

APPENDIX

CWRM Regulatory Programs

Water Resource Protection Plan 2019 Update

CWRM Regulatory Programs

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CWRM Regulatory Programs

This section of the Water Resources Protection Plan (WRPP) summarizes Commission on Water Resource Management's (CWRM) regulatory programs and recommendations for program implementation. CWRM's authority to designate ground and surface water management areas, regulate the use and development of water sources, resolve complaints and disputes, and declare water shortage and water emergency conditions are discussed.

Goals and Objectives:

- Provide the regulatory and internal framework, including best use of information technology, for efficient ground and surface water management.
- Ensure the permitting process provides for adequate protection of public trust purposes and water rights in all areas of the State.
- Ensure that the limits of available supply established by CWRM are not exceeded.
- Ensure consistency with other State and County plans and policies.

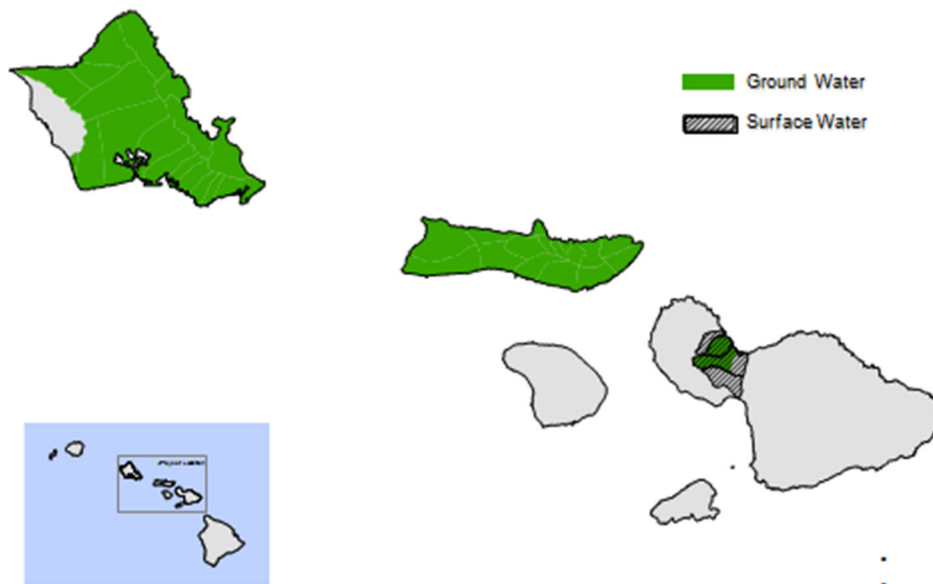
CWRM uses regulatory controls to implement its policies and Hawai'i Water Plan guidelines for source development and water use. Regulations are also used to protect water quantity and quality, optimize water availability, protect public rights, and obtain maximum reasonable-beneficial uses. CWRM relies on permit systems to apply and implement regulations concerning source development and water use.

In making decisions on permit applications, CWRM looks to the Hawai'i Water Plan for guidance. Therefore, the regulations also help to implement the counties' long-range plans and policies regarding land and water use. The regulations are also aimed at promoting hydrologic data gathering by requiring specific data to be collected and submitted to CWRM. In turn, this helps to assure wise decision-making in the future based on new and better information.

I.1 Designation of Water Management Area

When the water resources of an area are determined to be threatened by existing or proposed withdrawals of water, CWRM shall designate the area as a water management area for the purpose of establishing administrative control over the withdrawals and diversions of ground and surface waters to ensure reasonable-beneficial use of the water resources in the public interest. The State Water Code provides eight (8) criteria for CWRM to consider in designating an area for regulation of ground water use¹ and three (3) criteria for surface water². **Figure I-1** shows the location of designated ground and surface water management areas.

Figure I-1 Designated Water Management Areas



¹ HRS §174C-44.

² HRS §174C-45.

I.2 Water Use Permit

CWRM applies a water use permitting process to regulate use in designated water management areas. A water use permit must be obtained to continue actual existing uses at the time of designation and prior to commencing any new water use.³ The water use permitting system provides for the protection of public trust purposes and allows for maximum reasonable-beneficial use of water resources, while ensuring that the integrity of the resource and public trust uses are not threatened. Water use permit applications are evaluated according to seven criteria identified in the State Water Code.⁴ A diagram illustrating the permitting process is included in **Appendix D, Permit Process Diagrams**.

Through its review of various contested case hearing decisions and orders, the Hawai'i Supreme Court has identified four water resources public trust purposes: 1) maintenance of waters in their natural state, 2) domestic water use, 3) the exercise of Native Hawaiian and traditional and customary rights,⁵ and 4) Department of Hawaiian Home Lands (DHHL) reservations.⁶

There is no hierarchy of priorities between these public trust purposes, but there is a presumption in their favor over other interests that seek water use permits. CWRM is obligated to consider, protect, and advance public rights to the resource at every stage of the planning and decision-making process.

Although not a public trust use, CWRM gives greater priority to agricultural uses over golf course uses, which was affirmed by the Hawai'i Supreme Court in its first decision in the Waiāhole Ditch Contested Case Hearing (CCH-OA95-1).

I.2.1 Requirement for Alternatives Analysis

The Water Code is silent regarding any requirements for alternative source analysis in the water use permitting process. The only instance where an analysis of alternatives is mentioned in the Water Code is in the instream flow standard setting process. However, the Hawai'i Supreme Court has issued an opinion that water use permit applicants are required to demonstrate the absence of practicable mitigating measures, including the use of alternative water sources. As part of the evaluation of reasonable-beneficial use, an efficiency test and assessment of alternative water sources are required. Such an assessment is intrinsic to the protection of public trust purposes and essential to balancing competing interests.⁷ CWRM has therefore established that an analysis of alternatives is required to establish that proposed water uses are reasonable-beneficial for any water use permit.

³ HRS §174C-48.

⁴ HRS §174C-49(a).

⁵ Supreme Court Decision in Waiāhole Ditch Contested Case Hearing CCH-OA95-1.

⁶ Supreme Court Decision in Waiola O Moloka'i Contested Case Hearing CCH-MO96-1.

⁷ Waiāhole I, 94 Hawai'i at 161, 9 P.3d at 473.

I.2.2 Determining Reasonable Water Use Quantities

The State Water Code requires that permitted use quantities be reasonable and reflect efficient water use. To determine reasonable water quantities, CWRM utilizes actual metered use data, when possible, in conjunction with established guidelines and standards.

Actual metered water use data is the best method that can be used to project future water needs for a particular use. Metered use data can also be extended to estimate the future water use requirements of similar, nearby uses. Meters have been required for all production wells constructed since 1997 under the Hawaii Well Construction and Pump Installation Standards. Surface water metering has been more difficult due to the nature of open channel flow and varied diversion structures. CWRM staff does not have the resources to monitor meters and must rely on owners to self-report.

Beginning in 2013, CWRM initiated online water use reporting to facilitate comprehensive water use data reporting. However, metered water use data may not be available in many cases (see **Section H.3** in **Appendix H** for a discussion of CWRM's water use reporting program).

