

Department of Water Supply

Source Water & Wellhead Protection Programs and Lessons Learned

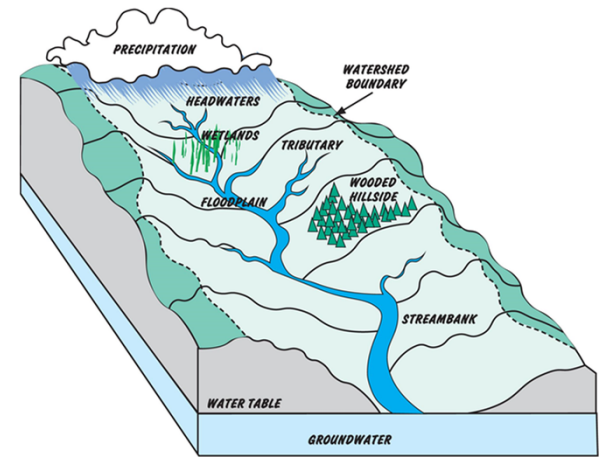
Tuesday, August 7, 2018 - 7:30pm - 5:00pm

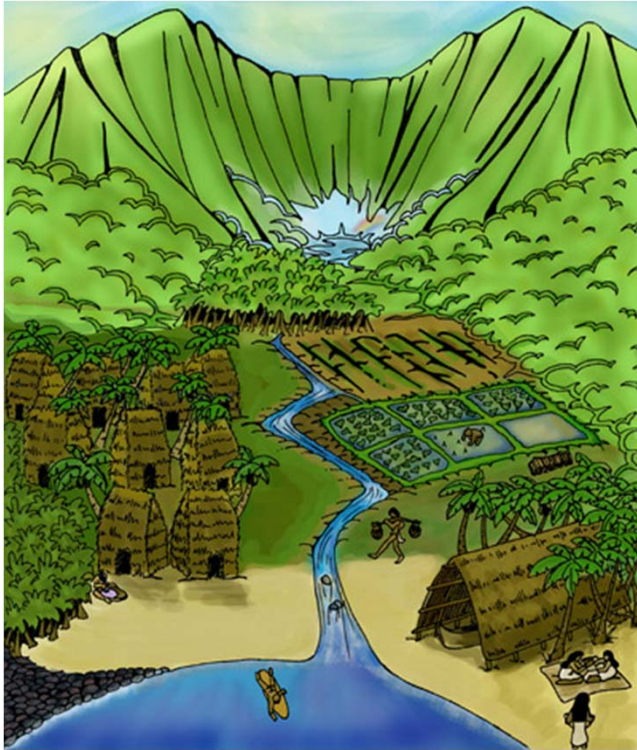
Joint Government Water Conference





**Why is DWS so heavily involved?
Source water in Hawaii starts as rain...**



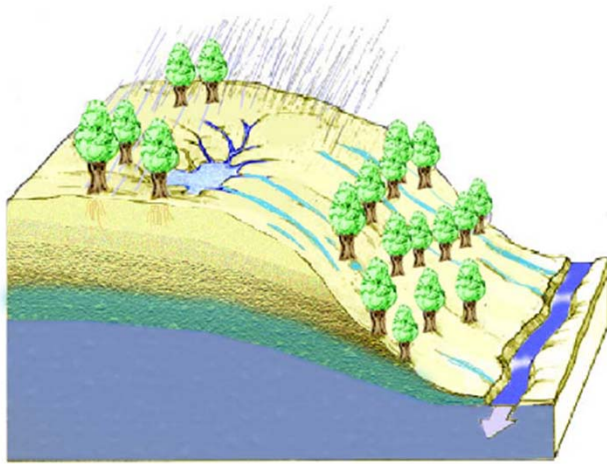


Source: McPherson, UH Hilo

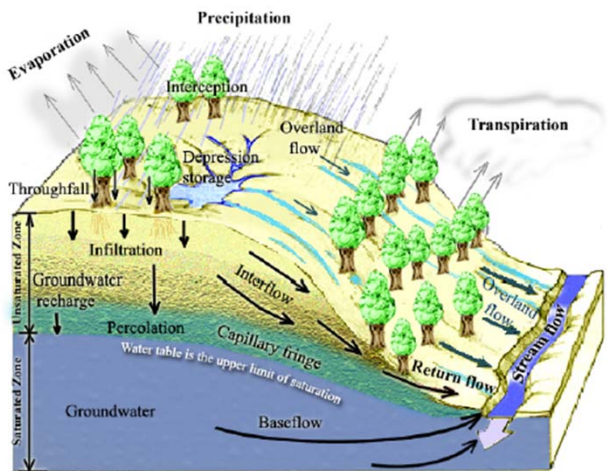
What is source water?

