

APPENDIX **E**

WRPP Update – Stakeholder Outreach Process

Water Resource Protection Plan 2019 Update

E WRPP Update Stakeholder Outreach Process

The major objective of the Water Resource Protection Plan (WRPP) is “to protect and sustain statewide ground- and surface-water resources, watersheds, and natural stream environments” (Statewide Framework for Updating the Hawaii Water Plan, February 2000, p. 3-1). In order to understand the issues, questions, values, and priorities that Hawai‘i’s communities have regarding water, the Commission on Water Resource Management (Commission) engaged in a multi-level stakeholder outreach process. A project fact sheet was developed to provide basic information on the WRPP Update, with links to the WRPP website for more and updated information and contact information, should stakeholders have any questions or want to provide further comments.

The planning team then conducted interviews with the following 13 governmental agencies or entities, non-governmental organizations, and private water consultants to get perspectives on different aspects of water science, use, and management:

- Consultant for private water users
- Department of Hawaiian Home Lands, Planning Office
- National Park Service
- Native Hawaiian Legal Corporation
- The Nature Conservancy
- Office of Conservation and Coastal Lands
- Office of Hawaiian Affairs, Public Policy Advocacy Division
- Pacific Regional Integrated Sciences and Assessments (Pacific RISA)
- State Attorney General's Office
- State of Hawai‘i Department of Health
- University of Hawai‘i Kamakakuokalani Center for Hawaiian Studies
- William S. Richardson School of Law, Ka Huli Ao Center for Excellence in Native Hawaiian Law; Environmental Law Program

The Commission also met with a working group of water system owners, utilities, scientists, and professional engineers who periodically provide professional critique and commentary on Commission plans, policies, methodologies, and strategies. Following this, the Commission held a series of “Hawai‘i Water Workshops” to inform the general public of the WRPP Update and to understand local water issues from various communities throughout the State. Workshops were held on O‘ahu, Lāna‘i, Maui, Moloka‘i, Kaua‘i, and in Kona and Hilo on Hawai‘i Island.

Comments and input from these various meetings and letters provided context and added perspective to the issues that the Commission is focused on. All of these various inputs were considered when identifying water resource issues and goals, as well as projects and tasks for inclusion in this WRPP Update. Included in this appendix are the Project Fact Sheet, Notes from the Water Professionals Meeting, and a Summary of the Hawaii Water Workshops.

WRPP Update Fact Sheet

Water Resource Protection Plan Update

COMMISSION ON WATER RESOURCE MANAGEMENT

Ke Kahuwai Pono

“The trustee who oversees the rightful sharing of water.”



