Ke Kahuwai Pono

"The trustee who oversees the rightful sharing of water."

State of Hawaii
Commission on Water Resource Management

Program Briefing
Kaua‘i

April 28, 2015

Islands in the Pacific Ocean

Commission on Water Resource Management

- Seven (7) Members of the Commission
  - Chairperson of BLNR (Chair of Water Commission)
    - Suzanne Case

  - Director, State DOH (ex-officio voting member)
    - Virginia Pressler, M.D.

  - Five members are appointed by the Governor & confirmed by the State Senate

Denise Antolini

Kamana Beamer

Michael G. Buck

Milton Pavao

Jonathan Starr

Commission on Water Resource Management

Water Quantity

CWRM

Water Quality

DOH

Water Management in Hawai‘i

Hawai‘i State Constitution, Article XI, Section 1

(emphasis added)

“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 its people.”

Water Management in Hawai‘i

Hawai‘i State Constitution, Article XI, Section 7

(emphasis added)

“The State has an obligation to protect, control and regulate the use of Hawaii’s water resources for the benefit of its people.”

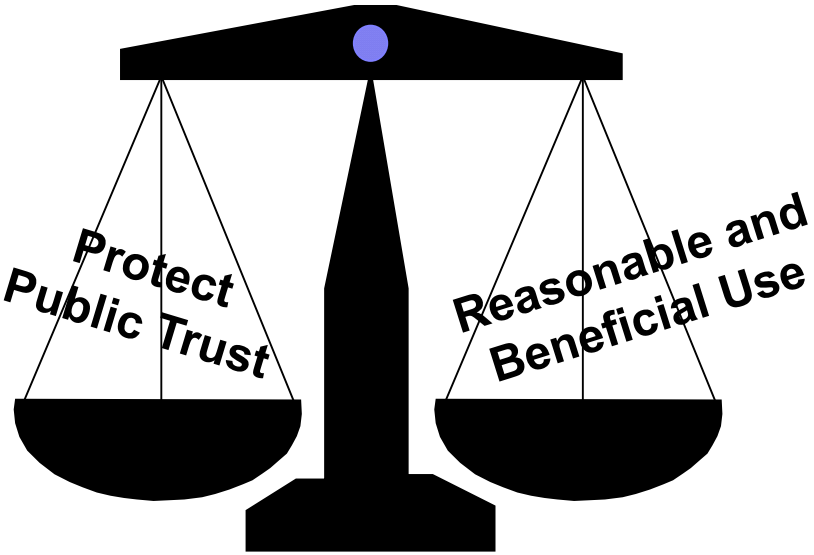
*“The legislature shall provide for a **water resource agency** which… shall set overall water conservation, quality and use policies; define reasonable and beneficial uses; protect ground and surface water resources, watersheds and natural stream environments; establish criteria for water use priorities while assuring appurtenant rights and existing correlative and riparian uses and establish procedures for regulating all uses of Hawaii’s water resources.”*

The State Water Code (1987)

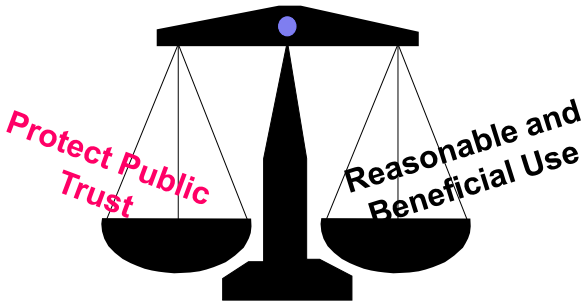
- *The Code shall be liberally interpreted to obtain maximum beneficial use of the waters of the State for purposes such as domestic uses, agricultural uses, power development, and commercial and industrial uses. (§174C-2(c) HRS)*

- *Adequate provision shall be made for the protection of traditional and customary Hawaiian rights, the protection and procreation of fish and wildlife, the maintenance of proper ecological balance and scenic beauty, and the preservation and enhancement of waters of the State for municipal uses, public recreation, public water supply, agriculture, and navigation. (§174C-2(c) HRS)*

Protect the Public Trust and Ensure uses are Reasonable and Beneficial

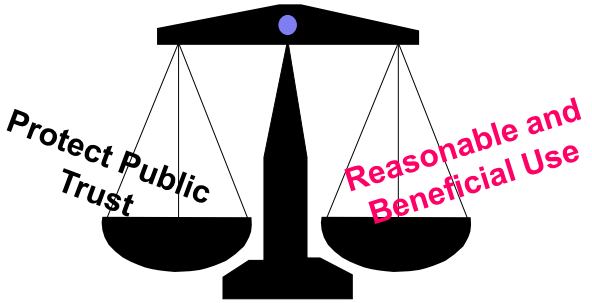


- **Protection of Public Trust**
  - **4 Public Trust Purposes**
    - Maintenance of Water in its Natural State
    - Domestic use (individuals)
    - Traditional and Customary Rights
    - DHHL Reservations



- **Ensure uses are Reasonable and Beneficial**

  - Purpose
  - Justified Quantity
  - Efficient
  - Lack of practicable alternatives
  - Consistent with the public interest
  - Consistent with state and county land use plans



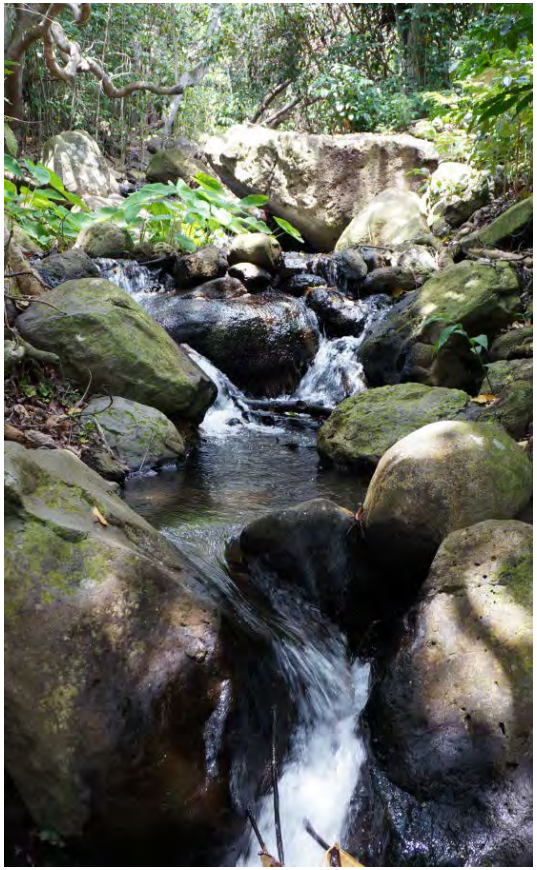
Public Trust Doctrine

"…all public natural resources are held in trust by the State for the benefit of its people."

"The State has an obligation to protect, control and regulate the use of Hawaii's water resources for the benefit of its people."

Precautionary Principle

There is a duty to take anticipatory action to protect public trust resources and uses from harm.



Commission Staff

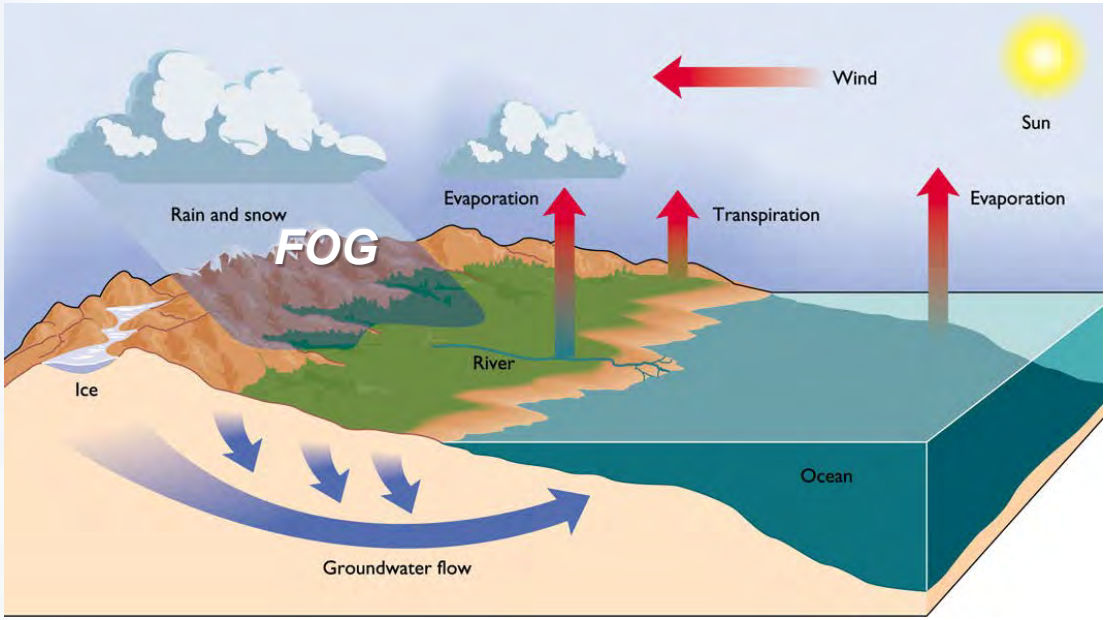
Current Position Count: 23

- CWRM
  - Deputy
    - Survey Branch
      - Water Resource Investigation Section
      - Water Resource Assessment Section
    - Planning Branch
      - Water Resource Planning
      - Drought Program
    - Ground Water Regulation Branch
      - Ground Water Allocation Section
      - Ground Water Infrastructure Section
      - Enforcement Section
      - Ground Water Protection Section
    - Stream Protection and Management Branch
      - Surface Water Regulation Section
      - Instream Use Protection Section

How much water is available?

