

Set-Up!

Warm-Ups: Week 4 Page # ____

Mon. - 2/9

Tue. - 2/10

Wed. - 2/11

Thur. - 2/12 (Computer Lab)

Fri. - 2/13 (1/2 Day)

Please set-up your warm-up page for the week!

February 9, 2015

Warm-Up

Today you will need your notebook and pencil.
HW due Thursday because of half-day Friday.

- Review: What is an aquifer?

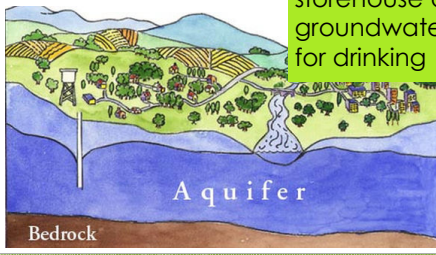
February 9, 2015

Warm-Up

Today you will need your notebook and pencil.
HW due Thursday because of half-day Friday.

- Review: What is an aquifer?

Huge underground storehouse of groundwater used for drinking



Aquifer

Bedrock

Announcements

- With the half-day on Friday, this week's homework is due on Thursday
- Test Corrections are also due on Thursday

Threats to Groundwater

February 9, 2015

Focus for This Week!

- We will be taking a closer look at threats to groundwater including various forms of pollution

Two Areas of Worry:

1. **Aquifer Depletion**
2. **Wetland and Estuary Degradation**

Worrying About Aquifers

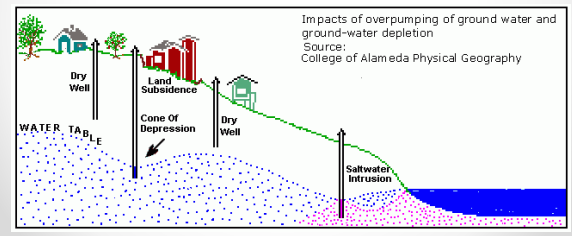
- Where lakes and rivers are not available, people rely on aquifers for water
- Worry about **aquifer depletion** where there is consistently low levels of groundwater in the aquifers
- Mainly caused by excessive pumping of the groundwater

Excessive Pumping

- The water stored in the ground can be compared to money kept in a bank account.
- If you withdraw money at a faster rate than you deposit new money you will eventually start having account-supply problems.
- Pumping water out of the ground faster than it is replenished over the long-term causes similar problems.
- The volume of groundwater in storage is decreasing in many areas of the United States in response to pumping.

Consequences of Aquifer Depletion

1. **Lowers Water Table** → Dry Wells → Increase costs to get water
2. **Land Subsidence** – Sinking of the Land
3. **Saltwater Intrusion** – Saltwater migrates inland, contaminating water supply



Where Does Aquifer Depletion Occur?

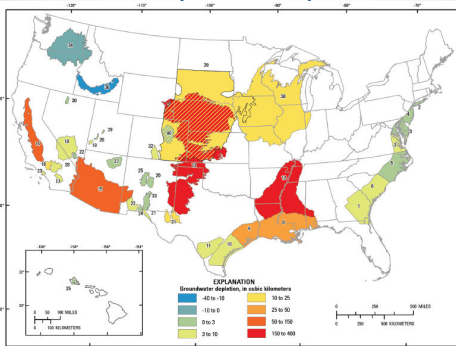


Figure 2. Map of the United States (excluding Alaska) showing cumulative groundwater depletion, 1900 through 2008, in 40 assessed aquifer systems or subareas. Index numbers are defined in table 1. Colors are hatched in the Dakota aquifer (area 29) where the aquifer overlaps with other aquifers having different values of depletion.

Let's Summarize!

1. **Explain aquifer depletion and its three main consequences.**

Aquifer depletion is a consistently low level of groundwater.

Consequences:

- (1) **lowers water table:** dries up wells and increases costs to get water
- (2) **land subsidence:** the ground sinks
- (3) **saltwater intrusion:** the water supply gets contaminated

How Can We Prevent It?

- Do not waste water
- Use surface water as much as possible
- Do not grow water-intensive crops in dry areas
- Be careful when digging new wells



Worrying about Wetlands and Estuaries

Wetland

- **Places where there is shallow water or very soggy soil at least part of the time**



- **Example: Marshes, Swamps**



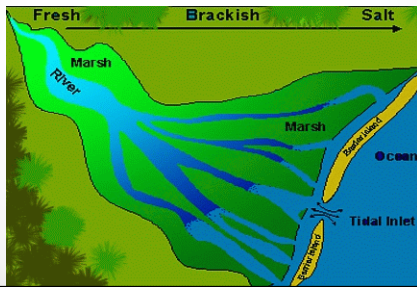
Estuary

- **The area where freshwater from rivers meets salt water from oceans. Influenced by tides.**



Brackish

- **Contains more salts than freshwater, but less salt than ocean water.**

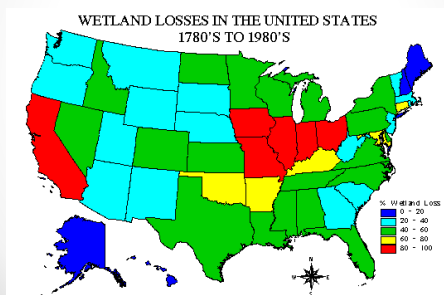


Uses?

- **Wetlands:**
 - Provide beneficial services for people, fish and wildlife
 - Protect and improve water quality
 - Provide habitats for fish and amphibian
 - Store floodwater
 - Maintain surface water flow during small periods
- **Estuaries:**
 - Birds, mammals, fish, and other wildlife depend on estuaries as places to live, feed, and reproduce
 - Provide places for recreational activities, and scientific study

Loss & Degradation Causes

1. **Building Threats** – cleared for agriculture and cities
2. **Invasive Species** – upset balance of ecosystem
3. **Pollution** – runoff, fertilizers, heavy metals



Results of Loss & Degradation

1. Habitat loss
2. Loss of species
3. Poor water quality
4. Reduced water storage

Let's Summarize!



2. Describe the **major causes and results** for wetland and estuary degradation.

Causes:

1. Building Threats
2. Invasive Species
3. Pollution

Results:

1. Habitat loss
2. Loss of species
3. Poor water quality
4. Reduced water storage

Leave a Message!



- With chalk, write your answer on your desk for the next class to see....

What is one thing you learned today?

Wetlands Video

- <https://www.youtube.com/watch?v=9m7rD6KcuHA>
- <https://www.youtube.com/watch?v=25-D1ri8vdk>