

# North Kohala Agricultural Water Study (NKAWS) Report and Action Items



HAWAII STATE LEGISLATURE



Prepared by

Waimea Water Services





# Why Another Study?

- Responding to requests for help by individual and organizations in Kohala
- Previous studies based on large scale agriculture models no longer prevalent in Kohala
- There have been major changes in land and water use priorities in the last 25 years that need to be addressed.
- Regulatory issues need to be addressed (Diversion Permits, Easements, operator organization, land use, etc.)
- Change in Kohala from a single large agricultural operation to smaller more cooperative, community oriented organizations.
- Senator Lorraine Inouye, through the Legislature's CIP process, was successful in securing \$1.5M to conduct this study.



# Water In Hawaii

## Hawaii State Constitution Article XI, Section

- CONSERVATION AND DEVELOPMENT OF RESOURCES
- **Section 1.** For the benefit of present and future generations, the State and its political subdivisions shall conserve and protect Hawaii's natural beauty and all natural resources, including land, water, air, minerals and energy sources, and shall promote the development and utilization of these resources in a manner consistent with their conservation and in furtherance of the self-sufficiency of the State.
- **All public natural resources are held in trust by the State for the benefit of the people.** [Add Const Con 1978 and election Nov 7, 1978]



# What does “Held in trust” Mean?

- Fundamentally, water belongs to all of the residents of Hawaii.
- It is managed by the Commission on Water Resource Management (CWRM) for all of our use with certain cultural and environmental priorities.
- As the water belongs to all of us collectively as a State, no one “sells” or “buys” water. How it is used is determined by Laws and rules implemented by our elected officials.
- There is no direct cost to use the water but transmission, distribution and responsible use is up to the user.



# Purpose of NKAWS

The Purpose of the North Kohala Agricultural Water Study (NKAWS) is to identify demands, resources, and transmission requirements needed for agriculture to thrive as plantation era infrastructure reaches the end of its useful lifespan.

\* This is not limited to technical issues but will involve regulatory and organizational issues involved in system ownership and management.



# Participation Guidelines

- Participation in NKAWS is NOT compulsory
- Sources and uses on private land are not required to be disclosed beyond state reporting requirements.
- The primary goal is to develop a clear picture of needs, causes, effects and tools to facilitate planning, construction and operation. While recommendations and legal foundations will be provided, personal and business decisions will be made by owners and operators.
- The key is mutually beneficial collaboration.



# Plantation Era Infrastructure and Sources

- Sugar in Kohala went through a long evolution prior to the final form of Kohala Sugar
- Irrigation went through similar evolutions with sources and transmission being developed, adapted, modified, and in some cases abandoned.
- There were uses other than irrigation for the water. Hydro power and flume transmission, for example.
- The ditch and many of the sources were developed during a very different time regarding water use, land use, safety and environmental regulation.

