Lab 14: earth: island water

In the Hawaiian language, we have two concepts of water:

- "wai" means freshwater, usually from rain, running in streams or rivers
- "kai" means saltwater, usually in the ocean or pools

There are exceptions to this:
As you know we are the Ka Makani, or "the wind", as "ka" is the definite article in Hawaiian, and "makani" means wind.
Our rain is called the "kipu'upu'u" or needle rain as it comes in sideways, driven by the wind, and feeling like needles on the skin.
Rain becomes "wai" which then runs into "kai".
Two more exeptions:

- anchialine ponds: near the shore fresh water runs under lava flows and forms ponds with a mixture of fresh and salty water
- water lenses: these are places near the shore where freshwater mixes with salty water, but not in a pond, like at Hapuna beach on the north side, or Kohala coast north of Kawaihae
- fun fact: when cattle were brought down to Kohala to be loaded onto boats, they would put their heads underwater to drink the cooler fresh water just under the ocean surface

Your project:

1. look up a "water lens" and create an accurate cross sectional diagram on your big map of the water flow from rain falling on a basaltic volcano like ours and reaching the shore
2. research where these water lenses show up on the west shore, where you might go to the beach
3. research anchialine ponds on the same coast-why there?
4. map out the major streams around Waimea, and explain how diverting these has changed the coastal areas (look up these changes, from the 1950's).

   https://www.youtube.com/watch?v=Gp3_FXu5ULA
5. look up the formation of the boat harbor at Spencer Beach (you can find old videos about this on youtube)
6. go back to your island map and map out the pelekane watershed
7. explain why hikers are not permitted in the watershed areas above our campus
8. explain why Waipio valley is so wet compared to the Kohala coast
9. look up orographic lifting and tie this into your answer above
10. explain why every southwest coast of every Hawaiian island is dry
11. explain why Kahoolawe is a desert island

12. look up the shape of the Koolau mountains on Oahu and explain why the northeast side is different from the southwest side
13. on your big island map, list the annual rainfall in each of the major town on the island
14. since we don't have any major rivers on our island, how does all of the rain reach the ocean?
15. what part of the water cycle reaches the reef and what is the impact?
16. who owns every well on the big island and why?

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