Section 5

CWRM Regulatory Programs

5. CWRM REGULATORY PROGRAMS

This section of the WRPP summarizes CWRM's current regulatory programs and recommendations for program implementation. Ground water regulation and permitting programs and surface water regulation and permitting programs are discussed, as well as CWRM's authority to designate ground and surface water management areas, resolve complaints and disputes, and declare water shortage and water emergency conditions.

5.1. Regulation of Ground Water

CWRM uses regulatory controls to implement its policies and Hawaii Water Plan guidelines for well development and water use. Regulations are also used to protect ground water quantity and quality, optimize ground water availability, and obtain maximum reasonable-beneficial uses. CWRM relies on a permit system to apply and implement regulations concerning well development and water use.

In making decisions on permit applications, CWRM looks to the Hawaii 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 at permitted well sites and submitted to CWRM. In turn, this helps to assure wise decision-making in the future based on new and better information.

5.1.1. 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, recharge[1], or permanently monitor ground water aquifers. A pump installation permit is required prior to the installation or replacement of well pumps.[2]

The standard conditions of all well construction and pump installation permits require that the work be done in accordance with the Hawaii Well Construction and Pump Installation Standards (HWCPIS). The HWCPIS, discussed in Section 5.1.2, contains all of CWRM's goals and policies regarding proper well construction and pump installation to ensure protection and optimization of ground water resources.

The following policy promotes enforcement of the information-gathering function of the permitting process, which helps CWRM better protect the resource, because their decisions can be made in the light of the most current and best available information:

Policy: Permits are only issued to licensed contractors in good standing (i.e., no outstanding CWRM permit or Department of Commerce and Consumer Affairs licensing requirements).[3]

[1] Injection wells are regulated by the State Department of Health.
[2] HRS §174C-84.
[3] Ground Water Regulation Branch Internal Enforcement Guideline, February 16, 2005 meeting of the Commission on Water Resource Management.

Under the HWCPIS, approval and issuance of well construction permits are generally ministerial actions.[4] A diagram illustrating the well construction and pump installation permitting process is included in Appendix B.

5.1.2. The Hawaii 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 wells[5], 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.

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.

5.1.3. 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.[6] 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.

[4] January 23, 1997 meeting of the Commission on Water Resource Management, Staff Submittal Item 3.
[5] HRS §174C-86.
[6] HRS §174C-81.

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 Hawaii Administrative Rules give additional authority to CWRM to determine when a well is abandoned[7]; however, making such a determination is still difficult. If the well owner states that there may be some future use of the well, CWRM must then determine abandonment by assessing the physical condition of the well and find that it is either leaking, polluting, deteriorating in quality, uncontrollable, or is in such a state of disrepair that continued use for the purpose of obtaining ground water is impracticable or unsafe. Making such an assessment requires specialized equipment, which the CWRM does not currently have..

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 with concrete or other similar materials. Depending on the size and depth of these wells, the cost will average about several thousand dollars for most wells up to tens and even hundreds of thousands of dollars for especially large or deep wells or shafts. Recommendations for wells that should be properly sealed are included in Section 11 of the WRPP.

If a well 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.[8] CWRM currently lacks a funding mechanism to initiate and execute sealing of abandoned wells. It is estimated that there are approximately 1,168 production wells statewide that are not in use and are candidates for well abandonment.

5.2. Designation of Ground Water Management Areas and Water Use Permitting

When the water resources of an area are determined to be threatened by existing or proposed withdrawals of water, CWRM may designate the area as a water management area. Figure 5-1 shows the location of designated ground water management areas. In water management areas, CWRM limits the total quantity of water that can be withdrawn. The State Water Code provides eight criteria for CWRM to consider in designating an area for regulation of ground water use[9]:

- Whether an increase in water use or authorized planned use may cause the maximum rate of withdrawal from the ground water source to reach ninety per cent of the sustainable yield of the proposed ground water management area;

- There is an actual or threatened water quality degradation as determined by the department of health;

- Whether regulation is necessary to preserve the diminishing ground water supply for future needs, as evidenced by excessively declining ground water levels;

- Whether the rates, times, spatial patterns, or depths of existing withdrawals of ground water are endangering the stability or optimum development of the ground water body due to upconing or encroachment of salt water;

[7] HAR §13-168-16.
[8] HRS §174C-86.
[9] HRS §174C-44.

