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Economic Costs of Drought in Hawai‘i

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Figure 1. Kona coffee under drought. *Big Island Video News*

Drought in Hawai‘i

In the U.S., drought is the most costly natural disaster after hurricanes, with an average cost of $9.6 billion per event (NOAA, 2019).

The 2007–2014 drought in Hawai‘i was unprecedented. It was the longest and most severe drought on record in Hawai‘i’s history. This drought was associated with an El Niño event that impacted the entire state. Disaster declarations were made, wet rainforest areas dried out, and Kona coffee farmers had to buy public water for irrigation and still lost trees.

Drought is a natural, frequent occurrence in Hawai‘i with impacts on all islands. Droughts are often associated with El Niño events, which are part of a natural climate cycle in the Pacific Ocean. As isolated islands in the Pacific, Hawai‘i has limited water resources, making the islands highly sensitive to reductions in water availability.

The **impacts of drought** include crop yield losses, reduced quality and quantity of drinking water supplies, mandatory water restrictions for residents, increased wildfire risk, death of cattle, damage from insect pests, low stream levels, negative impacts to native species, effects on cultural practices, and other socioeconomic impacts. If a wildfire occurs, once the rains return after a drought the excess water washes sediment down to near-shore areas and has a negative effect on coral reefs.

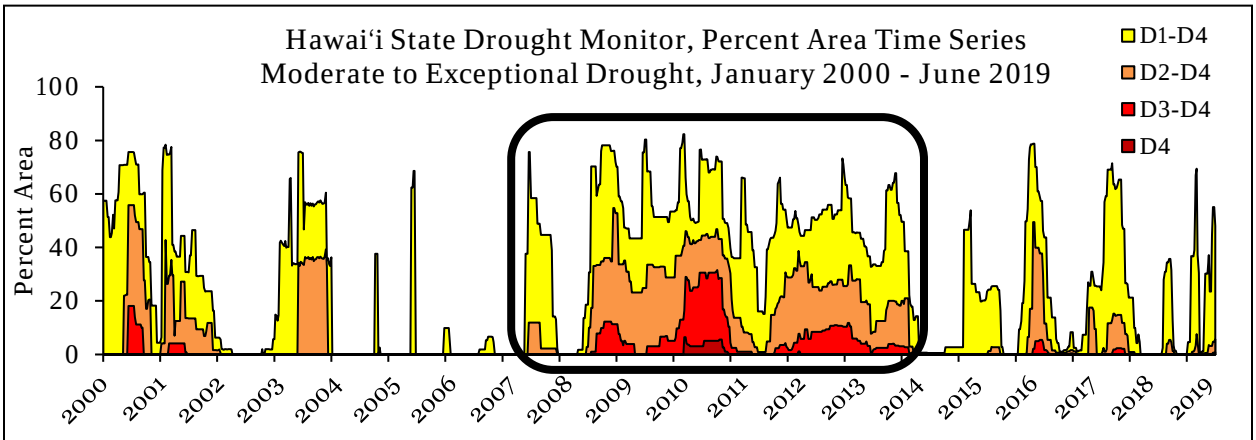

Figure 2. Percent area in drought in Hawai‘i from January 2000 through June 2019, shown for four drought categories: D1 Moderate drought; D2 Severe drought; D3 Extreme drought; D4 Exceptional drought. Data from U.S. Drought Monitor: https://droughtmonitor.unl.edu/

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Economic Losses in the Agricultural Sector

The biggest economic losses due to drought in Hawai‘i occur in the agricultural sector: farming and ranching. **Drought is the number one cause of loss** for federal crop insurance payouts in Hawai‘i, making up over one-half of total payments. Payouts due to drought have totaled almost **$10 million** since 1996, with more than $8 million paid out for macadamia nuts and $1 million for coffee (RMA, 2019).

Non-insured crop disaster payments totaled more than **$23 million** between 2010 and 2018, and between 2008 and 2017 another **$50 million** went to ranchers in the state who suffered grazing losses due to drought (FSA, 2019).

It is estimated that the 2007–2014 drought cost **$44.5 million** in lost production from ranching. **More than 20,000 head of cattle were lost**. It will take another 10–14 years to rebuild the state's cattle inventory, costing an estimated $4 to $6 million per year.

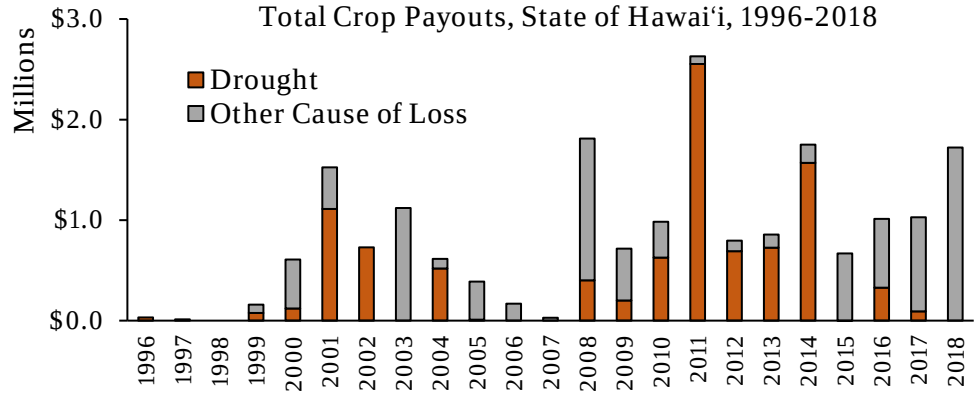

Figure 3. Total crop payouts (indemnities) by year, separated by Drought versus all other causes of loss.

Data from USDA RMA Federal Crop Insurance Corporation.

Conclusions

Drought has cost the State of Hawai‘i millions of dollars in agricultural losses. Drought also affects many other sectors, including tourism and recreation, wildfire control, and ecosystem services, and may force water-catchment users to purchase private water supplies. Economic data for these other sectors are not readily available, which limits a full assessment of the costs of drought in Hawai‘i. Hawai‘i may not be thought of as a drought-prone region, but drought in fact is a major, costly hazard for the state. Careful planning and active management can help reduce the impacts of future droughts.

References:

Farm Service Agency (FSA), U.S. Department of Agriculture (USDA), Disaster Assistance Program, https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/index

NOAA National Centers for Environmental Information (NCEI) U.S. Billion-Dollar Weather and Climate Disasters (2019). https://www.ncdc.noaa.gov/billions/

Risk Management Agency (RMA), U.S. Department of Agriculture (USDA). https://www.rma.usda.gov/

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