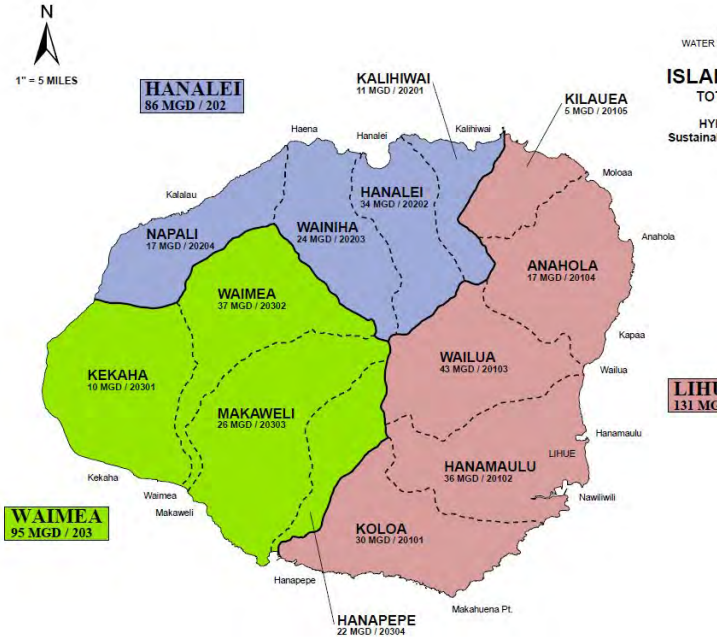
Resource Assessments

- Hydrologic Unit Delineation
- Ground Water Sustainable Yields
- Surface Water Instream Flow Standards

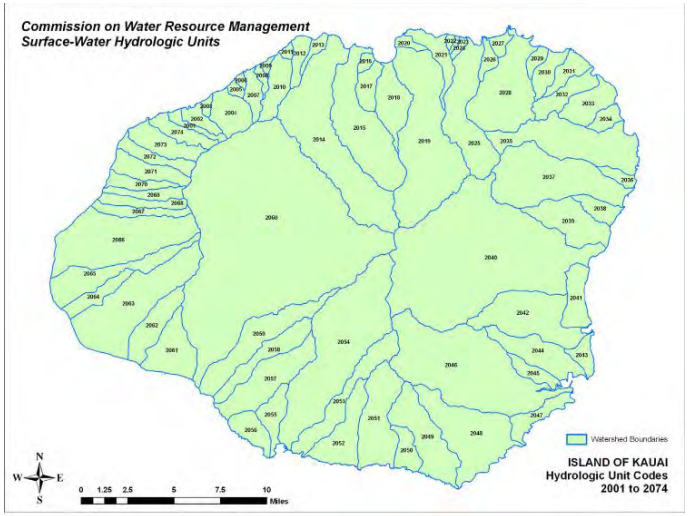


Resource Assessments – Hydrologic Unit Delineation

- Ground Water Aquifers
  - 3 Aquifer Sector Areas
    (broad hydrogeologic similarities)
  - 13 Aquifer System Areas
    (hydraulic continuity)
  - Aquifer settings: basal, perched, caprock brackish, deep (below salt water)



- Surface Water Hydrologic Units
  - 74 SWHUs
  - Surface water settings: streams, springs, ditches/canals, reservoirs



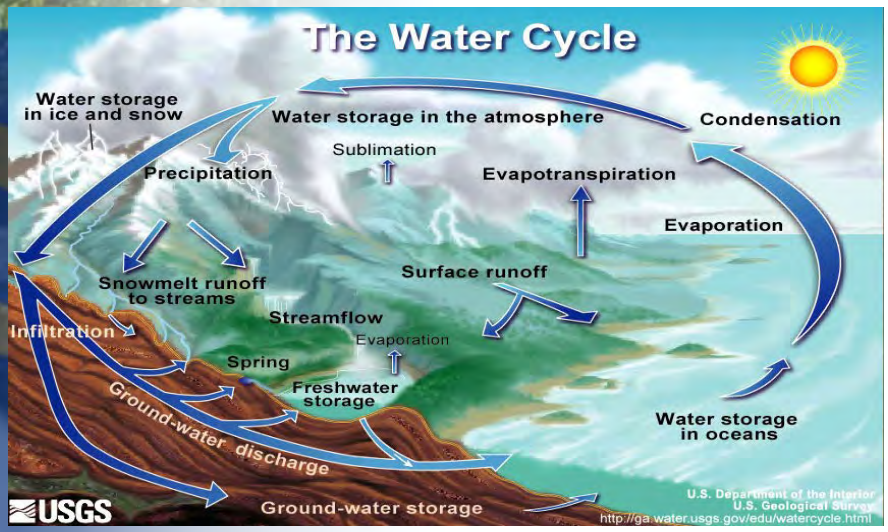
Ground Water

Resource Assessments – Groundwater Sustainable Yields

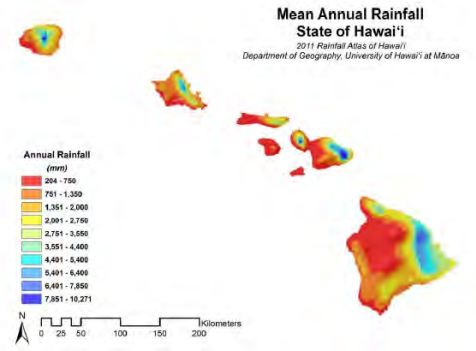
$$R = RF – DRO – ET$$

Simplified recharge calculation where:

R = Recharge
RF = Rainfall & Fog drip
DRO = Direct runoff
ET = Evapotranspiration



- Rainfall Atlas updated in 2012

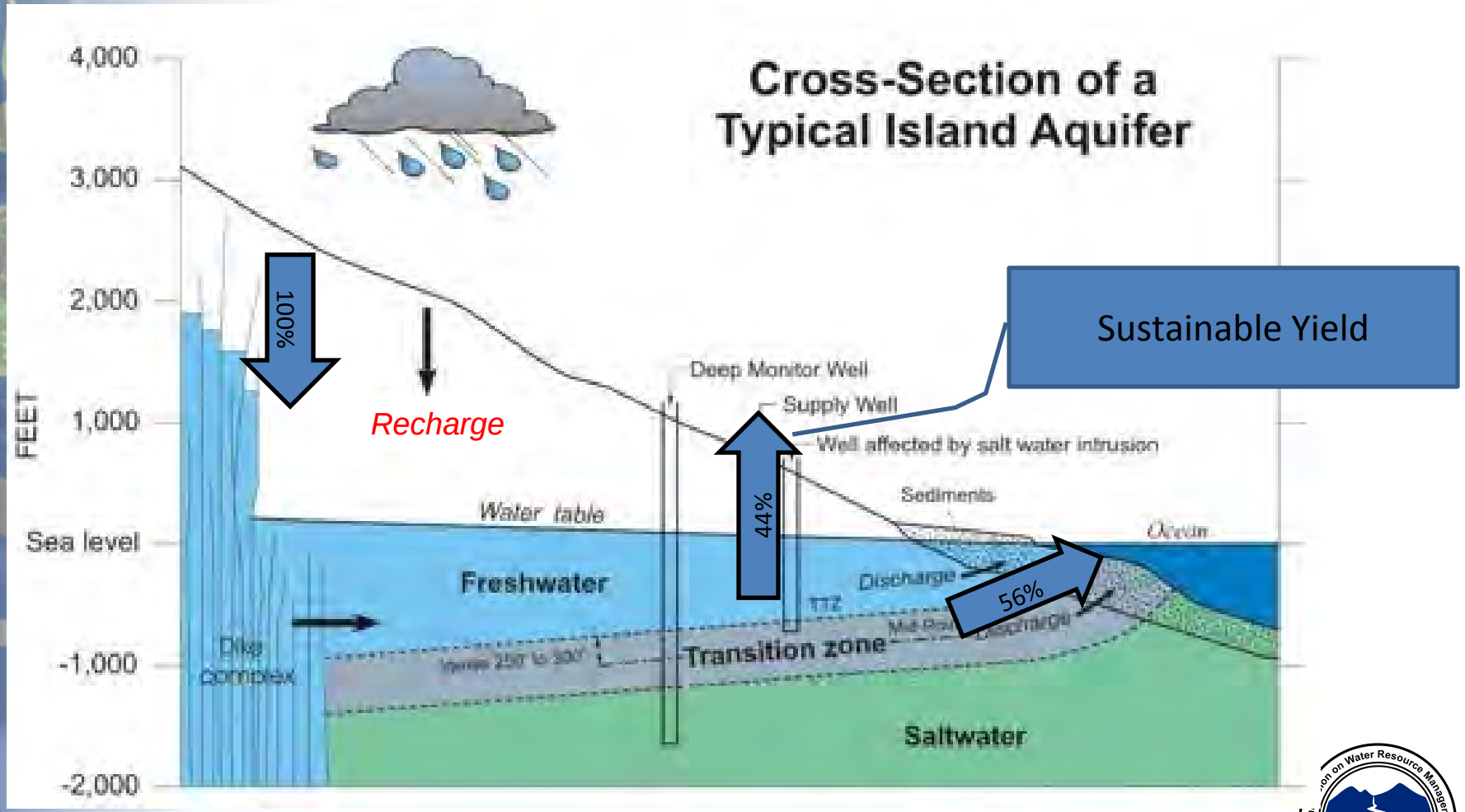


- ET Analysis complete in June 2013

Commission on Water Resource Management
State of Hawaii

Ground Water

Resource Assessments – Groundwater Sustainable Yields



Surface Water

Resource Assessments – Instream Flow Standards

"A quantity or flow of water or depth of water which is required to be present at a specific location in a stream system at certain specified times of the year to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses."