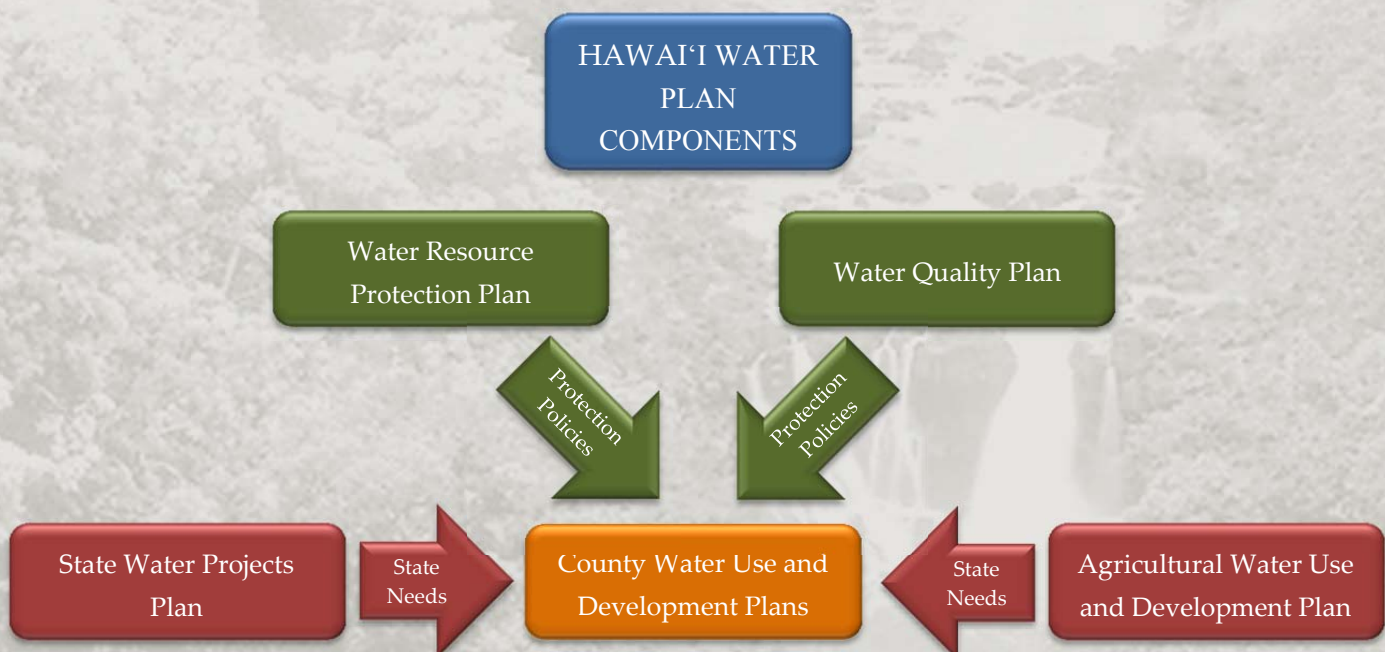
Water Resource Protection Plan Update

Guiding the Protection and Management of Our Fresh Water Resources

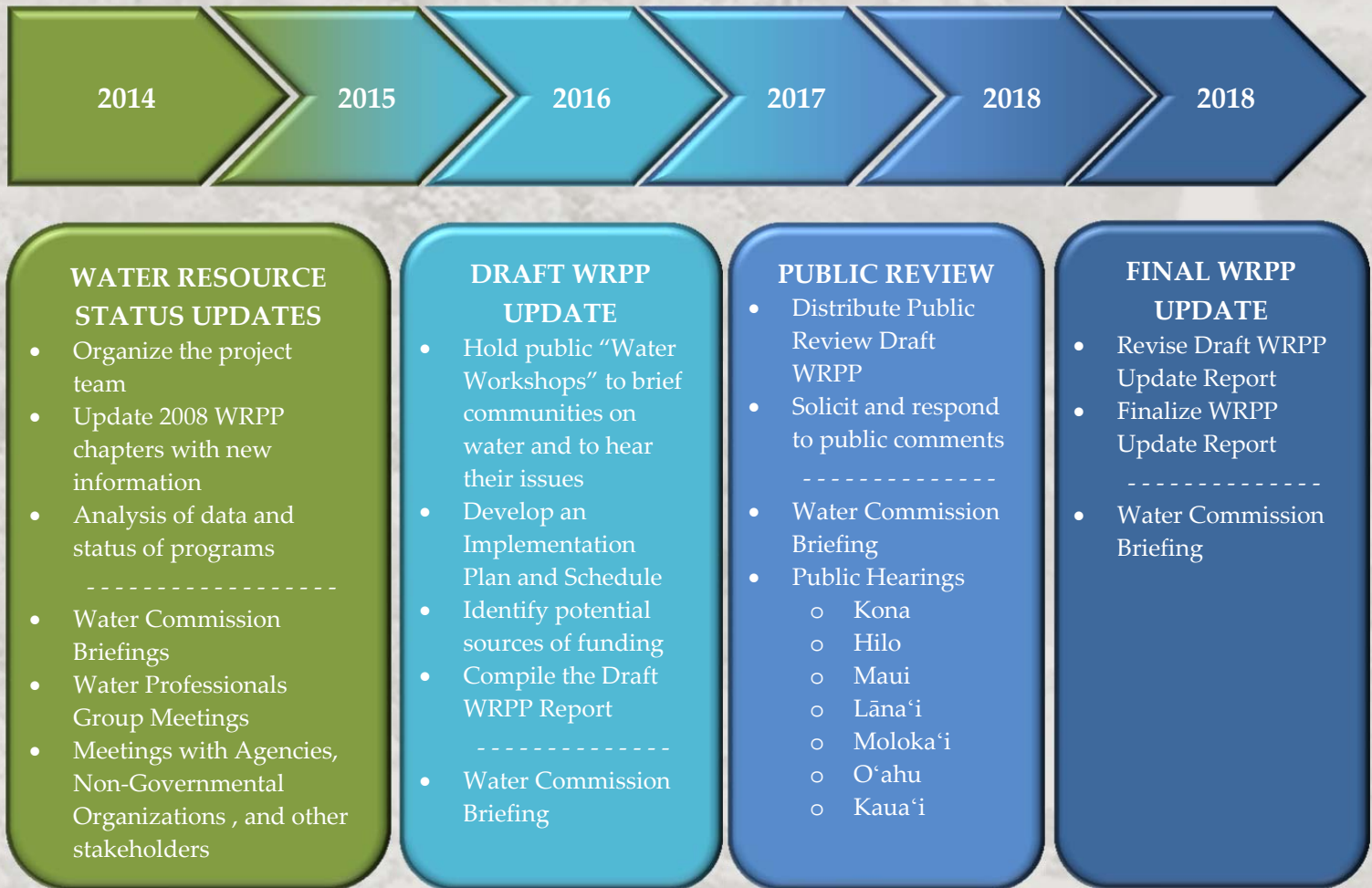
The Commission on Water Resource Management (Commission) is currently updating the 2008 Water Resource Protection Plan (WRPP). The WRPP is a key component of the Hawai'i Water Plan. Its objective is to protect statewide public trust water resources and uses, watersheds, and natural stream environments.

At a minimum, the WRPP will:

- Document the types of water resources available, identifying hydrologic units and characterizing them by quantity and quality;
- Identify requirements for beneficial instream use and environmental protection;
- Describe Commission regulatory programs and resource monitoring efforts by the Commission and others;
- Describe existing and potential future water uses and their impacts on the resource, as well as their consistency with the objectives and policies presented in the WRPP; and
- Describe programs to conserve, augment, and protect water resources.



WATER RESOURCE PROTECTION PLAN UPDATE PROCESS AND SCHEDULE



As a part of this update, the Commission will:

- Incorporate new information obtained since the last update in 2008;
- Integrate the results of recent Commission and other relevant agency program activities with existing protection measures and management strategies;
- Further address emerging issues such as climate change; and
- Develop a succinct, action-oriented plan.