Where use data is not available, CWRM must utilize other means to determine reasonable quantities for future demands. To estimate various types of domestic consumption, CWRM refers to the *Water System Standards*,⁸ prepared by the county water departments. The water departments use these standards for the design and construction of municipal water system facilities. The standards also include water consumption guidelines for commercial, resort, light industrial, school/park, and agricultural water use for each county. Guidelines are system-wide averages that do not reflect variations between drier and wetter service areas.

It is difficult to determine reasonable water use quantities for irrigation & agricultural purposes due to the variations in regional climatic variables, such as rainfall and evapotranspiration, and variations in soil, irrigation and crop-rotation methods, and crop demands. The Agricultural Water Use and Development Plan, published by the Department of Agriculture (DOA) in 2004, provides a guideline of 3,400 gallons per acre per day (GPAD) to estimate the irrigation rate for diversified crop farming in Hawai'i. This estimate is based on the eight-year average irrigation rate for diversified crop farming within the Lalamilo Section of the Waimea Irrigation System on the island of Hawai'i. Estimates of irrigation water requirements for other agricultural irrigation systems were not provided in the Agricultural Water Use and Development Plan (AWUDP) report. Diversified crop farming involves active cultivation of land to produce commercial crops throughout the crop's growing cycle. Depending on the crop, the growing cycle may include several harvesting cycles in a calendar year. Portions of the land may be rotated out of cultivation and left unirrigated for a short period of time as part of routine farming activities.

⁸ State of Hawai'i, 2002, *Water System Standards, as amended*.

Water requirements for aquaculture activities are determined using draft guidelines prepared by the DOA's Aquaculture Development Program. Two ranges of use (Intensive and Semi-Intensive) were developed by the DOA for selected aquaculture species. Economics and various management factors dictate the aquaculture management system and actual water consumption rates.

CWRM's reliance on the methods, standards, and guidelines described above are subject to change with new information and technological advances. For example, in the interest of improving irrigation water demand projections and evaluation of reasonable irrigation water use quantities, CWRM contracted the University of Hawai'i's College of Tropical Agriculture and Human Resources (CTAHR) to develop a model for estimating irrigation water demands in different physical areas. The model is called the Irrigation Water Requirement Estimation Decision Support System (IWREDSS), which provides CWRM with a standardized methodology to estimate the regional water requirements of various crop types. The model is a computer software application that has been used since 2008. In 2013, the model was updated and IWREDSS Version 2.0 is now in use. The model is based on a water budget irrigation consumption mass balance that utilizes a Geographical Information System (GIS) platform to determine local climate and soil characteristics. GIS inputs include the latest digitized maps from the *Rainfall Atlas of Hawai'i*⁹, *Pan Evaporation: State of Hawai'i, 1894-1983*,¹⁰ *NRCS Soil Data Hawai'i*;¹¹ *Kaua'i, O'ahu, Maui, Moloka'i*.¹² The irrigation model also considers differences in crop type and crop practices. It is important to note that IWREDSS is a tool to estimate crop water demands and the actual permitted allocation could be determined based on other factors as well.

I.2.3 Using a 12-Month Moving Average to Manage Ground Water Use

The State Water Code specifies monthly averages to assess water use but does not specify a standard time-period over which to calculate this average. The only instance where guidance is given in the State Water Code is the use of the prior three-month average water use to determine whether or not an existing water use in a newly designated water management area will require a public hearing.¹³ However, it should be noted that three-month average water use varies throughout the year, depending on the season and antecedent rainfall conditions (e.g.,

⁹ Giambelluca, T.W., Q. Chen, A.G. Frazier, J.P. Price. Y.-L. Chen, P.-S. Chu, J.K. Escheid, and D.M. Delaporte, 2011 *Hawai'i Hawai'i* 72 p.

¹⁰ Ekern, P.C., and Chang, J.-H., 1985, *Pan evaporation: State of Hawai'i, 1894-1983: State of Hawai'i*, Department of Land and Natural Resources, Division of Water and Land Development, Report R74, 172p.

¹¹ *Hawai'i Hawai'i* U.S. Department of Agriculture, Natural Resource Conservation Service, SSURGO Data, <http://soildatamart.nrcs.usda.gov>, September 2012

¹² U.S. Department of Agriculture, Natural Resource Conservation Service, STATSGO Data, <http://soildatamart.nrcs.usda.gov>, September 2012.

¹³ HRS §174C-50(b).

summer versus winter weather), and most likely will not be reflective of actual annual water demand.

Existing ground water uses certified under Chapter 177 HRS, which was repealed and replaced by the State Water Code, were determined based on the prior five-year daily average of water use. Some parties have advocated the continued use of a five-year moving average for water use assessment; others have advocated the use of a 10-year moving average, which would better accommodate the cyclical nature of drought conditions. However, these longer-term statistics may conflict with the State Water Code's provision for revocation of water use permits due to four continuous years of nonuse.¹⁴ In addition, allocating water based on assumed drought conditions would conflict with CWRM's mandate to ensure maximum reasonable-beneficial use because, in most years, the full amount of the allocation would not be used and new uses could not be accommodated if aquifers are fully allocated, even if aquifers are not actually being pumped up to their sustainable yields. The water shortage provisions under the Water Code is the method to address temporary drought conditions.¹⁵

CWRM currently uses a twelve-month moving average (12-MAV) to assess ground water use.¹⁶ The first official reference to the use of a 12-MAV for assessing hydrologic data appeared in the October 21, 1992 issue of *Rainfall Trend*, a monthly newsletter issued by CWRM.¹⁷ The newsletter provided up-to-date information on rainfall and water level information collected by CWRM, discussed the relationship between rainfall trends and water levels, and presented an outlook for rainfall. It was distributed to about 100 governmental agencies and private businesses interested in rainfall information.

The use of a 12-MAV has been used with reference to ground water use permits since 1993.¹⁸ The 12-MAV considers the average daily use over an entire annual climatic cycle, accounting for seasonal variations in water use, where water use is typically higher in the summer when the weather is dry and lower in the winter due to increased precipitation. Further exploration of an appropriate statistic for water use assessment, allocation, and enforcement would be beneficial. If an alternative measure is identified, the State Water Code should be updated to include the assessment measure.

At this time, the statistic for allocation and enforcement of surface water use permits has not been determined. To date, no surface water use permits have been issued.

¹⁴ HRS §174C-58(4).

¹⁵ HRS §174C-62.

¹⁶ CWRM actions referencing the use of a twelve-month moving average to assess water use began on March 17, 1993.

¹⁷ *Rainfall Trend* newsletter was published monthly by the Commission on Water Resource Management's Hawai'i Climate Center. The Hawai'i Climate Center ceased to exist in 2000, when the rainfall program was transferred to the University of Hawai'i.

¹⁸ March 17, 1993 meeting of the Commission on Water Resource Management.

I.2.4 Encouraging Best and Highest Use of Water

CWRM encourages the management of aquifer water quality, primarily with regard to chloride levels, by disallowing the application of lower quality water over a higher quality aquifer.¹⁹ Proposed uses that will result in a degradation of aquifer water quality are not allowed, especially where the chloride concentration of ground water may increase. Either the same or higher-quality water must be used, or the lower-quality water must be treated until it is at least of the same quality as the affected underlying aquifer. Generally, the ground water source and end use occur at the same site or within the same aquifer system area. The application of water of a relatively lower quality (i.e., brackish) over an aquifer that yields high-quality water (i.e., potable) is not allowed. CWRM examines water quality in terms of chloride concentration, and the Department of Health (DOH) has authority over other water quality parameters should other quality issues be raised. See the DOH Water Quality Plan for more information.