- Whether the chloride contents of existing wells are increasing to levels which materially reduce the value of their existing uses;
- Whether excessive preventable waste of ground water is occurring;
- Serious disputes respecting the use of ground water resources are occurring; or
- Whether water development projects that have received any federal, state, or county approval may result, in the opinion of the commission, in one of the above conditions.

CWRM applies a water use permitting process to regulate use in designated water management areas. A water use permit must be obtained in order to continue existing uses and prior to commencing any new water use.[10] The permitting system allows for maximum reasonable-beneficial use of water resources, while ensuring that the integrity of the resource is not threatened. Water use permit applications are evaluated according to seven criteria identified in the State Water Code.[11] A diagram illustrating the permitting process is included in Appendix B.

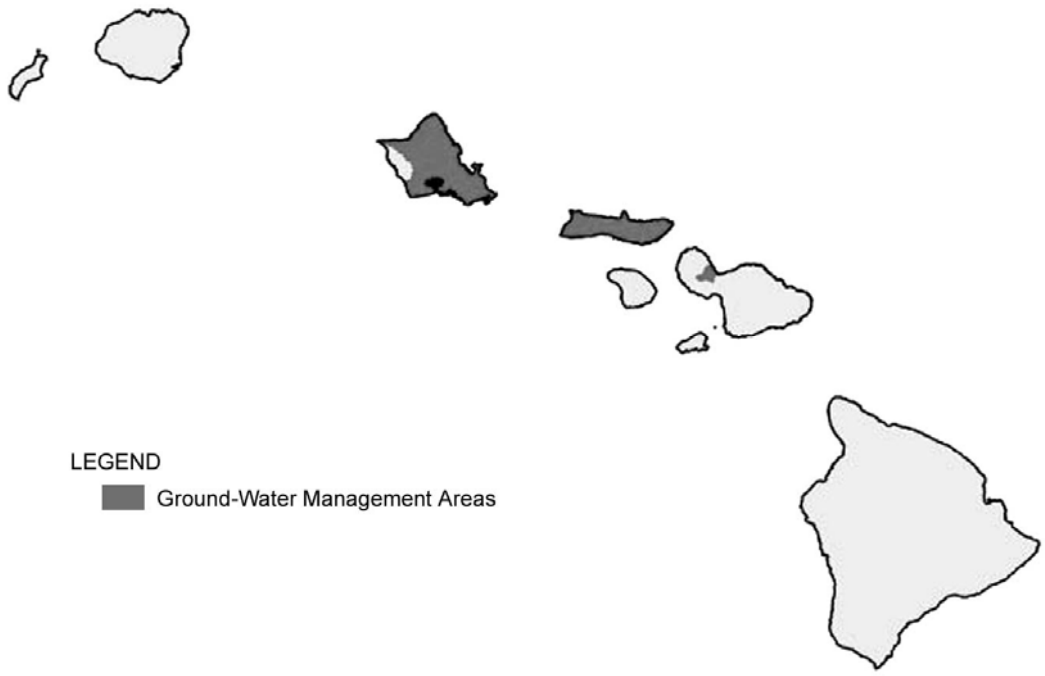

Figure 5-1. Designated Ground Water Management Areas

CWRM has established a policy to provide for water use permit modifications through a declaratory ruling on §174C-57 HRS:

[10] HRS §174C-48.
[11] HRS §174C-49(a).

Policy: 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.**[12]

This policy 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 overpumpage violations, for situations that meet the above criteria.

CWRM continues to refine and streamline the water use permitting process in response to Hawaii Supreme Court rulings, Water Commission decisions and actions, statutory changes to the State Water Code, and requests from the public or government agencies. Water Commission 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 below have been identified through Hawaii Supreme Court rulings and Water Commission actions:

Policy: There are four identified public trust purposes: 1) resource protection; 2) domestic water use; 3) Native Hawaiian traditional and customary rights[13]**; and 4) Department of Hawaiian Home Lands (DHHL) reservations.**[14]

Through its review of various contested case hearing decisions and orders, the Hawaii Supreme Court has identified the above four public trust purposes. 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.

In addition, CWRM has already given greater priority to agricultural uses over golf course uses, which was endorsed by the Hawaii Supreme Court in its first decision in the Waiahole Water Case hearing.

