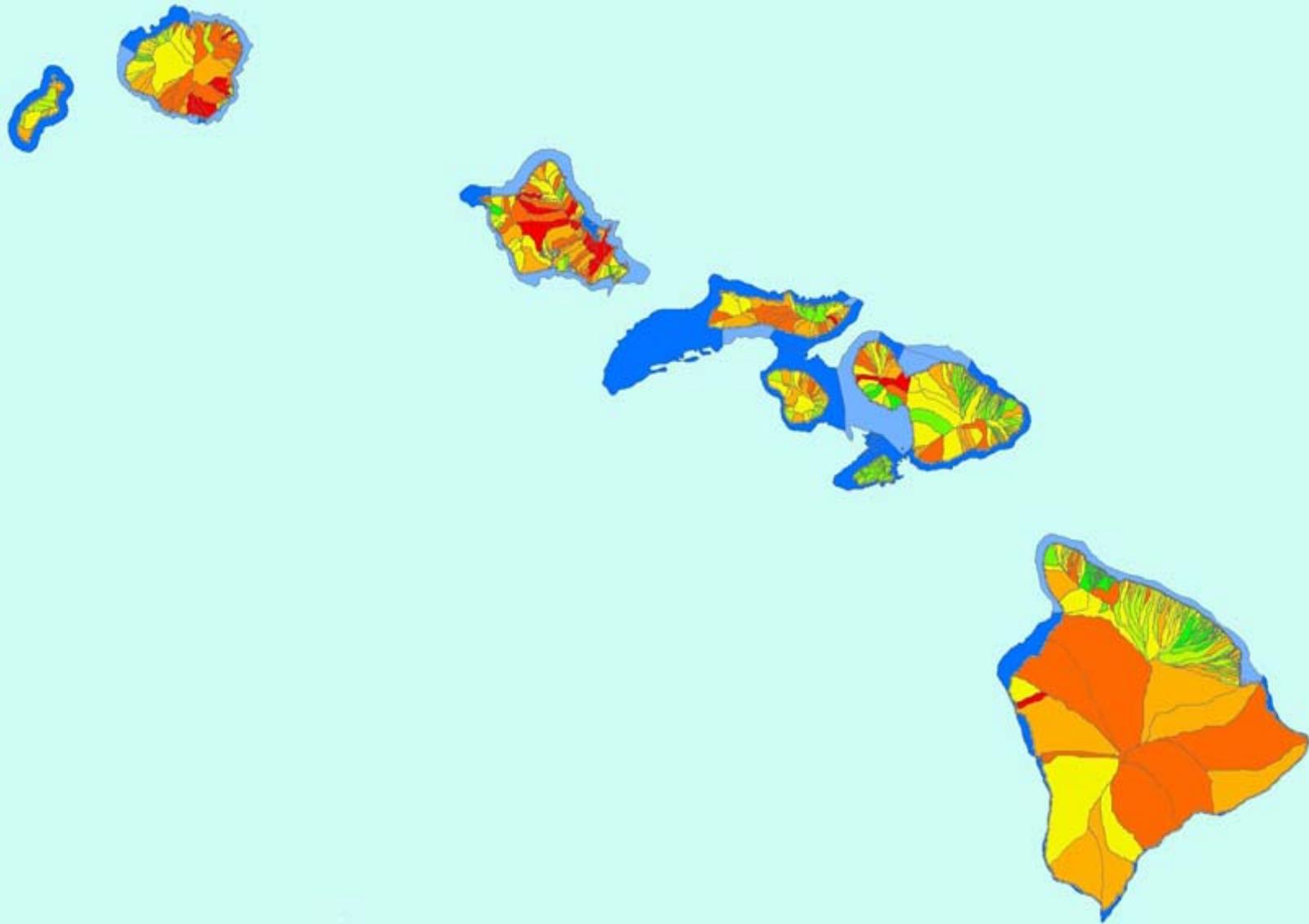


Implementation Schedule for Developing and Implementing Watershed Plans



Prepared by:

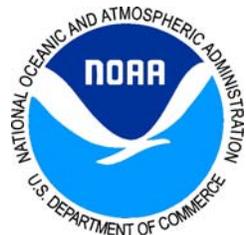
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Hawaii CZM Program
Coastal Zone Management



IMPLEMENTATION SCHEDULE for DEVELOPING and IMPLEMENTING WATERSHED PLANS

Hawaii has developed a process to identify priority watersheds where watershed plan development and implementation will be targeted. GIS was used to overlay data layers representing different criteria in order to determine priority watersheds for restoration and protection. In the model, classes of criteria represented stressors, sensitive areas, assets, and indicators. Stressors are properties of a watershed that could potentially lead to water quality impairment. Sensitive areas are those likely to be harmed by polluted runoff. Assets are properties which would serve to protect a watershed from disturbances. Indicators show those watersheds that are already recognized as in need of restoration. See attached description of the Hawaii Watershed Prioritization Process for more information.

In the GIS modeling effort, several scenarios were evaluated to test the sensitivity of the model to different weightings of the criteria. One of the restoration scenarios showed the greatest correlation with the other scenarios and with the sum of the different scenarios. One of the protection scenarios showed less correlation and represented a more independent scenario depicting potential future stressors. Restoration and protection lists based on these scenarios follow, showing the top 50 watersheds in each. Twenty-three watersheds identified on the restoration list were also identified on the protection list. Of the remaining 77 watersheds that are either in need of protection or restoration, 25 are DOH Polluted Control Program Section 319 priority watersheds, 8 have TMDLs completed and 5 have TMDLs in process, 3 are priority watersheds under the Coral Reef Land-based Sources of Pollution Local Action Strategy (LAS), 16 are included in the 3 watershed management plans prepared by the Honolulu Board of Water Supply (BWS), 11 are covered under one of the watershed studies undertaken by the U.S. Army Corps, and 54 belong to a Watershed Partnership.

The State is seeking to balance expenditure of limited funds between developing watershed plans and implementing those plans already developed. While there is value in developing plans in new priority watersheds, it is equally important to focus effort in watersheds where there is local capacity and interest, and ongoing efforts that can be augmented as a way to maximize agency and community involvement and stretch scarce resources.

There are a number of ongoing watershed efforts in the State. Some of these efforts are occurring in watersheds that have been identified on the priority list below. Watersheds on this list with watershed plans that address EPA's nine key elements are ready for implementation support. However, there are a number of priority watersheds identified which are sustaining some kind of watershed effort that does not currently meet EPA requirements. DOH will evaluate existing efforts and use its discretion to determine what is necessary to put these efforts in a position to be eligible for implementation funding for polluted runoff control measures. The State would like to support implementation of existing plans, as well as new

plan development. Implementation of on-the-ground activities is what will result in water quality improvements.

ONGOING WATERSHED EFFORTS

DOH Polluted Runoff Control (PRC) §319 priority watersheds

DOH's website contains a list of watersheds for which they will give priority for watershed implementation funding. Each of these watersheds has one or more of the following: a watershed management plan, TMDL, or consideration as a LAS priority watershed.

Total Maximum Daily Loads (TMDLs)

After identifying places where water quality is limited or impaired (the 303(d) list), the TMDL process identifies preliminary activities that may help reduce pollutant loads, improve water quality, and increase a waterbody's ability to support its legally-protected uses. These activities may be prioritized to receive funding from DOH (Section 319(h) grants).

Nawiliwili Bay (Puali, Huleia, Nawiliwili) TMDLs – submitted and approved by EPA 2008

Hanalei Bay watershed (Waikoko, Waipa, Waioli, Hanalei) TMDLs – submitted and approved by EPA 2008

Kapa`a Stream, Oahu – approved in 2007

Kawa Stream, Oahu – approved in 2005

Waimanalo Stream TMDL Implementation Plan – 2001

Ala Wai (Manoa-Pololo, Makiki, Ala Wai) TMDLs -- 2002

Kaneohe Stream, Oahu – August 2008 draft for public review

Hilo Bay watershed (Waiakea and Alenaio streams) – TMDL in process

Kaelepulu Inland waters, Oahu -- TMDL in process

Kaukonahua stream, Oahu -- TMDL in process

Pearl Harbor Watershed (Kapakahi, Waiawa, Waimano, Waimalu, Aiea, Kaluauo, Halawa) -- TMDL in process