As stated above, an analysis of alternatives is required for all water use permit applications. Recycled wastewater may be a viable alternative to the use of ground or surface waters. However, because there are certain chemicals and constituents (i.e. pharmaceuticals and personal care products) that are not removed in the wastewater treatment process, the DOH has indicated that there may be shallow drinking water aquifers over which recycled wastewater should not be applied. DOH updated its Reuse Guidelines in 2016 (<http://health.hawaii.gov/wastewater/home/reuse/>), identifying areas where recycled water application is either restricted, conditional, or unrestricted.

The DOH is afforded an opportunity to review all water use permit applications and is required to review well construction permits. The DOH may recommend special conditions to address contamination concerns resulting from the proposed land use, such as nearby individual wastewater systems (IWS) or pesticides and fertilizers that may be applied to golf courses. CWRM attaches any special conditions recommended by the DOH to water use, well, or pump permits, to ensure that the water quality of aquifers and wells is not threatened or degraded.

The quality of the water supply should be matched to the quality of water needed, and the highest quality water should be allocated for the highest uses. However, potable water can be used for non-potable purposes if the proposed use meets the regulatory requirements and there are no practical non-potable alternatives. In these cases, special conditions are attached to the water use permit to require conversion to an alternate non-potable source when it becomes available.²⁰

¹⁹ March 15, 1990 meeting of the Commission on Water Resource Management, Staff Submittal Item 3.

²⁰ October 25, 2005 meeting of the Commission on Water Resource Management, Staff Submittal Item C-1.

It is the policy of the Water Commission to promote the viable and appropriate reuse of reclaimed water insofar as it does not compromise beneficial uses of existing water resources. Recognizing that reclaimed water is a valuable resource in the Ewa Plain, direct or indirect reuse will be championed by the Water Commission. It is the policy of the Water Commission that the water resources of the Ewa Caprock Aquifer will be allocated only for nonpotable uses.²¹

By declaring that the 'Ewa Caprock Aquifer will only be allocated to non-potable uses, CWRM cleared the way for recycled water use for landscape, golf courses, and other non-potable uses over the 'Ewa Caprock.

I.2.5 Modification of Ground Water Use Permit

The Water Code and its administrative rules provide for modification of water use permits.²² In order to streamline the water use permitting process, CWRM clarified, through a declaratory ruling in §174C-57 HRS,²³ that ground water use permit modifications that meet the following criteria may be approved administratively:

1. The net change in permitted use within an aquifer is zero.
2. The modification would result in more efficient and optimal operation of multiple sources under a single operator.
3. No adverse impacts to water resources or other existing legal uses are anticipated.
4. End use location and type remain unchanged.

This order clarifies and streamlines the water use permit modification process for well owners with multiple wells within a single aquifer system area. CWRM encourages more efficient and optimal water source operations, which can also result in minimizing the potential for over-pumpage violations, for situations that meet the above criteria.

CWRM continues to refine and streamline the water use permitting process in response to Hawai'i Supreme Court rulings, CWRM decisions and actions, statutory changes to the State Water Code, and requests from the public or government agencies. CWRM decisions on permit applications are recorded in the CWRM water use permit database, which serves as the agency's system for documenting and indexing formal decisions and actions. CWRM water use permitting policies described above have been identified through Hawai'i Supreme Court rulings and CWRM actions.

²¹ March 13, 1996 meeting of the Commission on Water Resource Management, Staff Submittal Item 3.

²² HRS174C-57, HAR13-171-23

²³ Declaratory Order No. DEC-ADM97-A1.

I.2.6 Recommendations

CWRM should further explore the use of different statistics, methods, and measures to assess ground water use over time. If an alternative measure is identified, the State Water Code should be updated to include the assessment measure. CWRM must determine the appropriate statistic to use in its regulation of surface water use.

I.3 Well Construction and Pump Installation Permits

A well construction permit from CWRM is required prior to the construction, modification, or sealing of any well that will explore for, develop, recharge²⁴, or permanently monitor ground water aquifers. A pump installation permit is required prior to the installation of new or replacement of existing well pumps with pumps of greater capacity.²⁵

The standard conditions of all well construction and pump installation permits require that the work be done in accordance with the Hawai'i Well Construction and Pump Installation Standards (HWCPIS). The HWCPIS contains all of CWRM's goals and regulatory directives regarding proper well construction and pump installation to ensure protection and optimization of ground water resources. CWRM only issues permits to licensed contractors in good standing (i.e., no outstanding CWRM permit or Department of Commerce and Consumer Affairs licensing requirements).²⁶

Under the HWCPIS, approval and issuance of well construction permits are generally ministerial actions.²⁷ A diagram illustrating the well construction and pump installation permitting process is included in **Appendix D Permit Process Diagrams**.

I.3.1 The Hawai'i Well Construction and Pump Installation Standards

The State Water Code requires CWRM to develop minimum standards for the construction, modification, repair/maintenance, and sealing/abandonment of wells²⁸, in order to prevent polluting, contaminating, and wasting ground water, and to minimize saltwater intrusion into wells and ground water. The HWCPIS is a technical document that contains minimum standards governing virtually all aspects of well construction and pump installation, from a resource protection and optimization perspective. The HWCPIS was initially adopted by CWRM in 1997 and revised in 2004.

²⁴ Injection wells are regulated by the State Department of Health's Underground Injection Control Program.

²⁵ HRS §174C-84.

²⁶ Ground Water Regulation Branch Internal Enforcement Guideline, February 16, 2005 meeting of the Commission on Water Resource Management.

²⁷ January 23, 1997 meeting of the Commission on Water Resource Management, Staff Submittal Item 3.

²⁸ HRS §174C-86.

Additional protection of ground water quality is done through coordination with the DOH to determine appropriate permit conditions. All applications for well construction and pump installation permits are sent to the DOH for their review. The DOH review comments, including recommended permit conditions, are attached as special conditions to all permits issued by CWRM.

Since well construction and pump installation permits require adherence to the HWCPIS, CWRM is ensuring adequate protection, testing, and optimization of aquifers with respect to the development of new ground water sources. The DCCA requires well drillers to demonstrate adequate understanding of the HWCPIS through a testing and licensing process. However, licensed drillers are not required to pass any additional tests or complete any continuing education programs to retain their license. Currently, only licensed drillers are notified of changes to the HWCPIS. While the HWCPIS also provides adequate standards for the proper sealing of abandoned wells, the timely decommissioning of abandoned wells is an issue.

I.3.2 Abandoned Wells

The State Water Code defines an abandoned well as any well that has been permanently discontinued, or which is in such a state of disrepair that continued use for the purpose of obtaining ground water is impractical.²⁹ Section 3.1 of the HWCPIS further provides that all wells and test borings must be properly abandoned and sealed whenever:

- The well has served its purpose;
- The use of the well has been permanently discontinued;
- The well is not being properly maintained;
- The physical condition of the well is causing a waste of ground water, or is impairing or threatens to impair the quality of the ground water resources; or
- The well is in such a state of disrepair that its continued use is impractical or it is a hazard to public health or safety.