Hydrology

- Median Flow
- Base Flow
- Pre-Diversion Flow Estimate
- Groundwater Interaction
- Surface-Water Use
- Ground-Water Use
- Other

Fish/Wildlife Habitat

- Stream Channelizations
- Native Vertebrates
- Invertebrates
- Invasive Species
- Recruitment
- Abundance
- Diversity
- Distribution
- Other

Recreation

- Swimming
- Nature Study
- Fishing
- Boating
- Parks
- Other

Ecosystem Maintenance

- Estuaries
- Wetlands
- Nearshore Waters
- Natural Area Reserves
- National Parks
- Other Protected Areas
- Other

Aesthetics

- Scenic Views
- Waterfalls
- Tourism
- Other

Noninstream Uses

- Diversions
- Domestic/Municipal Use
- Agriculture
- Industrial
- Present vs. Potential Use
- Economic Impacts
- Other

Navigation

- Boating
- Other

Hydropower

- Present Use
- Potential Use
- Other

Water Quality

- 303(d) Impaired Waters
- Total Maximum Daily Loads
- Land Use
- Other

Conveyance of Water

- Multiple Diversions on a Single Stream
- Other

Hawaiian Rights

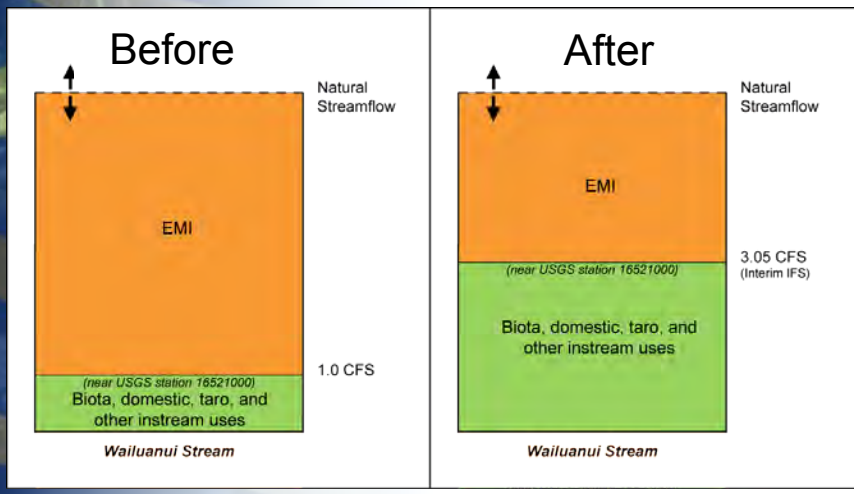
- Traditional and Customary Rights
- Taro Cultivation
- Appurtenant Rights
- Cultural Values
- Other

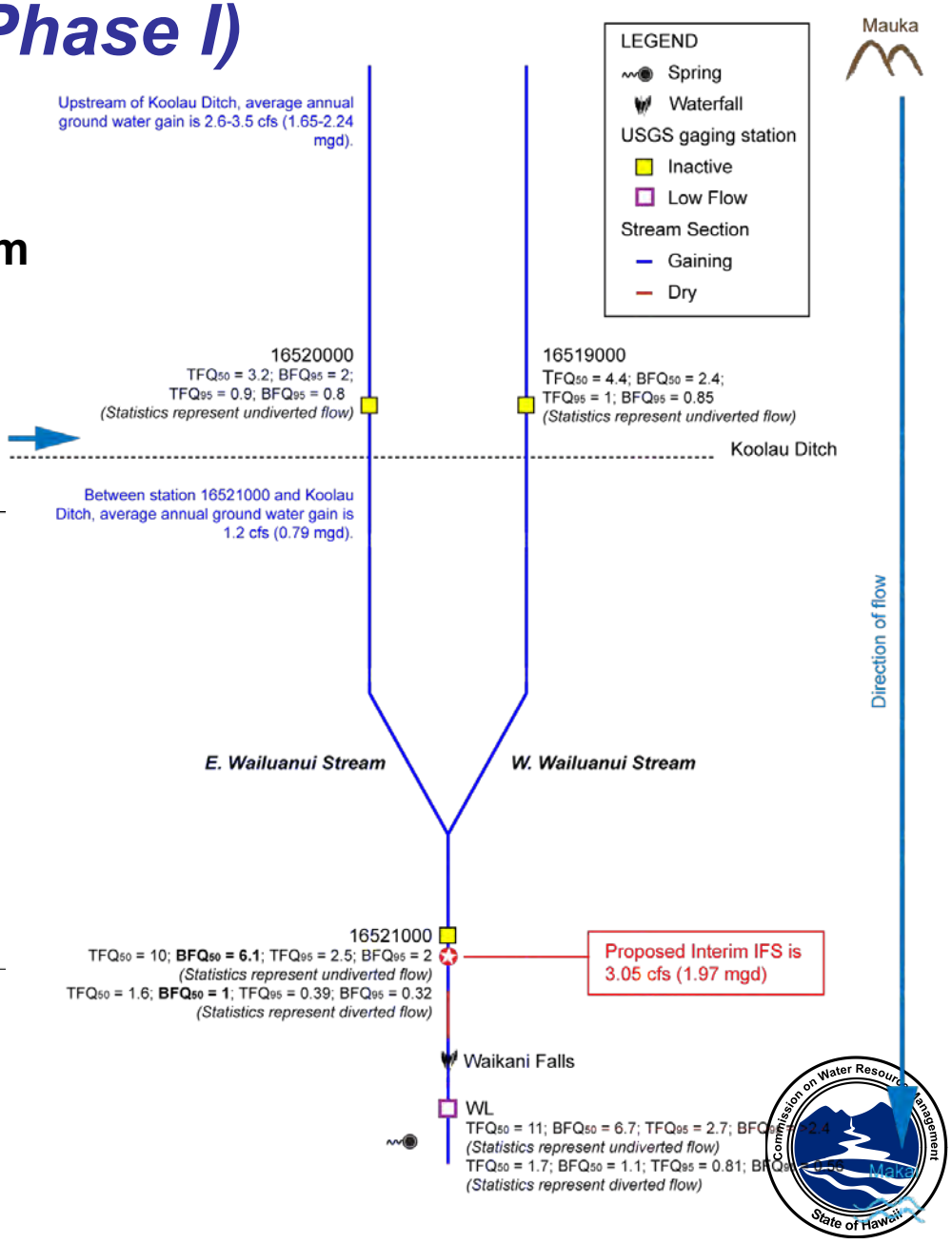
Commission on Water Resource Management
State of Hawaii

East Maui IIFS (Phase I)

Recommendation

EXAMPLE: Wailuanui Stream

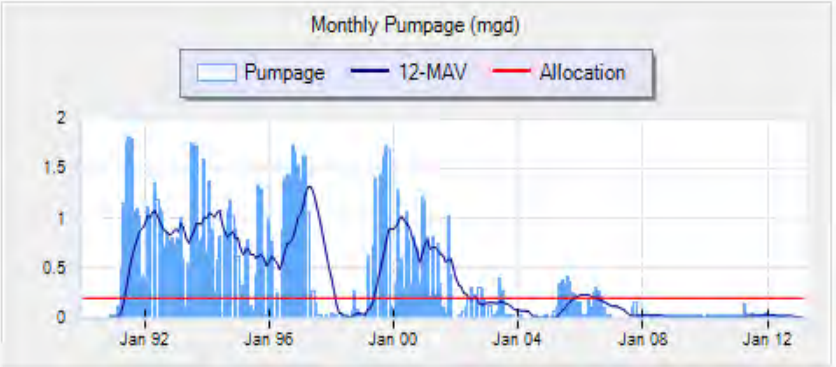


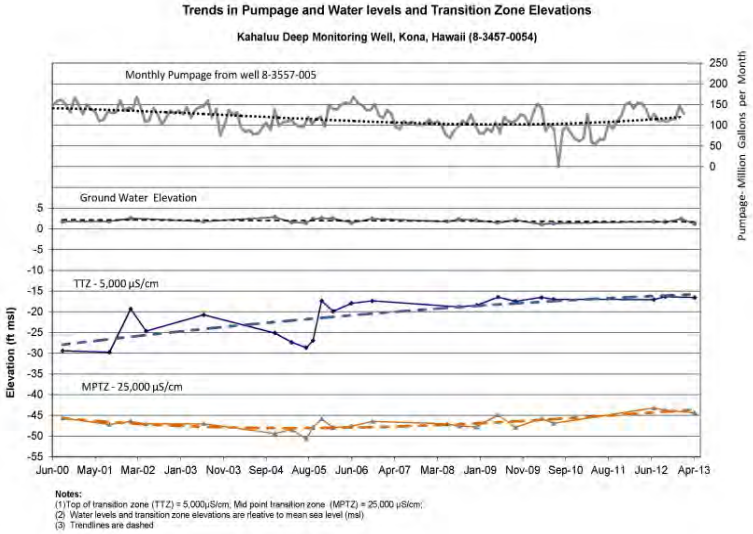


How much water do we use?

Resource Monitoring

- Water Use Reporting
- Deep Monitor Wells
- Water-Level Observation Well
- Climate
- Chlorides
- Streamflow

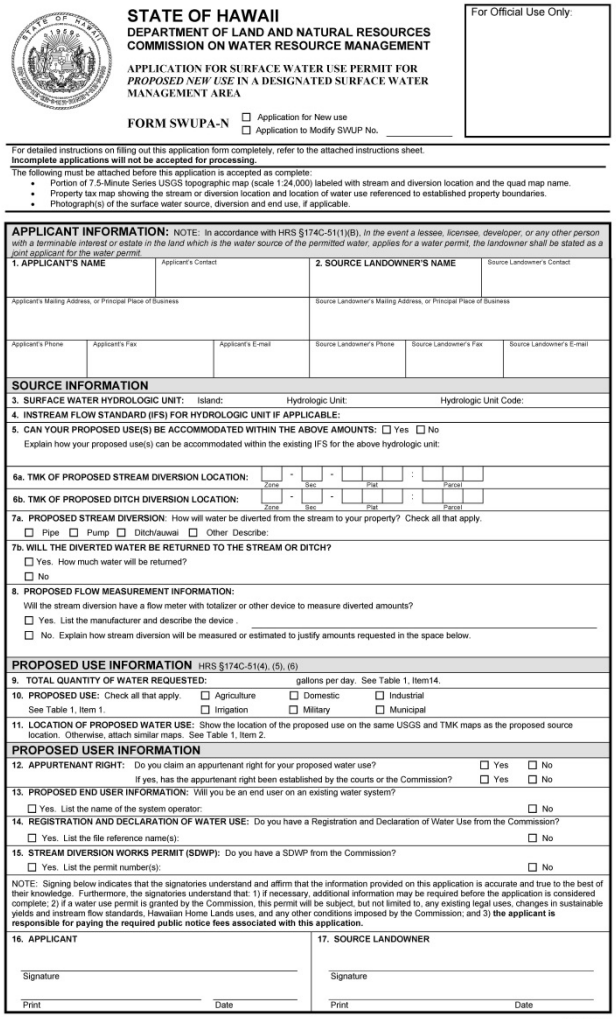




How we regulate the use of our water?

