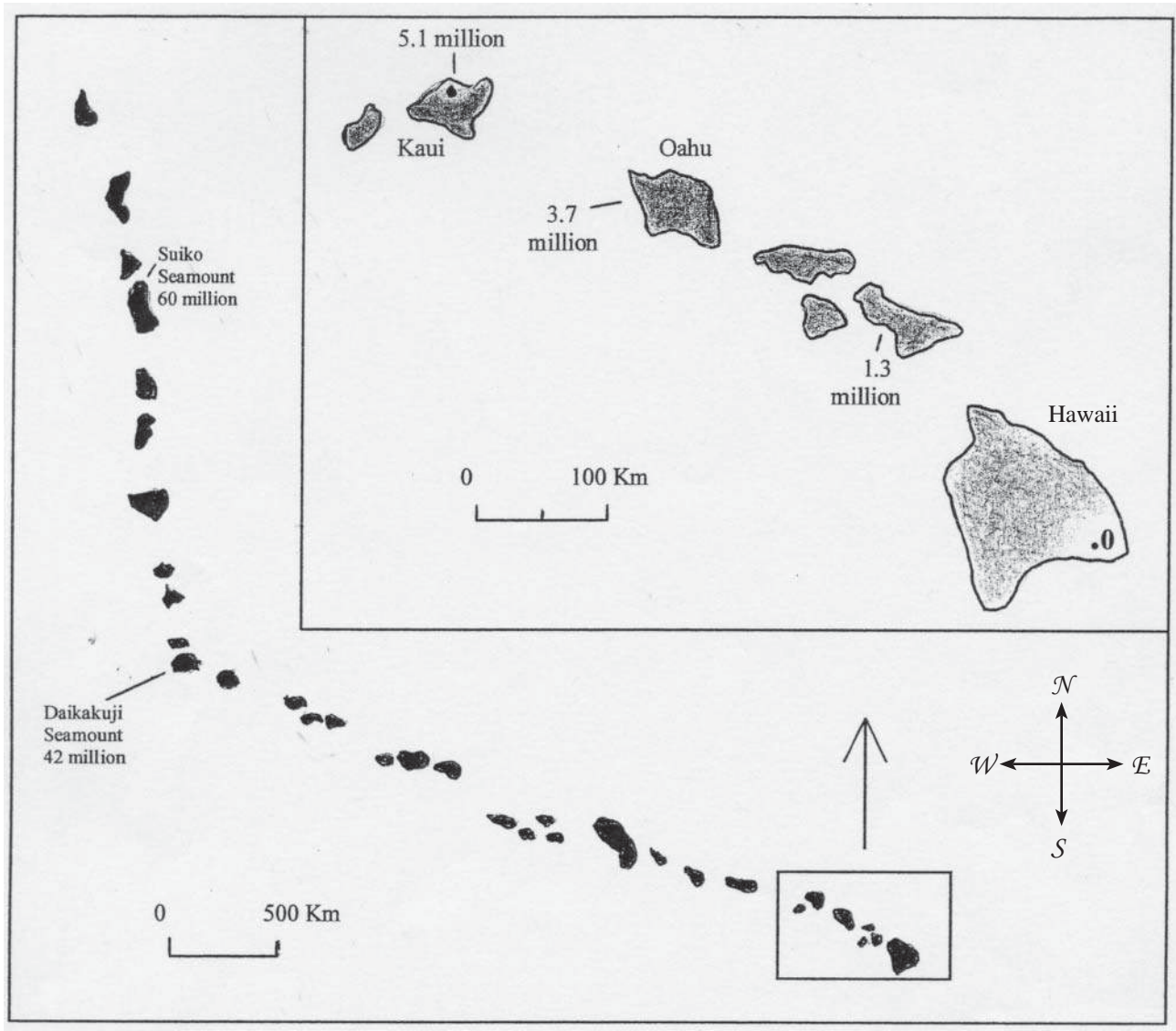


## The Hawaiian Islands



The sites of islands, seamounts, and guyots produced by the Hawaiian Hot Spot and the moving Pacific plate.

The figure shows the volcanic chain of islands and seamounts associated with the Hawaiian Hot Spot, with the approximate age of the volcanic activity.

1. Using the southeastern edge of the main island, Hawaii, as the location of the current hot spot, determine the distance between Hawaii and Kauai, where the hot spot was located in the past.
2. Using the southeastern edge of the main island, Hawaii, as the location of the hot spot, determine the average rate of plate motion between now and the time that island Kauai was located at the hot spot.
3. What is the average rate of plate motion for the last 42 million years (use the Daikakuji Seamount location)?
4. Looking at the entire pattern of the Hawaiian-Emperor chain, what information does it provide about the history of movement of the Pacific Plate (in addition to plate rate)?

Source: G. Wilson, Grand Valley State University

## The Hawaiian Islands (*Answer Key*)

1. The distance between the Southeastern edge of the main island, Hawaii, and Kauai:  
600 km
2. The average rate of plate motion between now and the time that island Kauai was located at the hot spot:

Rate= distance/time

$$117\text{km/million years} = 600\text{ km}/5.1\text{ million years}$$

$$3. \quad \frac{35,000\text{ km}}{42\text{ million}} = 8.3\text{ km/million yrs}$$

4. Current rate is slower; plate was moving north and then moved northwest