- The water you consume comes from a source
- Groundwater
- Surface water
- A water distribution system connects to water sources to produce potable water to service customers
- Groundwater and Surface water are recharged by precipitation in our watersheds that feeds our aquifers, rivers and streams

Runoff and Infiltration



When precipitation reaches earth's surface, some of it flows along the surface of land and enter surface water like lakes, streams, and rivers, as **runoff**.

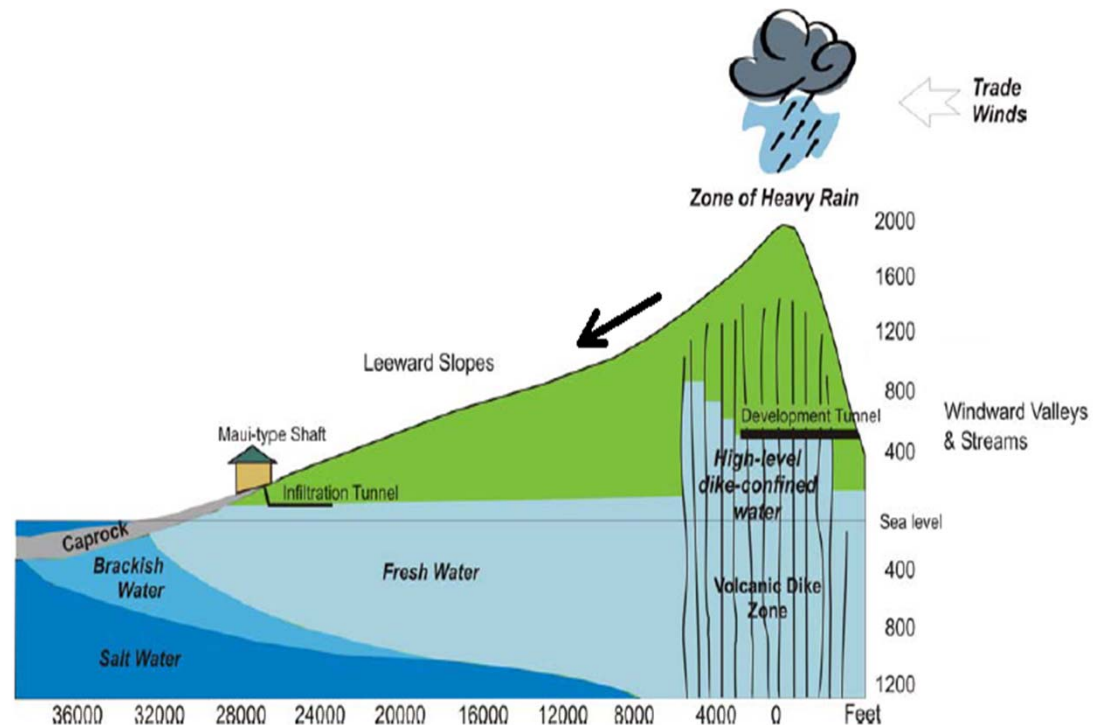


Rest of it soaks or percolates into soil, called recharge. Water then moves down through soil (**infiltration**) as groundwater and stored in aquifer below.

