

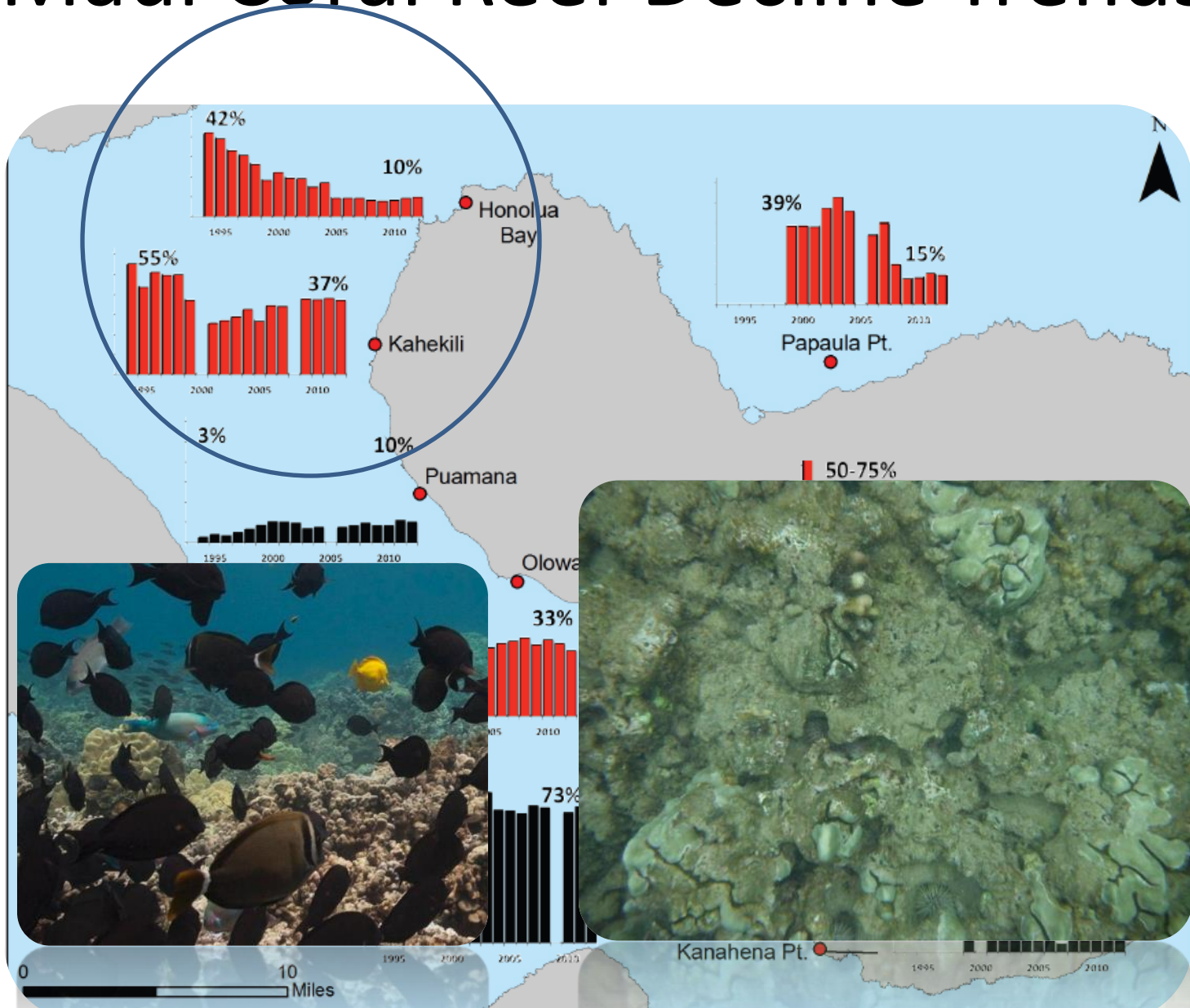
# Watershed Management in West Maui



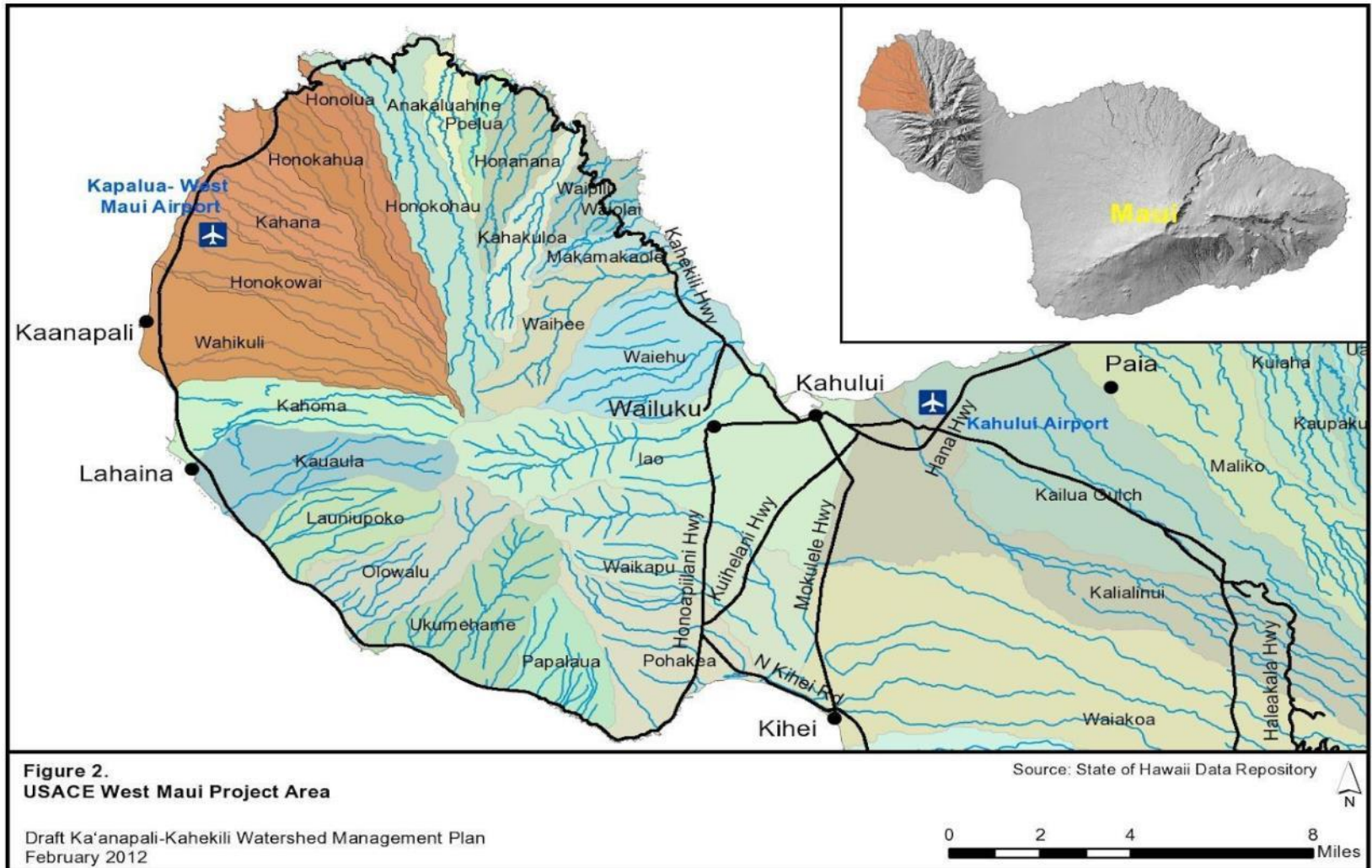
Tova Callender

West Maui Watershed & Coastal  
Management Coordinator, Aug.20,2014

# Maui Coral Reef Decline Trends

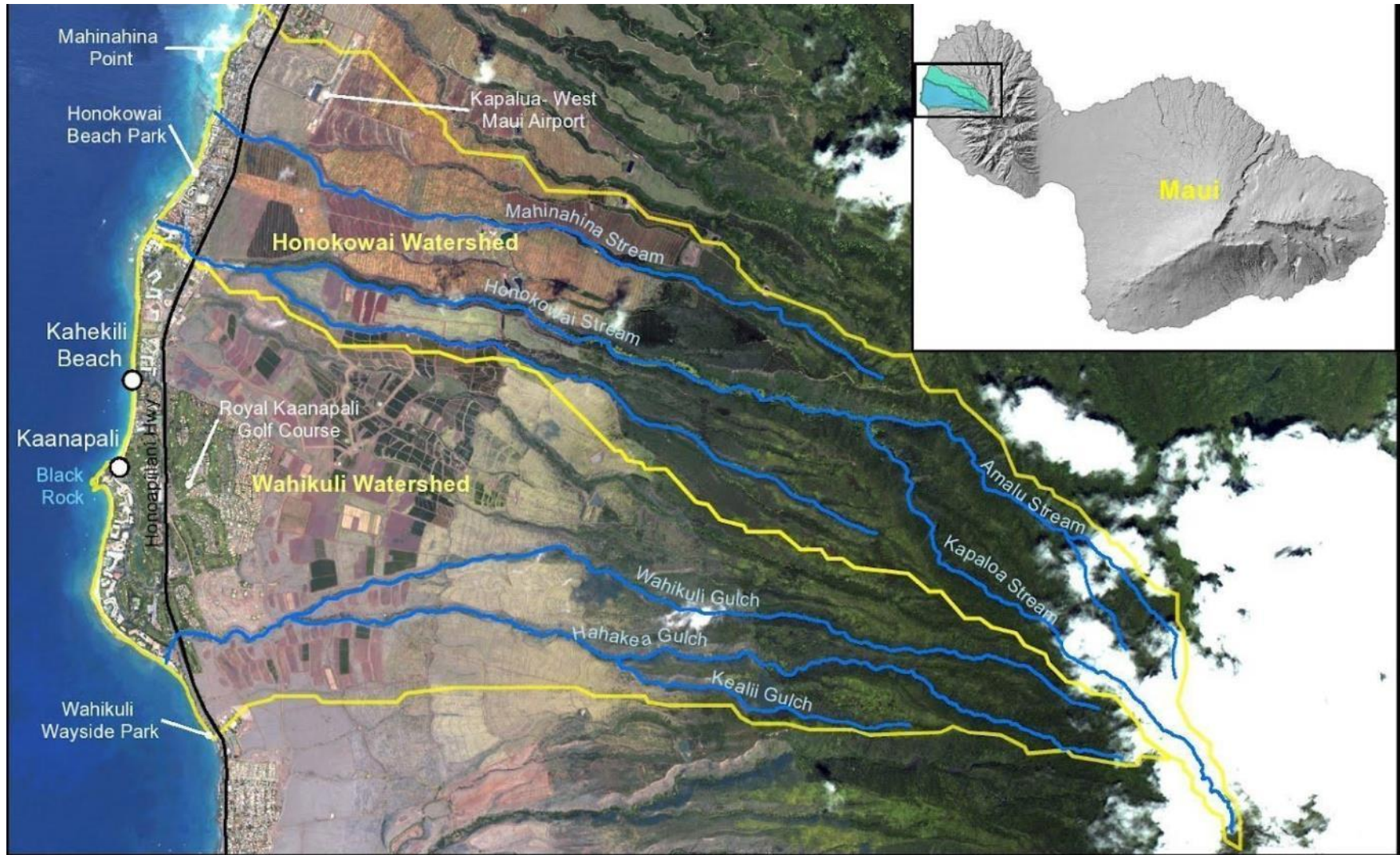


# West Maui Ridge to Reef Area





# Priority Watersheds: Wahikuli & Honokowai































# Watershed Partners

## Funding and Agency Support Team



Hawaii DLNR



Hawaii DOH



NOAA



USEPA



NFWF



USDA-NRCS



DOI-FWS



USGS



US Army Corps  
of Engineers®

USACE

## Local Working Group



## R2R Hui (Team)



CORAL REEF ALLIANCE



MAUI MARINE RESOURCE  
COUNCIL



SeaWeb  
Learning Science for a Healthy Ocean



Protecting nature. Preserving life.™



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# Threat: Landscape chemical run-off





