APPENDIX O

Long-Term Tasks

Water Resource Protection Plan 2019 Update

O Long-Term Actions

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O Long-Term Tasks

Section 3 of the WRPP Update outlines the process for developing CWRM's priority recommendations and action plan. The tasks identified in that section are meant to guide CWRM over the next five years to meet its mission and vision.

In addition to the tasks identified in **Section 3**, many more tasks were developed as part of the update process. All of the projects and associated tasks that were identified are considered important to managing the use and protection of water resources. Longer-term tasks are captured in this appendix as tasks that should be revisited in future planning and updates to the WRPP. These tasks may also be implemented within the next five years if opportunities and/or funding emerge or if conditions change to increase the urgency for their implementation. As with any plan, the Water Resource Protection Plan should be regarded as a guide for action and should not be so rigid as to not be adaptable to future conditions, new information, or opportunities.

Tasks listed in the tables below are presented as they correspond to the three goals of CWRM and not necessarily how they ranked during the prioritization process. The tasks are further grouped under their corresponding project, which allows for consistency with **Section 3** of the Action Plan.

Figure O-1 Process for developing projects and tasks for CWRM Action Plan

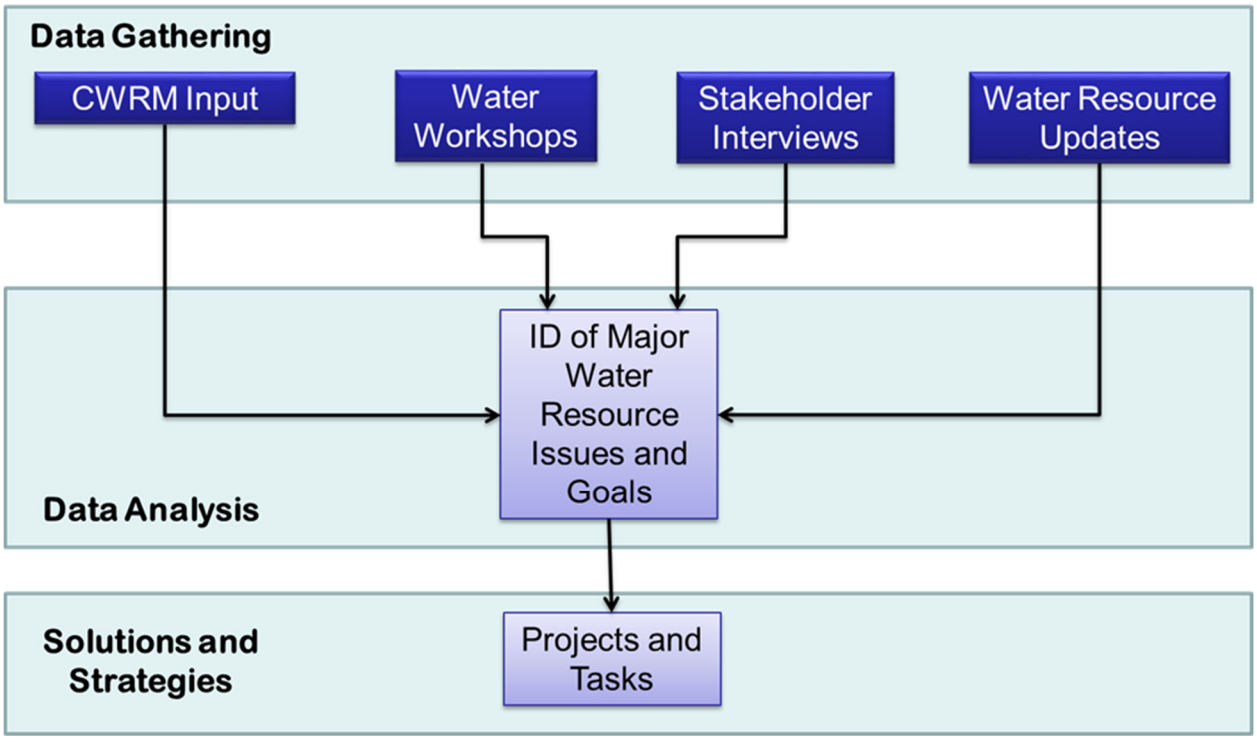

Table O-1 Long-Term Actions and Tasks by Goal

GOAL 1:	**A solid and up-to-date foundation of data on Hawai'i water resources, water use, and water dynamics is used to make water resource management decisions**
Project 1.1	**Collect and analyze climatic data to determine trends in water resource health and anticipate future issues and problems.**
Task 1.1.a	Study new technologies and tools for rainfall estimation.
Task 1.1.b	Increase cloud water interception data collection.
Task 1.1.c	Establish evapotranspiration monitoring stations.
Task 1.1.d	Investigate the probable impacts of long-term climate trends, which includes impacts to Hawaiian hydrology
Project 1.2	**Improve the reporting and analysis of ground and surface water use.**
Task 1.2.a	Monitor for compliance with water use permits.
Task 1.2.b	Expand education and outreach to landowners and surface water system operators.
Task 1.2.c	Enforce the water use reporting program in water management areas.
Task 1.2.d	Expand water use reporting and outreach in non-designated areas.
Task 1.2.e	Enforce penalties for non-reporting of water use in non-designated areas.
Task 1.2.f	Design and implement quality assurance/quality control protocols.
Task 1.2.g	Obtain historical water data for entry into water use databases.
Task 1.2.h	Compare reported surface water use with regulatory thresholds.
Task 1.2.i	Explore the use of different statistics, methods, and measures to assess water uses over time.