Source: Tarboton, D., UST

Infiltration & Wells

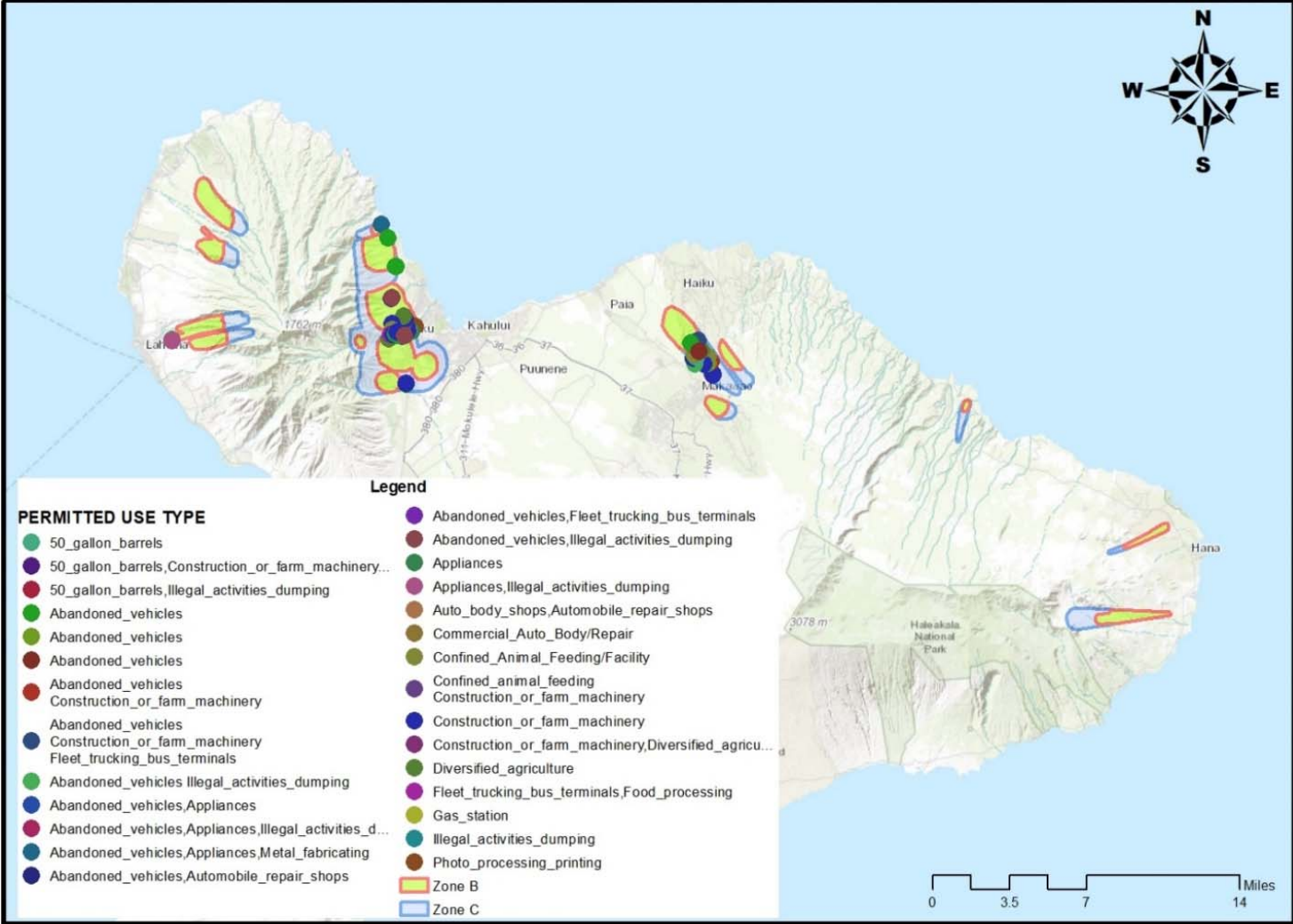
- Groundwater supplies must be **recharged by infiltration**
- **Potential contaminating activities (PCAs)** can contaminate ground sources by infiltration
- Water in aquifers is brought to surface naturally through a spring or seep and can also be discharged into streams
- Wells provide access to groundwater from aquifers
- Remediating contaminated groundwater is very costly