Coral Reef Land-based Sources of Pollution (LBSP) Local Action Strategy (LAS)

The Coral Reef Land-based Sources of Pollution Local Action Strategy is a watershed-based strategy that incorporates holistic management aspects of traditional Hawaii land and natural resource management at the watershed or ahupua`a level. The LBSP LAS was written in 2004 and focuses work in the following priority watersheds: Honolulu, Maui; Hanalei, Kauai; South Molokai; and Maunaloa Bay, Oahu. The goal of the LAS is to improve coastal water quality and coral ecosystem function and health by reducing land-based pollution. The LAS is guided by a joint State-Federal interagency steering committee, of which both DOH and CZM are members.

Honolulu Board of Water Supply (BWS)

BWS is in the process of developing watershed management plans for each of Oahu's eight planning districts. The plans will provide short-, mid-, and long-range guidance for the sustainable management and use of Oahu's surface and ground water resources. Plans have been developed for Waianae (public review draft June 2006) and Koolau Loa (pre-final draft

Dec. 2008). BWS has recently conducted community meetings for the Koolau Poko watershed management plan. The schedule for completing plans is as follows:

2008-2010 – North Shore, Koolau Poko

2011-2013 – South Oahu: Ewa, Central Oahu, Primary Urban Center, East Honolulu

US Army Corps of Engineers

The Army Corps has undertaken a number of watershed studies, generally in partnership with State or county agencies.

- *West Honolulu Watershed Study 2003* (Army Corps WH) – The objective of this study was to provide a holistic, comprehensive analysis of watershed data, problems and issues and to conceptualize and describe potential watershed restoration projects and actions.
- *Pelekane Bay Ecosystem Restoration Project* (Army Corps PB) – The purpose of the project is to reverse degradation to the coral reef ecosystem and improve water quality in Pelekane Bay to conditions that prevailed prior to the development of the Kawaihae Deep Draft Harbor and area. Reconnaissance stage (2003-2007).
- *Central Oahu Watershed Study 2007* (Army Corps CO) – This study provided an overview of watershed information pertinent to the area; identified resource problems and issues; and investigated potential projects and programs to remediate these issues. The study was conducted to inventory and address water-related issues associated with development and other land uses, in order to protect and restore critical environmental resources.
- *Ala Wai Canal Project* (Army Corps AW) – This project, conducted with DLNR, is in the feasibility phase. It includes identification of alternatives, environmental documentation and a preliminary design related to flood hazard reduction and ecosystem restoration for the Ala Wai watershed.
- *West Maui Watershed Project* (Army Corps WM) – This reconnaissance study, conducted with DLNR, is scheduled to be completed in September 2009. Its objective is to use the Hawaii ahupua`a concept of resource management to identify recommended measures to solve West Maui's watershed problems, including aquatic, marine and terrestrial ecosystem degradation, threats to water supply quantity and quality, and storm damage.

Watershed Partnerships (WP)

Watershed partnerships are voluntary alliances of landowners and other partners working collaboratively to protect forested watersheds for water recharge, conservation, and other ecosystem services. There are 9 watershed partnerships on six islands covering 1.65 million acres. Most management actions are habitat based and revolve around combating the main threats of feral ungulates and invasive species. These management actions make a critical difference by benefitting native forests, watersheds, coastal and coral reef areas by reducing erosion and sedimentation runoff into streams.