For more information, please contact:



Jeremy Kimura
 Commission on Water Resource Management
 Phone: (808) 587-0269
 Email: Jeremy.I.kimura@hawaii.gov



Sherri Hiraoka
 Townscape, Inc.
 Phone: (808) 536-6999, ext. 6
 Email: sherri@townscapeinc.com

http://state.hi.us/dlnr/cwrm/planning_wrpp.htm

Water Professional Group Meeting Notes

Water Resource Protection Plan Update

TOWNSCAPE, INC.

ENVIRONMENTAL AND COMMUNITY PLANNING

900 Fort Street Mall, Suite 1160, Honolulu, HI 96813
Telephone (808) 536-6999 Facsimile (808) 524-4998
email address: mail@townscapeinc.com

WATER RESOURCES PROTECTION PLAN (WRPP) UPDATE MEMORANDUM NO. 18

Date: December 17, 2013
To: Project Files
From: Townscape, Inc.
RE: Water Professionals Group Meeting

Meeting Participants:

Private Sector Professionals

- David Barnes, Waimea Water Services (WWS)
- Stephen Bowles, Waimea Water Services (WWS)
- Dan Lum, Water Resource Associates
- Tom Nance Water Resource Engineering
- Glenn Bauer (retired)

Commission on Water Resource Management (CWRM)

- Roy Hardy, Ground Water Regulation Branch
- Patrick Casey, Ground Water Regulation Branch
- Paul Eyre, Ground Water Regulation Branch
- Lenore Ohye, Planning Branch
- Jeremy Kimura, Planning Branch
- Neal Fujii, Planning Branch

County of Hawai'i Department of Water Supply

- Larry Beck (*phone*)

National Park Service (NPS)

- Paula Cutillo

UH Mānoa

- Clark Liu, Civil & Environmental Engineering, Water Resources Research Center
- Tom Giambelluca, Geography
- Craig Glenn, Geology & Geophysics
- Joseph Fackrell, Geology & Geophysics
- Aly El-Kadi, Geology & Geophysics, Water Resources Research Center
- Donald Thomas, Hawaii Institute of Geophysics & Planetology

Meeting Participants (continued)

U.S. Geological Survey (USGS)

- Stephen Anthony
- Delwyn Oki
- John Engott (*phone*)

Jeremy opened the meeting and reviewed its purpose: to present proposed revisions to the sustainable yield (SY) for Hawai‘i Island and to discuss concerns with the revisions and the methodology that was used to develop them. After a brief background on the Hawaii Water Plan and Water Resource Protection Plan (WRRP) Update process, Roy provided background on SY, the model used to develop the revised SYs, basic caveats associated with the numbers, and proposed SYs for Hawai‘i island (see attached slideshow)

Water Budget Model and Assessment of Groundwater Recharge for the Island of Hawai‘i

(2011). John Engott then presented the results of the USGS study (*31:16 in audio file*)

- Report available on-line at: <http://pubs.usgs.gov/sir/2011/5078/>
- In forested areas, two reservoirs were used: forest canopy and soil. In unforested areas, only one reservoir was used: soil.
- The model calculated the water budget for each sub-area and aggregated the results. Hawaii Island had over 467,000 subareas.
- The estimated recharge distribution was based on:
 - Land cover (2008)
 - Mean rainfall from 1986 Rainfall Atlas of Hawaii (1916-1983 rainfall)
 - Mean Pan Evaporation 1985 study
- Differences in recharge between 2008 WRPP numbers and the new estimates: some were lower, some higher, and some over 100% higher. The new model:
 - Used a daily time step vs. an annual time step (2008 WRPP)
 - Included fog interception
 - Subtracted runoff from baseflow
 - Used a more rigorous approach to calculate evapotranspiration (ET)
- 2011 water budget report
 - Is a transient recharge model
 - Identified four aquifer systems in Kona: Kiholo, Keahou, Kealakekua, Kaapuna
 - Ran the model in 5-year increments
 - Used estimated rainfall from the time period: 1984-2008
 - The 1984-2008 rainfall estimates are presented in terms of the percent of the 1916-1983 rainfall mean presented in the 1986 Rainfall Atlas of Hawai‘i.
 - Shows that using more current rainfall could make a substantial difference in recharge estimates, particularly in the Kona area.

- New datasets being incorporated into the water budget studies:
 - 2011 Rainfall Atlas (1978-2007 rainfall data)
 - Updated historical rainfall – monthly rainfall (1920 – 2007, to be extended to 2010)
 - New ET datasets being finalized by T. Giambelluca (UH)
 - Updated methods for calculating runoff
 - New climate data
 - Estimating runoff in ungaged basins
 - Updated how canopy interception is calculated
- Ongoing recharge projects:
 - Kauai 1978-2007 recharge estimate (uses 2011 Rainfall Atlas) : long-term average for a given area
 - 2010-2011 recharge estimates; Cooperator: USGS Ground Water Resources Program; expected in 2015
 - Oahu 1870: predevelopment condition
 - Oahu long term average 2010-2011
 - Oahu future scenario: incorporates climate change estimates
 - Oahu 1900-2010 transient study in 10 –year periods; Cooperators: CWRM, BWS, USGS GWRP; expect incremental reports from mid-2014 to early 2015
 - Maui 1978-2007 recharge estimates
 - Maui 2001-2010 drought scenario; Cooperators: GWRP, CWRM, Maui DWS; expected 2014-2015
 - Molokai 1940 – 2010 transient study in ten year period; Cooperators: USGS, Office of Hawaiian Affairs, Department of Hawaiian Home Lands, Maui Department of Water Supply; expected late 2014
- Would like to update Hawaii Island with new datasets but currently no funding