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 Hawaii Supreme Court has issued an opinion that permit applicants are required to demonstrate the absence of practicable mitigating measures, including the use of alternative water sources. The evaluation of reasonable-beneficial use includes an efficiency test and requires the assessment of alternative water sources. Such an

[12] Declaratory Ruling No. DEC-ADM97-A1.
[13] Supreme Court Decision in Waiahole Ditch Contested Case Hearing CCH-OA95-1.
[14] Supreme Court Decision in Waiola O Molokai Contested Case Hearing CCH-MO96-1.

assessment is intrinsic to the protection of public trust purposes and essential to balancing competing interests.[15] CWRM has therefore established the following policy:

Policy: An analysis of alternatives is required to establish that proposed water uses are reasonable-beneficial for any water use permit.

CWRM has endorsed a policy of non-degradation, primarily for chloride levels, as follows:

Policy: The application of lower quality water over a higher quality aquifer is disallowed for water use permits.[16]

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 DOH has authority over other water quality parameters should other quality issues be raised.

With the Supreme Court ruling in the Waiahole Water Case hearing, an analysis of alternatives is now being required for all water use permit applications. Recycled wastewater may be a viable alternative to the use of ground water. However, because there are certain constituents (e.g., endocrine disruptors) 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. Identification of such aquifers would help CWRM to determine whether recycled water is a practical alternative for a proposed water use. Future DOH policy may provide additional guidance regarding the appropriate application of recycled water, as may vary dependent upon the level of wastewater treatment, over different aquifer types.

Similar to well construction and pump installation permit applications, the DOH is afforded an opportunity to review all water use permit applications. The DOH may recommend special conditions to address contamination concerns resulting from the proposed land use, such as pesticides and fertilizer that may be applied for golf courses. CWRM attaches any special conditions recommended by the DOH to water use permits, to ensure that aquifer water quality is not threatened or degraded.

CWRM's policy is that water should be put to its best and highest use. Operationally, this means that potable water should be used for drinking water purposes and other domestic needs, and non-potable water should be used for agriculture, landscape and golf course irrigation, and other non-potable needs, with agriculture uses being a higher priority than other non-potable uses. But, the Water Code does not preclude potable water from being

[15] Waiahole I, 94 Hawaii at 161, 9 P.3d at 473.
[16] March 15, 1990 meeting of the Commission on Water Resource Management, Staff Submittal Item 3.

used for non-potable purposes, if the proposed use meets the regulatory requirements and there are no practical non-potable alternatives. In such cases, CWRM will attach a special condition to reinforce standard conditions requiring that conversion to an alternative non-potable source is required when that source becomes available. This is stated in the following policy:

> **Policy: 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.[17]**

CWRM adopted the following policy to promote the use of recycled wastewater over the Ewa Caprock:

> **Policy: 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.[18]**

CWRM does not have the authority to require recycled water use, but CWRM may require the installation of dual-line plumbing systems, and furthermore, it may deny an application for use of public trust resources if an alternate source, such as reclaimed water, is available.

The second part of the policy above was adopted to address DOH's concerns regarding the use of recycled wastewater over potable aquifers. Adopting the policy that the Ewa Caprock Aquifer will only be allocated for non-potable uses clears the way for recycled water use for landscape, golf courses, and other non-potable uses over the Ewa Caprock.

The State Water Code does not specify the use of a certain statistic to assess water use over time. 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.[19] However, it

[17] October 25, 2005 meeting of the Commission on Water Resource Management, Staff Submittal Item C-1.
[18] March 13, 1996 meeting of the Commission on Water Resource Management, Staff Submittal Item 3.
[19] HRS §174C-50(b).

should be noted that three-month average water use varies throughout the year, depending on the season and antecedent rainfall conditions (e.g., summer versus winter weather), and most likely does not accurately reflect 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 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.[20] 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.

CWRM currently uses a twelve-month moving average (12-MAV) to assess ground water use, as stated in the following policy:

Policy: The Water Commission uses a twelve-month moving average for ground water use assessment.[21]

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.[22] 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.[23] The 12-MAV considers an entire climatic cycle, accounting for seasonal variations in water use, where typically water use is 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.

The State Water Code requires that permitted uses be reasonable and reflect efficient water use. CWRM has established the following policy:

Policy: Reasonable water use quantities are determined through the use of established guidelines and standards.

[20] HRS §174C-58(4).
[21] CWRM actions referencing the use of a twelve-month moving average to assess water use began on March 17, 1993.
[22] *Rainfall Trend* newsletter was published monthly by the Commission on Water Resource Management's Hawaii Climate Center. The Hawaii Climate Center ceased to exist in 2000, when the rainfall program was transferred to the University of Hawaii.
[23] March 17, 1993 meeting of the Commission on Water Resource Management.

To determine reasonable water quantities, CWRM utilizes actual metered use data, when possible, in conjunction with established guidelines and standards.

