Notes for Waters of Kaloko-Honokōhau Teacher-led Hike

Wells

Golf course to the north is pumping about 1.25 million gallons per day of brackish water from 8 onsite wells. They desalinate the water, use the product for irrigation and re-inject the by-product back into the aquifer.

We are seeing increasing nitrates in the two wells near Kaloko Fishpond presumably due to fertilizer runoff.

Because the wells were only installed in 1996, we do not yet have enough data to scientifically say that salinity is increasing in the groundwater of the park. But we do see an apparent increase in salinity in KAHO well #1.

The Electrical Conductivity of KAHO1 (well by visitor center) is around 18.7 mS/cm.

They are monitoring many nutrients (Nitrates and Phosphates are key), turbidity, pH, dissolved oxygen, and temperature on a regular basis.

Anchialine Pools

Only occur in Hawai‘i. Approximately 120 anchialine pools in park. ~600 total in Hawai‘i. This park is only 1 of 3 places in Hawai‘i where they are protected.

There is only about 2 feet of relief (hydraulic head) on the surface of the water table in the park. However, the groundwater flow rate is high due to the large cracks in the lava.

In general, there is a thin layer of brackish water over seawater within the park.

The pools are connected and small organisms can move from pool to pool.

They contain: shrimp, fish, mollusks, hydroid, sponges, insects, algae, and mats of cyanobacteria. They are considered extreme environments. Salinity fluctuates widely.

The Electrical Conductivity of the anchialine pool by the visitor center should be similar to the KAHO1 well, ~20 mS/cm.

Wetland

Invaded by mangroves and pickleweed. It is an ongoing battle to remove them.

This is one of the few places on the island where shore birds nest. The soils and plants help trap and purify pollution. It is like a giant filter helping to keep the fishpond water clean.

ʻAimakapā

There is a buried Makaha at the north end of the barrier beach.

The barrier beach is stable due to its orientation parallel to the incoming waves.

Electrical Conductivity is approximately 21 mS/cm

Ocean

Electrical Conductivity is ~53 mS/cm

Rain

Electrical Conductivity is 0 mS/cm. It is distilled.

Drinking Water

Most municipal water supplies are between 0.05 and 1.5 mS/cm

Electrical Conductivity Conversion Factors

µS = micro Siemens
mS = milli Siemens

1 µS/cm = 0.001 mS/cm
1,000 µS/cm = 1 mS/cm