Because wells are generally considered assets to the property and can be expensive to properly seal, many well owners are reluctant to declare their well abandoned. The Hawai'i Administrative Rules give additional authority to CWRM to determine when a well is abandoned³⁰; however, making such a determination is still difficult. The submission of monthly water use reporting, including pumping, chloride concentrations, temperature, and (pump off) water level data is required³¹ for any well not declared abandoned. If the well has no usage for the time frame represented for that report, then well owners must report that "0" gallons was

²⁹ HRS §174C-81.

³⁰ HAR §13-168-16.

³¹ HAR §13-168-7.

pumped. In order to stop reporting on a well, the well needs to be properly sealed and abandoned. Therefore the regular reporting of monthly water usage is a one way that well owners can keep CWRM updated on the status of their well.

If a well is determined to be abandoned by CWRM or is declared by the well owner to be abandoned, the HWCPIS requires that it be completely sealed in accordance with the HWCPIS. Depending on the size and depth of these wells, the cost will average about several thousand dollars for most wells and up to tens, and even hundreds, of thousands of dollars for especially large or deep wells or shafts.

A recent CWRM analysis found that there are 1,101 wells classified as either abandoned and not sealed or unused in CWRM records. If a well has been determined to be abandoned, and the owner does not or is unable to seal their well, CWRM has the authority to seal the well and place a lien on the property.³² However, CWRM currently lacks a funding mechanism to initiate and execute the sealing of abandoned wells.

Should funds become available, CWRM has identified priority wells that need to be sealed based on the potential threat to drinking water sources. This was done by utilizing the Department of Health's Source Water Assessment Program (SWAP) maps³³, which allowed staff to geographically analyze and identify abandoned and unused wells within the capture zones of public water system wells. Through this analysis CWRM found that 64 wells met the criteria with 47 of those wells located on O'ahu. A rudimentary engineering cost analysis indicated that it would cost approximately \$660,000 to properly seal the identified wells. However, as this analysis only utilized the records available in CWRM files, further investigation and site inspections are needed to make a final determination of abandonment and develop accurate cost figures.

To help assure Hawai'i's aquifers are suitable for future drinking water source usability, all abandoned wells must be properly sealed. Because of this potential harmful risk of contamination to aquifers, other states and counties have come up with additional support to properly seal abandoned wells. CWRM should consider and explore the programs and mechanisms employed by other jurisdictions to resolve the problem of unsealed abandoned wells.

For instance, Minnesota's Capital Region Watershed District has a Well Sealing Cost Share and Loan Availability program for funding half of the cost of sealing a well if you live within the district.³⁴ In 2012, Washington County, MN, received state support from the Clean Water Fund

³² HRS §174C-86.

³³ Hawaii Department of Health Source Water Protection Program: <http://health.hawaii.gov/sdwb/swap/>

³⁴ SmallWaterSupply.org & PrivateWellClass.org 2014, *The Private Well Class 2012, Lesson 7 – Getting Help, Finding Local Answers (Abandoned Wells)*, accessed 29 August 2014 < <http://mad.ly/277f63#>>.

to expand cost share reimbursement to 100%, in some priority areas in the county.³⁵ The Water Bureau of the Michigan Department of Natural Resources and Environment has implemented a comprehensive Abandoned Well Management Program to coordinate statewide abandoned well location and sealing activities. The City of Durand, MI, was awarded an Abandoned Well Management (AWM) Grant in 2005. The AWM grant provides state funds in the amount of \$45,000.00 dollars for locating and plugging abandoned water wells within the City of Durand's well fields. This grant requires the City of Durand to provide matching funds in the amount of 25% for a total project budget of \$60,000.00.³⁶ Illinois' Water Well Abandonment Program provides technical and financial assistance to owners of improperly abandoned wells. An applicant may receive a cost-share of \$500 or 80% of actual cost, whichever is less, for one well within each Soil and Water Conservation District.³⁷ In Nemaha County, Nebraska, 75% cost-share is available (up to \$500 for drilled wells or \$700 for hand dug wells) to properly close and seal abandoned wells. Abandonment must be completed by a licensed well driller within 90 days after approval.³⁸ In Iowa, the Department of Public Health, working with the Iowa Department of Natural Resources, use their Grants to Counties Program to provide cost share reimbursement to help pay some of the cost associated with plugging abandoned wells.³⁹

The Rural Repair and Rehabilitation Loans and Grants program provides grants to very low-income homeowners to repair, improve, or modernize their dwellings or to remove health and safety hazards, which could include sealing of abandoned wells. The Rural Development office of the U.S. Department of Agriculture administers this program. The program is for families who live in a rural area or a community with a population of 25,000 or less. Individuals who are 62 years of age or older may qualify for a grant or a combination of a loan and grant; younger applicants are eligible only for loans.

³⁵ Washington County Minnesota, Abandoned Wells, accessed 29 August 2014, <<http://www.co.washington.mn.us/index.aspx?NID=640>>.

³⁶ The City of Durand Water Department, *Abandoned Well Management Program*, accessed 29 August 2014, <<http://www.durandmi.com/abandonedwellbroc.pdf>>.

³⁷ Illinois Department of Agriculture 2002, Bureau of Land and Water Resources 2002, *Illinois Water Well Abandonment Program (IWWAP)*, accessed 29 August 2014, <<http://www.agr.state.il.us/Environment/LandWater/IWWAP.pdf>>.

³⁸ Nemaha Natural Resources District 2014, Well Abandonment, accessed 29 August 2014, <<http://www.nemahanrd.org/water.php>>.

³⁹ Iowa Department of Natural Resources, Well Plugging Program, accessed 4 January 2018, <http://www.iowadnr.gov/Environmental-Protection/Water-Quality/Private-Well-Program/Well-Plugging>

I.3.3 Recommendations

- CWRM should explore further education programs for drillers to ensure they are knowledgeable of current construction standards.
- Because improperly abandoned wells are largely a contamination and pollution issue, CWRM should coordinate with the DOH to identify funding sources and implement a program for sealing wells that pose existing or potential pollution concerns.
- CWRM should further explore the means and mechanisms employed by other states and counties to fund well sealing work.
- If sufficient funding cannot be obtained for CWRM to begin sealing those abandoned wells which the landowner/well owner will not or cannot do, then CWRM should consider revising the State Water Code to give CWRM clear authority to order landowners/well owners to seal abandoned wells, subject to daily fines for noncompliance.

I.4 Stream Channel Alteration Permit

CWRM protects stream channels from alteration, whenever practicable, to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses. Such protection of stream channels is made possible through the requirement that a Stream Channel Alteration Permit (SCAP) be obtained from CWRM prior to undertaking a stream channel alteration.

"Channel alteration" means: (1) to obstruct, diminish, destroy, modify, or relocate a stream channel; (2) to change the direction of flow of water in a stream channel; (3) to place any material or structures in a stream channel; or (4) to remove any material or structures from a stream channel.⁴⁰ A diagram illustrating the SCAP process is included in **Appendix D Permit Process Diagrams**.

Generally, SCAPs are required for projects that are in the streambed itself, or on the banks of the stream. The exact delineation of the bank is sometimes problematic, but it is usually within the regular or common flow variations of a particular stream, as opposed to flood stages where the normal banks are overtopped. While most streams have a distinct break in the top of the slope which defines the extent of the stream channel, some streams lack a distinct break. In these cases, where a watercourse perennially or continuously contains flowing water, but may not have a definite break in slope facilitating a determination of the stream channel, the stream channel for that portion of the stream shall be defined as the area within 50 feet from the water's edge during a non-flooding event.⁴¹

⁴⁰ HRS §174C-3.