Project 1.3	**Update estimates of aquifer sustainable yields with new and best information available using the 2008 precautionary approach.**
Task 1.3.a	Conduct seepage runs.
Task 1.3.b	Apply information on ground water/surface water interaction to reassess sustainable yield.
Task 1.3.c	Apply revised recharge estimates to assess sustainable yield.
Task 1.3.d	Seek the optimization of infrastructure to minimize local stress on aquifers and increase confidence in ground water modeling of sustainable yields. Identify where such optimization is needed and/or possible.
Task 1.3.e	Develop an inventory of natural inland springs to improve the understanding of GW/SW interactions.
Task 1.3.f	Support spring flow monitoring
Task 1.3.g	Utilize numerical models where necessary to refine the conceptual ground water models.

Table O-1 Long-Term Actions and Tasks by Goal (continued)

Goal 1	**A solid and up-to-date foundation of data on Hawai'i water resources, water use, and water dynamics is used to make water resource management decisions**
Project 1.4	**Develop and implement a strategic surface water monitoring plan.**
Task 1.4.a	Increase federal and state funding for surface water monitoring
Task 1.4.b	Develop a policy that identifies who is responsible for stream and diversion monitoring.
Task 1.4.c	Collect baseline stream data.
Task 1.4.d	Develop a cost analysis for different providers of surface water data.
Project 1.5	**Understand how climate change will impact water resources.**
Task 1.5.a	Incorporate quantified climate change predictions into recharge calculations.
Task 1.5.b	Incorporate quantified climate change predictions into IFS calculations.
Task 1.5.c	Support continued research on climate change including drought and watershed health impacts
Project 1.6	**Understand the impacts of land use on hydrology, ecosystem function, and water resources needed for human consumption.**
Task 1.6.a	Identify the most important areas to protect and manage in order to restore and sustain ground water aquifers.
Project 1.7	**Develop and implement a comprehensive statewide ground water monitoring plan.**
Task 1.7.a	Conduct additional synoptic water level surveys.
Task 1.7.b	Increase monitoring of water levels in West Hawaii high-level wells.
Task 1.7.c	Conduct regular analyses of aquifer health in aquifers of concern.
Task 1.7.d	Incorporate new technologies for deep monitor well data collection and dissemination to improve hydrologic monitoring capabilities.
Task 1.7.e	Reinstate water level measurement in discontinued observation wells.
Task 1.7.f	Drill new water level observation wells.
Task 1.7.g	Conduct geospatial mapping of top of transition zone, mid-point of the transition zone, and water-level elevations.
Task 1.7.h	Evaluate the impact of brine injection wells on the underlying ground water.
Task 1.7.i	Further study the recently discovered fresh ground water found on Hawaii Island.
Task 1.7.j	Conduct additional analyses, monitoring, inventory, and integration of spring data.
Task 1.7.k	Analyze existing data collected from the Waiahole system.