- Three Mountain Alliance Management Plan 2007
- Kohala Mountain Watershed Management Plan draft 2007
- Kauai watershed Management Plan 2005
- Koolau Mountain Watershed Partnership Management Plan 2002
- Leeward Haleakala Watershed Restoration Partnership
- East Maui Watershed Partnership
- West Maui Mountains Watershed Partnership
- Lanai Forest and Watershed Partnership
- East Molokai Watershed Partnership

IMPLEMENTATION SCHEDULE

DOH will allocate up to \$300,000 of DOH Section 319 funding per year for watershed planning efforts in watersheds identified through the prioritization process. Two watershed planning contracts will be initiated by DOH each year, and it is expected that each watershed-based plan will take between 2-4 years to develop, in order to ensure that it addresses both EPA's nine key elements and the CNPCP management measures. Efforts to modify existing watershed plans to meet EPA and CNPCP requirements will likely take less time. This translates into 30 plans developed over a 15 year period with DOH funding. While the State will try to select the two highest priority watersheds (starting at the top of the list) for plan development each year, which priority watersheds are selected will depend, in part, on matching capability, contractual conditions, and local interest and capacity (see section below).

In addition, \$500,000 of DOH Section 319 funding per year will be targeted to the implementation of watershed plans. These monies will be focused on priority watersheds with management plans, TMDLs, and LAS priority designation. DOH will also work with BWS, Army Corps and the watershed partnerships to identify implementation activities associated with their watershed efforts that address polluted runoff control in priority watersheds that may be eligible for Section 319(h) implementation funding. These other watershed efforts also receive funding from other sources which, in many cases, may represent non-federal matching funds.

Other watershed plans and TMDLs expected to be completed within the next 5 years (2010-2015) are listed below. Attempts will be made to incorporate appropriate CNPCP management measures into these planning efforts. Priority watersheds included in these efforts may also be eligible for implementation funding.

- BWS watershed plans for North Shore and South Oahu (Ewa, Central Oahu, Primary Urban Center, East Honolulu)
- Kaneohe Stream, Oahu, TMDL
- Hilo Bay watershed (Waiakea and Alenaio streams) TMDL
- Kaelepulu Inland waters, Oahu, TMDL
- Kaukonahua stream, Oahu, TMDL

- Pearl Harbor Watershed (Kapakahi, Waiawa, Waimano, Waimalu, Aiea, Kaluauo, Halawa) TMDL

In addition, the steering committee for the Coral Reef Land-based Sources of Pollution LAS is currently identifying additional priority watersheds, which will be eligible for NOAA funding over the next 10 years.

CONSIDERATIONS REGARDING IMPLEMENTATION SCHEDULE

Currently, DOH and state and local agencies as well as community watershed organizations are partners in the preparation of watershed plans funded under Section 319(h), Clean Water Act. The preparation of watershed plans is dependent upon the participation and leadership of these agencies and organizations. It is difficult to predict or motivate involvement, as it is dependent upon numerous variables beyond the control of the State. As such, the State reserves the right to change the priority of a particular watershed if an agency or organization with capacity expresses interest in preparing a watershed plan.

The preparation of watershed plans is also dependent upon the availability of non-Federal matching funds. Based on past experience, non-Federal matching funds are difficult to obtain. The priority list may be modified if opportunities for non-Federal matching funds become available.

Finally, watersheds were prioritized based on existing, publicly-available, data layers within the State GIS. As new and/or improved information becomes available (e.g., GIS of nearshore impaired waters), the prioritization model may be used to redefine priority watersheds. In this event, it is likely that changes will occur to the list of priority watersheds.

PRIORITY WATERSHEDS

The following table lists the top 50 watersheds in need of restoration and the top 50 in need of protection (23 both protection and restoration, 27 restoration only, and 27 protection only). The table also indicates whether the watershed contains a stream on the Section 303(d) list of impaired waters and lists current watershed efforts in each of the listed watersheds.