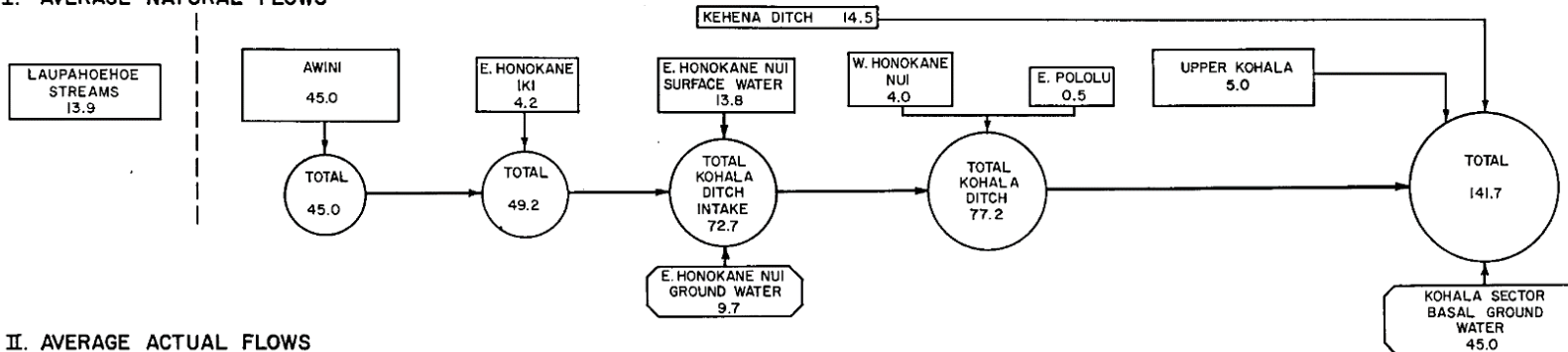


# Historic Sources

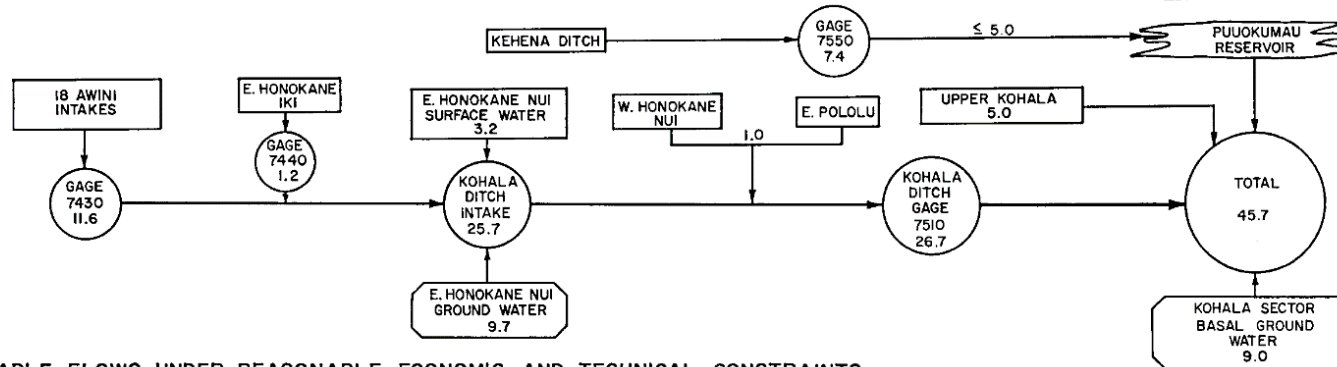
## SUMMARY FLOW CHART

SURFACE AND GROUND WATERS WHICH FLOW TO OR OCCUR IN THE KOHALA AGRICULTURAL REGION IN M.G.D.