⁴¹ Declaratory Ruling No. DEC-OA96-S5

SCAPs are issued for all projects that alter a stream channel, including those that divert water away from the stream. Such projects include, but are not limited to, armoring stream banks (such as the installation of retaining walls to protect banks from erosion), lining of stream channels (for flood control), placing structures in streams (bridge foundations, pipelines, etc.), removing of material and structures from streams (boulders, sand from stream mouths, existing walls and structures, etc.), realigning streams, and constructing stream diversion works.

CWRM supports routine maintenance of channels, streambeds, streambanks, and drainageways. The maintenance of stream channels, streambeds, streambanks, and drainageways is mandated by law, under HRS §46-11.5. The statute asserts that each county shall provide for the maintenance of channels, streambeds, streambanks, and drainageways, unless such features are privately owned or owned by the State, in which case, it becomes the responsibility of the respective owner. The statute also provides each county with the ability to enforce maintenance work on privately owned channels, streambeds, streambanks, and drainageways, and to assess civil penalties for non-compliance by private entities or individuals.

CWRM supports this statute by exempting routine streambed and drainageway maintenance activities and maintenance of existing facilities from the SCAP requirements.⁴² The State Water Code is silent on defining “routine maintenance” and the specific activities allowed therein. As a result, CWRM has defined maintenance activities for which SCAPs are not required. Provided the watercourse is determined to be “natural,” thereby meeting the definition of a stream, CWRM assesses the magnitude of channel alteration and the reasonable expectation of impacts to instream uses. The following stream clearing activities qualify as “routine maintenance” and do not constitute significant channel alteration or impact on instream uses, and therefore qualify to be exempt from the SCAP requirements.⁴³

- Manual clearing of streams or work without the use of heavy equipment.
- Clearing of sand plugs at stream mouths, as long as the sand plugs are not submerged or do not contain silt or mud.
- Clearing of lined channels, as long as the work does not disturb submerged (accumulated) silt and mud.
- Clearing of vegetation, rock, silt, and debris of artificially lined (concrete or grouted rubble paving), non-submerged portions of streams. These activities also include removal of rocks from boulder basins.
- Reconstruction of channel linings to original configuration. These include activities such as repairing of spalls, patching concrete channel linings, and re-grouting of rubble pavement.

⁴² HRS §174C-71(3)(A)

⁴³ Declaratory Ruling Nos. DEC-ADM99-S8 and DEC-ADM03-S9.

Many projects, while they may be considered “routine” by the landowner, are rather large in scope and thus do not meet CWRM’s criteria of “routine maintenance.” These projects tend to affect longer lengths of stream channel, result in greater amounts of removed material, require the use of heavy equipment, and are typically undertaken by government agencies. As a result, CWRM supports streamlining the permitting process for specific government agencies by delegating the approval of agency SCAPs to the Chairperson.

Applications by government agencies for stream channel alteration permits to perform streambed and drainageway maintenance activities *not* considered “routine maintenance” may be delegated to the Chairperson for approval if certain criteria are met. CWRM requires that a Declaratory Ruling be approved for each respective agency seeking action under this policy. Specific Declaratory Rulings have been approved for the City and County of Honolulu (DEC-ADM99-S8) and the State Department of Transportation (DEC-ADM03-S9).

SCAP applications must meet the following criteria, as stated in the related Declaratory Rulings:

1. *The stream channel alteration permit application must contain the following:*
 - a. *A copy of the Clean Water Act, Section 404 permit from the U.S. Army Corps of Engineers, and the Clean Water Act, Section 401 Water Quality Certification and Best Management Practices Plan from the Department of Health. In the event that the project is not subject to these sections of the Clean Water Act the applicant shall submit written documentation from the Corps of Engineers citing the exemption.*
 - b. *Clean Water Act Section 402 (NPDES) permit if applicable.*
 - c. *Written description of the scope of work including:*
 - 1) *A location map showing affected stream reach. Cross section(s) showing typical contours of the before and after removal of material. Photographs.*
 - 2) *Amount of material to be removed.*
 - 3) *Method of clearing including description of the types of equipment to be used.*
 - 4) *Location and practice of spoils disposal.*
 - 5) *Frequency of clearing time required for each clearing.*
 - 6) *Written concurrence from the State Historic Preservation Division and the Division of Aquatic Resources that the work may proceed.*

2. *Must not alter stream diversions works or interim instream flow standard.*
3. *The amount of material to be removed is less than 500 cubic yards and will take less than two weeks to complete the work.*
4. *Clearing activity does not include the placement or removal of any structures in the stream.*
5. *Clearing must not be after-the-fact.*
6. *Clearing must not be in violation of any other applicable federal, State, or county permit.*
7. *Must not restrict access to property.*
8. *Must not be subject to a Special Management Area Permit (HRS, Chapter 205A).*
9. *Chairperson approved SCAPs are subject to the following conditions:*
 - a. *Standard Chairperson Approved SCAP Conditions.*
 - b. *Special conditions may be added by the Chairperson including but not limited to:*
 - 1) *Requiring the applicant to produce a Best Management Practice Plan acceptable to the Department of Health.*
 - 2) *Requiring the applicant to notify the State Historic Preservation Division on start of clearing activities.*
 - c. *The permit will be valid as long as the Commission does not revoke the permit or until the Commission amends this Declaratory Ruling.*

Stream monitoring is a fundamental component of surface water resource management. Monitoring of water quantity and water quality supports baseline data collection and characterization, documents changes over time, provides a scientific basis for making sound management decisions, and is an essential tool in water resource planning.

CWRM supports the establishment of stream monitoring equipment, provided the installation of such devices does not require substantial alteration of the stream channel, for example, the installation of two temporary V-notch weirs to monitor streamflow at two points within the stream during low-flow periods.⁴⁴

⁴⁴ Declaratory Ruling DEC-ADM97-S6

CWRM has also delegated the approval of stream channel alteration permits to the Chairperson for surface water gaging stations that meet all the following criteria:⁴⁵

- The gages are installed using manual construction practices only, without the use of heavy equipment.
- The length of time for the work in the stream to be completed is not greater than four days.
- No fill or discharge will be made into the stream, and no stream water will be removed from the stream channel.
- Concrete or masonry may be constructed or placed in the stream channel if it meets the following criteria:
 - It is confined to one bank of the stream;
 - It is for foundational or anchoring purposes only; and
 - The gages use natural, rather than artificial, means of flow control (e.g., it does not span the entire width of the stream channel).

I.4.1 Request for Determination

While CWRM requires a SCAP whenever a stream channel alteration is to be undertaken, given the variable nature of Hawaiian streams, it is often unclear whether or not a SCAP is required, and a request for determination may be made.

A Request for Determination (RFD) is a public request to establish the existence and location of a stream channel and/or to determine whether a project is impacting the stream channel, thereby requiring a SCAP. Initially, it must be determined whether the watercourse is actually a stream as defined in the State Water Code. Subsequently, it must be discerned whether the project is actually within the bed or banks of the stream.

