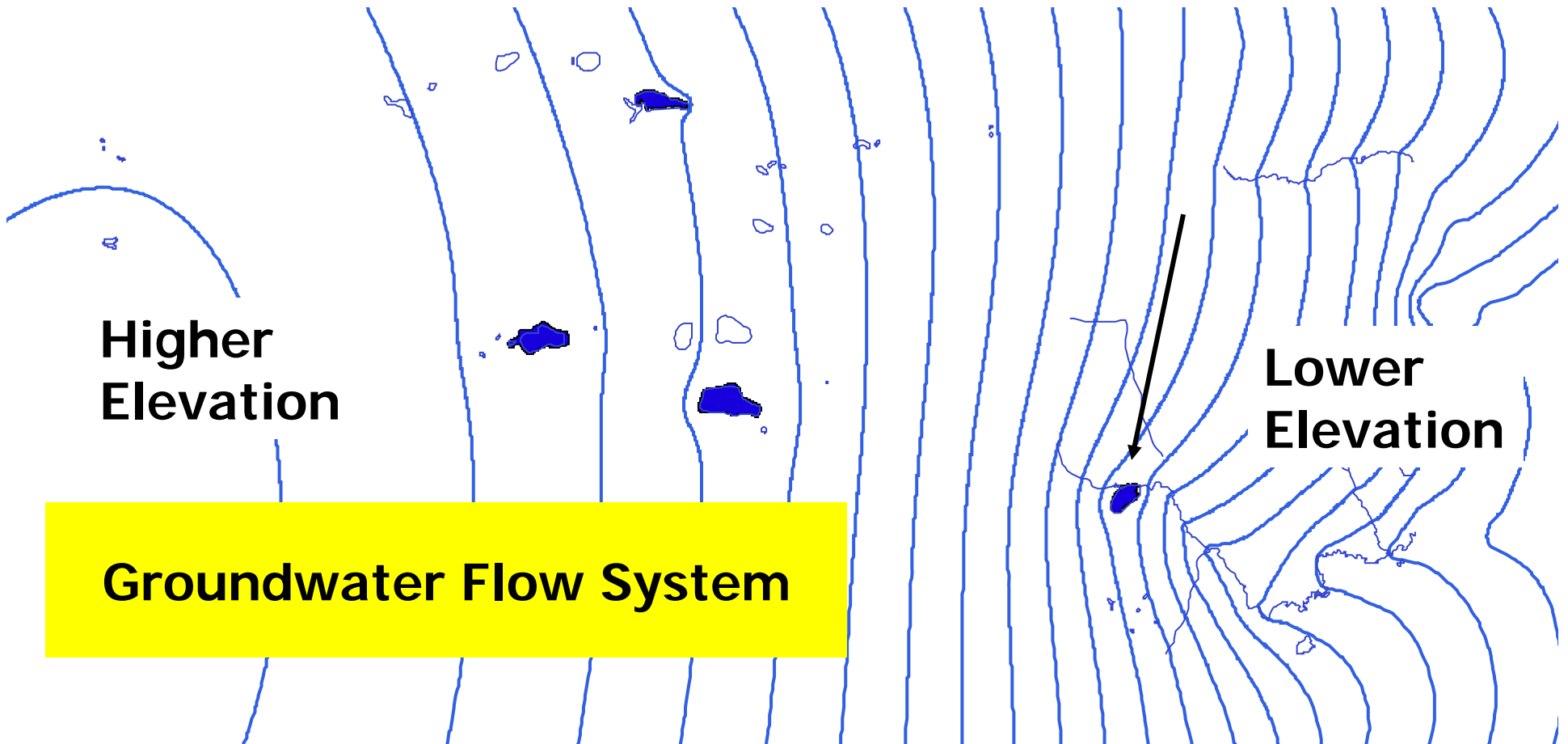




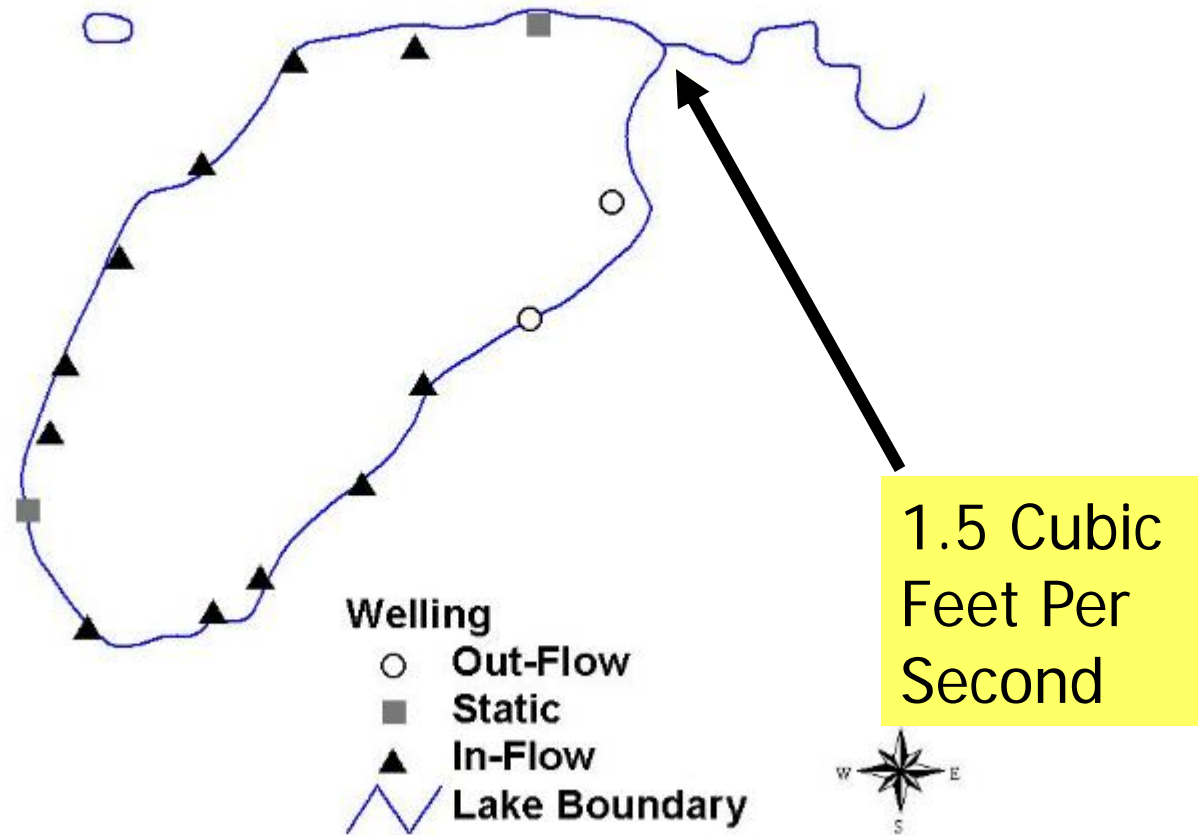
**Connecting your lake to the water table**