Permitting & Enforcement

- **Well Construction and Pump Installation Permit**
- **Stream Diversion Works Permit**
- **Stream Channel Alteration Permit**
- **Water Use Permit**



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

APPLICATION FOR SURFACE WATER USE PERMIT FOR *PROPOSED NEW USE* IN A DESIGNATED SURFACE WATER MANAGEMENT AREA

FORM SWUPA-N ☐ Application for New use ☐ Application to Modify SWUP No. _____

For Official Use Only:

For detailed instructions on filling out this application form completely, refer to the attached instructions sheet.
Incomplete applications will not be accepted for processing.
The following must be attached before this application is accepted as complete:
- Portion of 7.5-Minute Series USGS topographic map (scale 1:24,000) labeled with stream and diversion location and the quad map name.
- Property tax map showing the stream or diversion location and location of water use referenced to established property boundaries.
- Photograph(s) of the surface water source, diversion and end use, if applicable.

APPLICANT INFORMATION: NOTE: In accordance with HRS §174C-51(1)(B), *In the event a lessee, licensee, developer, or any other person with a terminable interest or estate in the land which is the water source of the permitted water, applies for a water permit, the landowner shall be stated as a joint applicant for the water permit.*

1. APPLICANT'S NAME	Applicant's Contact	2. SOURCE LANDOWNER'S NAME	Source Landowner's Contact
Applicant's Mailing Address, or Principal Place of Business		Source Landowner's Mailing Address, or Principal Place of Business	
Applicant's Phone	Applicant's Fax	Applicant's E-mail	Source Landowner's Phone / Source Landowner's Fax / Source Landowner's E-mail

SOURCE INFORMATION

3. **SURFACE WATER HYDROLOGIC UNIT:** Island: Hydrologic Unit: Hydrologic Unit Code:

4. **INSTREAM FLOW STANDARD (IFS) FOR HYDROLOGIC UNIT IF APPLICABLE:**

5. **CAN YOUR PROPOSED USE(S) BE ACCOMMODATED WITHIN THE ABOVE AMOUNTS:** ☐ Yes ☐ No
Explain how your proposed use(s) can be accommodated within the existing IFS for the above hydrologic unit:

6a. **TMK OF PROPOSED STREAM DIVERSION LOCATION:** ( ) - ( ) - ( ) : ( ) (Zone - Sec - Plat : Parcel)

6b. **TMK OF PROPOSED DITCH DIVERSION LOCATION:** ( ) - ( ) - ( ) : ( ) (Zone - Sec - Plat : Parcel)

7a. **PROPOSED STREAM DIVERSION:** How will water be diverted from the stream to your property? Check all that apply.
☐ Pipe ☐ Pump ☐ Ditch/auwai ☐ Other Describe:

7b. **WILL THE DIVERTED WATER BE RETURNED TO THE STREAM OR DITCH?**
☐ Yes. How much water will be returned?
☐ No

8. **PROPOSED FLOW MEASUREMENT INFORMATION:**
Will the stream diversion have a flow meter with totalizer or other device to measure diverted amounts?
☐ Yes. List the manufacturer and describe the device .
☐ No. Explain how stream diversion will be measured or estimated to justify amounts requested in the space below.

PROPOSED USE INFORMATION HRS §174C-51(4), (5), (6)

9. **TOTAL QUANTITY OF WATER REQUESTED:** gallons per day. See Table 1, Item14.

10. **PROPOSED USE:** Check all that apply. ☐ Agriculture ☐ Domestic ☐ Industrial
See Table 1, Item 1. ☐ Irrigation ☐ Military ☐ Municipal

11. **LOCATION OF PROPOSED WATER USE:** Show the location of the proposed use on the same USGS and TMK maps as the proposed source location. Otherwise, attach similar maps. See Table 1, Item 2.

PROPOSED USER INFORMATION

12. **APPURTENANT RIGHT:** Do you claim an appurtenant right for your proposed water use? ☐ Yes ☐ No
If yes, has the appurtenant right been established by the courts or the Commission? ☐ Yes ☐ No

13. **PROPOSED END USER INFORMATION:** Will you be an end user on an existing water system?
☐ Yes. List the name of the system operator: ☐ No

14. **REGISTRATION AND DECLARATION OF WATER USE:** Do you have a Registration and Declaration of Water Use from the Commission?
☐ Yes. List the file reference name(s): ☐ No

15. **STREAM DIVERSION WORKS PERMIT (SDWP):** Do you have a SDWP from the Commission?
☐ Yes. List the permit number(s): ☐ No

NOTE: Signing below indicates that the signatories understand and affirm that the information provided on this application is accurate and true to the best of their knowledge. Furthermore, the signatories understand that: 1) if necessary, additional information may be required before the application is considered complete; 2) if a water use permit is granted by the Commission, this permit will be subject, but not limited to, any existing legal uses, changes in sustainable yields and instream flow standards, Hawaiian Home Lands uses, and any other conditions imposed by the Commission; and 3) **the applicant is responsible for paying the required public notice fees associated with this application.**

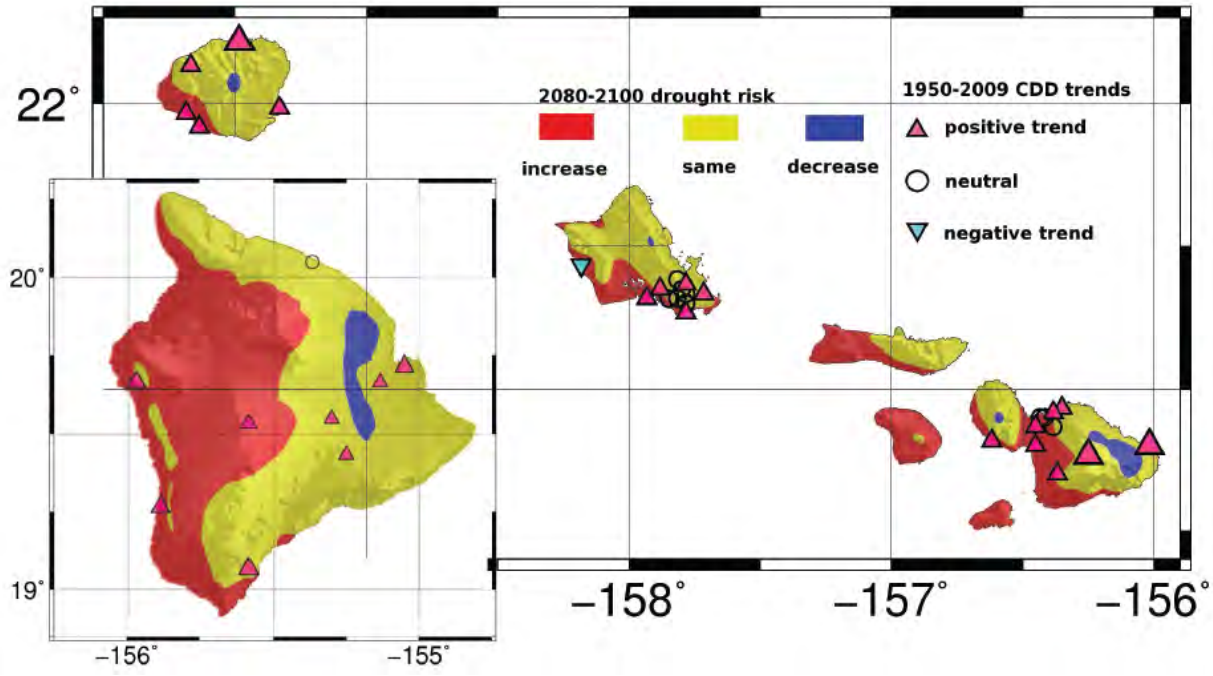
16. APPLICANT	17. SOURCE LANDOWNER
Signature	Signature
Print / Date	Print / Date

Page 1 of 8
***FORM SWUPA-N** 8/21/2008*

Water Resource Management
State of Hawaii

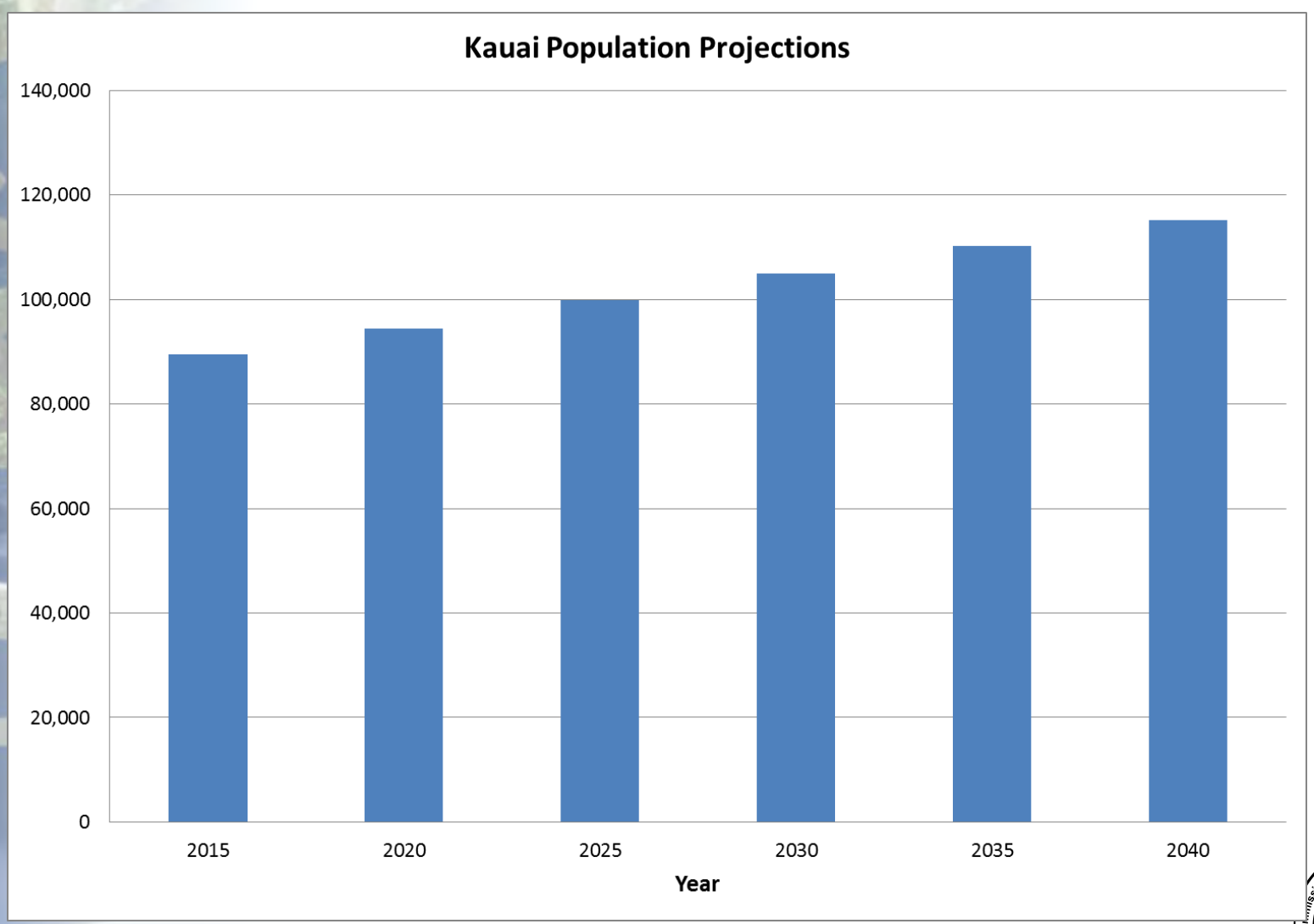
Threats, Trends, and Resource Priorities