I.4.2 Exemptions from Stream Channel Alteration Permit

CWRM has identified watercourses that do not meet the definition of a stream, and are therefore not subject to SCAP requirements, as follows:⁴⁶

1. man-made or are part of an irrigation system;
2. excavated subdivision drains;
3. man-made drainage channels in low-lying coastal plain areas;
4. highway interceptor ditches;

⁴⁵ Declaratory Ruling DEC-ADM97-S6

⁴⁶ Declaratory Ruling No. DEC-ADM99-S8

5. 'auwai; or
6. dry gulches.⁴⁷

It is often difficult to determine the difference between a gulch that is usually dry except for periods of heavy rainfall, and a stream that may be dry much of the time but still provides for instream uses. If it can be determined that a watercourse does not provide for one or more instream uses, such as aquatic animals or aquatic vegetation, in either upstream or downstream areas, then a SCAP is generally not required. The definitions under this policy are guidelines intended to allow for prompt and proficient decisions by CWRM staff, however determinations on potential impacts to instream uses are often made on a case-by-case basis.

I.5 Stream Diversion Works Permit

The term "stream diversion" is defined by the State Water Code as the act of removing water from a stream into a channel, pipeline, or other conduit.⁴⁸ CWRM issues Stream Diversion Works Permits (SDWP) for any artificial or natural structure placed within a stream for the purpose of diverting stream water. The range of such projects include small diversions of several tens of gallons per minute by means of small pumps, medium-sized diversions such as those that supply water to taro lo'i and other smaller irrigation systems, and large diversion intake structures that could divert all of a stream's flow except for flood flows. A diagram illustrating the SDWP process is included in **Appendix D Permit Process Diagrams**.

Any new stream diversion, or expansion of an existing stream diversion, may require a petition to amend the interim instream flow standard (see **Section F.5.3** in **Appendix F Inventory and Assessment of Resources** for further discussion of instream flow standards), depending on the stream of interest.

A SDWP is also required when a stream diversion works is abandoned. A filing fee is not required when applying to abandon a stream diversion works.⁴⁹

SDWPs are not required for normal maintenance activities,⁵⁰ which would include repairing pumps or replacing them with pumps of equal or less capacity, repairing and maintaining existing diversion structures, cleaning out diversion structures to restore capacity, and other repair and maintenance operations that do not expand or increase the diversion capacity of a structure beyond the original design of the structure.

⁴⁷ Declaratory Ruling No. DEC-MO94-S3

⁴⁸ HRS §174C-3.

⁴⁹ HAR §13-168-35(b).

⁵⁰ HRS §174C-93.

I.6 Recommendations for Surface Water Regulation

There are three principal issues that should be addressed to improve surface water regulation statewide:

Regulatory coordination: Ongoing coordination is required between government agencies that regulate the various, and oftentimes overlapping, aspects of water resources. Laws and rules periodically change, as does the interpretation of existing laws and rules. Agency policies continue to adjust to new situations and rulings by administrators and courts. Coordination is required to prevent duplication of effort, excessive regulation, and unnecessary regulation.

Surface water use data collection and data quality: The lack of water use data for surface water makes it difficult to resolve disputes between competing users of the resource. Without good water use records, complaints of wasting or dumping of water are difficult to substantiate or refute.

Enforcement of instream flow standards: CWRM must develop and adopt a regulatory framework that provides guidance for CWRM staff in the monitoring and enforcement of instream flow standards. As instream flow standards are established through contested case hearing orders or administrative proceedings, CWRM staff experiences difficulties in monitoring IFS compliance due to frequent naturally-occurring, low-flow conditions along with timely regulation of water users during these times. CWRM needs to address violations adequately through a notice process and fine schedule.

Inter-agency coordination at the staff level must be ongoing to most efficiently manage and protect resources. Examples of agencies with programs related to surface water regulation include the Army Corps of Engineers, the DOH, county planning and permitting departments, and county water departments. Therefore, it is recommended that agencies organize and coordinate periodic workshops whenever new laws, rules, or policies are adopted and implemented.

Regarding data collection and data quality, it is recommended that additional staff be provided for field investigations and water use data collection and management. Funding mechanisms should be sought or enhanced to increase knowledge of resources, and to improve protection and management programs. For more information on surface water use reporting, see **Section H.3.3 in Appendix H Existing and Future Demands**.

Finally, activities should be executed for the verification of stream diversions and abandoned diversions works. This will improve and refine data collection sites and increase the reliability of surface water use data.

I.7 General Recommendations for Ground and Surface Water Regulation

- Continue efforts to modernize internal processing of permits, including development of electronic checklists, permits, and form-letter merge files.
- Establish web-based permit application and processing and water use reporting.
- Expand and enhance the water use reporting program to include surface water use and data on chlorides present in well sources.

I.8 Penalties and Enforcement

CWRM has the authority to assess penalties for any violation of Chapter 174C or Title 13, for failure to comply with CWRM rules and orders, and for any violation of permit conditions.⁵¹ Currently, a fine of up to \$5,000 per day may be imposed. Fines may accrue daily as a separate violation for each day during which the offense is committed. Since the passage of the Water Code in 1987, CWRM has investigated 110 violations and assessed total fines in excess of \$1,757,486. Most of the violations were for conducting work without the required permits.

To provide a logical and consistent means to assess penalties and guide the settlement of CWRM enforcement cases, CWRM adopted an Administrative and Civil Penalty Guideline, which was last revised in 2014 (**Appendix P**). The objectives of the guideline are to:

- Deter violations;
- Remove the economic benefit of violations;
- Provide fair treatment of the regulated community; and
- Offer the violator a chance to undertake a beneficial alternative, under proper conditions, in a partial or total replacement of a cash penalty.

Under the guideline, a minimum fine is set at \$250 for a finding of a violation. The minimum fine may be increased in \$250 increments if the violation has occurred in a water management area or if it involves a repeat violation (i.e., the party has previously been found to be a violator by CWRM, irrespective of the nature of the violation). Mitigative and gravity components may be applied to reduce or enhance the minimum fine based on the degree of risk or actual harm to water resources or the environment and for other specified factors. If one or more gravity components are met, a daily fine may be imposed and may accrue until either a satisfactory resolution of the violation is achieved or until the violation is remedied.

⁵¹ HRS §174C-15 and HAR §13-167-10.

The guideline also provides for alternative settlements to allow a project to substitute for or be credited against a cash penalty. In addition, the guideline allows CWRM to consider any future applications incomplete pending the fulfillment of sanctions and/or correction of the violation. As the legislature amended the Water Code to provide for daily fines of up to \$5,000 per day, the administrative rules should be amended to reflect the higher penalty amount.

Due to staffing limitations, CWRM staff has prioritized enforcement of violations in water management areas and in response to complaints. CWRM staff plans to more rigorously enforce Water Code provisions and permit conditions, particularly the water use reporting requirement, with two newly-developed tools. One is the development of CWRM's online water use reporting system, discussed more fully in **Section G.2.1 in Appendix G**.

