All About Dams!

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Hi!

- My name is John
- I live in Baltimore
- I went to college to become a Civil Engineer
- I work for the Maryland Department of the Environment as a Dam Safety Engineer
  - I get to use math and science skills to inspect dams across Maryland to make sure they are safe and do not pose a risk to people living below them
  - I use my writing and communication skills to explain difficult science concepts to people so that they understand how to keep their dam in good condition
- I love my job because I get to help people, use my skills, and work outside!

At Lake Roland Dam

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Why do we need dams?

WHY?

Why do we need dams?

- We build dams to control water
  - Make sure the right amount is at the right place at the right time
- Drinking water
- Flood Control
- Recreation
- Irrigation
- Stormwater Management
- Hydroelectric Power

Dams and the Environment

- Dams can be used to control stormwater and reduce pollution by capturing runoff and sediment.
  - Sometimes “good” sediment is trapped, which impacts the areas fish like to lay their eggs
- Dams can block the migration of fish
  - But we install fish “ladders” that allow the fish to swim up and over the dam
  - Sometimes it is good to keep fish separate if one species will eat all the others
- Dams can help regulate temperatures in a stream (good or bad, depending on the types of fish)
- Can you think of anything else?

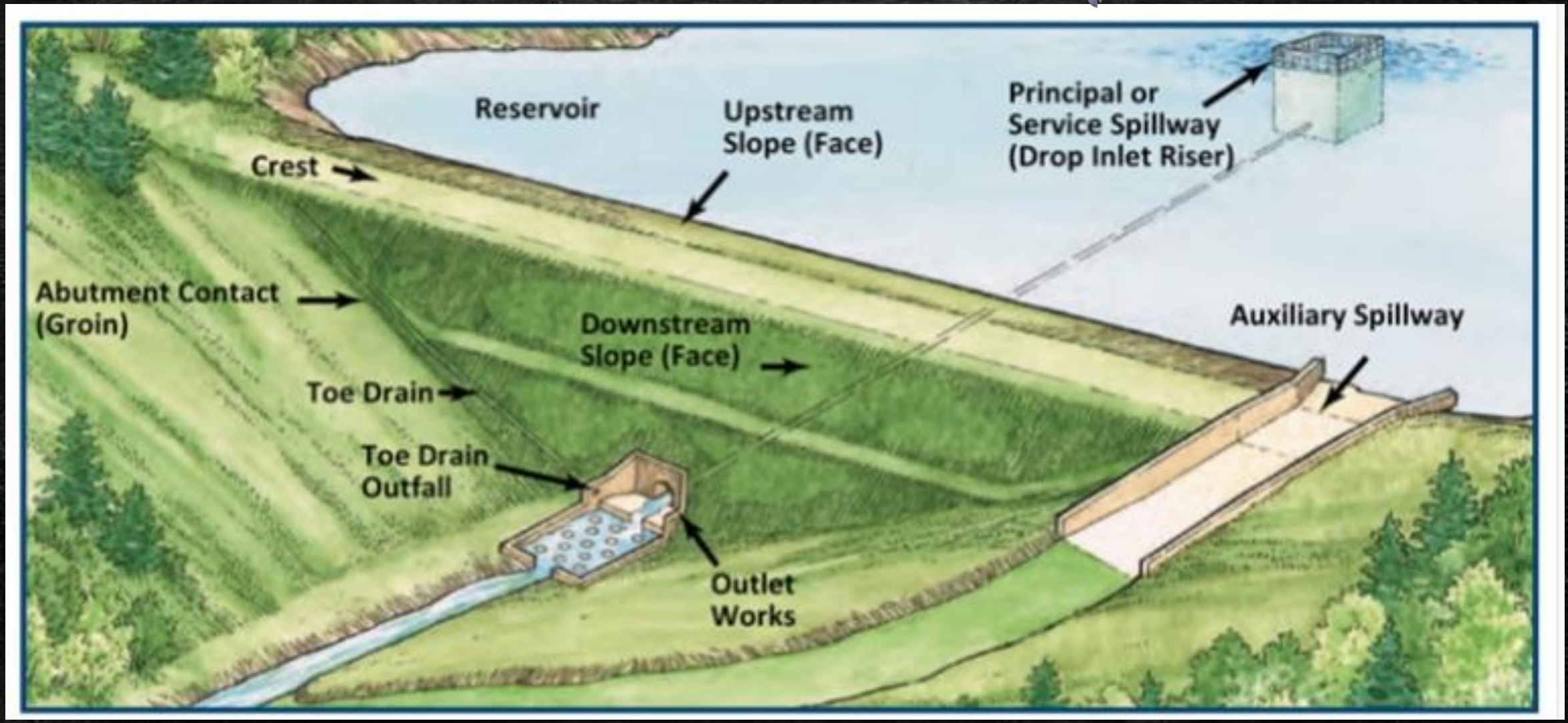
History of Dams

- The first dams were built around 3000BCE by the ancient Egyptians or Mesopotamians
  - They were *big* piles of rocks dumped across a valley
  - Helped control water for agriculture
- The Kallanai Dam in India was built 1800 years ago and is still in use for irrigation!
- The oldest dam in the United States is the Old Oaken Bucket Pond Dam built in 1640 in Plymouth County, MA.

Kallanai Dam, India

Old Oaken Bucket Pond Dam

Parts of a dam



What are modern dams made of?

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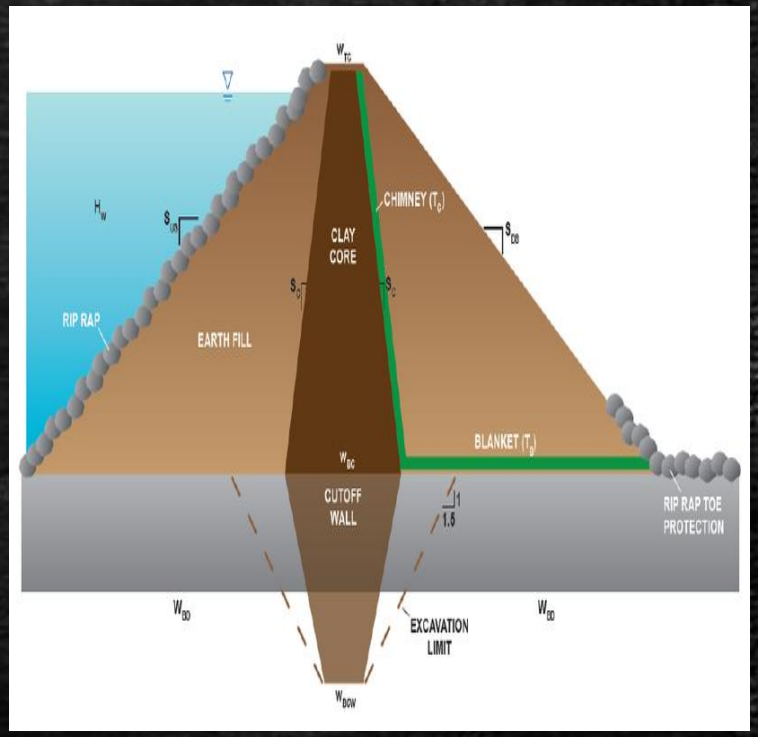
What are modern dams made of?

- Water puts a lot of pressure on the dam!
  - Materials need to have strength to support the water pressure, and need to stop the flow of water
- Most dams in the United States are built from well compacted earth and rock materials
  - They use clay “cores” to stop the water, and soil/rock piled up on either side of core to support the water pressure
- Concrete and Masonry
- Steel
- Timber




Gannett Flemin
Site Progression - Overall Site - Impoundment - December 7 20

Dams in Maryland

Did You Know?

There are NO natural lakes or ponds in Maryland. All of them were created thanks to a dam!

Dams in Maryland

Do you know any dams in Maryland?