Climate Change



- Air temperatures are rising
- Precipitation and drought patterns are changing
- Streamflow is declining

Increasing Water Demands



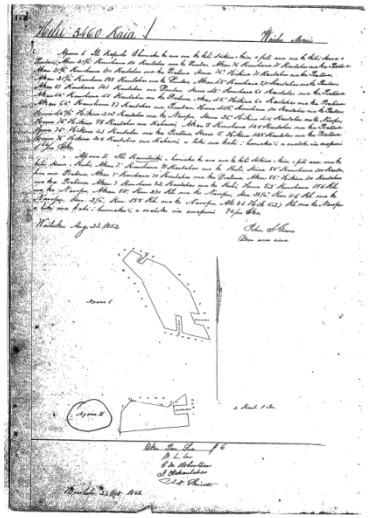
Native Hawaiian Water Rights

- DHHL

HAWAIIAN HOME LANDS
HAWAIIAN HOMES COMMISSION
DEPARTMENT OF HAWAIIAN HOME LANDS

- Traditional & Customary

- Appurtenant

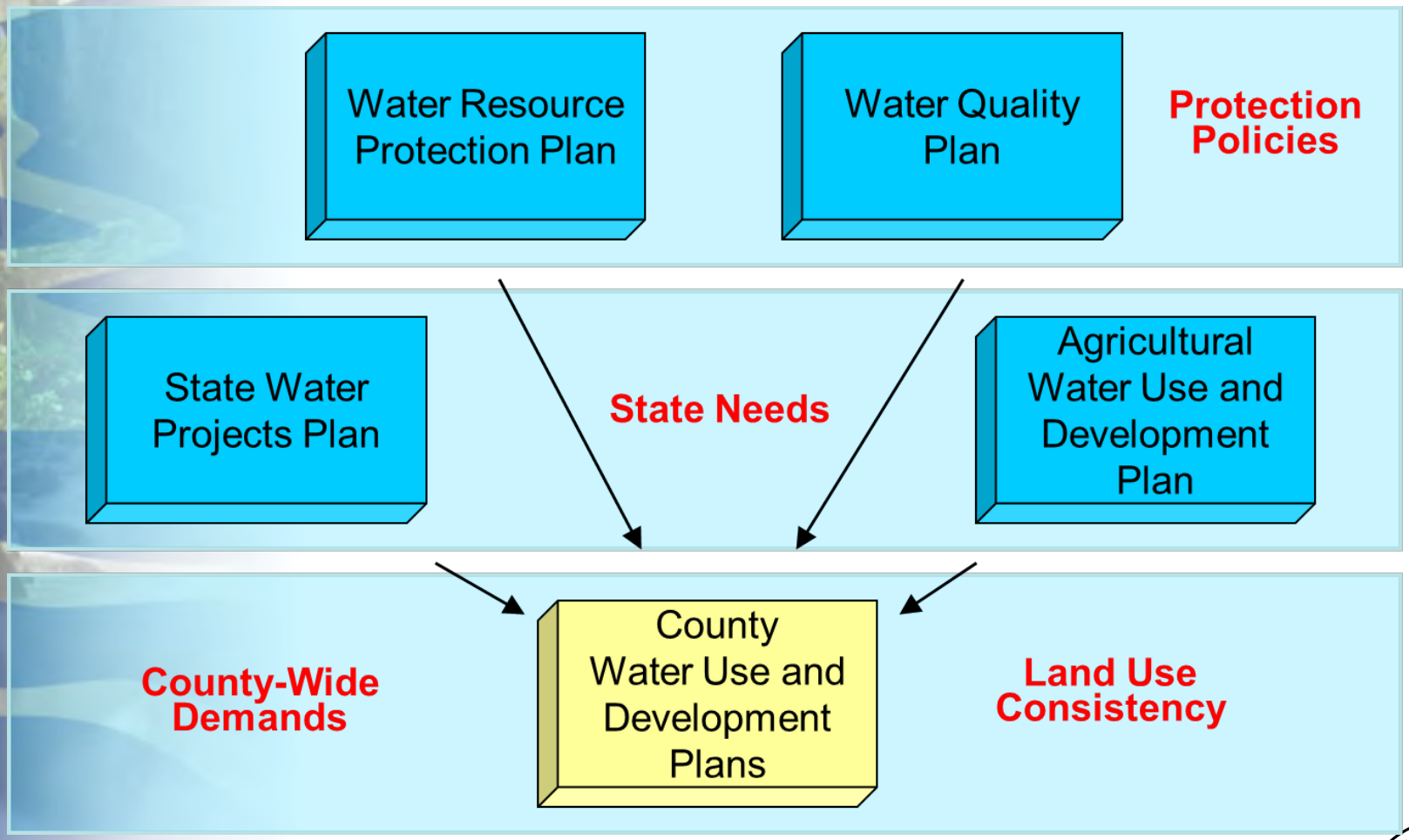


Commission on Water Resource Management
State of Hawaii

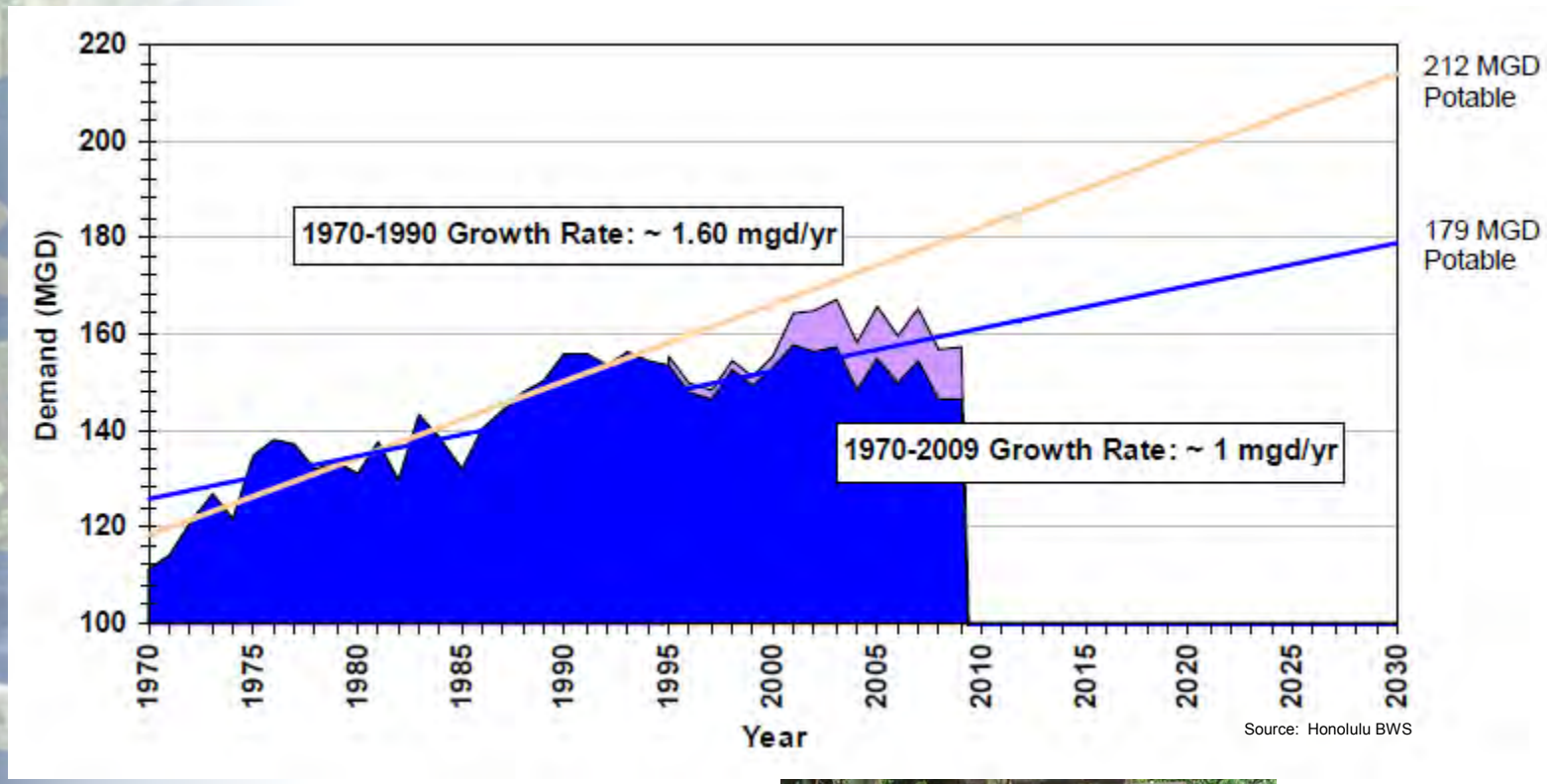
How will we meet all of our water needs?