Source: Hawaii Department of Agriculture

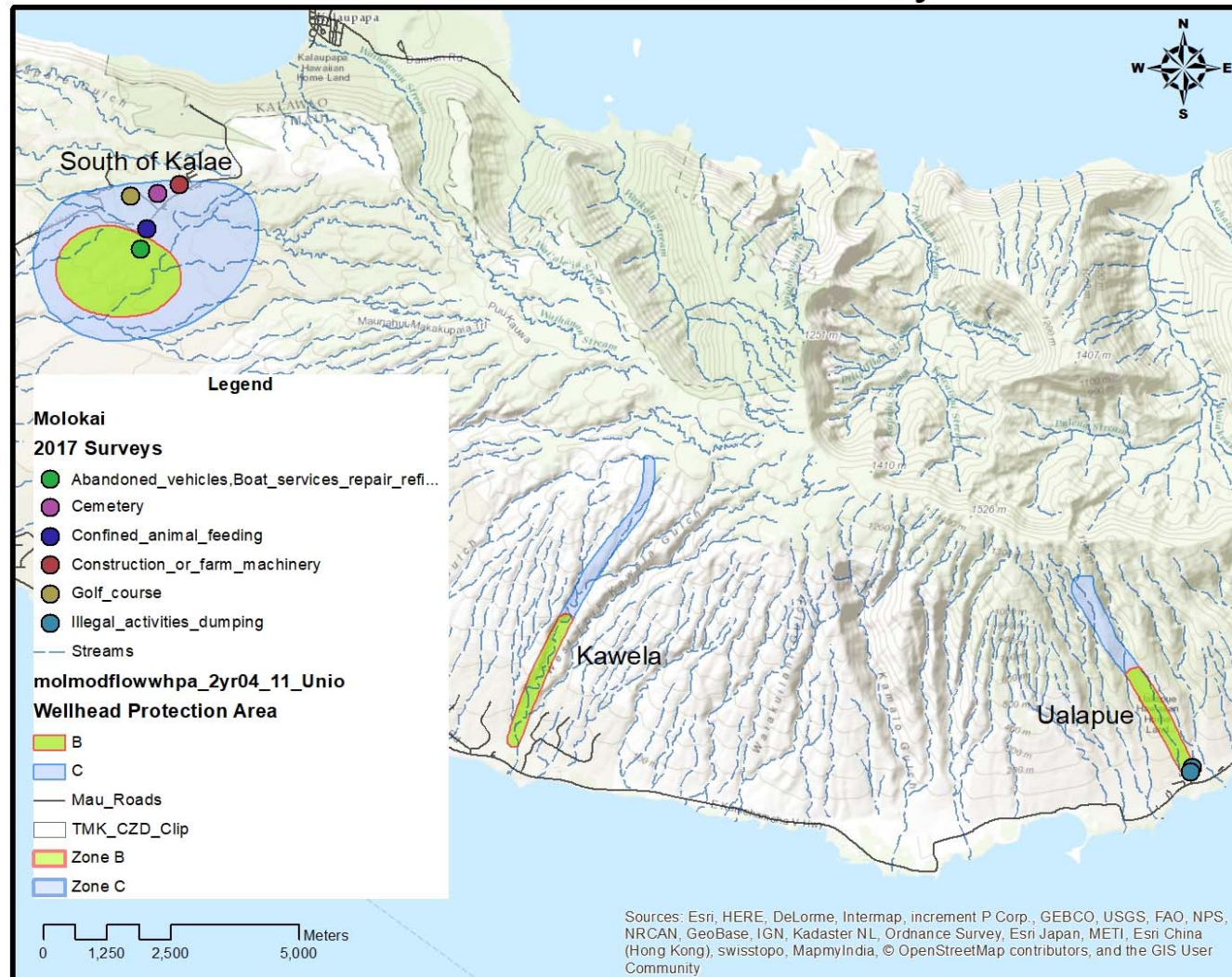
2017 Maui Island PCA Survey Results

Updated PCA Survey on Maui



2017 Molokai PCA Surveys

Updated PCA Survey on Molokai



We can be more proactive in cleaning up potential sources of groundwater contamination



