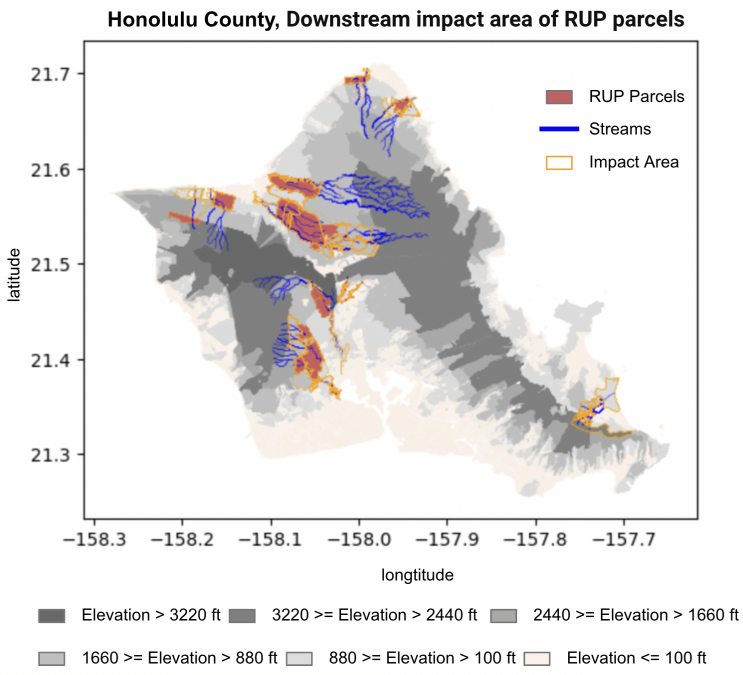
In navigating the intricate landscape of Hawaii's pesticide practices, this project examined the usage of Restricted Use Pesticides (RUPs) in Hawaii, focusing on their implications for human health and the environment.

Analyzing the 2019 dataset for RUPs, we found that a significant portion of RUPs containing ingredients are banned in other parts of the world, raising questions about their safety and regulation in Hawaii. Expanding our focus, we delved into the impact of RUPs and their application proximities to public areas and streams. Unlike more regulated states, like California, Hawaii lacks specific restrictions around RUP use, prompting us to assess the risks these pesticides pose to sensitive groups. By incorporating public facilities data such as schools and hospitals, we unearthed populations that are particularly at risk of harm from RUP applications.

Our methodology involved an analysis of pesticide drift, the unintentional diffusion of pesticide particles, guided by measuring the physical and chemical properties of RUPs and weather conditions. We pinpointed areas where conditions exceeded regulatory recommendations that increased the likelihood of pesticide drift. Hawaii's approach to pesticide regulation, particularly near schools, was a focal point of our study. The state enforces a 100 ft buffer zone around schools, restricting RUP application during school hours to safeguard children from exposure. Our research revealed and mapped the areas where schools and children are potentially at risk, underscoring the critical need for strict enforcement of these regulations. Additionally, stream analysis illuminated the downstream impact of pesticide usage, affecting areas beyond the original RUP parcels (see figure).



Our findings underscore the imperative for continued analysis and informed decision-making for pesticide usage and regulation. Suggestions for future exploration include merging pesticide toxicity with stream properties, incorporating health data for negative effects, and exploring different pesticide application types.