PROPOSED 2014 WRPP HAWAII ISLAND SY (44:40 in audio file)

- Generally affected upper range of SY; did not affect lower range of SY as much
- Yellow: lower ranges affected (*slide 19 of presentation*)
- Red: upper ranges affected (*slide 19 of presentation*)

DISCUSSION

- Hawi SY is too low
 - The original pumping numbers from sugar plantation days are a good starting point in determining more realistic numbers.
 - Water is being imported from Honokane and probably accounts for 50% of SY.
- Waimea and ‘Anaeho‘omalua aquifers – best available data is not being used
 - The table shows over 176 mgd recharge in ‘Anaeho‘omalua, but only about 20 percent of that in Waimea.

- We are currently pumping 14 mgd out of Waimea (nearing the lower end of the SY range) and only 4.3 mgd out of ‘Anaeho‘omalū, but sampling of shoreline discharge shows that there is at least an order of magnitude greater flow coming out of Waimea than ‘Anaeho‘omalū.
- The aquifer boundaries here do not make sense.
- The implication of recharge study is that there is more water in ‘Anaeho‘omalū, but on the ground observations contradict that. All wells drilled in ‘Anaeho‘omalū have been less productive and higher salinity than on the Waimea side of boundary.
- Northern side (Waimea) wells are tapping water from the Kohala Mountains. There are wells close to the boundary on both sides of Wai‘ula‘ula Gulch at the 700' elevation that are drinking-water fresh.
- **Starting with the recharge numbers is misleading. We need to start by redrawing the aquifer boundaries.**
 - The north boundary is far more important than the south.
 - This would shortchange the Mahukona aquifer, but a portion of the Kohala Mountains in the Mahukona aquifer above Waimea Town is a source of recharge to the Waimea aquifer.
- **Would not use the subsurface boundary as the aquifer boundary, but would move the aquifer boundary to the north to include the top of the Kohala Mountains.**
- Recharge for ‘Anaeho‘omalū would suggest that there is an average of 20 mgd coming out at the shoreline, but it's not coming out.
- There may be subsurface paths where groundwater is moving, which would explain the lack of coastal discharge from ‘Anaeho‘omalū, but there is actually a small fraction of that coming out. The water was never there.
- This area will become a hot spot in the future because it is slated for development.
- **Suggest new deep monitor wells in the Waimea/‘Anaeho‘omalū Aquifer System Area (ASYA)**
- Pu‘uanahulu State well (drilled but not cased) on the south boundary of ‘Anaeho‘omalū area. The open-hole pump test at the 1500-1600-foot well elevation yielded <100 Cl and eight-foot water level.
- **SY should be ranges, rather than a single number, but how should we determine the minimum and maximum?**

1:10:06 in the audio file – break for move

- Basal vs. High Level Aquifers (*1:18:55 in audio file*)
 - Hawai‘i Island is expected to develop both basal and high level water.
 - The RAM model only works for basal aquifers, so how do we determine SY for high-level aquifers?
 - For high level water, we make a conservative estimate. Is the 0.44 draft/recharge (D/I) ratio in the table (*slide 19 of the presentation*) a conservative estimate?
 - The 0.44 D/I ratio is from J. Mink’s suggestion for basal aquifers, but it’s the best we have for high level water.
 - Hilo borehole hit water at 10,000 feet below msl
 - Schofield SY was left at the status quo; no additional pumping is allowed. Not sure how much water is going to Pearl Harbor vs. North Aquifer Sector Area (ASA)
 - “Water budgeting” is problematic in that it suggests that we know all of the other parameters and are trying to figure out one “left-over” number, but in reality, there are two or three parameters subject to uncertainty.
 - For water budgeting, a daily time step may not make sense because the other data is averaged.
 - There are other methods to estimate recharge beyond the water budget method.
 - Numerical modeling is not ready to replace RAM or RAM2 models for estimating SY, but it is still valuable for other roles, such as delineating boundaries, testing conceptual models, etc.
 - **Recommendations for more study:**
 - Delineate boundaries between basal and high-level aquifers
 - How to evaluate high level SY; D/I estimation
 - How to utilize the RAM2 model in basal aquifer evaluation, which requires monitor well data (RAM does not require monitoring data)
 - In the long-term, we need to investigate other methods beyond hydrological budgeting and investigate the underlying physics more: recharge vs. how much infiltration actually takes place under different scenarios.
 - More research on water budget estimation
- Water budget models are useful in that they provide recharge data to be used in determining SY estimates, which is what the State needs.
- Suggest using SY as a starting point. Come up with a reasonable SY with an “easy” methodology that people can understand and agree on. Assuming there is a reasonable SY, what is the process for determining when things are ok or not ok, so we know when/where to enforce management? How do you know where there’s a problem? Is there an alternative method other than SY to manage water resources?
 - **We need to simplify water resource management – use direct observation as a tool.**
 - **Monitor measurable elements: rainfall and water levels + pumpage + salinity + streamflow**