# Threat: Erosion after wildfires





Threat: Dam that does not trap fine particles





# Threat: Eroding agricultural roads



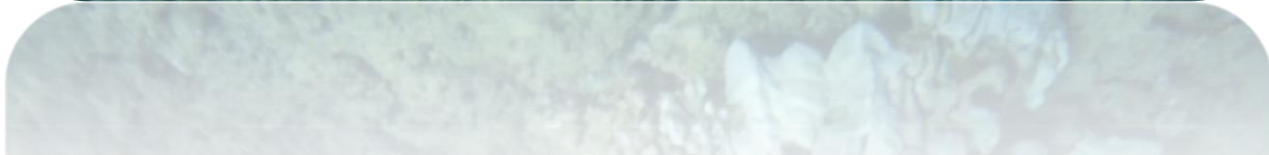


# Threat: Bare agricultural fields





# Threat: Waste water reclamation facility injection well discharge





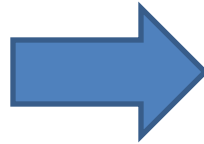
# Threat: Urban pollutants in run-off





# Goal of West Maui Ridge to Reef (R2R) Initiative

- To restore and enhance the **health** and resiliency of **West Maui coral reefs** and near-shore waters through the **reduction of land-based pollution** threats from the summit of Pu`u Kukui to the outer reef. These efforts will be guided by the values and traditions of West Maui.





# Top Accomplishments- #1

## WMP & Funding for Implementation

- Development of a **watershed plan** and significant levels of **funding** available for **implementation projects** made available through R2R Partners.





# Demonstration Rain Garden & Workshop at County Park

## *This Rain Garden Protects Our Reef!!*

### What are Rain Gardens?

When it rains, water washing off roofs, driveways, roads and parking lots can carry bacteria, oils and other pollutants directly to our streams and beaches. Rain gardens are landscaped depressions that use plants, soil and mulch to remove pollutants and allow water to soak into the ground.

### Did you know....

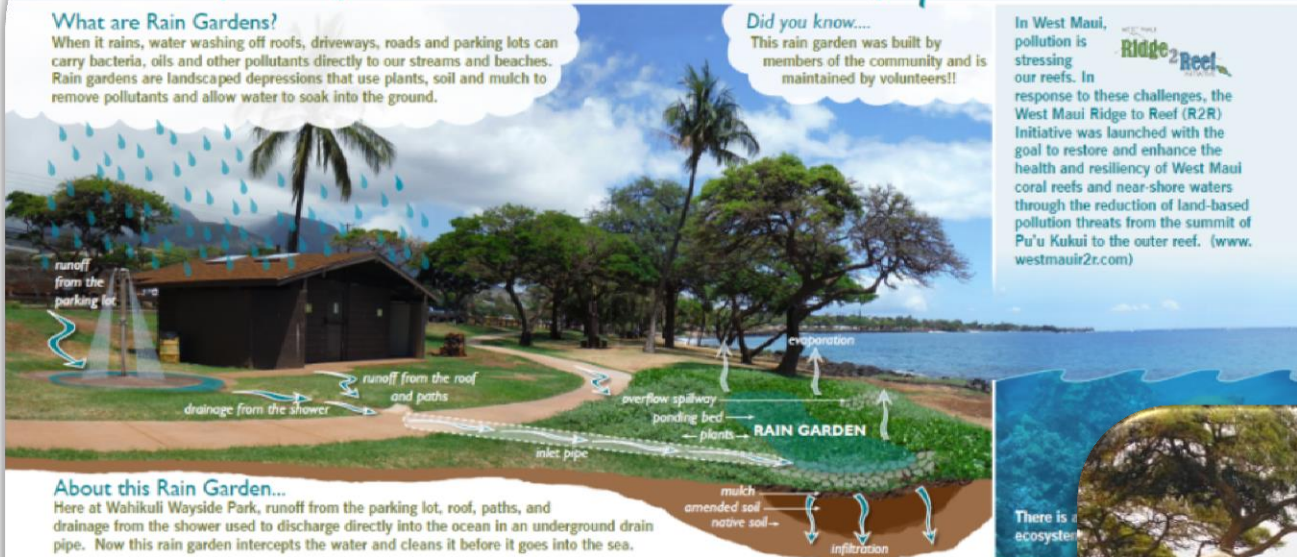
This rain garden was built by members of the community and is maintained by volunteers!!

### In West Maui,

pollution is stressing our reefs. In response to these challenges, the West Maui Ridge to Reef (R2R) Initiative was launched with the goal to restore and enhance the health and resiliency of West Maui coral reefs and near-shore waters through the reduction of land-based pollution threats from the summit of Pu'u Kukui to the outer reef. ([www.westmauir2r.com](http://www.westmauir2r.com))



NOAA  
funded



### About this Rain Garden...

Here at Waihi Wayside Park, runoff from the parking lot, roof, paths, and drainage from the shower used to discharge directly into the ocean in an underground drain pipe. Now this rain garden intercepts the water and cleans it before it goes into the sea.