Actual metered use data 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. However, even if local climatic conditions are consistent, a variety of factors can influence actual water use. For example, agricultural irrigation needs are determined not only by crop type, but by crop practices, such as the number of crop rotations, row spacing, and irrigation application method. Physical site differences also contribute to uncertainty in irrigation demand, such as soil type, slope, and depth to the water table. Evaluations of metered use data must also consider that data may not reflect efficient water use practices.

CWRM does not have a fully functioning, comprehensive water use reporting program, and metered water use data may not be available in many cases (see Section 6 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 domestic consumption, CWRM refers to the *Water System Standards*[24], which include domestic consumption guidelines 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 agricultural purposes. For the City and County of Honolulu, CWRM has utilized information from the Honolulu BWS and the DOA to estimate water requirements for irrigation of selected crop types on Oahu. The Agricultural Water Use and Development Plan, published by the DOA in 2004, estimates the irrigation rate for diversified crop farming in Hawaii as 3,400 gallons per acre per day (gpd/ac). 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 Hawaii. 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. The DOA uses 3,400 gpd/ac to forecast agricultural water demands and recommends that this figure be used until demand estimates can be refined through future records and analyses. This estimate is most appropriate for estimating diversified irrigation use in the area of the Waimea Irrigation System. Estimates of irrigation water requirements for other agricultural irrigation systems were not provided in the AWUDP report.

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.

[24] State of Hawaii, 2002, *Water System Standards*.

CWRM's reliance on the methods, standards, and guidelines described above are subject to change with new information and technological advances. In the interest of improving irrigation water demand projections and evaluation of reasonable irrigation water use quantities, CWRM contracted the University of Hawaii's College of Tropical Agriculture and Human Resources (CTAHR) to develop a model for estimating irrigation water demands in different physical areas. The computer software application 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 digitized maps from the *Rainfall Atlas of Hawaii*[25]*, Pan Evaporation: State of Hawaii, 1894-1983*[26]*, Soil Survey Island of Hawaii, State of Hawaii*[27]*,* and *Soil Survey Islands of Kauai, Oahu, Maui, Molokai, and Lanai.*[28] The irrigation model also considers differences in crop type and crop practices. This model provides CWRM with a standardized methodology to estimate the regional water requirements of various crop types.

5.3. Recommendations for Ground Water Regulation

The following actions are recommended for implementation by CWRM and the State to improve ground water regulatory programs:

Recommendations for Well Construction and Pump Installation Permits

- CWRM should explore further education programs for drillers to ensure they are knowledgeable of current construction standards.

Recommendations for Well Abandonment/Sealing

- CWRM should explore available funding sources and mechanisms to immediately address priority abandoned wells that need to be sealed (list of priority abandoned wells recommended for sealing is included in the Implementation Plan in Section 11 of the WRPP).

- 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.

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[25] Giambelluca, T.W., Nullet, M.A., and Schroeder, T.A., 1986, Rainfall atlas of Hawaii: State of Hawaii, Department of Land and Natural Resources, Division of Water and Land Development, Report R76, 267 p.

[26] Ekern, P.C., and Chang, J.-H., 1985, Pan evaporation: State of Hawaii, 1894-1983: State of Hawaii, Department of Land and Natural Resources, Division of Water and Land Development, Report R74, 172 p.

[27] Sato, H. et al., 1973, *Soil Survey of the Island of Hawaii*, *State of Hawaii:* United States Department of Agriculture, Soil Conservation Service, U.S. Government Printing Office, Washington, D.C. 115 pp., 195 map sheets.

[28] Foote, D. E. et al., 1972, *Soil Surveys of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii:* United States Department of Agriculture, Soil Conservation Service, U.S. Government Printing Office, Washington, D.C. 232 pp., 130 map sheets.

- A comprehensive, statewide survey of all potentially abandoned wells should be conducted. CWRM should secure a continuous, dedicated funding source in order to obtain the specialized equipment required to assess other unused wells that may also meet the criteria for abandonment.

- 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.

Recommendations for Ground Water Use Permitting

- It is recommended that the DOH update the WQP to provide additional guidance regarding the appropriate application of recycled water, as may vary dependent upon the level of wastewater treatment, over different aquifer types.

- CWRM should further explore the use of different statistics, methods, and measures to assess water use over time. If an alternative measure is identified, the State Water Code should be updated to include the assessment measure.

