

### DATES TO REMEMBER

- ❖ **COURSE EVALUATION PERIOD NOW OPEN**
  - Visit [www.hunter.cuny.edu/te](http://www.hunter.cuny.edu/te) OR [www.hunter.cuny.edu/mobilete](http://www.hunter.cuny.edu/mobilete) (for smartphones)
  - Sign in with your Hunter netID and password
  - Complete the evaluation(s)
    - Check your Hunter email account for notice from the Dean of Students. Can do it on line or on a SmartPhone
- ☐ **May 11: Was last day to hand in REQUIRED LANDSCAPE EXERCISE without penalty** and the pre-approved extra credit research paper.
- ☐ **May 14: TODAY** Last class lecture
- ☐ **WEDNESDAY, May 20:** Exam III: **The Final Exam**
  - From 3 to 5 PM << note different day/time from class
  - **Same format as exams I and II;**
  - **focuses on last third of course**
  - **Last day** to hand in Exam III extra credit exercise and "Geography in the News" extra credit option.

## Regional Landscapes of the United States and Canada

# HAWAIIAN ISLANDS

Prof. Anthony Grande

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## Hawaiian Islands

The State of Hawaii is much more than "the 8 main islands."  
Over 125 islands extend nearly 1500 miles across the Pacific Ocean. 3

## Hawaiian Islands

When you think about this region, what images come into your mind?

Tropical paradise  
Great beaches  
Pineapples  
Volcanoes  
Polynesian culture  
Honolulu  
Diamond Head  
Sunshine

## OVERVIEW: Phys. Geog.

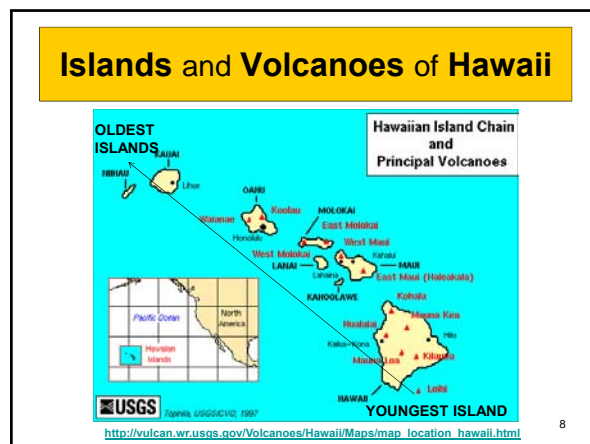
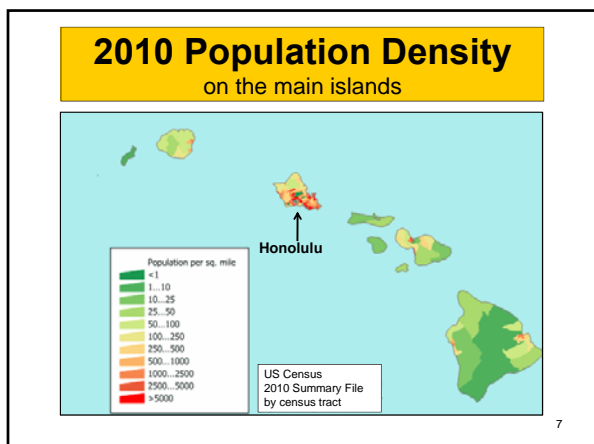
- **Mid-Pacific Ocean location** 2,300 miles from California.
- **Tropical in nature.**
- **Located over a geologic hot spot.**
- **Island chain** consisting of over 125 islands above sea level; hundreds of "island stubs" below level level.
- **Landscape varies with island's age.**

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## 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**. Population concentrated in metro Honolulu.
- **Europeans arrived in 1778; Americans rebelled in 1893.**
- **Tourism and military-based economy.**
- **Ethnic Hawaiian culture is on a rebound.**

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❖ **Islands are volcanic in origin.** Located over a **hot spot** on the earth's crust.

- The islands are the visible portion of a series of huge **volcanoes** that stretch to the NW toward Siberia and the Aleutian Trench.
- The underwater volcanic structures are called "seamounts."
- **Active volcanoes** above sea level are found only on **Hawaii** (Big Island) which is now over the hot spot. There is one subsurface volcano.

## Geology

## 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/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.

## Mauna Kea and Mauna Loa

World's ranking topographic features

**Mauna Kea** is 13,796 ft **above** sea level. The sea floor is over 18,000 ft **below** sea level. From its base on the ocean floor to its summit, Mauna Kea is **32,000 ft. tall**, making it the world's highest mountain. It is dormant.

**Mauna Loa** is 13,677 ft high and is the world's largest volcano because of its width and mass. It is active.

## 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. If it grows wide swiftly, it may reach the southern tip of the island of Hawaii and become part of it.

## Climate

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

Predominant wind is from the northeast.

On **Hawaii** (Big Island), **ALL climates exist except icecap** because of the height of the volcanoes.