### A Big Mahalo...

to the organizations, agencies and volunteers who helped make this rain garden possible!



PARSONS

### Can you find the inlet pipe that leads from the shower to the rain garden?

Hint: Look near the pathway.

### What can you do to protect our ocean?

Build a rain garden at your home! Check out the Hawaii Resident Rain Garden Guide to learn how you can help. [www.huihawaii.org](http://www.huihawaii.org)





# Reef Friendly Landscaping Planning



*NOAA/DAR  
cooperative  
agreement  
funded*

# Post Fire Rehabilitation Planning



*NOAA/DAR  
cooperative  
agreement  
funded*



# Pilot Curb Inlet Basket Installations



*Pilot: NOAA/DAR  
cooperative  
agreement  
funded-  
Phase 2: DOH/EPA*



# Hanaka'ō'ō Slope Stabilization



*DAR and  
community  
funded*



# Honokowai Dam #8 Retrofit Analysis to Reduce Flow-through of Fine Particles



# Phase 1 Agricultural Road Erosion Control BMPs



*NOAA/DAR  
cooperative  
agreement  
funded*



# Top Accomplishments- #2

## Formalized support structure

- **Formalized structure and commitment to both project planning and implementation** across agencies, NGOs and the community.





# A Collaborative Effort

## Funding and Agency Support Team: Directs & Funds



Hawaii DLNR



Hawaii DOH



NOAA



USEPA



NFWF



USDA-NRCS



DOI-FWS



USGS



US Army Corps  
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USACE

## Local Working Group- Advises



## R2R Hui- Partners & Supports



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# Top Accomplishments- #3

## Multi- level Outreach Approach

- Multi-pronged approach engages from the individual, community to stakeholder level



# Programmatic R2R Outreach

- Newsletter & mailing list
- Meetings & presentations
- Website
- Newspaper articles





# Outreach through Partners





# Community Empowerment:

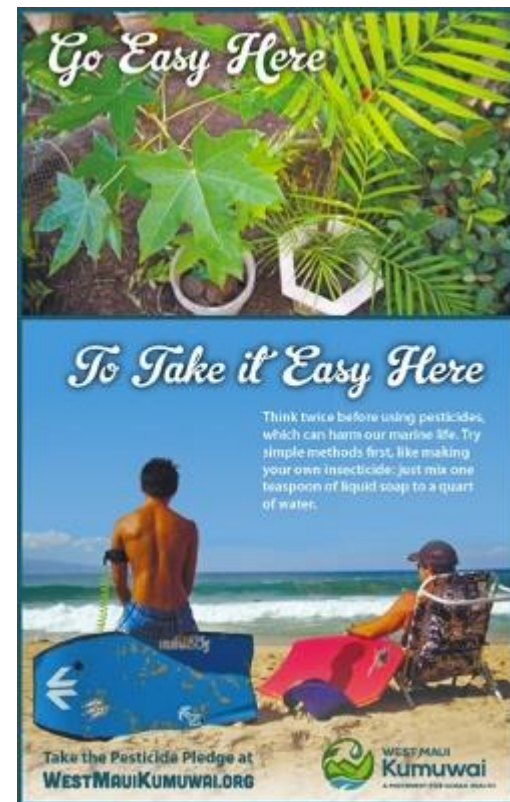
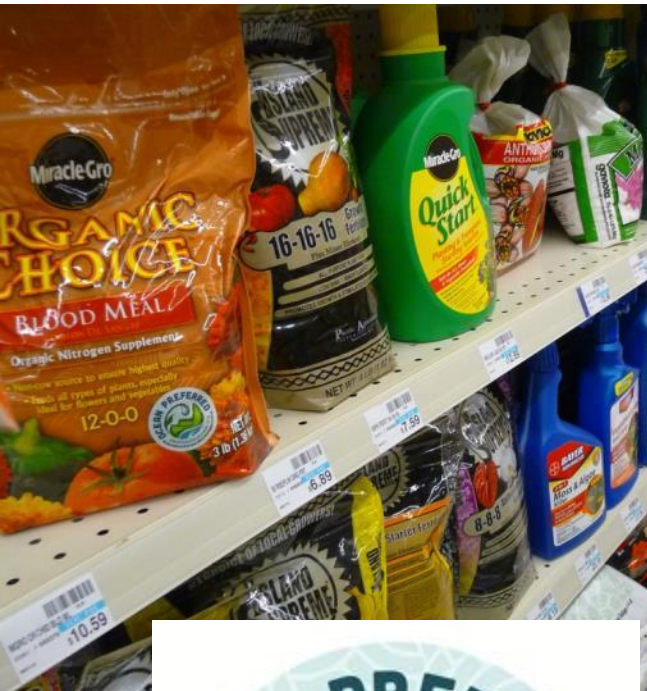
## West Maui Kumuwai Campaign