- **Need to monitor in the high level area**
- **Need to monitor on a regular basis to be able to see changes**
- If we use SY as a starting point, how often and under what circumstances should we be revisiting SY? When data show evidence of some change in factors affecting SY.
- Professional vs. casual/citizen observer. CWRM is using technology to allow for each user to report use. Is it sufficient to have “non-professional” monitoring at a monthly interval?
 - Take advantage of data we can get, but have some quality assurance/quality control (QA/QC) for monitoring – how good is the data collected?
 - **Provide periodic training to those providing the data to check calibration methods and ensure that the data being used to make decisions (water levels, pumpage, etc.) is good data.**
 - CWRM is planning to hire a consultant to help get users on board with reporting and to verify that the older wells have a meter. New wells after 1997 are supposed to have meters, based on construction standards.
 - **It might it be better to get a good representation of wells across a given area, rather than try to get 100% compliance in reporting? Water professionals could agree to a set of key monitor wells.**
 - Kiholo USGS well had good data in real time, but it was discontinued due to vandalism.
 - Honolulu BWS collected island-wide water level data which was readily available, but CWRM doesn’t have this kind of data set.
 - Due to limited resources and personnel, CWRM began its groundwater data collection program in “hot spot” areas. Complicating factors: collecting data on neighbor islands and on private property, large sampling areas. Resources will limit the amount of data that an organization is able to collect.
 - **Develop better collaboration between private and public partners to maintain a useful monitoring network.**
- CWRM will build off of existing data and analysis – e.g., Kona area.
 - Kona high-level wells are responsive to rainfall, so we should **concentrate on the high level aquifers** (e.g., Keopu). Look at where water is coming out from high-level to the basal. If water is coming out, identify where it is coming out.
 - Need to both get additional data and analyze existing data to find out what is happening in the high-level Keauhou-Kona area
 - Some high level well trends are inconclusive – there are large changes, +/-10 feet
 - **Need to re-establish the “Bauer-era” monitor well network**
- **In areas where the SY range is changing, CWRM should look at monitoring data and identify how to correlate monitoring efforts with management, then bring that up for discussion.**

- Water budgets and recharge estimates can be a starting point to revising SY, but there should be multiple lines of evidence for getting at SY, e.g., operational data. How do we incorporate operational data in the setting of SY?
- How are we going to address high level data if RAM does not provide that? Especially now that we've found high level water in the Keahou area, there is uncertainty as to how we are going to manage that resource.
- Results of the isotope study may help to ascertain the elevation that water is recharging and the path of ground water, but there are uncertainties.
 - Preliminary results suggest that recharge may be coming from high elevation rainfall and that water may not be going where most people think it is going.
 - Isotope analysis is complicated by mixing with seawater.
- Role of geologic data (i.e., deep borehole, gravity survey, data) in explaining ground water occurrence, aquifer boundaries, water movement and barriers (inferred dike systems, etc.) (2:01:45 in audio file)
 - Modeled gravity data and inferred substantial diking
 - Geologic structure is a major player in where groundwater is moving, but we do not understand the geologic structure.
 - Future expansion of magnetotelluric groundwater (MT) surveys could indicate where fresh water is and where the transition is between fresh and saltwater. There may be sharp boundaries in the ground water system. Study areas include Waimea region and the Hualalai transect.
 - Land access and permission are challenges to MT research projects.
 - Data expected hopefully by 2015.
- To model high elevation water, we need to know aquifer thickness.
 - Beyond a certain depth we assume that water will be stagnant.
 - Based on what we see at the Saddle borehole, porosity is maintained for about one kilometer. Beyond that, things "pancake."
 - At 5,000 feet, we can see the flow boundaries but they are "pancaked." Do not see the same loose formations we see at 2,000 feet.
 - Saddle borehole cores can help to determine porosity and find barriers. This type of analysis was not included in the current study, but the cores are available to others for analysis.
- Purpose of the borehole was to determine the elevation ground water is at and what is its water quality because the Army is interested in it as a potential water supply.
 - The first 2,900 feet of the hole is unstable and experienced a lot of caving. The team needed to install casing to 2,918 feet to stabilize the hole. Will be perforating the casing and doing a pump test in spring 2014.