Will we run out of water?

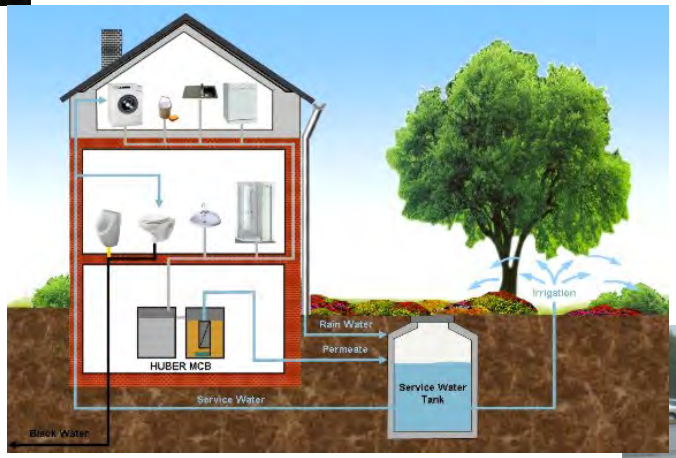
Hawaii Water Plan



Water Conservation (Oahu)



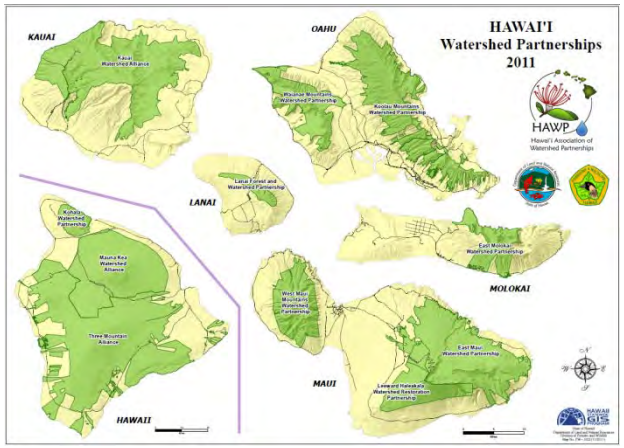
Alternative Water Sources

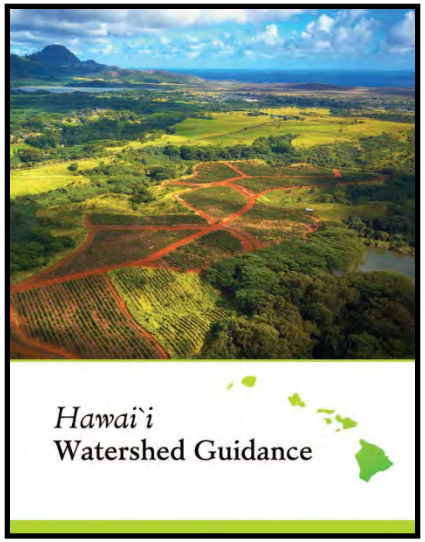


Watershed Management

CWRM Support of Watershed Management

- Climate Studies
  - Rainfall Trends
  - Evapotranspiration Analysis
- Hydrologic Studies
  - Recharge Updates
  - Numerical Ground-Water Model Development
- Baseline Data Collection
  - Rainfall
  - Streamflow
  - Ground Water Levels
  - Aquifer Trends

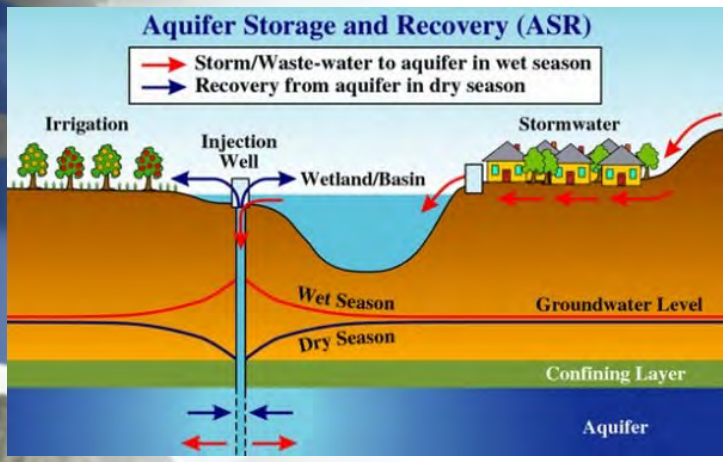




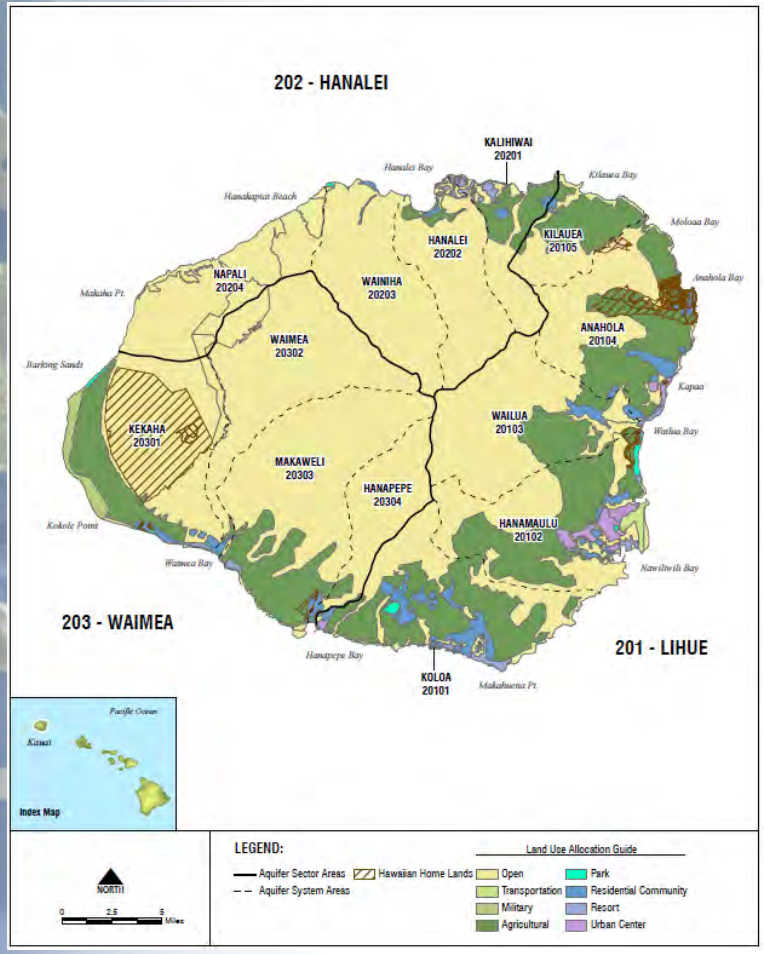
Commission on Water Resource Management
State of Hawaii

Storage

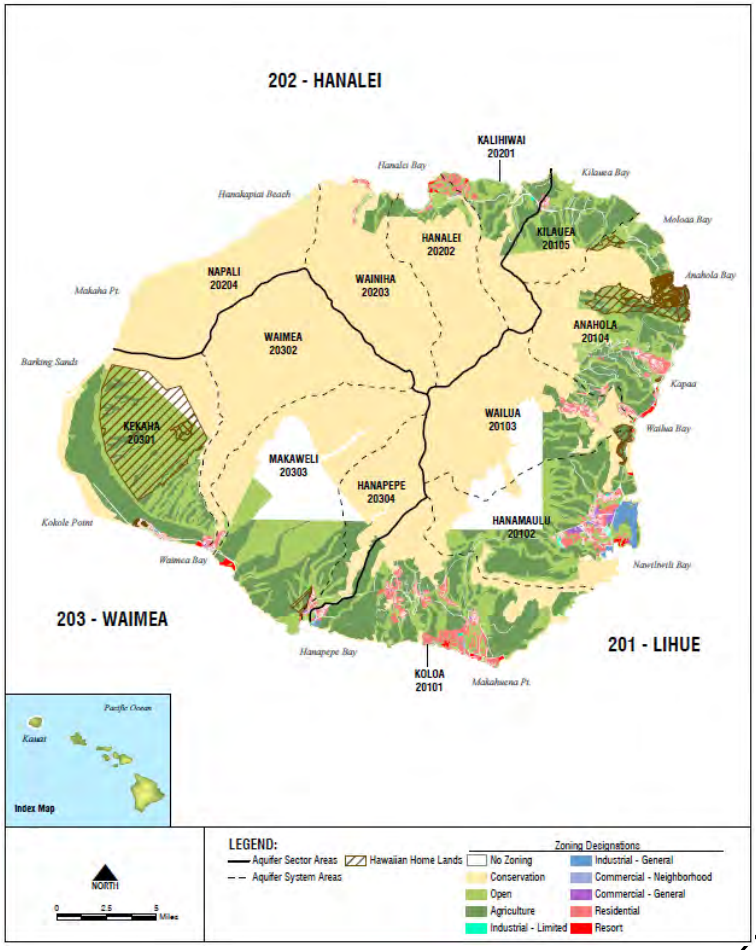
With decreasing rainfall and more extreme events, natural supplies will decrease, making storage increasingly important to meet our water needs…



County Land Use Controls



General Plan



Zoning

Commission on Water Resource Management
State of Hawaii

Commission's Surface Water Program

Stream Protection and Management Branch

Permitting and Enforcement:

Statewide

- Stream channel alteration permits
- Stream diversion works permit
- Respond to surface water-related complaints
- Water use reporting

Water Management Areas (Maui Only)

- Identify and quantify appurtenant rights and issue water use permits for surface water management area

Stream Protection and Management Branch

Interim Instream Flow Standards (IIFS):

- Monitor IIFS for East Maui and Na Wai Eha streams
- Waimea petition to amend the IIFS and waste complaint