# WEST MAUI Kumuwai



# Role of monitoring

- Key component to tracking effectiveness and understanding dynamics
  - At the project level
  - Medium and long time horizons
  - Social, biological and organizational monitoring
- Hub of research activity





# Barriers to Implementation- #1

## Limited County Resources

- Challenges ability to prioritize natural resource stewardship if **staffing and funding** are already **maxed out**.



# Barriers to Implementation- #2

## Landowner Constraints

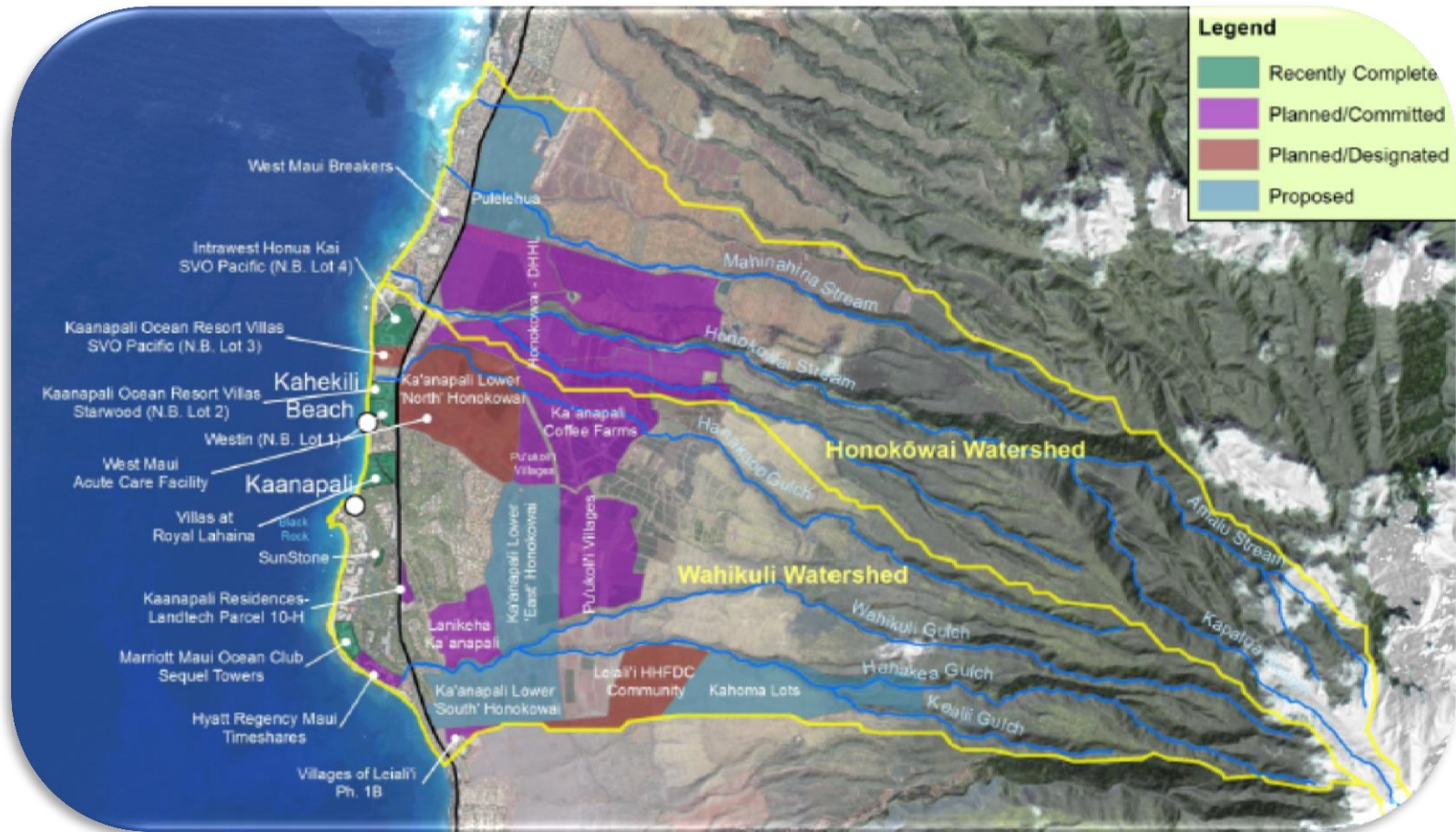
- lack of staff, capacity, equipment and funding
- liability concerns