- The hole diameter is about 4-1/2-inched (casing) to the 2,918 foot depth, then HQ coring size from there to 5,786-foot depth. The only water that could be sampled is 1,100-feet below the surface of what appears to be the stable water table.
- At about 3,000' to 4,000 feet below the surface, the rocks lose permeability.
- The Waiki'i pump well went to 3,700 feet.
- At what depth is an aquifer non-water bearing or impermeable?
 - Hilo borehole saw different results from the Saddle borehole.
 - Hilo borehole drilled to 3,600 feet and found fractures that are much more open.
 - Started at about 25 feet above msl, drilled through 2,760 feet of lava before hitting submarine haloclastites, but even those were open.
 - Saw a flat temperature gradient until 4,500 feet, then saw conducted gradient. Core got mineralized and compacted. This seemed to happen sooner in Saddle borehole.
 - The Saddle borehole hit the first perched water at 500 feet depth to about 540 feet, hit another perched aquifer at 700 feet to 1200 feet, then hit a sequence of unsaturated zones. All standing water in the borehole was lost at around 1,500 feet, then the final water table was hit at 1,800 feet and the borehole never lost water after that. The bottom of the hole is at 600 feet above msl.
 - Large scale perching formations will affect water flow.
- Traditional and Customary (T&C) Practices (2:16:00 in audio file)
 - Is how we currently define sustainable yield enough? We currently allow for 56% of recharge to flow into the ocean?
 - Do we need a monitoring for outflow? Is that an end-use?
- Climate Change Impacts
 - There is a current study on climate change impacts (sea level rise) on O'ahu aquifers
 - Climate change (sea level rise) will affect anchialine ponds
 - Rising sea level will make the ponds more saline
 - It will occur faster on Big Island since it is sinking
 - Impacts depend on how sea level rise interacts with nearshore topography
 - Change in storage boundaries due to rising sea level
 - Changes in rainfall will also affect recharge. Has there been an analysis in rainfall patterns in Kona area (there are still a number of active gages)?
- Volcanic Eruption Impacts
 - Rainfall decrease of about 30% in Kona due to vog (data shows this in downwind rain gages).
 - Rainfall is corrosive due to atmospheric sulphur from volcanic emissions (acid rain)
 - Possible increased sulphur in rainfall, and thus in the groundwater?
 - Really high concentrations of pollutants in the rift zone area – Ka'ūpūlehu wells are enriched in every dissolved constituent. The water becomes semi carbonated and fouls up the R-O filters at Four Seasons resort.

- Is the decline in rainfall in Kona exacerbated by volcanic activity (vog)? There is a correlation between decreased rainfall and vog, but there are no known studies that show causation. There are papers on polluted cities (where there are more particulates in the air) getting reduced rainfall. Water does not rain out of the atmosphere, but there tends to be more fog. There may be more fog interception in the upland Kona area.
- Is Kona high-level water moving into the basal aquifer – spillover vs. throughflow. The actual mechanism will affect management.
 - Are the water bodies separate? How should we be treating this? Isotope studies are crucial so we can determine this.
 - Is basal water really just high level water just coming down? This is how we have been treating it. If not, how do we treat it?
 - If high level water is spilled over from the high level aquifer, then drawdown will have a more drastic effect than if we have throughflow, which would be driven by hydrostatic head. Drawdown of a few percent would affect throughflow by a few percent.
 - **Monitoring is essential. It will inform our understanding of how the systems work and we can then adjust our management.**
- Do we need something in Kona similar as the Pearl Harbor Monitoring Working Group that agreed on a monitoring network and triggers were proposed for management actions?
 - If we do not have a proactive approach, we will permit a lot of wells and development will occur, and we would have to pull back.
 - O‘ahu was developed and had to cut back, but we should be able to plan for it better now.
 - What is the best management philosophy?
- **We need to have better monitoring. We need to identify the most critical data points, and get data in a timely manner.**
- How do we factor T&C into the SY? How much is sufficient? Is leaving a certain percentage of the water in the ground enough?
 - **Begin with SY as a starting point. Do not modify SY, but take that and other things into consideration when evaluating T&C impacts: well location, drilling, site specific studies on ecosystems, and other factors which may impact T&C practices.**
 - T&C is very site specific but SY is over a broad area.
 - Ascertain T&C practices through the permitting process (Ka Pa‘akai analysis).

Next Steps

- There are areas where SY numbers are in question: CWRM staff should take a look at those and re-send the table out to the group.
- D. Thomas to send Flinders, et.al., paper to CWRM.
- Bowles and Nance to propose boundary changes on aquifer map.
- Isotope study analysis may help to identify aquifer boundaries, but data will not come out until after the WRPP.
 - New sampling point: Pace's Ranch well (hit water 1,000 feet above msl) – for isotope study.
- University group to identify relevant academic research in the area.
- Group should suggest new research projects in the area to improve knowledge in the area.
- Locations for new deep monitor wells, particularly in Kona
- Potential to meet again, if needed.

Hawai'i Water Workshops Overall Summary

Water Resource Protection Plan Update

COMMISSION ON WATER RESOURCE MANAGEMENT

Ke Kahuwai Pono

“The trustee who oversees the rightful sharing of water.”



WATER RESOURCE PROTECTION PLAN UPDATE HAWAI'I WATER WORKSHOPS – OVERALL SUMMARY March 2015

1 INTRODUCTION

The Commission on Water Resource Management (Commission) is currently updating the State Water Resource Protection Plan (WRPP), a long-range plan that provides guidance and direction for protecting and managing Hawai'i's water resources. As a part of the WRPP update process, the Commission held seven public meetings, called "Hawai'i Water Workshops," in March 2015 to inform the Commission's thinking as it formulates the WRPP Update.

Slideshow presentations were made at each workshop to share information on the State Water Code, Commission, WRPP and its current update, known water issues, and management practices engaged by the Commission. After the slideshow, workshop participants broke out into small groups to discuss water management issues and ideas in their communities. The small groups reconvened to share their main issues and suggested solutions before closing the meeting. Participants at the Kaua'i Workshop had so many questions and discussion points after the slideshow that they did not break into smaller groups.

