## Teach Engineering

MOSQUITOS (SUCKING THE FUN OUT OF SUMMER): HYDROLOGY POWERPOINT









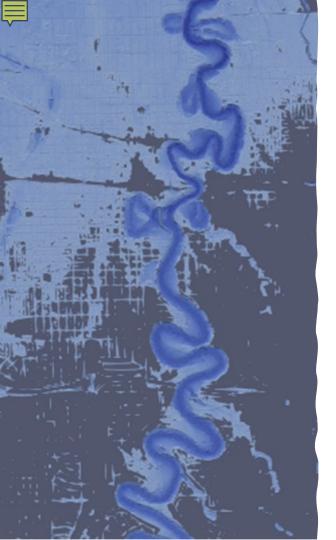






### What is hydrology?

- Hydrology is the study of water's movements, and how those movements affect the land surrounding them.
  - Hydro = water & logy = study of
- A hydrologist is someone who studies hydrology.
  They look at erosion rates and water velocity to study how bodies of water change over time.
- Hydrologists study previous flood data and use that to make predictions about future floods.



# History: Fargo-Moorhead Flooding

In 1997, the Red River reached a peak discharge of 27,800 cubic feet per second, flooding the Fargo-Moorhead area. In 2009, the Red River reached a peak discharge of 29,100 cubic feet per second.

Prediction models indicate that the discharge level for a return period of 100 years is 39,071 cubic feet per second. If a flood with this much river discharge occurs, the entire Fargo-Moorhead area will be underwater.

How can hydrologists help to mitigate the damage from a severe flood?

Image source: Paraview

### **Diversion Project**

- Hydrologists have helped to create the river diversion project in the area,
  which has a total cost of approximately \$3 billion.
- How does the benefit of the diversion project outweigh the cost for our area?
- Hydrologists have helped develop the diversion project a channel designed to alleviate future flooding.

#### References

- https://www.bls.gov/ooh/life-physical-and-social-science/hydrologists.htm#:~:text=in%20the%20field.-,Hydrologists%20study%20how%20water%20moves%20across%20and%20though%20the%20Earth's,or%20eventually%20reach%20the%20oceans.
- https://fmdiversion.gov/about/faqs/
- https://waterdata.usgs.gov/monitoring-location/05054000/