# Landowner Constraints

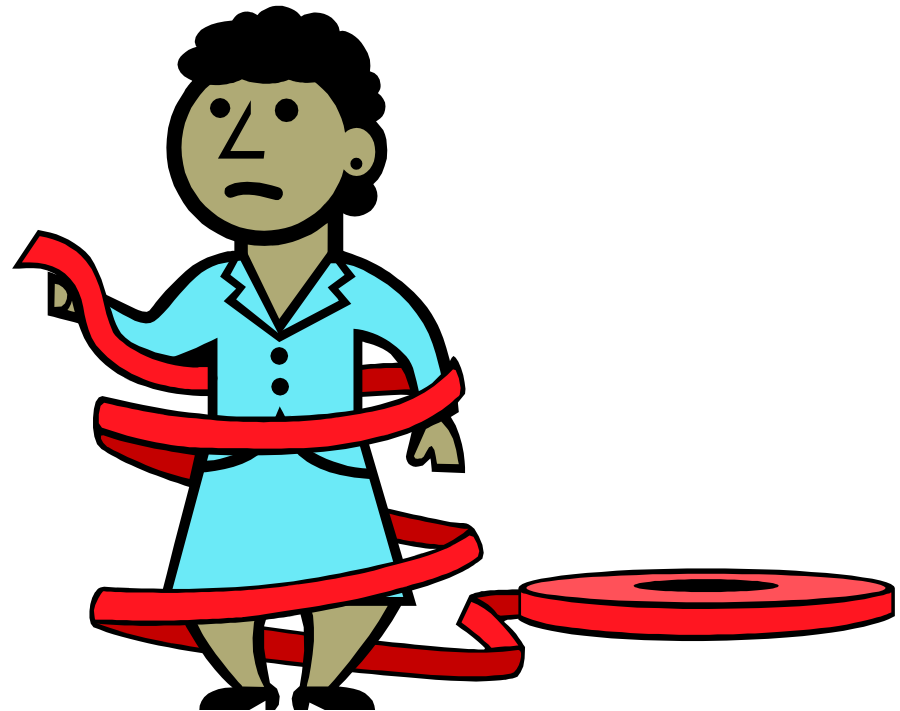
- Landscape in transition from farming to housing



# Barriers to Implementation- #3

## Bureaucratic Hold Ups

- including lengthy **processing times for grants** and securing **permissions**, as well as **expense and time** associated with environmental compliance and **permit requirements**.





# Lessons Learned #1

## Relationships are Critical

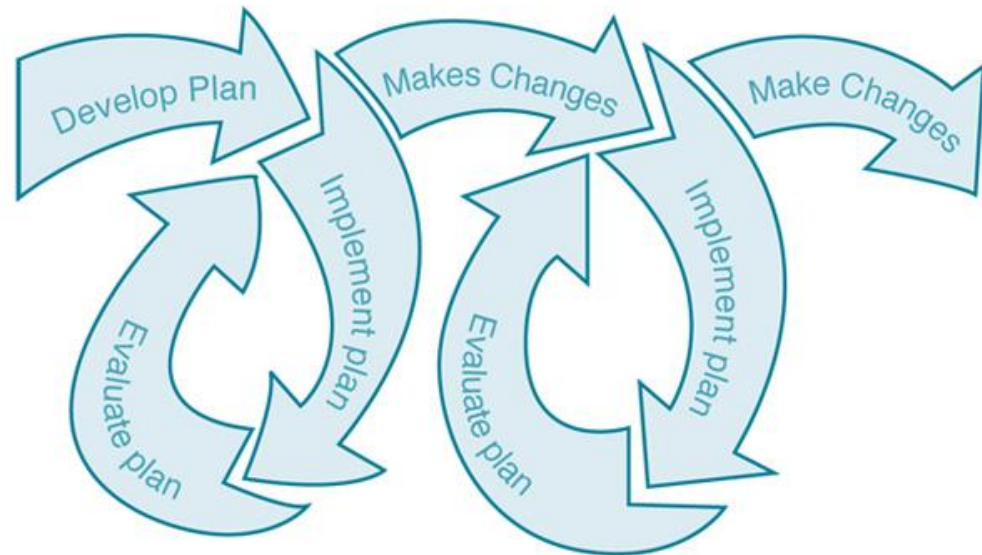
- **Strong relationships** are critical to **accomplishing goals** at every level and collaboration is the key to **magnifying each input** of energy, knowledge and funding.