5.4. Regulation of Surface Water

The term “surface water” can refer to both contained surface water and diffused surface water. Contained surface water occurs upon the surface of the Earth in bounds that can be created naturally or artificially. Examples of contained surface water include, but are not limited to, streams, other watercourses, lakes, reservoirs, and coastal waters subject to State jurisdiction. Diffused surface water is water occurring upon the surface of the ground other than in contained waterbodies. For example, water from natural springs is diffused surface water when it exits from a spring onto the Earth’s surface.[29]

The State Water Code mandates CWRM to establish and administer a statewide instream use protection program. Under the Stream Protection and Management Program, surface water regulation provides for the protection of instream uses and reasonable-beneficial uses of water. The State Water Code defines "instream use" as beneficial uses of stream water for significant purposes which are located in the stream and which are achieved by leaving the water in the stream. According to HRS §174C-3, instream uses include, but are not limited to:

- Maintenance of fish and wildlife habitats;

- Outdoor recreational activities;

- Maintenance of ecosystems such as estuaries, wetlands, and stream vegetation;

- Aesthetic values such as waterfalls and scenic waterways;

[29] HRS §174C-3.

- Navigation;
- Instream hydropower generation;
- Maintenance of water quality;
- The conveyance of irrigation and domestic water supplies to downstream points of diversion; and
- The protection of traditional and customary Hawaiian rights.

CWRM has regulatory jurisdiction over the use of surface waters of the State, with the exception of coastal waters[30], through Stream Channel Alteration Permits (SCAP), Stream Diversion Works Permits (SDWP), and Instream Flow Standards (IFS).

5.4.1. Request for Determination

CWRM has the duty to protect stream channels from alteration, whenever practicable, to provide for fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses as defined by the State Water Code. Thus, CWRM requires a SCAP whenever a stream channel alteration is to be undertaken. However, the variable nature of Hawaiian streams often challenges the requirement for a SCAP, 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.

The State Water Code defines the term “stream” as inclusive of any river, creek, slough, or natural watercourse in which water usually flows in a defined bed or channel. It is not essential that the flow be uniform or uninterrupted. The fact that some parts of the bed or channel have been dredged or improved does not prevent the watercourse from being a stream.[31]

“Stream channel” means a natural or artificial watercourse with a definite bed and banks which periodically or continuously contains flowing water. The channel referred to is that which exists at the present time, regardless of where the channel may have been located at any time in the past.[32]

The following policy identifies the types of watercourses that, as determined by the Water Commission through declaratory ruling, do not meet the definition of a stream:

[30] HRS §174C-4(a).
[31] HRS §174C-3.
[32] HRS §174C-3.

Policy: Watercourses which are: 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; 5) auwai; or 6) dry gulches (per Declaratory Ruling No. DEC-MO94-S3) do not meet the definition of a stream and, therefore, are not subject to SCAP requirements.

On April 17, 1999, the Water Commission approved Declaratory Ruling No. DEC-ADM99-S8, which included the above listing of types of watercourses that do not meet the definition of a stream and, therefore, do not require a SCAP. Earlier declaratory rulings dealt with specific watercourses and subsequently laid the framework for the approved list.

Under Declaratory Ruling No. DEC-KA94-S2, Grove Farm Properties, Inc. claimed that streamflow in Puali Stream, Kauai, was a direct result of recharge from irrigation water and transmission facilities, and that the stream would most probably be dry except during periods of direct runoff. Staff concluded that while Puali Stream may be largely sustained by irrigation return water, it could not be definitely concluded that the perennial flows of Puali Streams resulted wholly from irrigation practices, especially in the lower reaches of the stream. The Water Commission determined and declared that since Puali Stream conveys irrigation water to downstream points of diversion, and since its use is considered a beneficial instream use of water, any stream channel alteration work on the stream would require a SCAP. In this case, the stream channel, though part of an irrigation system, was determined to be a natural watercourse.

In Declaratory Ruling No. DEC-MO94-S3, the Molokai community raised concerns that the Kukui (Molokai), Inc. water pipeline construction project had altered Manawainui, Waiahewahewa and Kaluapeelua streambeds without obtaining the proper permits from CWRM. The Water Commission ruled that Kukui (Molokai), Inc. did not require SCAPs for gulch crossings related to the pipeline project because: 1) The gulches did not have natural sources of fresh water such as springs, seeps, and frequent or continuous rainfall in sufficient quantities or frequencies to support instream uses; and 2) the gulches did not have aquatic resources in the form of fish or aquatic plant communities from the points of alteration to their upstream sources of water, nor did the gulches provide for the migration and movement of aquatic life.