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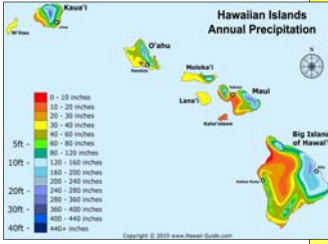
## Precipitation

**Seasonal Variation**

- Drier summer May to Oct
- Moister 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.




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## 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.



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## Tsunamis

Hawaii is located at the crossroads of tsunami waves generated along the Ring of Fire.



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## 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.



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## Ocean-going Technology

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



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## European Impact

- ❖ **1778:** British **Capt. James Cooke arrives** finding Hawaiians living under various chiefs.
- ❖ Under the rule of **King Kamehameha** (1791-1819), the Hawaiian people were united.
  - ✓ The islands became a **rest, refueling and trans-shipment station** for trade with East Asia in 1790s.
  - ✓ They were the center of the North Pacific **whaling industry** (early 1820s). European population increased.
  - ✓ **Missionaries came in the early 1800s.** They undermined the influence of Hawaiian rulers.

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## 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.)
- ❖ **Annexed by the U.S. in 1898.**
- ❖ **Statehood in 1959.**

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## 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.

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## Income from Agriculture

**Chief categories for local consumption:**

- **Livestock**
  - Beef cattle
  - Dairy cattle + products
  - Poultry and eggs
  - Hogs
- **Vegetables and fruits.**

• **Cash crops include:**


- Sugar cane + processing
- Pineapples + processing
- Horticulture, esp. flowers

• **Specialty items include:**

- Kona coffee
- Macadamia nuts
- Avocados
- Guava



## Pineapple Plantation





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## Sugar Cane Field and Mill



## Cattle Ranch, Island of Hawaii

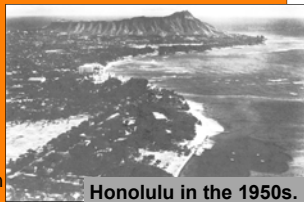
Cattle are raised on the dry side of the island on "Texas-type" ranches.

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## 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?**  
Chief income earner and employer with associated problems.<sup>26</sup>



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## The Islands: Oahu


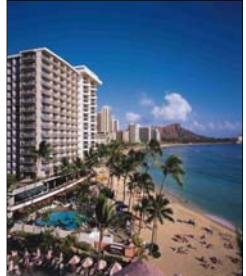

- Heart of the state.
- Site of Honolulu.
- Densely populated/intensively used.
- Location of Pearl Harbor and Waikiki
- Polynesian Cultural Center
- Site of giant waves in winter.






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## Honolulu


**City dominates Hawaii**  
State capital  
72% of residents  
80% of economy

But hemmed in by ocean, mountains, Federal land

- High living costs
- Congestion
- Pollution



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## Diamond Head Oahu




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## Pearl Harbor

**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.*

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## Polynesian Cultural Center

## The Islands: Maui

- Second largest island; composed of 2 volcanoes separated by a central lowlands.
- Lahaina was the capital of the Kingdom of Hawaii and the center of Pacific whaling fleet.
- Intensive tourism development

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## Haleakala Caldera Maui

Rim is above the clouds. Have to drive through the clouds to get to the national park.

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

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## The Islands: Hawaii

- ❖ Hawaii ("Big Island")
  - Largest/southernmost island. All other islands can fit within it.
  - Dominated by five huge shield volcanoes; experiences ongoing eruptions. Hawaii Volcanoes Nat'l
  - Large cattle ranches.
  - Sugar cane and coffee plantations.
  - Kona Coast (west side) resort area.

## Island of Hawaii

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## Volcanic Activity on Hawaii

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

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## Punalu'u Beach Hawaii

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

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## National Historic Sites Island of Hawaii



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## The Islands: Lanai




- ✓ Called the **Pineapple Island**. Entire island was once a commercial pineapple plantation (Dole, then Castle & Cook Corp.).
- ✓ Now 98% owned by the chairman of Oracle.
- ✓ Has very limited tourist facilities.

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## The Islands: Kauai

- **Oldest and greenest main island.**
- Heavily eroded into spectacular scenery.
- **Contains one of the wettest spots on earth:** Mt. Waialeale averages 485 inches of rain/year.
- Lush vegetation; called the Garden Island.

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## Waimea Canyon Kauai



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## Na Pali Coast Kauai



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### The Islands: Molokai

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



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### The Islands: Kahoolawe

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





**Kahoolawe access**  
Compilers are included as part of an access plan for Kahoolawe since the Army finished its cleanup work in November 2002. Statewide hearings on the plan began tonight in Kona.

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### The Islands: Niihau

- **Westernmost main island.**
- **Second smallest.**
- **Privately owned since 1864;** current owner the Niihau Ranch Company.
- Dubbed "Island of Yesterday" and "Forbidden Island" because of long history of limited access.

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### The End



Except for the Final Exam on **WEDNESDAY, May 20 at 3 PM.**

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