# Lessons Learned #2

## Rolling implementation improves engagement

- Having an ability to undertake rolling **implementation of some activities**, while **continuing the planning** is also key to keeping the **community engaged**.





# Lessons Learned #3

## Expect Delays

- **Everything takes longer than you expect**, but there can be opportunity even in delays to make additional connections and incorporate better information.



# Recommendations for future watershed efforts

- Helpful to having some science in place prior to planning





# Recommendations for future watershed efforts

- Establish dedicated staff and supporting committees



# Recommendations for future watershed efforts

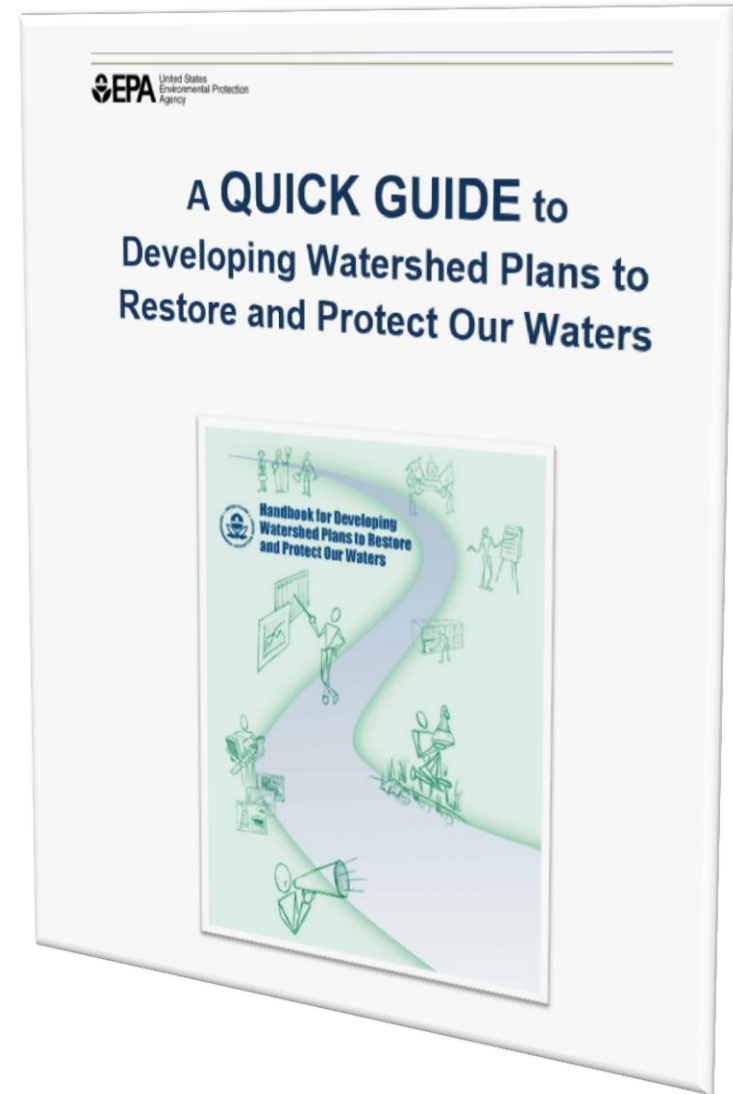
- Consider expansion to additional watersheds if the contributing threats cross out of the boundaries.





# Recommendations for future watershed efforts

- Scope and budget for watershed management plan to be as **“actionable”** as possible



# Recommendations for future watershed efforts

- Integrate watershed management activities with inshore activities





[www.westmauir2r.com](http://www.westmauir2r.com)



Mahalo!