Successful Cleanups

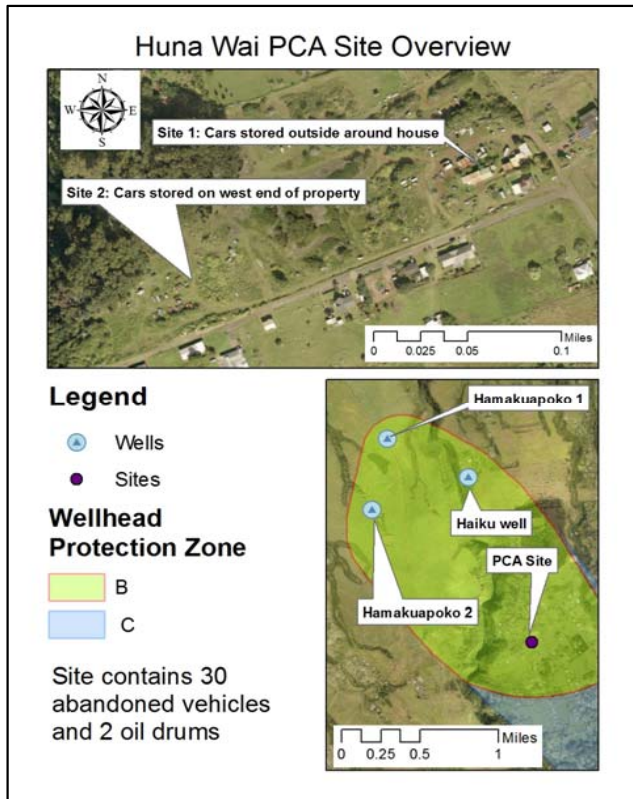
- Over 23 vehicles removed
- Two (2) 50 Gallon Oil Barrels removed
- Approximately 47 tons of vehicles, engine blocks, and other parts and materials removed
- Approximately 2 ton of illegally dumped materials including refrigerators, stoves and other household appliances and fixtures



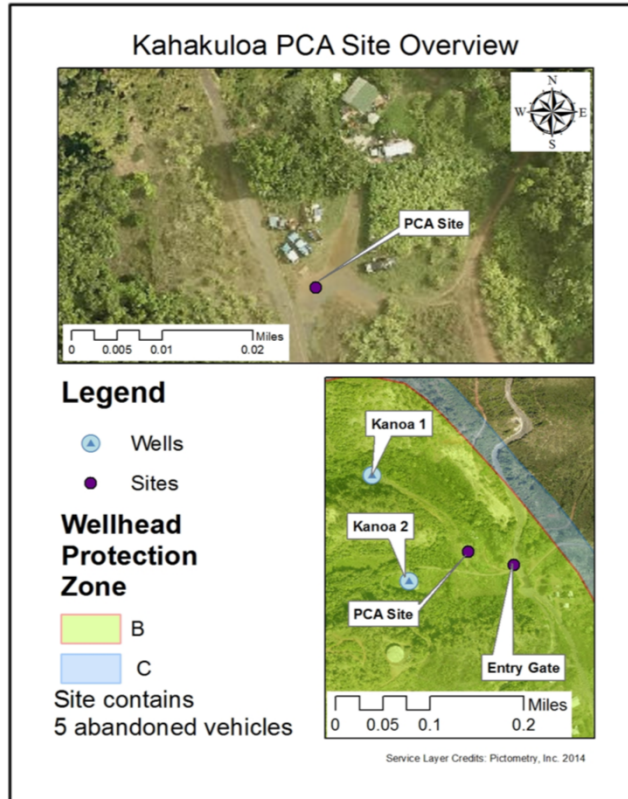
Cleanup Projects Lessons Learned

- Many PCAs are hidden on private property
- Many landowners cannot afford to remove materials that poses contamination issues
- There may be a large number of disregarded oil containers throughout Maui and Molokai
- Landowners are afraid of the legal repercussions for seeking help to clean up their properties
- Many landowners are willing to cooperate and provide “right of entry”
- Many landowners are faced with illegal dumping on their property
- Local agency efforts can be consolidated to help solve PCA issues
- Many landowners are unaware of WHPAs, their location relative to it, its significance, and how their activities may be PCA-related