**WATER RESOURCE PROTECTION PLAN
HAWAI‘I WATER WORKSHOPS – OVERALL SUMMARY
March 2015**



Table 1 Hawai‘i Water Workshops

Island		Location	Date (2015)	Number of Participants Signed In
1	O‘ahu	DLNR Board Room 1151 Punchbowl Street, Room 132	March 3	40
2	Lāna‘i	Lāna‘i Senior Center 309 7 th Street	March 11	21
3	Maui	Wailuku Community Center 395 Waena Street	March 12	76/100*
4	Moloka‘i	OHA/DHHL Kulana Oiwī Halau 600 Mauna Loa Highway, Suite D-2	March 17	24/30*
5	Kaua‘i	Planning Commission Meeting Room 4444 Rice Street, Suite A473	March 19	37/50*
6	Hawai‘i (Kona)	West Hawaii Civic Center 74-677 Kealakehe Parkway	March 24	68
7	Hawai‘i (Hilo)	Aupuni Center 101 Pauahi Street, Suite 1	March 30	51
				317/360*

* In some instances, rough visual counts exceeded the number of participants who signed in. The second number provided is an estimate of the number of participants that actually attended the workshop.

1.1 Types of Water Resource Comments

Hawai‘i Water Workshop participants commented on a wide range of water resource topics. In some cases, comments related to topics that are not under the purview of the Commission and instead come under the responsibility and jurisdiction of other agencies and entities, such as the State Department of Health (water quality), County water departments (water transmission and pricing), or DLNR Division of Forestry and Wildlife (watershed health and management). All comments were recorded, regardless of whether or not the comment pertained to a Commission function or not.

Comments from each of the Workshops were recorded on large chart paper for participants to review. After the workshops, these hand-written notes were then transcribed and posted to the Commission web page on the Water Resource Protection Plan Update Hawai‘i Water Workshops. Workshop materials, including the Workshop flyer, slideshows, and meeting notes are posted to the Commission website at:

<http://dlnr.hawaii.gov/cwrp/planning/hiwaterplan/wrpp/wrpp2014/hiwaterworkshops/>

**WATER RESOURCE PROTECTION PLAN
HAWAI'I WATER WORKSHOPS – OVERALL SUMMARY
March 2015**



The transcribed comments from each Workshop were sorted into the following water resource topics:

1. **Future Community Outreach**
2. **State Water Code**
3. **Governance**
4. **Community Representation/Involvement**
5. **Collaborative/Integrated Long-Range Water Management Planning**
6. **Management of Water and Enforcement**
7. **Data Collection, Monitoring, and Analysis**
8. **Stream Protection**
9. **Ground Water Protection**
10. **Climate Change**
11. **Integration of Land Use and Water Use**
12. **Water Scarcity, Availability of Water, and New Source Development**
13. **Waste and Conservation**
14. **Alternative Water Sources**
15. **Water Quantity and Quality**
16. **Watershed Management**
17. **Infrastructure/Conveyance, and Water Pricing**
18. **Implementation Management Strategies**



2 ISLAND/REGION SPECIFIC WATER RESOURCE ISSUES

A wide range of topics were discussed over the course of the seven Workshops, with region-specific issues emerging at each Workshop. The following is an overview of the water resource issues and topics that seemed to get the most discussion at each location.

2.1 O'ahu

There was concern by participants that the Commission did not have the **resources** to fulfill its responsibilities. One noted area that participants felt was in need of improvement was **data collection, monitoring and analysis**. Several comments were made that additional data collection is needed to ensure wise decision-making. To supplement Commission data collection, suggestions were made to partner with other agencies, schools, universities, and communities to contribute data.

As an extension of the discussion on **collaborative efforts**, participants also expressed a desire for the Commission to bring all relevant stakeholders, including private sector, academic, environmental, and community entities, into **long-range planning** for water. At the same time, government agencies that share water resource responsibilities should also come together.

2.2 Lāna'i

On Lāna'i, the main discussion topics were related to **local input on decision making**, either through a community-based water management body, greater Commission presence on-island, or both. There was frustration that management decisions were being made at the State and County levels, with little understanding of what was actually happening on Lāna'i. Participants also expressed a desire to have **access to the water resource monitoring data** that is used to make management decisions.

Additionally, concern was expressed over Lāna'i's limited water supply and the need for **watershed protection** to maintain ground water recharge, promotion of a **conservation** ethic amongst residents, and investment in **alternative water supply options**, such as desalination.

2.3 Maui

The water resource issue that was raised the most on Maui related to **stream flow and impacts to native Hawaiian rights**. Many workshop participants questioned the need for stream diversions that were created decades ago to supply irrigation water to sugar plantations, leaving reduced flows in the streams for traditional and customary practices, including kalo farming for subsistence. Additional discussion focused on providing **water for agriculture**, particularly for DHHL lots and for food products to ensure food security.



A commonly cited strategy to address these and other water resource issues was a **return to traditional Hawaiian management systems**, including incorporation of the 'Aha Moku Council into decision-making, **community management and enforcement**, and **holistic, ahupua'a-based thinking**.

2.4 Moloka'i

Moloka'i Workshop participants were concerned with **water rights** and the hierarchy of uses. The protection of Hawaiian water rights were of particular concern, with several questions raised regarding the clarification and definition of water rights and the Waiola Case. **Water for DHHL residential and agricultural uses** was another topic that was raised often.

Regarding specific water supplies, many people were concerned with **protecting the Kaulapu'u Aquifer** from overpumping. Some participants requested data on the sustainable yield of the aquifer and the quality of the water, along with **water resource data** – sustainable yields and pumpage - in general.

