

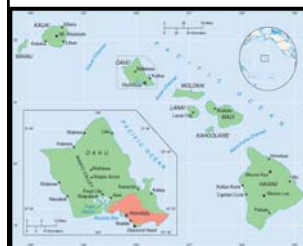
Regional Landscapes of the United States and Canada

HAWAII

Prof. Anthony Grande

©AFG 2013

HAWAII



OVERVIEW Physical Geog

- **Mid-Pacific Ocean location** 2,300 mi from California.
- **Tropical in nature.**
- **Volcanic hot spot in origin.**
- **Comprised of the above water tops of the youngest volcanoes of the Mid-Pacific Seamount Chain.**

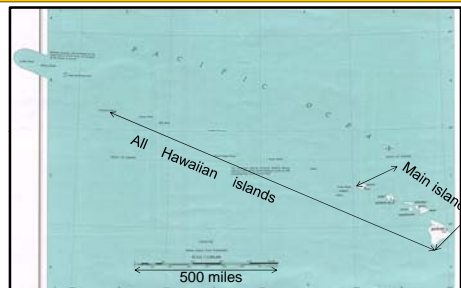
2

OVERVIEW – Human Geog.

- **Last area on Earth to be discovered and settled** (c.500 AD).
- **Diverse population** with strong Polynesian and Asian influences.
- **There are 8 inhabited islands.**
- **Europeans arrived in 1778.**
- **Population concentrated in metro Honolulu.**
- **Tourism- and agriculture-based economy.**
- **Ethnic Hawaiian cultural rebound.**

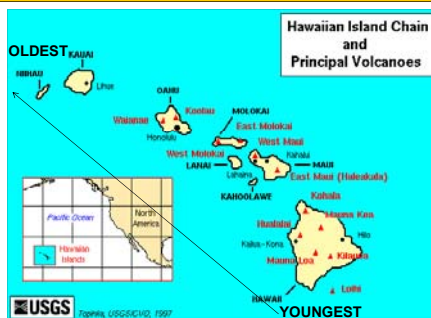
3

The State of Hawaii



The State of Hawaii is much more than "the 8 main islands."
Over 125 islands extend nearly 1500 miles across the Pacific Ocean. 4

Islands and Volcanoes of Hawaii



5

The Islands

❖ Oahu:

- Heart of the state.
- Densely populated and intensively used.
- Location of Pearl Harbor and Waikiki

❖ Hawaii ("Big Island")

- Dominated by five huge shield volcanoes; experiences ongoing eruptions
- Large ranches
- Sugar cane plantations; Kona coffee
- Tourism

❖ Maui

- Second largest island; composed of two volcanoes separated by a central lowlands.
- Lahaina was the capital of the Kingdom of Hawaii and the center of Pacific whaling fleet.
- Intensive tourist development.

6

The Islands (cont'd)

❖ Lanai

- Called the **Pineapple Island**. Entire island is a pineapple plantation (Castle & Cook Corp.).

❖ Molokai

- Half ranchland, half rugged terrain.
- Least developed; recent tourist site.
- Location of a **leper colony** of Father Damien fame.

❖ Niihau

- Privately owned since 1864**; current owner the Niihau Ranch Company.

❖ Kauai

- Oldest main island.
- Heavily eroded into spectacular scenery.
- Contains one of the **wettest spots on earth**.
- Lush vegetation; called the Garden Island

❖ Kahoolawe

- Flattest, driest and smallest of the main islands.**
- Formerly a bombing range for the US military, now returned to the state.

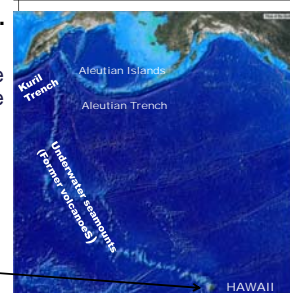
7

❖ Located over a **hot spot** on the earth's crust that creates **underwater volcanoes**.

➤ The islands are the visible portion of a series of huge **volcanoes** that stretch NW to Siberia and the Aleutian Trench.

✓ **Active volcanoes** are found only on **Hawaii (Big Island)** which is now over the hot spot. It is the youngest island.

Geology

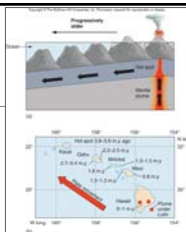


8

Geologic Hot Spot

❖ **Hot Spot:** zone of weakness in the lithosphere that allows molten material to reach the surface.

- Movement of the Pacific Plate over the Hawaiian hot spot creates volcanoes on the crust.** The longer an island stays over the hot spot, the wider and taller the volcano gets.
- When the island moves away from the hot spot, volcanic activity ceases.** The island begins to erode and gets shorter and smaller in area.



9

Loihi Seamount

The **Loihi Seamount** will become the **next** Hawaiian Island.

It is currently about 10,000 feet above the ocean bottom and about 3,000 feet below sea level.



10

Volcanism on Hawaii



Kilauea is the current active volcano on the island of Hawaii.



House



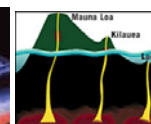
11

Mauna Kea, Island of Hawaii (youngest island)

Mauna Kea rises **13,784 ft** **above** sea level. The ocean floor is **18,000 ft** **below** sea level.

From its base on the ocean floor to its summit, Mauna Kea is **31,784 ft. tall**, making it the world's highest mountain.

It is dormant.



12

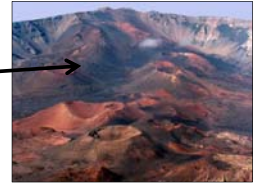
Punalu'u Beach Hawaii

"Black sand" beaches are really made up of volcanic cinder and ash.