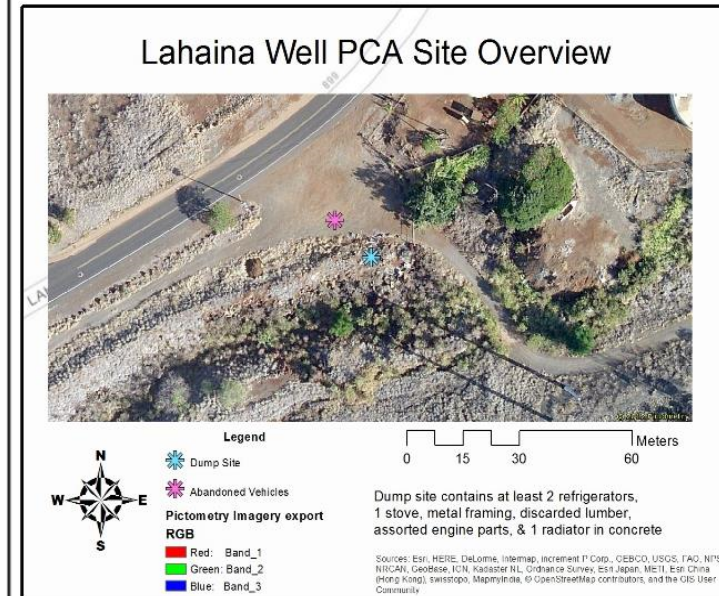
PCA Locations



Upcountry

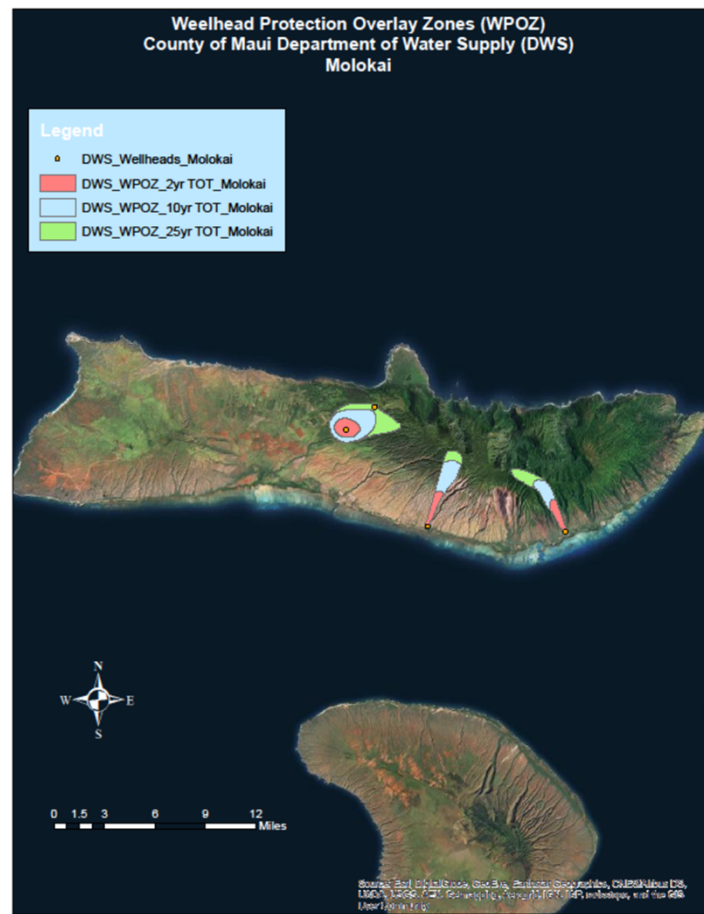


North-West Central



PCAs approx. 150ft from DWS
Waipuka 1 & Waipuka 2 Wells

Maui County Wellhead Protection Areas



43 New Sign Installations

**PUBLIC WATER
SUPPLY
PROTECTION
AREA**



REPORT SPILLS AND ILLEGAL DUMPING:
Contact the Maui Police Department
(808) 244-6400

**ENTERING
PUBLIC WATER
PROTECTION
AREA**



REPORT SPILLS AND ILLEGAL DUMPING:
Contact the Maui Police Department
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**We reached out to the Ag Sector to ask
What will the future of sustainable
agriculture be and why is source protection
so important?**