2.5 Kaua'i

Workshop participants expressed frustration with the **level of interaction between the Commission and the Kaua'i community**. In general, participants said that the Commission is inaccessible to residents and out of touch with their concerns and issues. It was recommended that more time and effort be spent in the places where water resource issues and problems are occurring, either through more time spent on-island by Commissioners and staff, an on-island Commission staffer, or use of technology. Additionally, the Commission should outreach to other agencies such as the County Planning Department and DHHL to help spread the word about meetings and the availability of data.

Another concern was **stream protection** and the impact of diversions on the health of surface water. Participants reported diversions that should be decommissioned, as well as issues with water not being available for **agriculture** due to the closing of reservoirs after recent tightening in regulations.

2.6 Kona

Much of the Workshop discussion was focused on the pending **petition to designate the Keauhou Aquifer as a Ground Water Management Area (WMA)**. Concerns ranged from ensuring sustainable protection of the resource to the economic impacts of designation to the use of current data to support decision-making. There were many comments that questioned the validity of how the Keauhou Aquifer sustainable yield was calculated and inclusion of recent data and methods. Many participants were concerned with the added layer of regulation, especially because they said that it was already difficult to get water allocations for new uses.

**WATER RESOURCE PROTECTION PLAN
HAWAI'I WATER WORKSHOPS – OVERALL SUMMARY
March 2015**



This sentiment led to the idea that **decision-making should be kept at the county level**, as that provides the most direct link to the issues and people. With the current system, people have limited access to the decision makers (Commissioners). Issues should at least be heard on the island that it impacts and there should be enough time for all testimony. There should also be additional outreach using technology to **include a wider audience in the decision-making process** and to **disseminate data**.

2.7 Hilo

Many of the participants in the Hilo Workshop represented the rural areas of Hawai'i island where there is no County water service. As such, there was much discussion on alternative water sources, and water catchment systems in particular. Many were concerned about the **public health and safety issues related to catchment systems**, such as water pressure for fire protection and the potential for infectious disease from improper maintenance of the systems. Participants requested research on the vulnerabilities of catchment systems, education to users on proper maintenance of the system and treatment of water, and future County water service to eliminate the need for catchment systems.

Several other issues received significant discussion, including the desire for more **collaboration** among agencies, better **data collection**, greater **local control over decision-making**, clarification and protection of **Hawaiian water rights**, including those of DHHL, and protection of **water quality**.



3 COMMON WATER RESOURCE ISSUES THROUGHOUT THE STATE

While each island/region had its own water resource issues and concerns, several topics were raised repeatedly throughout the State. The following is a discussion of some of the issues that were raised at several, if not all workshops.

Participants at nearly all of the workshops discussed the importance of **local involvement in water management**. There was frustration over what is perceived to be a “Honolulu-centric” decision-making body that is not in tune with the local context of the neighbor islands. Some suggestions presented at the workshops included local water committees that are given advisory power, on-island Commission staff, and more access to Commissioners and staff. To assist in local community participation in decision-making processes, it was suggested that Commission meetings be held on the island that will be affected by major decisions, and sufficient time allocated for public testimony; that data be presented in easily understood formats and posted on-line; and that the Commission adopt technology such as video-conferencing for meetings and digital submittals of testimony.

Another universal concern was the identification, clarification, and protection of **water rights**, particularly Hawaiian water rights. All of the workshops included at least some discussion of protecting traditional and customary practices and providing for DHHL water needs. Associated with that was the Commission’s task of balancing various uses and water rights. To address this, workshop participants recommended that water rights be clearly defined, that the type of water and water sources be matched with specific water needs, and that traditional Hawaiian water management systems and methods be adopted.

A water use that was supported on every island was **agricultural irrigation**, and in some cases, agricultural water needs on DHHL lots. Water for agriculture was seen as important for food security, warranting a higher priority. There was some tension between private uses of water vs. public uses, with many large private water users evolving from former sugar plantations into diversified private uses, such as residential and resort development.

**WATER RESOURCE PROTECTION PLAN
HAWAI'I WATER WORKSHOPS – OVERALL SUMMARY
March 2015**



With so many competing uses for water, workshop participants wondered about the **future availability of water, the potential for drought, the impacts of climate change, protection of water quality, and impacts to surface and ground water**. To prepare for future water needs, participants proposed enforcement of management and monitoring requirements, replenishing ground water supplies via watershed protection, matching water quality and sources with types of water use (i.e., non-potable water for irrigation vs. potable water for drinking), finding ways to decentralize water sources and treatment, emphasis on demand-side management, promotion of conservation through education, exploration of alternative sources of water, proper maintenance of water infrastructure, better integration of land use planning with water use planning and water quality with water quantity, and collaboration with all relevant stakeholders, including government, private, and community sectors.

In order to implement such long-range planning, every island recognized that consistent and relevant **water resource data** needs to be collected. In addition to more data collection, participants wanted to be able to publicly access the data. To supplement the Commission's data collection programs, participants recommended partnerships with other agencies, schools, universities, and community groups. This highlighted a general consensus that the Commission lacks the resources to carry out the responsibilities that they are tasked with. **Additional resources** in terms of budget and staffing were recommended to allow the Commission to perform their duties.