13

Haleakala Caldera Island of Maui



Volcanic craters within the Haleakala Caldera. Volcano was formed 800,000-1 mil yrs ago; last eruption in 1750.

14

Sea Cliffs Molokai



15

Diamond Head Oahu



16

Waimea Canyon Island of Kauai (oldest main island)



17

Na Pali Coast Kauai



18

Climate

On each island, **climate zones form in relation to elevation and wind direction.**

Predominant wind is from the northeast.

On **Hawaii**, because of the height of Mauna Loa and Mauna Kea, **ALL climates exist except icecap.**



19

Precipitation

Seasonal Variation

- Drier summer May to Oct
- Moistur winter Oct to April

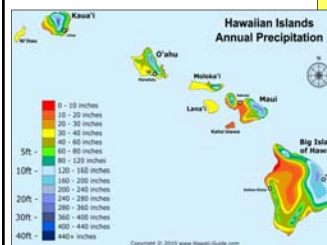
Orographic Rainfall

- North and east sides of islands are rainier.

Mount Waialeale (Kauai) gets 485 in. of rain each year (**one of the wettest places in the world**)

Waimea, 15 mi. away, gets less than 20 in. per year.

- Snow at the summit of Mauna Loa and Mauna Kea
- Southwestern portions of the islands are drier.



20

Giant Waves

Winter storms in the North Pacific generate the waves off the coast of Oregon and California.

NE winds push water toward mid-Pacific where the Hawaiian Islands are **"in the way"** of ocean swells.

The **swells break** in shallow water **creating waves up to 50 ft. high** along the northeast shores of the islands.



21

Polynesia

Hawaii is considered the northern outpost of the Polynesian culture realm.

Polynesians from the South Pacific settled the islands c.1500 yrs ago.

Migrated by canoe from the Marquesas Islands, 2500 mi to southeast.

Second wave of people arrived c.1,000 yrs. ago.



22

Ocean-going Technology

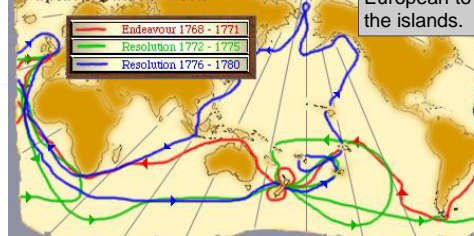


Ancient Polynesians were advanced in shipbuilding and navigational techniques. (They had to be able to get back to their home island!)

23

European Discovery of Hawaiian Islands

The Three Voyages of Captain James Cook



In 1778 British explorer **Capt. James Cook** was the first European to land on the islands.

24

European Impact

- **Capt. James Cooke arrives in 1778** finding Hawaiians living under various rulers.
- Under the rule of **King Kamehameha** (1791-1819), the Hawaiian people were united.
- In late 1700s the islands were a **rest, refueling and transshipment station for trade with East Asia**.
- They were the center of the North Pacific **whaling industry** (early 1820s).
- **Missionaries came in the early 1800s**. They undermined the influence of Hawaiian rulers.

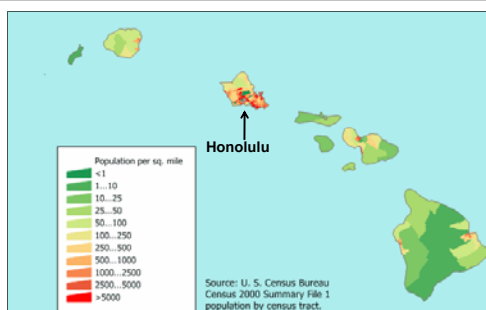
25

European/American Impact

- **King Kamehameha dies in 1819.**
- **Competing European efforts to fill the power vacuum** (France 1820-50s; Britain 1840s).
- **The influence of American plantation owners grew in the late 1800s.**
- **Led to the overthrow of Hawaiian rulers in 1893** and the declaration of the **Republic of Hawaii**. (Feared return of monarchy and possible European inroads.)
- **Annexation by U.S. in 1898.**
- **Statehood in 1959.**

26

Population Density on the main islands



27

Federal Government

❖ **Federal Government controls much of the land on the islands especially with military facilities.**

➤ Military

- Strategic location both historic and present
- Headquarters of Pacific Command and center of Pacific operations for all services.

➤ Impact

- Owns 25% of Oahu
- Employs 25% of work force
- Vulnerability to budgetary cutbacks and changes in military policy.

28

Pearl Harbor Oahu



Pearl Harbor is a large lagoon on Oahu. Its protected harbor made it an ideal naval base, but the narrow inlet is a liability.

The lagoon was deepened in the early 1900s to accommodate large ships.

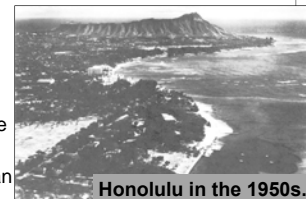
On Dec 7, 1941 it was the target of a Japanese aerial attack.



29

Tourism

- **Perception as tropical paradise**
- First scheduled trans-Pacific flights in 1936, but ships remained primary transportation to 1950s.
- Increased visitors
 - Larger aircraft
 - Economic growth
 - Expendable income and more leisure time
 - Come from mainland U.S., Asia, esp. Japan
- **Mixed blessing?**



Honolulu in the 1950s.

Chief income earner and employer with associated problems.

30

Dominates Hawaii
 72% of residents
 80% of economy
 Hemmed in by ocean,
 mountains, Federal land
 >High living costs
 >Congestion
 >Pollution

Honolulu

Polynesian Cultural Center Oahu

Sugar Cane Field and Mill

Pineapple Plantation

Cattle Ranch, Island of Hawaii

Cattle are raised on the dry side of the island on "Texas-type" ranches.

The End

Except for the Final Exam on Tuesday, May 21 at 5:20 PM.