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Dams in Maryland

Dams in Maryland

- There are 590 dams in Maryland that MDE regulates
  - Many thousand small dams that each County regulates
- Our dams range from 6 to 296 feet tall
  - 26 feet is average
- Most dams are made of earth or rock
- The dams range from zero to over 300 years old
  - Average age is 60 years
- Most are owned by State or Local Governments, though many are owned by private citizens or companies

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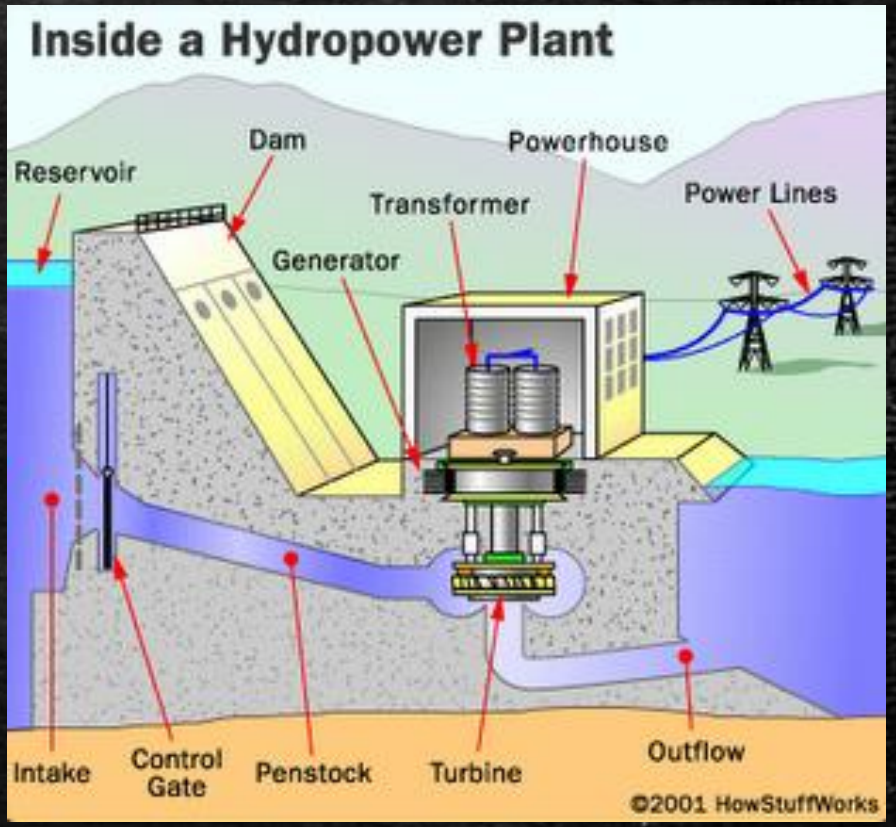
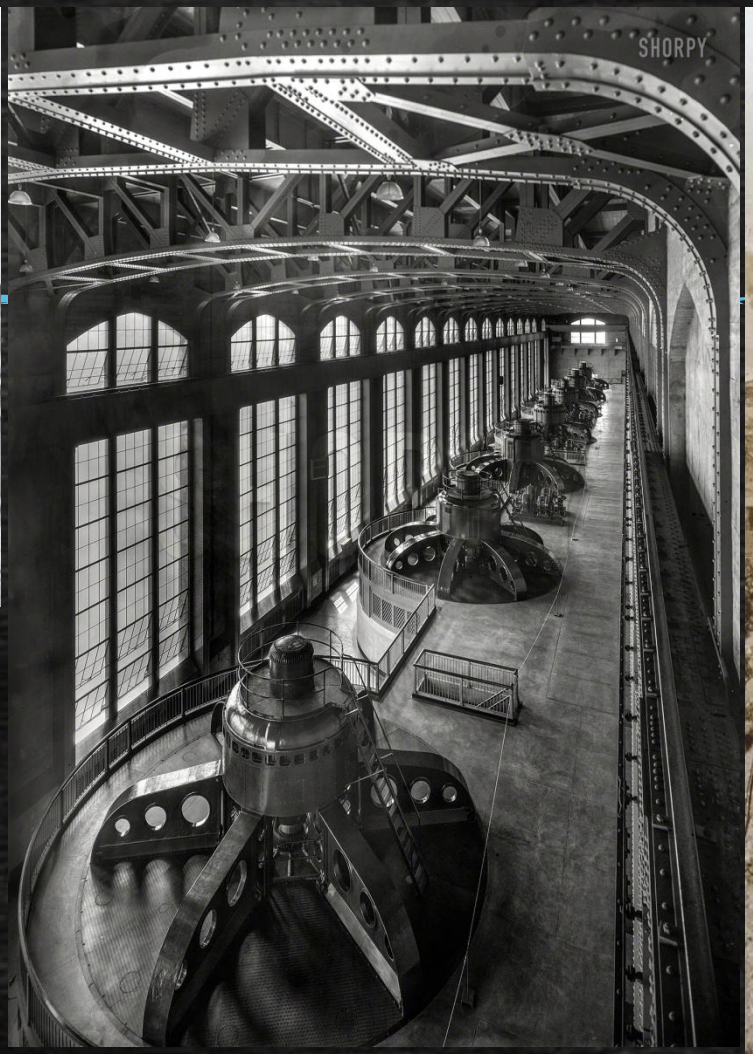
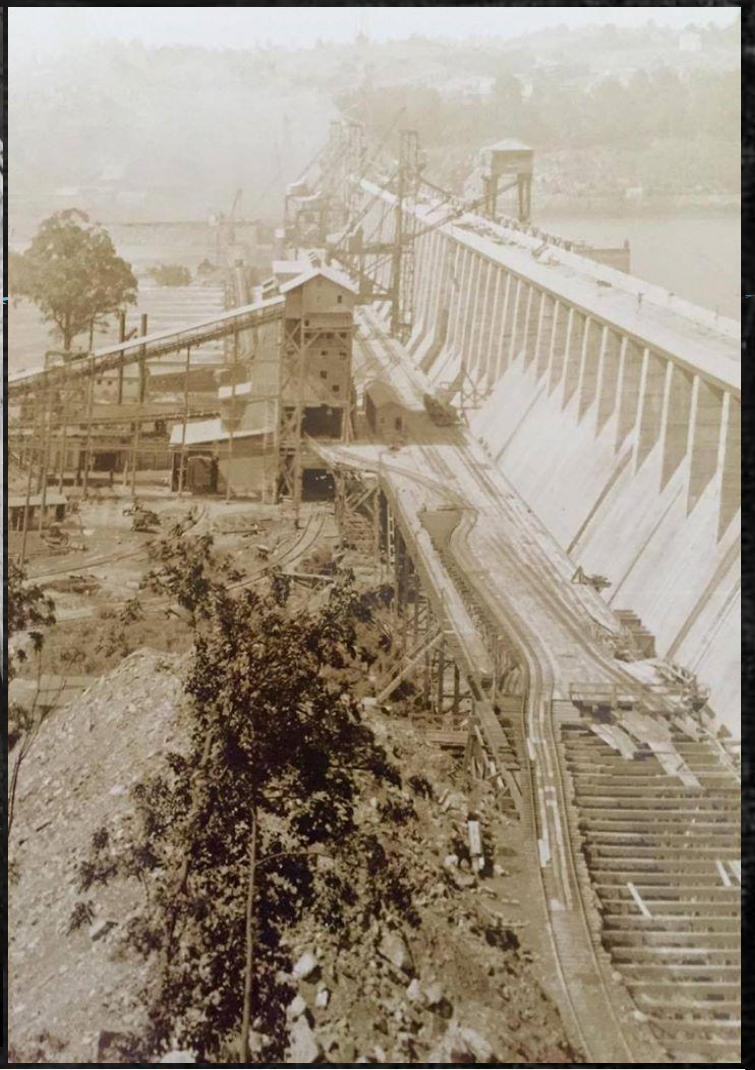
Conowingo Dam