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.

5.4.2. Stream Channel Alteration Permit

CWRM must protect 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 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.[33] A diagram illustrating the SCAP process is included in Appendix B.

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. In these cases, CWRM may refer to Declaratory Ruling No. DEC-OA96-S5, in which Pacific Atlas Hawaii submitted a SCAP application to construct a pedestrian bridge at the mouth of Kawa Stream, Oahu. While most streams have a distinct break in the top of the slope which defines the extent of the stream channel, the proposed location of the pedestrian bridge lacked a distinct break. Based upon the evidence, CWRM determined that 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.

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.

Past declaratory rulings issued by the Water Commission have effectuated policies as to the applicability of SCAP requirements for certain situations, and for maintenance and repair activities. Certain declaratory rulings have created specific exemptions from SCAP requirements, while others provide the DLNR Chairperson with particular authority to approve the issuance of a SCAP.

The following policies relate to the applicability of SCAP requirements for specific activities which CWRM supports:

Policy: CWRM supports routine maintenance of channels, streambeds, streambanks, and drainageways.

[33] HRS §174C-3.

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 their respective owners. The statute also provides each county with the ability to enforce maintenance work on privately owned channels, streambeds, streambanks, and drainageways, and assess civil penalties for non-compliance by private entities or individuals.

CWRM supports this policy by exempting routine streambed and drainageway maintenance activities and maintenance of existing facilities from the SCAP requirements, as provided for under the State Water Code, HRS §174C-71(3)(A). 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 under the context of Declaratory Ruling Nos. DEC-ADM99-S8 and DEC-ADM03-S9. Provided the watercourse is determined to be "natural," thereby meeting the definition of a stream, CWRM then 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:

- 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.

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, the Water Commission supports streamlining the permitting process for specific government agencies by delegating the approval of agency SCAPs to the Chairperson:

Policy: 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).

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

> *The Chairperson may approve stream channel alteration permits for stream clearing activities that may affect instream uses, but meet the following criteria:*
>
> *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.

Declaratory Ruling DEC-ADM97-S6 provides the basis for the following CWRM policy:

Policy: CWRM supports the establishment of stream monitoring equipment, provided the installation of such devices does not require substantial alteration of the stream channel.

In 1997, the Water Commission approved a SCAP (SCAP-OA-222) allowing for the installation of two temporary V-notch weirs to monitor streamflow at two points within the stream during low-flow periods. CWRM found that the two weirs would minimally impact the stream channel, water quantity, and water quality, and recommended that the Water Commission consider delegating the approval of future SCAPs for stream gages to the Chairperson.

Under Declaratory Ruling DEC-ADM97-S6 in 1998, the Water Commission delegated the approval of stream channel alteration permits to the Chairperson for surface water gaging stations which meet all of the following criteria:

- 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 uses natural, rather than artificial, means of flow control (e.g., it does not span the entire width of the stream channel).

5.4.3. 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.[34] CWRM issues Stream Diversion Works Permits 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 *loi* 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 B.

Any new stream diversion, or expansion of an existing stream diversion, may require a petition to amend the interim instream flow standard (see section 5.4.4 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.[35]
SDWPs are not required for normal maintenance activities[36], 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.

5.4.4. Instream Flow Standards

As part of the instream use protection program required by the State Water Code, CWRM is charged with establishing "instream flow standards on a stream-by-stream basis whenever necessary to protect the public interest in waters of the State."[37] The "instream flow

[34] HRS §174C-3.
[35] HAR §13-168-35(b).
[36] HRS §174C-93.
[37] HRS §174C-71.

standard" is defined as a quantity or flow of water or depth of water which is required to be present at a specific location in a stream system at specified times of the year to protect fishery, wildlife, recreational, aesthetic, scenic, and other beneficial instream uses.[38] According to the State Water Code, an IFS is to be established by CWRM, on its own motion, on a stream-by-stream basis. Acting upon the establishment of IFS, HRS §174C-71(1)(B) requires CWRM to set forth the conclusion "that the public interest does or does not require, as is appropriate, an instream flow standard to be set for the stream," and the supporting reasons and findings. A diagram illustrating the IFS process is included in Appendix B.

Each IFS needs to describe the flow necessary to protect the public interest in the particular stream. Flows are to be expressed in terms of variable flows of water necessary to adequately protect fishery, wildlife, recreational, aesthetic, scenic, or other beneficial instream uses in the stream. When investigating a stream to set an IFS, CWRM shall consult with and consider the recommendations of the DOH, the aquatic biologist from DLNR, the Natural Area Reserves System Commission, the University of Hawaii Cooperative Fishery Unit, the U.S. Fish and Wildlife Service, and other agencies with an interest in or information on the stream. Finally, prior to setting an IFS, CWRM shall give notice and hold a hearing on its proposed standard or modification.