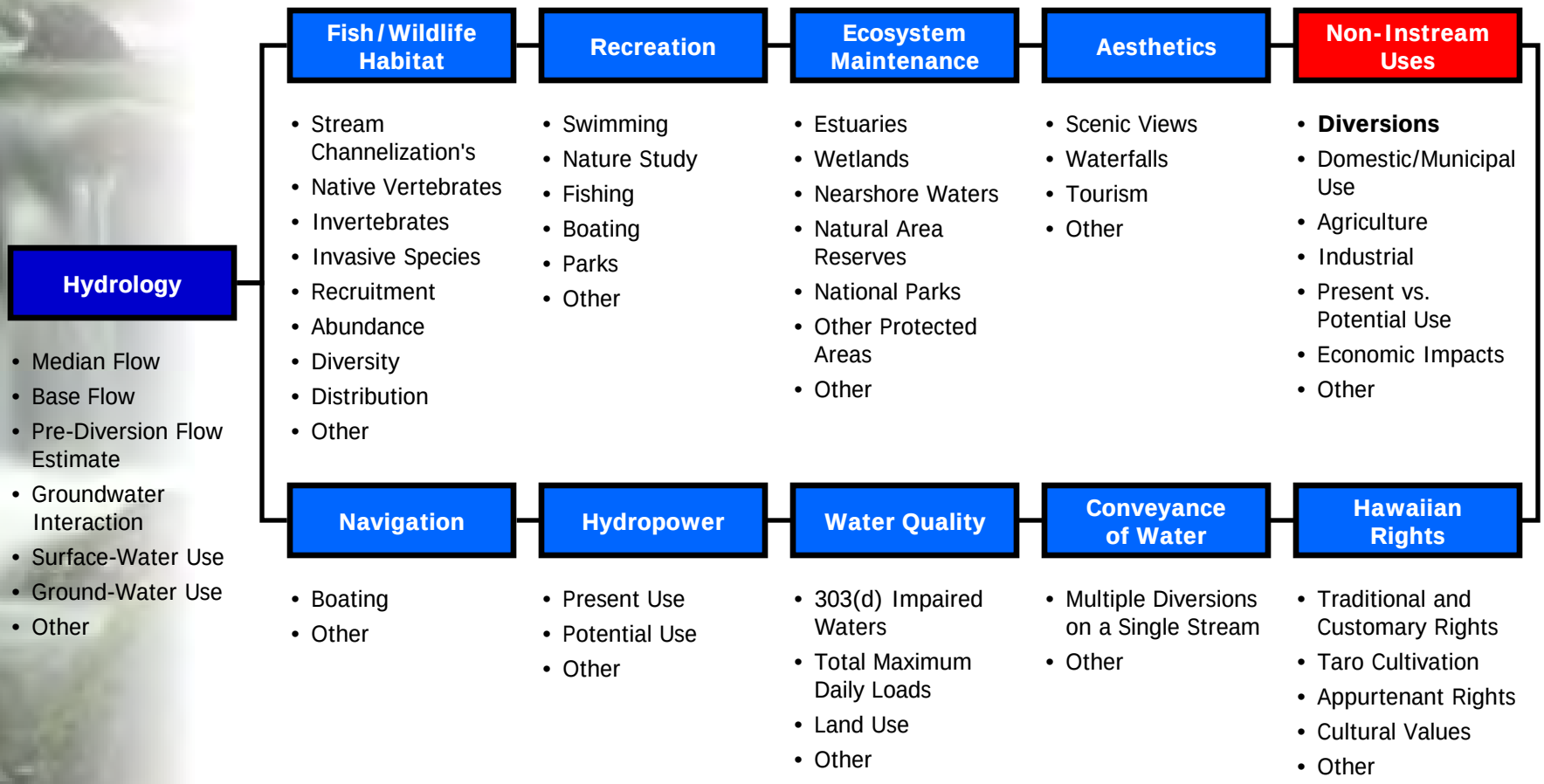
Establishment of Instream Flow Standards

An IFS means a quantity, flow, or depth of water needed to protect beneficial instream uses which include:

- Maintenance of aquatic habitat;
- Recreation;
- Estuaries and wetlands;
- Navigation;
- Hydropower;
- Water quality;
- Conveyance of irrigation and domestic water to downstream points of diversion; and
- Protection of traditional and customary rights.

Assessment of Instream and Non-Instream Uses

- Inventory and evaluate best available information.
- Information will be organized and assessed by surface-water hydrologic units.
- Employ a public input process to incorporate additional information.

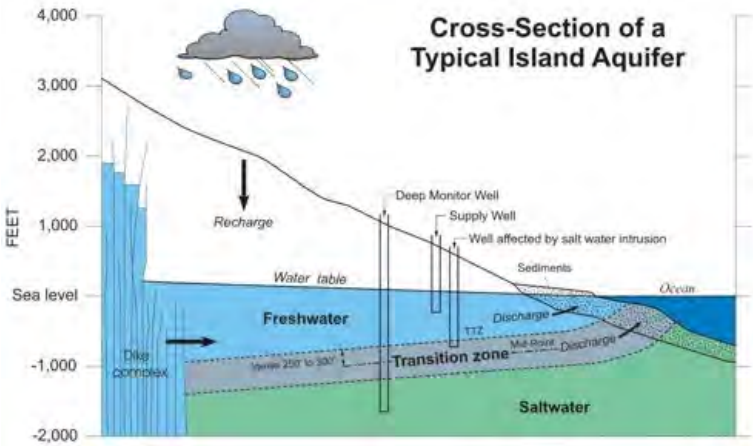


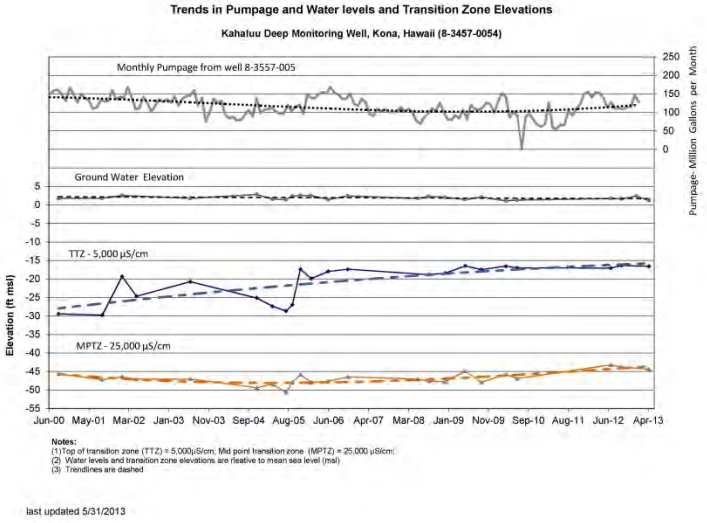
Commission's Ground Water Program

How is ground water monitored?

Hydrologic Monitoring – Deep Monitor Well Program

- DMWs penetrate the entire column of fresh water into the salt water
- CWRM currently logs **11** DMWs (6 on Oahu, 4 on Maui, 1 on Big Isle)
- Ideally, there should be 3 DMWs in each aquifer system area (over **300** DMWs)
- 2012 Legislature provided $1.5M CIP to repair or construct new DMWs





Water Use Reporting System

CWRM is pleased to announce the development of its new online Water Use Reporting System. You can login to our system, type in your monthly water data, and with a click of a button, the data is automatically entered in our database.

The Water Use Reporting System is quick and easy, saving you time and money. Allowing you to see your history of reported water use and generate graphs to visually track your water use over time.

Join CWRM in bringing water management and data collection into the 21st century. Choose to use our online Hawaii State Water Use Reporting system.

How is ground water monitored?

Kalanimoku Building
1151 Punchbowl Street,
Room 227
Honolulu, Hawaii 96813

Hours: **7:45am to 4:30pm**

Mailing Address:
Commission on Water Resource Management
P.O. Box 621
Honolulu, Hawaii 96809

Phone: **(808) 587-0214**

Fax: **(808) 587-0219**

E-mail: **dlnr.cwrm@hawaii.gov**

Website:
http://dlnr.hawaii.gov/cwrm/

Commission on Water Resource Management (CWRM)

State of Hawaii,
Department of Land and Natural Resources

Ke Kahuwai Pono

"the trustee who oversees the rightful sharing of water"

Water Use Reporting

Ground Water

Water meter with totalizer. (HAWAII Well Construction & Pump Installation Standards)

Phone: (808) 587-0214

How is ground water monitored?

Water Use Reporting System

CWRM is pleased to a
development of its ne
Use Reporting System
to our system, type in
water data, and with a
button, the data is aut
entered in our databas

The Water Use Report
quick and easy, saving
money. Allowing you t
history of reported wa
generate graphs to visually track your water use over time.

Join CWRM in bringing water management and data collection into the 21st century. Choose to use our online Hawaii State Water Use Reporting system.

4,059 wells statewide need to report monthly pumpage, water-levels, chlorides, and temperature. 432 of those wells are on Kaua‘i.