In addition to making monthly reporting easier for those users who wish to take advantage of this new technology, the online reporting system will automatically flag and notify delinquent reporters via email and create delinquency reports for further action by CWRM staff. With the completion of the online reporting system in 2014, and following additional outreach to water users, CWRM plans to utilize DLNR's Civil Resource Violation System (CRVS).⁵² The CRVS is a new tool that may be used to bring administrative enforcement actions for resource violations of a civil rather than criminal nature, especially those minor, routine violation cases, such as failure to submit required monthly reports. The CRVS provides a fair, efficient, and cost-effective process. It will eliminate the need to bring individual enforcement cases to CWRM for action and standardize the fines for minor civil resource violations. In order to utilize the CRVS, CWRM must identify violations to be enforced through the CRVS and adopt an administrative sanctions schedule. The fines should be set at levels to encourage voluntary compliance and deter future violations.

In addition to these new enforcement tools, CWRM is also presently conducting outreach and education to facilitate voluntary compliance. In 2014, CWRM approved the hiring of a consultant to conduct ground water use reporting outreach on Oahu and the 'Īao Ground Water Management Area on the island of Maui. In 2017, another consultant was hired to conduct similar outreach for the rest of Maui island, as well as the entire island of Molokai, which has been designated as a ground water management area. The consultants will contact each non-reporting ground water user, verify the status of the well, document the method of measuring pumpage, and assess the ability of the reporter to report use online. Where water use reporters have problems accurately measuring their use, the consultants will visit the site, assess what steps (e.g., install or repair an appropriate water meter) need to be taken to bring water usage monitoring in line with accepted practices, and make appropriate recommendations. Finally, the consultants will provide CWRM staff with status reports on a regular basis that include the numbers of reporters successfully contacted, issues resolved, issues unresolved, and number of successful water use reporting.

⁵² Chapter 13-1, Subchapter 7, HAR

Another outreach and education effort that will proceed is workshops and training on agricultural irrigation system metering. This effort is part of CWRM's implementation of its recently-developed Hawai'i Water Conservation Plan. In formulating the plan, the dearth of water use data from surface water diversions across the State made it difficult to ascertain water use efficiency, devise water conservation measures, and develop target reductions. A program to educate users in simple yet reasonably accurate methods for measuring diverted surface water flow will help improve surface water use data collection and assist agricultural operators to better manage their water use. Workshops have been conducted large-scale systems, and staff is currently conducting outreach and education for smaller-scale systems statewide.

I.8.1 Recommendations for Penalties and Enforcement

- Update the administrative rules and enforcement and penalty guidelines to conform to the fine amount of \$5,000 as provided in the State Water Code
- Develop and adopt a penalty schedule and begin to utilize the CRVS
- Expand water use reporting outreach as necessary to encompass non-designated areas and continue to educate the public on the rules and regulations to facilitate voluntary compliance

I.9 Complaints and Dispute Resolution

The State Water Code provides CWRM with the authority to process citizen complaints⁵³, and statewide jurisdiction to hear any dispute regarding water use, resource protection and management, water rights, and competing uses, or other water issues, regardless of whether the area involved has been designated as a water management area.⁵⁴

Citizen complaints are usually related to unpermitted construction activities, stream and spring ownership disputes, and environmental and public health concerns. Disputes can be related to any water resource issue within CWRM's jurisdiction.

Pursuant to HRS §174C-13 and Chapter 91, CWRM adopted procedural rules to process citizen complaints, including the right of appeal to CWRM. If any person files a complaint that any other person is wasting or polluting water or is making a diversion, withdrawal, impoundment, consumptive use of waters, or any other activity occurring within or outside of a water management area, not expressly exempted under the State Water Code, without a permit where one is required, CWRM has authority to investigate, take appropriate action, and notify the complainant thereof.

⁵³ HRS §174C-13.

⁵⁴ HRS §174C-10.

In the past, citizen complaints have included the following:

- Reports of unpermitted activity (such as grading, removing material, adding material, dumping, etc.) in or next to streams;
- Reports of illegal building (such as walls, lanais, fences, etc.) in or close to a stream;
- Reports of fish kills or aquatic plant “blooms” in streams;
- Property disputes regarding locations of streams, springs, ponds, and ‘*auwai*;
- Reports of too little water in a stream;
- Reports of too much water in a stream;
- Reports of structures in streams causing flooding;
- Reports of illegal alteration of streams;
- Reports of illegal diversions of streams;
- Reports of waste and dumping of stream water; and
- Illegal well drilling, illegal use of well water, and leaky wells.

Staff responds to complaints that fall within the jurisdiction of CWRM that generally include wasting or dumping of water, and any work done in or near streams, without the required permits, that could affect instream uses. Water quality complaints are referred to the DOH⁵⁵. Complaints concerning flooding and flooding-related maintenance of stream banks are referred to the respective counties.⁵⁶

Complaints lead to CWRM issuing stop-work orders, where persons who start projects requiring permits, but have not yet completed them, are ordered to stop work until the proper permits are obtained. Where projects without the required permits are completed, CWRM requires the persons who did the work to apply for after-the-fact permits.

HRS §174C-10 describes CWRM’s authority in dispute resolution. The State Water Code provides CWRM with jurisdiction statewide to hear any dispute regarding water resource protection, water permits, constitutionally protected water interests, and insufficient water for competing uses, regardless of whether the area involved is designated as a water management area. Under the provisions of the State Water Code, the final decision on any disputed matter shall be made by CWRM. Unlike complaints, which are generally related to permits, disputes can occur for any problem related to water resources under the jurisdiction of CWRM.

⁵⁵ HAR §13-167-82.

⁵⁶ HRS §46-11.5.

Examples of disputes include the following:

- ‘*Auwai*’ disputes – where neighboring users on an ‘*auwai*’ system have disputes over various aspects of ‘*auwai*’ use such as maintenance of the ‘*auwai*’, maintenance of the intake, taking too much water, altering the ‘*auwai*’, etc.;
- Location of resources – property disputes between adjacent owners regarding the location of a water resource; and
- Surface water and ground water interaction disputes – disputes that occur where the pumping of water from a well could adversely affect nearby stream flow, or where blockage (damming or diverting) of ground water could adversely affect the flow of surface water.

I.10 Declaration of Water Shortage

The State Water Code (HRS §174C-62) mandates that CWRM formulate a plan to be implemented during periods of water shortage, and describes CWRM’s authority as follows:

The commission, by rule, may declare a that a water shortage exists within all or part of an area when insufficient water is available to meet the requirements of the permit system or when conditions are such as to require a temporary reduction in total water use within the area to protect water resources from serious harm.

The State Water Code further states that CWRM must publish a set of criteria for identifying a water shortage, and CWRM must adopt a reasonable system for water use permit classification to be included in the water shortage plan. The water shortage plan must also set forth provisions and guidelines for imposing use restrictions on different classes of permits as may be necessary to protect the resource.

The set of criteria for identifying a water shortage is established in HAR §13-171-41. This rule specifies that CWRM can issue water shortage declarations for water management areas or portions of water management areas where CWRM has determined and publicly declared that usage has caused, or may cause within the foreseeable future, any of the following:

- Withdrawals that exceed the recharge;
- Declining water levels or heads;
- Deterioration in the quality of water due to increasing chloride content;
- Excessive waste of water which can be prevented; or
- A situation in which any further water development would endanger the ground water aquifer or the existing sources of supply.