- Conowingo is a concrete dam that stretches across the Susquehanna River
- It is 105 feet tall
- Constructed in 1928
- Captures water from 27,000 square miles!
- Generates Hydroelectric power
- Is important to health of Chesapeake Bay




Clements
c. 1929

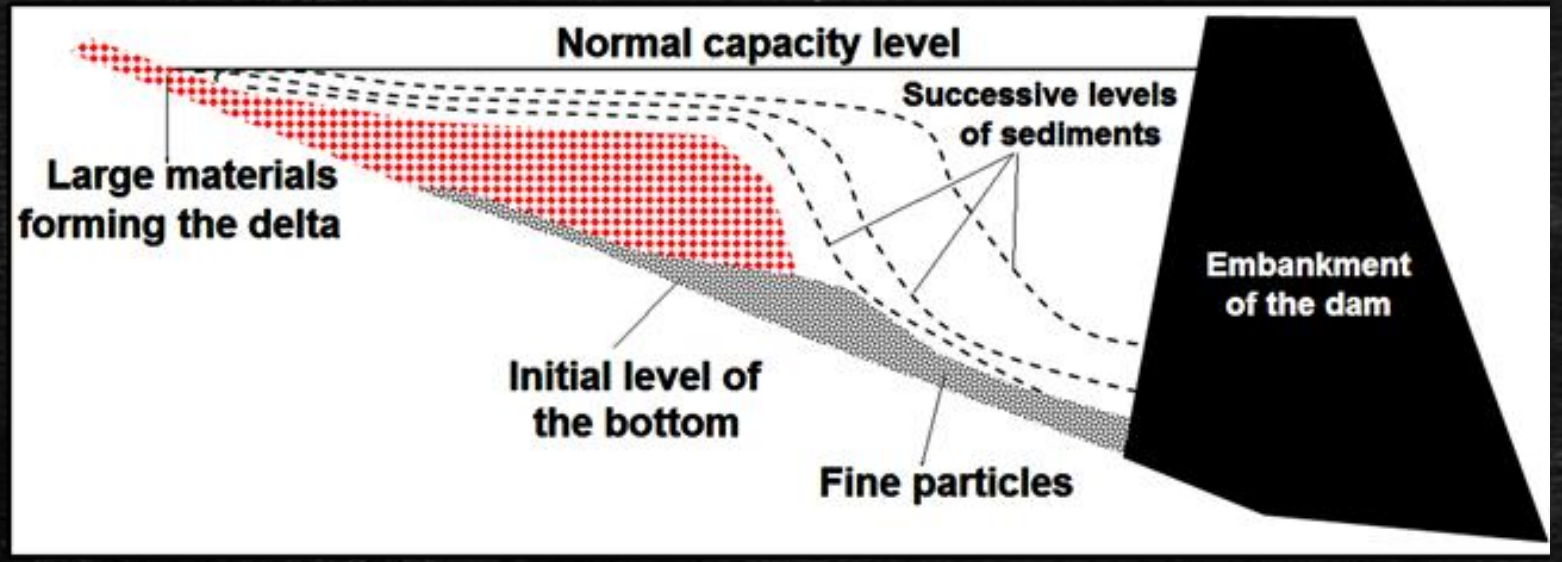

SHORPY



Conowingo Dam Sediment

- Sediment is carried in flowing water naturally
- When a dam runs across a river, sediment becomes trapped during normal conditions
- Because Conowingo is 90 years old, there is *a lot* of sediment that has been trapped! It is full.
- During floods, the water flows so fast that sediment gets washed out from behind the dam.
- This means that sediment flows through the spillway of Conowingo into the Bay.

Conowingo Dam Sediment



Conowingo Dam Sediment

- One solution is to dredge (dig up) the sediment
- But, there are 31 million cubic yards of sediment behind Conowingo
- Estimates say it will cost more than $3 BILLION dollars to dredge!

Saturday
September 22nd
Open House!

All About Dams!

Thank You!

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