Commission on Water Resource Management (CWRM)

State of Hawaii, Department of Land and Natural Resources

Ke Kahuwai Pono

he trustee who oversees the rightful sharing of water”

Water Use Reporting

Ground Water

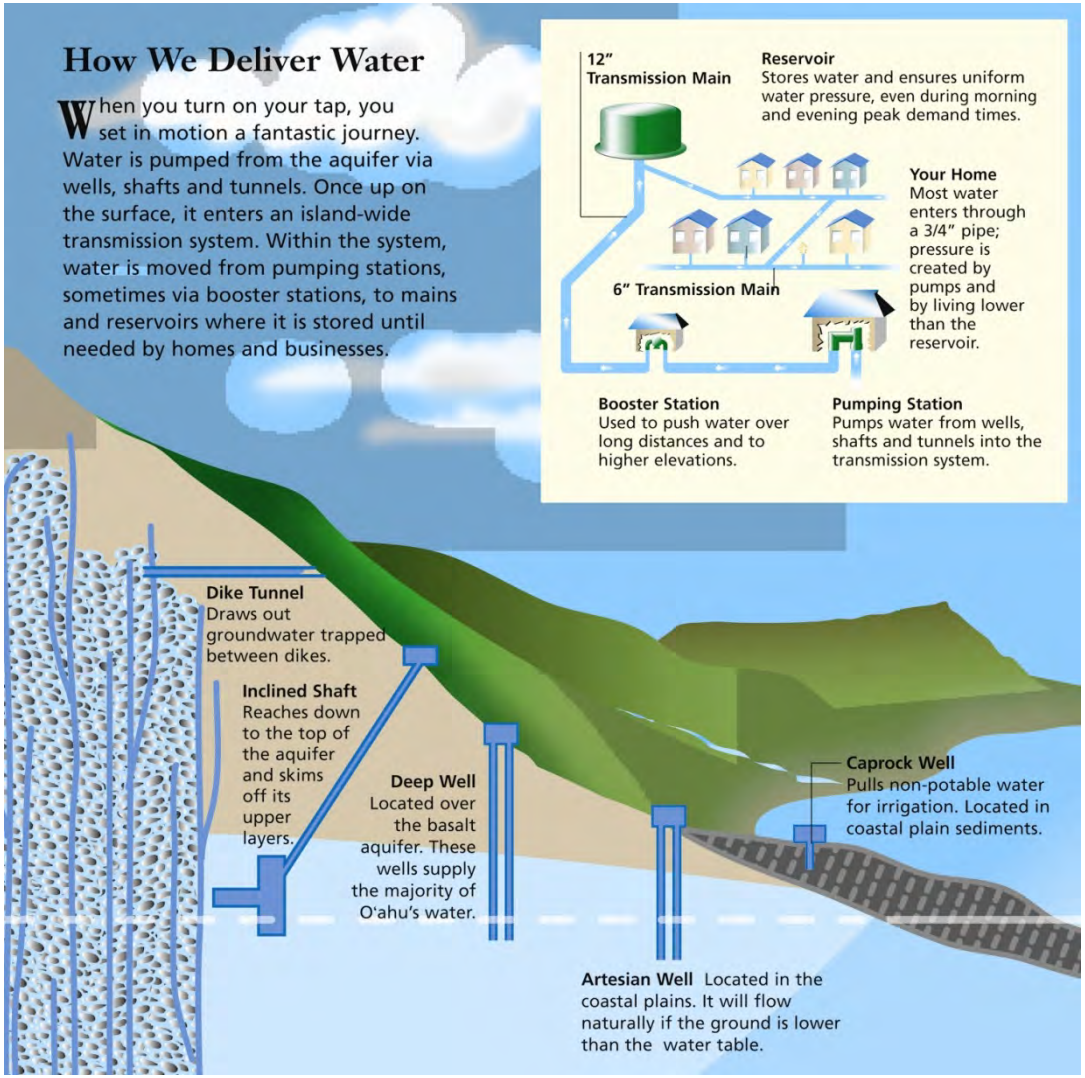
Water meter with totalizer. (HAWAII Well Construction & Pump Installation Standards)

Phone: (808) 587-0214

How is ground water developed?

Ground Water

- Wells
- Shafts
- Tunnels



Source: Honolulu Board of Water Supply

How is ground water developed?

Ground Water

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- Shafts
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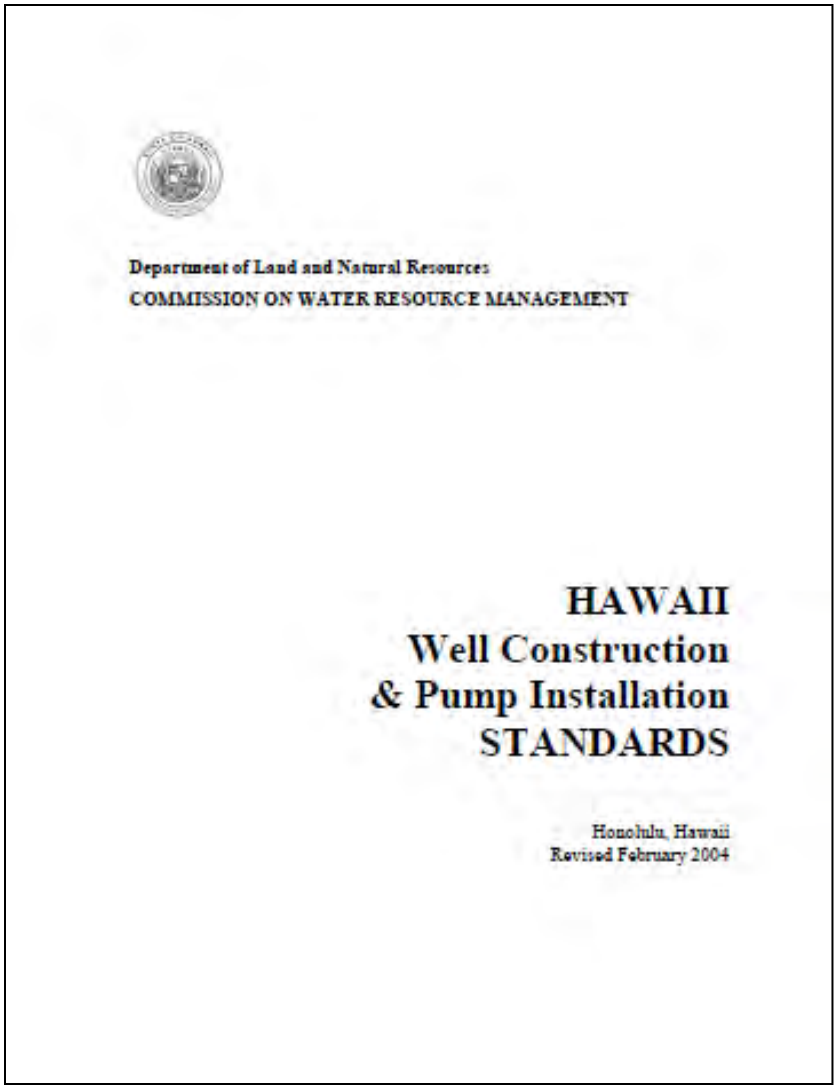
Kanoa I Production Well (5731-02) 1999


Department of Land and Natural Resources
COMMISSION ON WATER RESOURCE MANAGEMENT

HAWAII
Well Construction
& Pump Installation
STANDARDS

Honolulu, Hawaii
Revised February 2004

How is ground water developed?

Ground Water

- Wells
- Shafts
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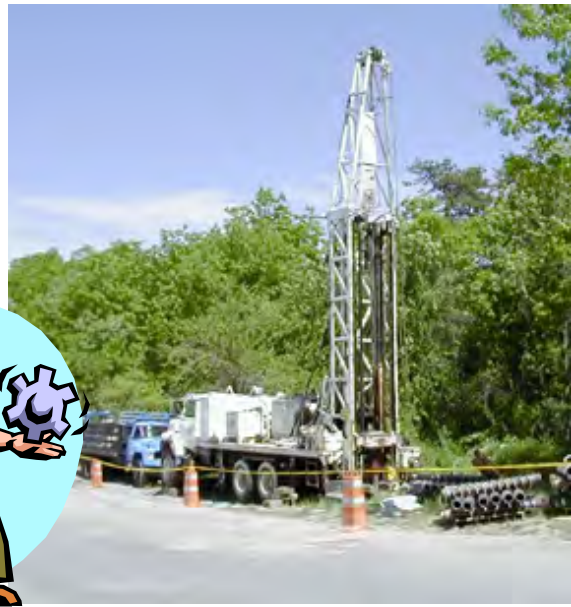
Kanoa I Production Well (5731-02) 1999

Hawaii Well Construction & Pump Installation Standards (HWCPIS)

Optimization and Construction Issues:

Limiting well depths
Pumping test procedures
Elevation benchmarks
Appropriate materials
Grouting
Monitor tubes
Flow meters



Ground Water Regulation Branch

Permitting and Enforcement:

Statewide

- Well Construction permits (HWCPIS)
- Pump Installation permits (HWCPIS)
- Respond to ground water-related complaints
- Water use reporting

Water Management Areas (Oahu, Maui, Molokai Only)

- Ground water use permit allocations subject to sustainable yields

Ke Kahuwai Pono

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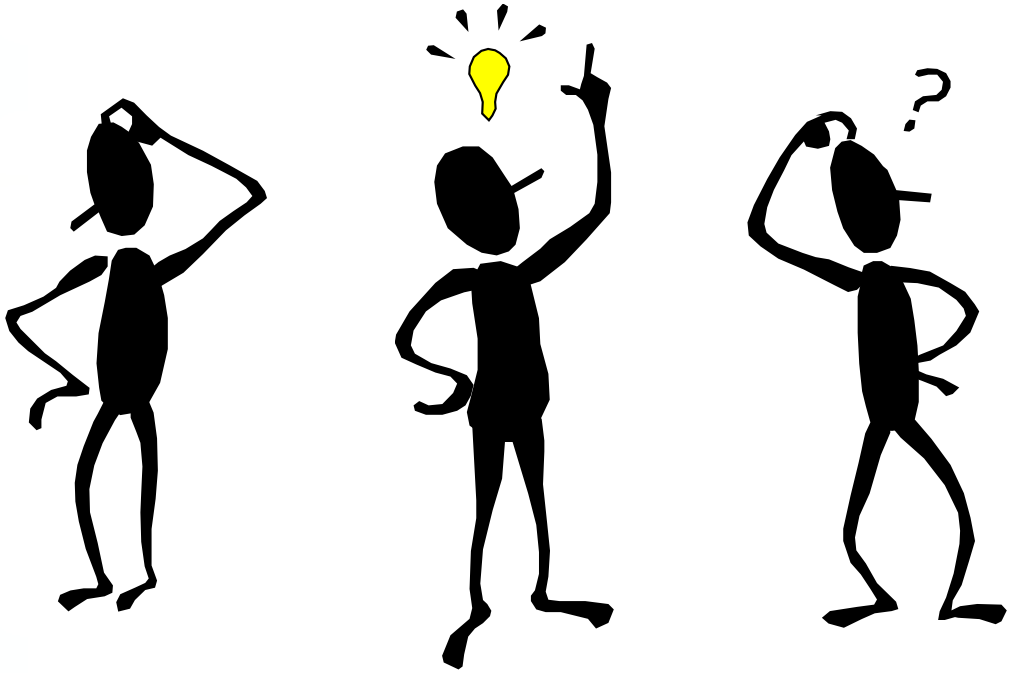
State of Hawaii
Commission on Water Resource Management



April 28, 2015