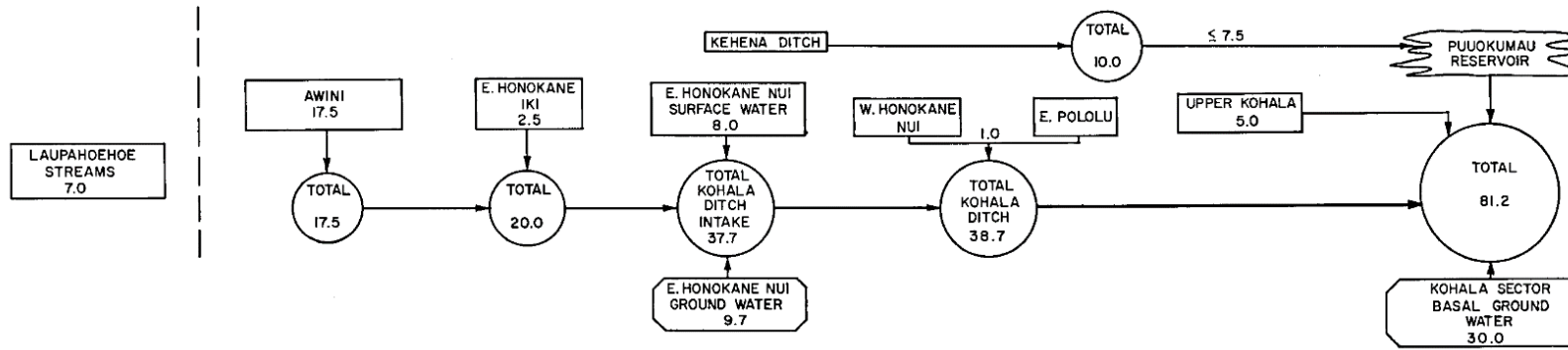
### I. AVERAGE NATURAL FLOWS



### II. AVERAGE ACTUAL FLOWS



### III. AVERAGE DEVELOPABLE FLOWS UNDER REASONABLE ECONOMIC AND TECHNICAL CONSTRAINTS



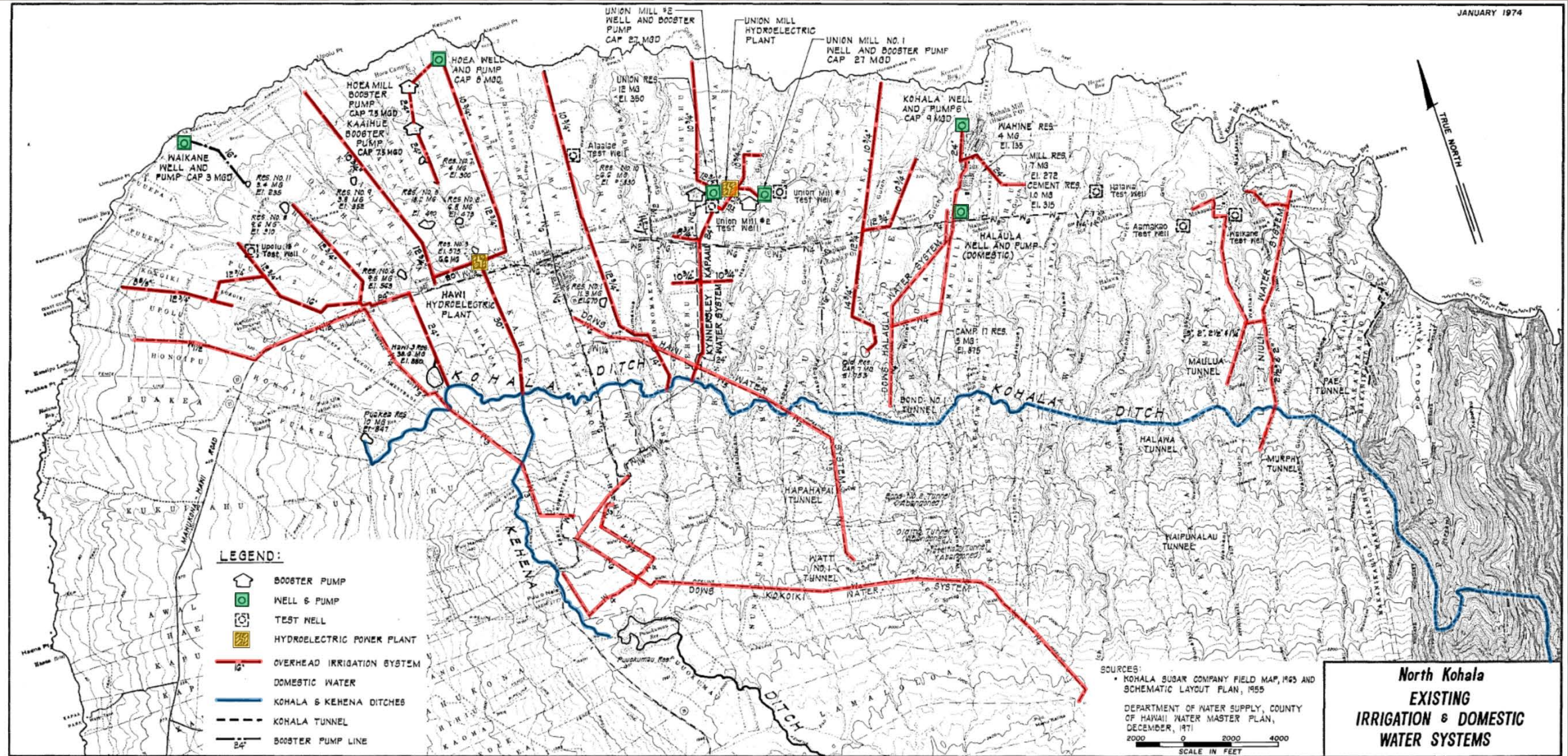
Average Natural Flow  
141.7 MGD

Average Actual Flow  
45.7 MGD

Developable Flows  
81.2 MGD



# Historic Distribution





# Summary of Legacy systems

- Very large amounts of water available
- Transmission is possible
- Agricultural productivity dramatically improved by irrigation

## Challenges

- Heavy infrastructure very old
- Legal use of systems not certain
  - Water allotment from CWRM
  - Incomplete documentation
- Land ownership no longer contiguous
- Demand not large enough to justify large systems



# NKAWS Findings

- Agricultural Demand: Probably the most challenging aspect of the study. Many areas could use water but without plans, costs and investments this is a number that is and will be in constant motion. Instead of finding a hard number, efforts are being made to ensure there are clear pathways to water as demands arise.
- Most of the legacy systems are no longer functional or are past service life.
- With the subdivision of much of the land and the distances from resources, private distribution systems for small farmers are usually cost prohibitive.
- A multi pronged approach will be needed to resolve issues. Critical will be developing organizations that are capable of dynamic planning as agriculture evolves.



