

## **HYPOTHESES FROM COMMUNITY MEMBERS THAT CAN DIRECT FUTURE RESEARCH AND MANAGEMENT**

Clearing of trees/loss of forest causes a decrease in rain.

Less trees, means less rain, more erosion, more landslides, and groundwater impacted.

The weather has changed from the West coast because of the forest they are logging, and it affects us/our weather here.

Economy drives landcover change and therefore weather change.

Economics drives over-harvesting of marine resources.

Environmental change in Hawai'i and worldwide is due to changes elsewhere.

Hawai'i is strategically located, that we're not going to get affected by warming waters like Tuvalu, or Palau, or Tonga, will be affected.

When Mauna Kea has snow, and it percolates through the aquifer and through lava tubes it cools the water. Less snow and less fresh water contributes to warmer ocean waters.

Warm water brings in more fish. When water temperature goes up, bait species go down. The tuna are hungry and so either come in closer or they bite better / are easier to catch.

Tuna are on a five year cycle.

The old fishermen believed that the fish that used to come to their koas are now going to the FADS instead.

Places just north and south of Ka'ūpūlehu, including Kiholo Bay, that have some major freshwater springs, and are nurseries for juvenile deep water species.

Our drought will impact the juvenile fish, the whole food chain, and then ultimately it will impact the deep water, ah bottom fish.

Decrease in mu (*monotaxis grandoculis*: big eye emperor) populations may have led to increased urchins; as a result turtles are starving.

Local weather warming has been affected by all the rooftops reflecting the sun back up.

When many people are along shoreline (tourists), the fish move away and hide, so

that kind of protects them from fishers.

Less trade winds mean less moisture in the air.

As water in the Western Pacific heats up, tuna may come earlier and stay later in the Hawaii area and other areas to the east.

Yellowfin and big eye tuna are on opposite cycles - yellowfin go North in summer and Big eye go south in summer and north in winter.

Vog makes the weather drier.

In 1983, when the vent opened, water became warmer, there were less fish. Now the water stays warm year round. There is less rain at the beach.

Reef has degraded by cruise ships, cargo, Matson.

Development brings more people, changes in weather. For example Hualālai Four Seasons building has caused changes to winds and current.

#### TRADITIONAL WEATHER PREDICTION AND CHANGE

When the moon is half full and facing up like a cup, then it's going to be dry. If it's facing down, that means it's going to rain. Rain would come from makai. But now those signs do not bring rain anymore.

An 'iwa bird coming near shore means a storm is coming (they usually hang way out at sea)

Red sky at night, sailor's delight. Red sky in the morning, sailors take warning.

When the moon is tipped a little towards Ka'ū, there's going to be rain.

It used to rain regularly at 3pm at Kahuwai Bay, but not anymore.