Currently, no permanent IFS have been established for any streams or stream reaches in the state, and CWRM manages surface water resources based on interim IFS adopted by the Water Commission in 1988 and 1989 (see Section 5.4.4.1 for further discussion).

The State Water Code and the Hawaii Administrative Rules include provisions by which the permanent IFS, after they are established by CWRM, can be modified. A modification of the IFS may be required for any activity that affects the natural flow of a stream. In general, the process for modifying an IFS is similar to that for establishing an IFS. The modification of an established IFS can be initiated by CWRM or can be initiated by petition brought to CWRM by any person with proper standing.

5.4.4.1. Interim Instream Flow Standards

The State Water Code distinguishes between an Instream Flow Standard and an *interim* Instream Flow Standard. "Interim instream flow standard" means a temporary standard of immediate applicability, adopted by the Water Commission without the necessity of a public hearing, and terminating upon the establishment of an Instream Flow Standard.[39] The State Water Code further provides that interim IFS may be adopted on a stream-by-stream basis or may consist of a general instream flow standard applicable to all streams within a specified area.[40]

The Hawaii Administrative Rules for the Protection of Instream Uses of Water recognizes that "[i]nterim IFS are by their nature temporary and subject to

[38] HRS §174C-3.
[39] HRS §174C-3.
[40] HRS §174C-71(2)(F).

change".[41] Any existing interim IFS shall terminate upon the establishment of a permanent IFS.[42]

In 1988 and 1989, the newly formed Water Commission, working with the deadlines set by the Legislature to set Interim IFS, reached consensus in defining the interim IFS for all streams statewide to be "that amount of water flowing in each stream on the effective date of this standard, and as that flow may naturally vary throughout the year and from year to year without further amounts of water being diverted offstream through new or expanded diversions, and under the stream conditions existing on the effective date of the standard…"

The interim IFS was based on the requirements of the State Water Code, comments received at six public meetings held across the state, and several redrafts of the language at the Water Commission's meeting on June 15, 1988. Interim IFS were set for regions of the state as follows:

East Maui:	Adopted by the Commission on June 15, 1988 Effective October 8, 1988
Kauai:	Adopted by the Commission on June 15, 1988 Effective October 8, 1988
Hawaii:	Adopted by the Commission on June 15, 1988 Effective October 8, 1988
Molokai:	Adopted by the Commission on June 15, 1988 Effective October 8, 1988
West Maui:	Adopted by the Commission on October 19, 1988 Effective December 10, 1988
Leeward Oahu:	Adopted by the Commission on October 19, 1988 Effective December 10, 1988
Windward Oahu:	Adopted by the Commission on April 19, 1989 Effective May 4, 1992.

In setting the interim IFS according to stream flows occurring on the effective dates of the standards, the Water Commission recognized the following:

- Long-term studies and research are required to define ecologically necessary flows;
- Stream-management decisions and assessment methods should acknowledge the preliminary and incomplete nature of existing data; and

[41] HAR §13-169-43(b).
[42] HAR §174C-71(2)(A) HRS and §13-169-43(a).

- For the foreseeable future, it will be necessary to manage and protect streams through a system of working presumptions, rather than on the basis of firm scientific knowledge.

The State Water Code allows for establishing and modifying interim and permanent IFS, with the assumption that scientific data will eventually provide reliable, empirical information that will improve CWRM's management capabilities.[43]

The interim IFS must be modified to account for any new or expanded diversion of surface water from a stream.[44] This additional diversion may be direct or indirect. An example of an indirect diversion would be a situation where there is interaction between surface and ground water (where the withdrawal of ground water from a well could affect a stream, or where testing indicates that pumping from a well could affect the stream).

Any person with proper standing may petition CWRM to modify an interim IFS. In contrast to the permanent IFS adoption process, the State Water Code does not require agency or public consultation in the adoption of interim IFS. CWRM anticipates that public input will be beneficial to the interim IFS adoption process. As such, on December 13, 2006, the Water Commission authorized CWRM staff to seek agency comment and hold public fact-gathering meetings to support the establishment of measurable interim IFS. This action effectuated a process by which CWRM can pursue the adoption of measurable interim IFS and evaluate petitions for adoption of interim IFS.