# Strategy

- Find commonalities to form groups that can work together or at least benefit from each others planning and efforts.
- Make water available as soon as possible for smaller, more vulnerable, organizations.
- Look for ways to link resources with users. This will involve land owners, State and County entities and individual users as well as groups.
- Integrate existing facilities and operators when practical.
- Work to reestablish management of water in Kohala as a regional system(s).



# Important Considerations

- Kohala is a large area for planning. Diverse climate condition, land quality and sizes and variety of operations currently make a single plan impractical.
- Water is a public trust but land and businesses may be privately owned. This means privacy considerations and access must be considered.
- Individuals and companies are not generally required to participate or facilitate access to water. This means respectful cooperation is critical.
- Laws regarding water use and diversions are in flux. Recent rulings and pending legal actions have not been fully sorted out. Legislation is still being refined.



# Key Plan Points

- Three tiers of users based on daily water use.
  - Small-Least likely to be able to access private Ag water
  - Medium- May have access but will be more cost effective associated with other organizations.
  - Large-Capable of running its own system but may be able to cost share with other, including smaller, organizations.
- Goal to provide access to smaller agriculture as soon as possible using DWS system and ag rates. This also applies to processors of agricultural products to increase value of local production.
- Continue to evaluate and develop operation plans for State resources that are suitable for DOA to operate as sources. This includes springs, wells, ditch and catchment systems.
- Ensure plans compliment each other without being excessively dependent on each other. This prevents a “house of cards” effect.



# Action Items

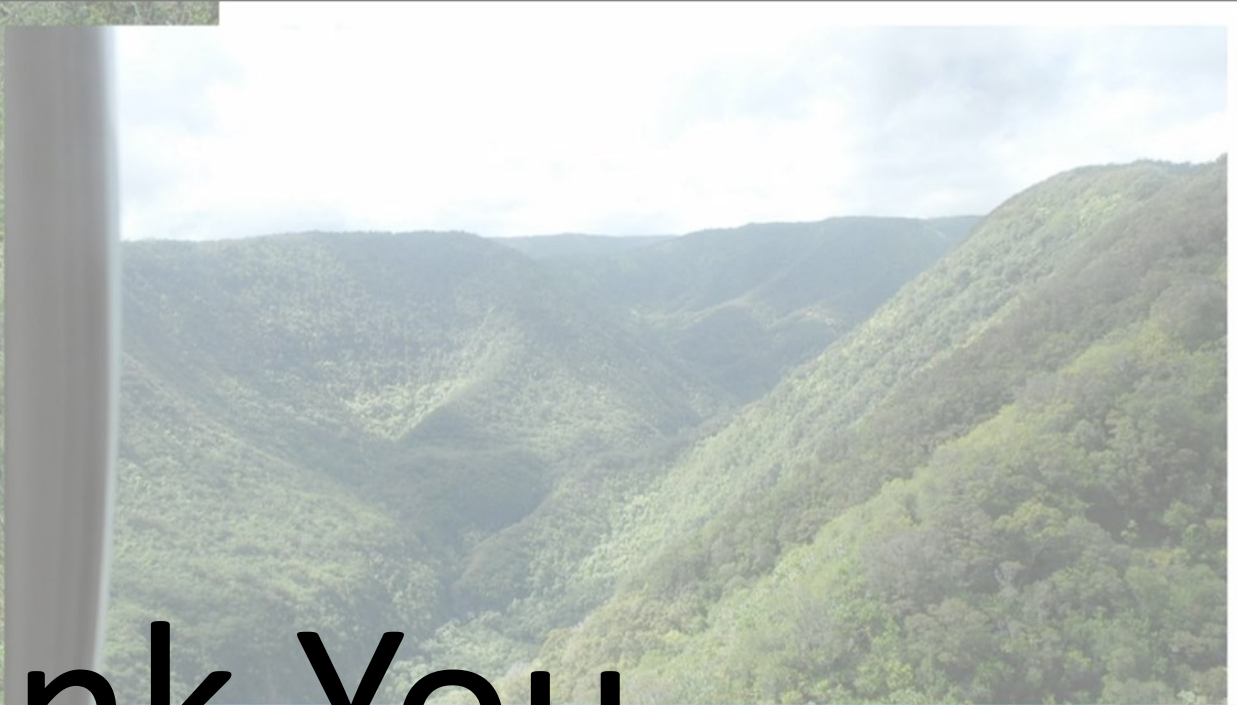
- Execute an Intergovernmental Agreement (IGA) between DLNR, Hawaii County DWS and DOA to provide improvements to DWS system in exchange for ag water units to be set aside for agriculture. Water units to be assigned by DOA or other designated agency.
- Establish a Non-profit/Quasi-governmental/ Governmental organization(s) capable of planning systems, managing easements and capable of accepting public funds to enhance community access to agricultural water.
- Establish mid and high-level water systems involving the Kehena Ditch, high level springs and State or Federally owned wells.