I.10.1 CWRM Water Shortage Declaration Process

The State Water Code specifies that a water shortage declaration by CWRM must undergo rulemaking proceedings. Proposed issuance, amendment, or repeal of a rule is subject to the public hearing process, which specifies certain public notice and participation requirements. Such notice of the proposed rulemaking must be issued at least 20 days prior to the date of the hearing and must be published in “a newspaper of general circulation in the state and in each county affected by the proposed rule.”⁵⁷ All interested persons and agencies must be provided reasonable opportunity at the hearing to offer evidence with respect to the proposed rule. Additionally, written protest, comments, or recommendations are accepted by CWRM within 15 days from the end of hearing proceedings. CWRM may either issue its decision on the proposed rule at the end of the hearing, or announce a date when the decision will be issued.

In general, the rulemaking process can take a considerable amount of time to complete. CWRM has never moved toward the declaration of a water shortage in any part of the state; however, in light of the above description of the rulemaking process, it is very possible that impacts due to a water shortage situation could considerably intensify before CWRM completed the rulemaking process. It should be noted, though, that the Hawai'i Administrative Rules include provisions for emergency rulemaking that can be invoked if CWRM “finds that an imminent peril to public health, safety, or morals requires adoption, amendment, or repeal of a rule upon less than twenty days’ notice of hearing.”⁵⁸ In this situation, CWRM may proceed to adopt an emergency rule “with abbreviated notice and hearing” or “without prior notice or hearing.” The emergency rule can remain in effect for a maximum period of 120 days without renewal.

A declaration of water shortage and any measures adopted pursuant thereto may be rescinded by rule by CWRM.

Upon declaration of a water shortage, the State Water Code also provides that CWRM shall contact each permittee within the affected aquifer system(s) by regular mail to provide notice of the water shortage declaration and of any change in the conditions of the permittee's permit, any suspension thereof, or of any other restriction on the use of water for the duration of the water shortage. In addition, CWRM should conduct public outreach and educational programs, as needed, and coordinate efforts with county water agencies and private water system purveyors.

⁵⁷ HAR §13-167-42.

⁵⁸ HAR §13-167-45.

I.10.2 Existing CWRM Water Shortage Plans

Lanai Water Shortage Plan

In 1991, CWRM approved Lanai Company's water shortage plan to be used in regulating water use on Lanai if an emergency condition arose due to a water shortage. The requirement to develop a water shortage plan was one of five conditions that CWRM imposed to protect Lanai's water resources without the need for water management area designation.

The water shortage plan for Lanai establishes water use priorities and specific actions to be taken within each water use group in the event of a water shortage. Usage in areas deemed to be the lowest priority would be rationed. In order of importance, the following ranking has been established:

- a. Residential
- b. Commercial (including resorts)
- c. Agricultural
- d. Irrigation
 1. Residential
 2. Large scale (such as golf course)

In the event of an emergency condition, the first action would be to reduce irrigation on projects such as golf courses. Water use would be reduced to the point at which any further reduction would result in a destruction of plant life. If further cutbacks are necessary, voluntary reductions in residential irrigation would be sought, followed by mandatory reductions as needed. Actions to accomplish mandatory residential irrigation reductions would include: 1) alternate day watering, 2) monitoring of meters, and 3) pricing mechanisms. Further reductions would impact agricultural operations by limiting usage on dry land crops (most drought-resistant), followed by vegetables and ornamentals. Restrictions on commercial activities would be voluntary at first. If further use reductions are needed, each business would be required to develop an individual plan to reduce consumption, differentiating between critical and non-critical usages. A monitoring program would be initiated to ensure compliance. Residential use, as the highest priority, would be unaffected.

Pu'uloa Aquifer System Water Shortage Plan

In 1997, the CWRM adopted a permit classification system for the non-potable Pu'uloa Aquifer System Area, located in the 'Ewa Caprock Aquifer Sector Area on O'ahu. The permit classification system is based on type of water use. Four classes of use are identified: agriculture, golf course irrigation, landscape irrigation, and dust control. All of the permitted uses are for non-potable uses, and none have been identified as a public trust purpose. The highest priority is agriculture, because the State's policy is to promote agriculture, and also because agricultural correlative uses are assured through the 1978 Constitutional Amendment. The second priority in water use is golf course irrigation, because of the economic impacts that may result from inadequate water supply. The lowest priority in uses are landscape irrigation and dust control.

Although it is uncertain whether a water shortage could occur in the Pu'uloa Aquifer System Area, given CWRM's establishment of sustainable capacities for individual irrigation wells at 1,000 mg/l of chloride, a water shortage plan was formulated because of the former reliance on brackish caprock water to supply the non-potable needs of the growing 'Ewa and Kapolei urban areas.

In the event of a water shortage in the Pu'uloa Aquifer System Area, phased cutbacks will be implemented according to the established water use priorities and the individual users' water shortage plans. Water shortage plan cutbacks are based on the users' permitted allocation.

To keep the water shortage plan current, CWRM delegated the authority to the Chairperson to approve or modify individual water shortage plans and to approve the regional water shortage plan.

I.10.3 Recommendations for Implementing Water Shortage Provisions

The following recommendations are intended to guide CWRM actions in the development and implementation of future water shortage plan provisions and the development of an integrated water shortage program:

- CWRM should formulate and adopt rules to streamline the public hearing process for the water shortage declarations.
- All individual water shortage plans are required from water use permittees. Plans shall be submitted as part of the permit application so that CWRM can perform actions on the water use permits and updates to the regional plan simultaneously. HRS §174C-51(8) and HRS §174C-62(a) & (c) of the State Water Code provide the authority for CWRM to implement this recommendation.
- Permittees whose individual water shortage plan indicates a 0% reduction in water use shall be required to provide supporting justification. CWRM shall conduct site visits as necessary to verify the permittee's inability to reduce water use during shortage conditions. If it is determined that the permittee has the ability to reduce water use during water shortage conditions, CWRM shall modify the permittee's individual water shortage plan.
- CWRM should consider requiring all artesian wells and other free-flowing sources to be outfitted with a flow control device such as a valve.
- Proceed with enforcement of permit restrictions.

- CWRM shall request all large water users (e.g., BWS, United States military) to separate out and make known any of their permitted water uses or users that fall within identified public trust purposes.
- CWRM should pursue the development and adoption of water shortage plans, in coordination with drought, conservation, and resource augmentation plans and programs, which are practical and provide realistic conservation and response measures.

I.11 Declaration of Water Emergency

The State Water Code provides CWRM with emergency powers that can be exercised statewide during periods of water emergency, including non-water management areas and despite permitted water use allocations. Thus far, CWRM has never issued a water emergency declaration.

CWRM has broad powers to order the “apportioning, rotating, limiting, or prohibiting the use of water resources” in any area if it declares an emergency condition. In spite of having such broad powers, it is unlikely that CWRM would act precipitously or unilaterally in making decisions. CWRM is charged with conducting necessary investigations and consulting with all interested parties before taking action toward a water emergency declaration.

I.11.1 Recommendations for Implementing Water Emergency Provisions

CWRM, in consultation with county water agencies and other public/private water system purveyors who operate systems, should formulate and adopt rules specifically for the issuance of a water emergency declaration. Such rules should detail:

- Criteria for determining when a water emergency exists;
- A streamlined process for emergency declaration, notification, public comment processes;
- Extent of the regulatory authority of a water emergency declaration;
- Restrictions that may be imposed by CWRM under a water emergency declaration; and
- Suggested relief measures to be taken by county water agencies and water system operators.