Table O-1 Long-Term Actions and Tasks by Goal (continued)

GOAL 2:	**Protect water resources and balance public trust uses, water rights, and reasonable beneficial uses.**
Project 2.1	**Manage instream and offstream uses to provide for reasonable beneficial use while protecting public trust uses.**
Task 2.1.a	Identify cost-effective ways for obtaining the data necessary for developing IFS.
Task 2.1.b	Develop an action plan to identify and address abandoned diversions.
Project 2.2	**Protect water quality from land use impacts.**
Task 2.2.a	Require conversion of small capacity cesspools to individual wastewater systems.
Task 2.2.b	Study the potential impacts of pharmaceuticals and personal care products in recycled wastewater.
Task 2.2.c	Account for the short and long-term impacts of injection wells on ground water quality.
Task 2.2.d	Evaluate the impacts of Aquifer Storage and Recovery on ground water quality.
Project 2.3	**Provide clear guidance on criteria used to make water resource management decisions, including, but not limited to, the precautionary principle, the protection of public trust purposes, traditional and customary practices, and economic considerations.**
Task 2.3.a	Create rules for establishing appurtenant rights and clarify permitting regulations.
Task 2.3.b	Create rules for 174C-101 Native Hawaiian Water Rights.
Project 2.4	**Update CWRM's policies on enforcement and penalties and modernize and streamline the regulatory process.**
Task 2.4.a	Assist with outreach to landowners to educate them on their responsibilities for stream maintenance.
Task 2.4.b	Continue to modernize internal processing of permits.
Task 2.4.c	Evaluate unused water allocations and revoke unneeded water use permits.

Table O-1 Long-Term Actions and Tasks by Goal (continued)

GOAL 2	**Protect water resources and balance public trust uses, water rights, and reasonable beneficial uses.**
Project 2.5	**Develop, update, and implement water conservation tools, techniques, and plans.**
Task 2.5.a	Convene the Water Conservation Advisory Group annually.
Task 2.5.b	Support the adoption of higher water efficiency standards.
Task 2.5.c	Identify funding sources to support conservation activities.
Task 2.5.d	Require individual water conservation plans as a condition of water use permits.
Task 2.5.e	Incorporate conservation plans and measures as a strategy to meet State agency demands in the State Water Projects Plan.
Task 2.5.f	Work with irrigation system operators to improve the efficiency of agricultural ditch systems.
Project 2.6	**Plan for and provide guidance on the use of alternative water sources.**
Task 2.6.a	Collaborate with DOH to revise/update Graywater Guidelines to streamline implementation.
Task 2.6.b	Study the economic, environmental, social etc. impacts of the various alternative water sources.
Task 2.6.c	Develop standards for dual-water lines in coordination with the Boards of Water Supply and Department of Health per 174C-51.5(b).
Task 2.6.d	Establish a resource augmentation planning program and framework in collaboration with Counties and affected government agencies.
Project 2.7	**Protect ground water sources by updating well standards and sealing abandoned wells.**
Task 2.7.a	Establish continuing education programs for well construction and pump installation contractors.
Project 2.8	**Establish water fees/registration fees.**
Task 2.8.a	Study the establishment of sustainable funding mechanisms needed to support CWRM's data collection and management programs.

Table O-1 Long-Term Actions and Tasks by Goal (continued)

GOAL 2	**Protect water resources and balance public trust uses, water rights, and reasonable beneficial uses.**
Project 2.9	**Prepare for water shortages and drought.**
Task 2.9.a	Complete regular updates of county and local drought mitigation and response strategies
Task 2.9.b	Maintain the Hawaii Drought Monitor website.
Task 2.9.c	Draft guidelines for developing individual water shortage plans for water use permitees.
Task 2.9.d	Develop and adopt water shortage plans in all water management areas.
Task 2.9.e	Seek resources and partnership toward implementing drought plans.
Task 2.9.f	Refine and update the drought risk and vulnerability assessment and GIS mapping project.
GOAL 3:	**Partnerships, education, and awareness increase collaborative water resource management among government, private, and community entities and the citizens of Hawai‘i.**
Project 3.1	**Update the Hawai‘i Water Plan.**
Task 3.1.a	Develop a Hawaii Water Plan summary document.
Project 3.2	**Increase CWRM community involvement, participation, outreach, and education.**
Task 3.2.a	Develop more efficient means to share water data maintained by CWRM with the public
Task 3.2.b	Develop presentation formats and methods that are easy for the lay public to understand and are easily updated.
Task 3.2.c	Further elaborate definition of sustainable yield in a lay public format.
Task 3.2.d	Describe and define different types of aquifers and how they are regulated differently.
Task 3.2.e	Hire a CWRM outreach coordinator
Task 3.2.f	Develop user manuals or FAQs, i.e. How to get a SCAP or a stream diversion works permit? How are IFS determined? When do you need a permit? How to file a complaint?
Task 3.2.g	Utilize social media and other online resources to disseminate information
Task 3.2.h	Issue a monthly or quarterly on-line newsletter to provide water resource information.
Task 3.2.i	Develop a program for community based hydrologic data collection and reporting
Task 3.2.j	Partner with community organizations to implement community projects.