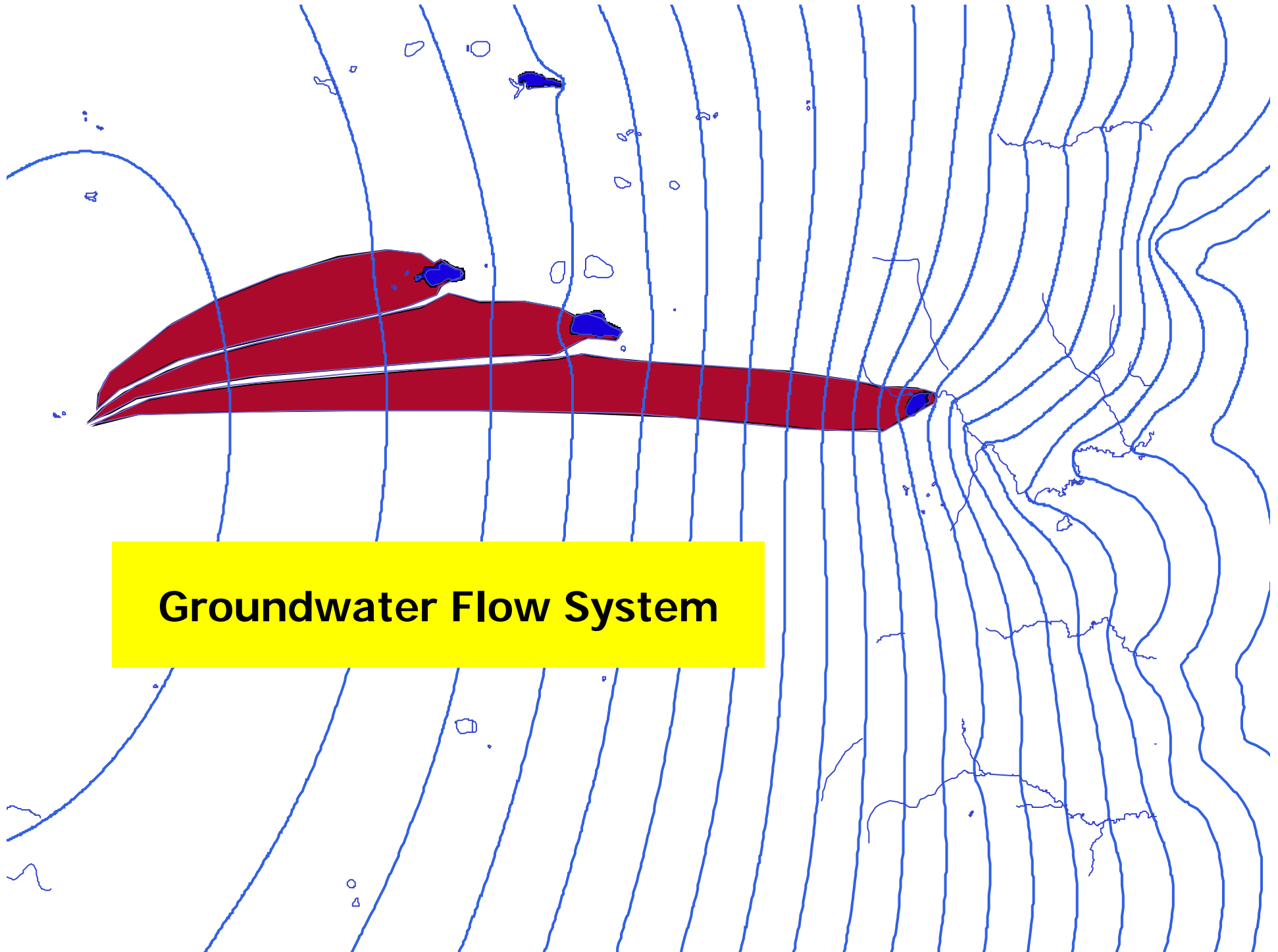
**The "Groundwatershed"**





# Fountain Lake





**Groundwater Flow System**



# Summary

- Following the water through Wisconsin
  - Precipitation-Evapotranspiration
  - It's all "downhill"
- The "topography" of the groundwater and how that drains to your lake
- For more information
  - Paul McGinley, UW-Stevens Point
  - (715) 346-4501