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Oahu	Kahana	√	√	√	WP BWS

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Oahu	Ala Wai	√	√	√	WP PRC §319 priority TMDL Army Corps - AW
Maui	Waiehu	√	√	√	WP
Oahu	Kawainui	√	√	√	WP PRC §319 priority BWS
Maui	Iao	√	√	√	WP
Oahu	Heeiea	√	√	√	WP PRC §319 priority BWS
Oahu	Waiahole	√		√	WP PRC §319 priority BWS
Oahu	Kaneohe	√	√	√	WP PRC §319 priority TMDL BWS
Oahu	Nuuuanu	√		√	WP Army Corps - WH
Maui	Waikapu	√	√	√	WP
Kauai	Waikomo	√	√	√	
Oahu	Keaahala	√	√	√	WP PRC §319 priority BWS
Kauai	Kawailoa	√		√	

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Kauai	Mahaulepu	√		√	
Kauai	Hanamaulu	√	√	√	WP
Kauai	Nawiliwili	√	√	√	PRC §319 priority TMDL
Oahu	Anahulu	√		√	WP
Kauai	Manoa	√		√	
Oahu	Kawa	√		√	PRC §319 priority TMDL BWS
Lanai	Paliamaano	√	√		WP
Oahu	Kahaluu seg	√		√	PRC §319 priority BWS
Maui	Maliko	√	√	√	WP
Kauai	Huleia	√	√	√	WP PRC §319 priority TMDL
Kauai	Wahiawa	√	√	√	WP
Oahu	Kaalaea	√		√	WP PRC §319 priority BWS
Maui	Honokowai	√	√	√	WP PRC §319 priority Army Corps

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Oahu	Kaelepulu	√		√	WP PRC §319 priority TMDL in process BWS
Oahu	Waikane	√		√	WP PRC §319 priority BWS
Maui	Waihee	√		√	WP
Oahu	Kalunawaikaala	√	√		WP
Oahu	Portlock	√	√		LAS
Oahu	Kalauao	√		√	WP TMDL in process Army Corps - CO
Kauai	Kilauea	√		√	WP
Maui	Kahana	√	√	√	WP PRC §319 priority Army Corps - WM
Molokai	Waialua	√		√	
Hawaii	Wainaia	√		√	
Hawaii	Kapehu	√		√	
Oahu	Kahawainui	√		√	WP
Kauai	Limahuli	√		√	WP
Oahu	Halawa	√			TMDL in process Army Corps - CO

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Oahu	Paukauila	√		√	
Kauai	Hanalei	√		√	WP PRC §319 priority TMDL LAS
Oahu	Waikele	√		√	WP Army Corps - CO
Oahu	Punaluu	√	√		WP BWS
Kauai	Kauapea	√	√		
Kauai	Puali	√	√	√	PRC §319 priority TMDL
Oahu	Waiawa	√		√	WP TMDL in process Army Corps - CO
Oahu	Waimanalo	√		√	WP PRC §319 priority TMDL BWS
Oahu	Kaaawa	√		√	WP BWS
Oahu	Waimalu	√		√	WP TMDL in process Army Corps - CO
Maui	Wailea		√		WP
Hawaii	Keahole		√		
Maui	Pohakea		√		WP

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Kauai	Wailua		√	√	WP
Hawaii	Kauna		√		WP
Maui	Mooloa		√		
Hawaii	Lapakahi		√		
Kauai	Lihue Airport		√		
Hawaii	Waiaha		√		WP
Hawaii	Wainaku		√		PRC §319 priority
Hawaii	Kawaihae		√		WP PRC §319 priority Army Corps - PB
Maui	Waiakoa		√		WP
Hawaii	Pohakuloa		√		WP
Maui	Wahikuli		√		WP PRC §319 priority Army Corps - WM
Hawaii	Kaahakini		√		WP
Hawaii	Kiholo		√		WP
Hawaii	Waikoloa/ Waiulaula		√		WP
Hawaii	Wailoa		√	√	WP PRC §319 priority
Hawaii	Honokohau		√		WP

Island	Watershed Name	In Need of Restoration	In Need of Protection	303(d) list	Current Watershed Efforts
Maui	Kahoma		√	√	WP PRC §319 priority Army Corps - WM
Maui	Kanaio		√		WP
Maui	Kalialinui		√		WP
Lanai	Kaumalapau		√		
Oahu	Hanauma		√		
Oahu	Makua		√		BWS
Oahu	Oio		√		WP BWS
Molokai	Kamalo		√		WP PRC §319 priority LAS