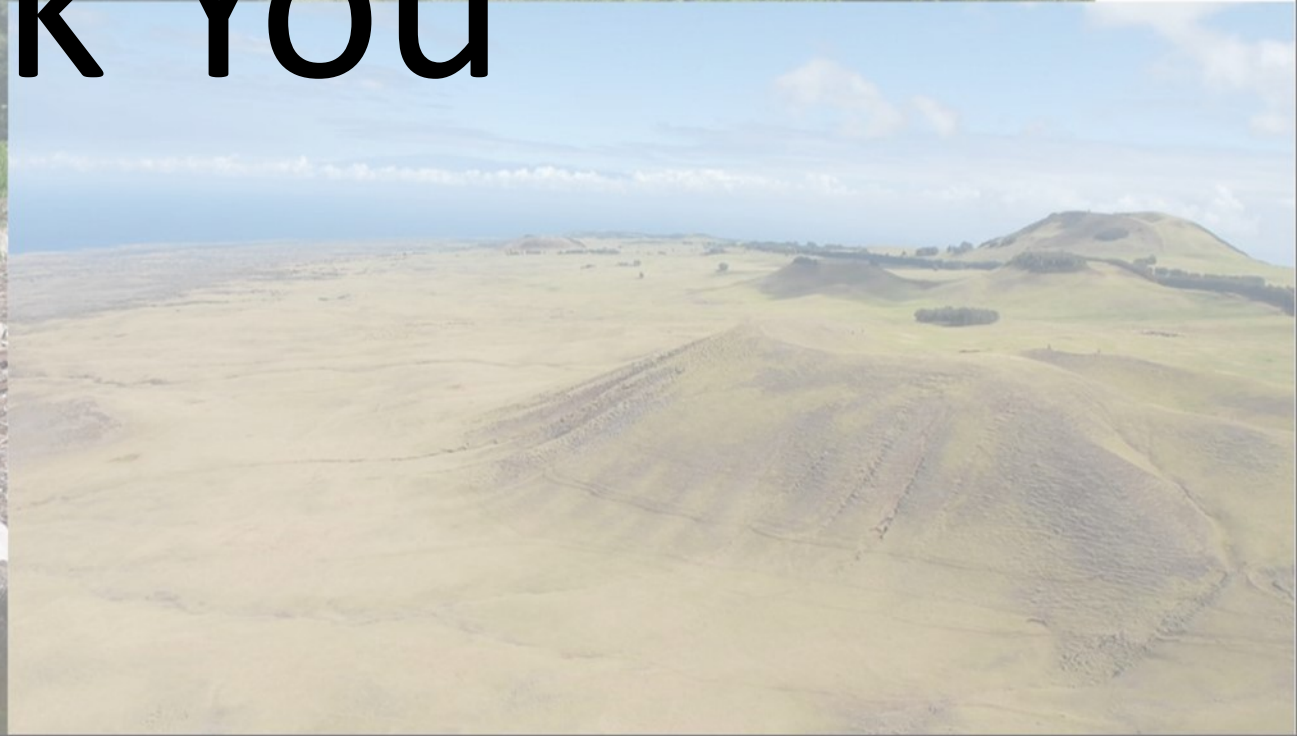
# What the Community will see

- Scott Enright will be working as a community liaison and coordinator. His role will be to identify small water users that need more or better access and looking for input on future larger scale plans. The goals are to provide better information to DWS for planning as well as coordination for other ag water projects.
- The DWS system will undergo an engineer review by Akinaka and Associates to pinpoint the improvements needed to allow ag water units. Once completed, water system improvements may be seen.
- Continued monitoring and exploration by Waimea Water Services, LLC (WWS) on resources and systems for future utilization.





Thank You





# Questions?

- Contact Waimea Water Services at [Resources@waimeawaterservices.com](mailto:Resources@waimeawaterservices.com)
- (808) 885-5941
- Report: <http://dlnreng.hawaii.gov/projects/north-kohala-agricultural-water-study/>
- Go to DLNR Engineering website ([dlnreng.hawaii.gov](http://dlnreng.hawaii.gov)), under the tab “Projects” is the link to the report.