5.5. Designation of Surface Water Management Areas and Water Use Permitting

The State Water Code provides CWRM with the authority to designate Surface Water Management Areas and to require and administer a surface water use permitting system. As with ground water regulation, the intent of surface water management area designation is to ensure reasonable-beneficial use of water resources in the public interest.

CWRM must consider the following criteria in designating an area for surface water use regulation:

- Whether regulation is necessary to preserve the diminishing surface water supply for future needs, as evidenced by excessively declining surface water levels, not related to rainfall variations, or increasing or proposed diversions of surface waters to levels which may detrimentally affect existing instream uses or prior existing off stream uses;

- Whether the diversions of stream waters are reducing the capacity of the stream to assimilate pollutants to an extent which adversely affects public health or existing instream uses; or

[43] Summarized from page 16 and 17 of the Commission on Water Resource Management *Findings of Fact, Conclusions of Law and Decision and Order In the Matter of Water Use Permit Applications, Petitions for Interim Instream Flow Standard Amendments, and Petitions for Water Reservations for the Waiahole Ditch Combined Contested Case Hearing*, *Case No. CCH-OA95-1*, December 24, 1997.
[44] HRS §174C-71.

- Serious disputes respecting the use of surface water resources are occurring.[45]

Currently, there are no designated surface water management areas. Therefore, no surface water use permits have been issued.

5.6. Recommendations for Surface Water Regulation

There are two principal issues that should be addressed to improve surface water regulation across agencies and governmental jurisdictions 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.

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 6.2.4.1.

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.

5.7. Complaints and Dispute Resolution

The State Water Code provides CWRM with the authority to process citizen complaints[46], 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. [47]

[45] HRS §174C-45(3).
[46] HRS §174C-13.
[47] HRS §174C-10.

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.

CWRM typically receives more surface water related complaints, and more ground water related disputes, as described below:

Table 5-1
Complaint and Dispute Cases Filed with CWRM

	Surface Water Related	Ground Water Related
Complaints	209	21
Disputes	1	5

Source: CWRM Staff Communication, August 31, 2006.

Pursuant to HRS §174C-13 and Chapter 91, CWRM adopted procedural rules to process citizen complaints, including the right of appeal to the Water Commission. 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.

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 steams;

- 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 DOH[48]. Complaints concerning flooding and flooding-related maintenance of stream banks are referred to the respective counties.[49]

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 the Water Commission. Unlike complaints, which are generally related to permits, disputes can occur for any problem related to water resources under the jurisdiction of CWRM.

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.

5.8. Water Shortage and Water Emergency Declarations

5.8.1. 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 the 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*

[48] HAR §13-167-82.
[49] HRS §46-11.5.

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.

5.8.1.1. CWRM Water Shortage Declaration Process

The State Water Code specifies that a water shortage declaration by the Water Commission 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."[50] 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 Hawaii Administrative Rules include provisions for

[50] HAR §13-167-42.

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."[51] 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.

5.8.1.2. Existing CWRM Water Shortage Plans

Lanai Water Shortage Plan

In 1991, the Water Commission 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 the Water Commission 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),

[51] HAR §13-167-45.

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.

Puuloa Aquifer System Water Shortage Plan

In 1997, the Water Commission adopted a permit classification system for the non-potable Puuloa Aquifer System Area, located in the Ewa Caprock Aquifer Sector Area on Oahu. 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 nonpotable uses, and none have been identified as a public trust purpose. The highest priority of 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 Puuloa 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 Puuloa 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.

5.8.1.3. 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 shall be 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. Permittees of sources which are not required to have flow control devices shall be exempt from water shortage plan provisions.

- All permittees who either have sources out of service or not in use (for a period of four years or longer) shall be field verified, and CWRM shall consider revoking the water use permits of such permittees.

- All permittees shall be required to report to CWRM monthly water usage from their water source. CWRM shall review reports and send a notice of request to all permittees who do not report monthly water use.

- CWRM shall review and compare the current monthly water usage data of all permittees with their permitted allocation in order to determine if there are any permittees whose monthly withdrawal is greater than their permitted allocation. For those permittees whose water usage exceeds their allocation, CWRM shall 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 is practical and provides realistic conservation and response measures. CWRM should seek legislation to provide for formulation and implementation of water shortage plan provisions, including funding and the mechanism for timely enforcement of the penalty policy for non-compliance with water shortage restrictions, which will be developed as part of the plan.

5.8.2. 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.

5.8.2.1. 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.

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