General Sustainability Agriculture Diagram



Source: EPA

Legacy Contaminants and Pollutants are hard to deal with

- TCE, TCP, PCE, EDB, DBCP, Atrazine
- Bacteria, nitrogen, and phosphorus



Source Protection and Agriculture

- Hawaii's legacy agriculture has left some areas of the Maui with contaminated groundwater
- Current activities still pose threats to groundwater quality especially when current BMPs are not practiced



Ag Workshops Lessons Learned

- Cost solutions for BMP implementation is important
- Financial assistance for implementing specific BMPs can help
- Farmers are usually looking for financial assistance for the same BMPs
- Partnerships can help ensure the implementation of source protection BMPs and are key to gaining better insight and awareness
- Many farmers are not aware of what happens to chemical pesticides below the surface
- Farmers already dealing with more stringent safety and health regulations that impose BMPs
- Need for greater utilization of technology to help increase efficiency for pesticide applications and runoff

Public Outreach

- Source Protection Citizenship Campaign (new)
- Presentation to schools, local organizations and homeowners associations
- Yearly events
- Media



County of Maui Department of Water Supply

SOURCE WATER PROTECTION VIDEO CONTEST

Contest Theme:
Keep Our Water Clean and Pure

ATTENTION MAUI COUNTY HIGH SCHOOL STUDENTS

Showcase your ideas on how to protect our drinking water by creating a 1.5 to 3 minute Public Service Announcement (PSA).

WIN COOL ELECTRONIC DEVICES!

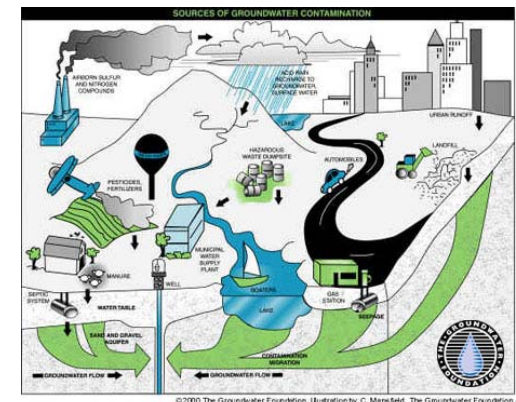
DEADLINE: MARCH 10, 2017

For more information call 463-3110 or visit www.mauewater.org

WHAT GOES ON THE GROUND ENDS UP IN OUR WATER

Conserve water, limit use of household and garden chemicals and dispose of hazardous wastes responsibly.

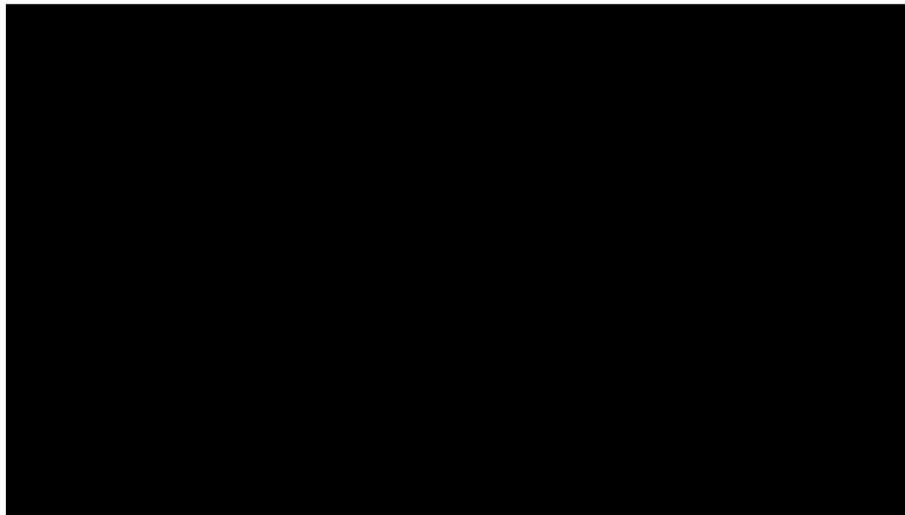
For more tips on protecting our drinking water, contact the County of Maui Department of Water Supply at 463-3110 or visit www.mauewater.org



Source Protection Video Contest



FILM SUBMISSION
FOR
THE SOURCE WATER PROTECTION
VIDEO CONTEST





MAHALO NUI LOA!