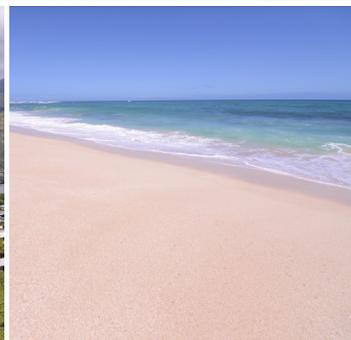




# Hawai'i's Nonpoint Source Management Plan 2015 to 2020



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# Acronyms

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ATU	Aerobic treatment unit
BEACH	Beaches Environmental Assessment and Coastal Health
BMP	Best Management Practice
CCH	City and County of Honolulu
CNPCP	Coastal Nonpoint Pollution Control Program
CWA	Clean Water Act
CWB	Clean Water Branch
CWRM	Commission on Water Resource Management
CWSRF	Clean Water State Revolving Fund
CZARA	Coastal Zone Act Reauthorization Amendments
CZM	Coastal Zone Management
DAR	Division of Aquatic Resources
DBEDT	Department of Business, Economic Development and Tourism
DLNR	Department of Land and Natural Resources
DOBOR	Division of Boating and Ocean Recreation
DOFAW	Division of Forestry and Wildlife
DOH	Department of Health
DWSRF	Drinking Water State Revolving Fund
EMD	Environmental Management Division
EPA	Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
FAST	Funding Agency Support Team
GIS	Geographic Information System
GRTS	Grants Reporting and Tracking System
HAR	Hawai'i Administrative Rules
HAWP	Hawai'i Association of Watershed Partnerships
HDOA	Hawai'i Department of Agriculture
HDOT	Hawai'i Department of Transportation
HRS	Hawai'i Revised Statutes
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
NRCS	Natural Resources Conservation Service
NWQI	National Water Quality Initiative
ORMP	Ocean Resources Management Plan
OSDS	Onsite Disposal Systems
PRC	Polluted Runoff Control
RFP	Request for Proposals
SAM	Standardized Assessment Methodology
SDWA	Safe Drinking Water Act
SDWB	Safe Drinking Water Branch
SEP	Supplemental Environmental Project
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids

UH University of Hawai'i  
USDA United States Department of Agriculture  
WQ Water Quality  
WWB Wastewater Branch

# Executive Summary

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In 1987, Section 319 of the federal Clean Water Act (CWA) established a national Nonpoint Source (NPS) Management Program to address NPS pollution, also known as polluted runoff. Administered by the U.S. Environmental Protection Agency (EPA) under the CWA, the Section 319 program provides funding for state NPS management programs and projects aimed at preventing and reducing NPS pollution. In Hawai'i, the Department of Health (DOH) Clean Water Branch (CWB) Polluted Runoff Control (PRC) Program administers the State's NPS management program and develops the State's NPS Management Plan to implement watershed-specific strategies to control NPS pollution.

Hawai'i's NPS Management Plan guides the State's NPS management efforts by establishing goals, objectives, strategies, and milestones directed at preventing and reducing NPS pollution and improving water quality. The NPS Management Plan also advances the State's efforts to obtain full approval of Hawai'i's Coastal Nonpoint Pollution Control Program (CNPCP), which was established under Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990. The CNPCP is administered jointly by the DOH and by the Department of Business, Economic Development and Tourism's (DBEDT) Office of Planning Coastal Zone Management (CZM) Program. Both the PRC Program and the CNPCP seek to prevent and reduce polluted runoff in order to protect and improve water quality. To this end, Hawai'i's NPS Management Plan provides guidance in coordinating PRC and CZM Program goals and activities with various federal, state, and local programs to more effectively manage NPS pollution throughout the State.

Formerly called "Hawai'i's Implementation Plan for Polluted Runoff Control," the State's NPS Management Plan was last updated in 2000. In contrast to the 2000 plan, this updated plan sets forth a more coordinated approach among federal, state, and local water quality agencies to implement NPS projects and target pollutants and their sources more effectively. Specifically, this plan focuses on establishing partnerships to align goals and leverage resources in three priority watersheds (Hanalei Bay, He'eia, and West Maui) to maximize water quality benefits.

The following chapters of Hawai'i's NPS Management Plan describe current tools and approaches to address NPS pollution in Hawai'i. Chapter 1 provides information on Hawai'i's NPS pollution and water quality problems in the context of the State's climate and land use and emphasizes the vital role clean waters play in Hawai'i's culture, marine life, and economy. Chapter 2 provides legal background on NPS management, focusing on relevant federal and state statutes. Chapter 3 provides an overview of federal, state, and local agencies and organizations involved in water quality management and describes the DOH water branches' roles in NPS management. Chapter 4 provides a more in-depth look at coordination among these agencies and organizations to manage water quality, including monitoring, assessment, planning, and implementation tools used by specific programs. Chapter 5 establishes the State's goals, objectives, and strategies for managing NPS pollution over the next five years and sets milestones and anticipated outcomes to measure progress in achieving these goals and objectives.

The State's new goals identified in this plan are:

1. Identify water quality trends and waters and watersheds impaired or threatened by NPS pollution (**Assessment**);
2. Develop strategies, watershed-based plans, and Total Maximum Daily Load implementation (TMDL+) plans to prevent and reduce NPS pollution (**Planning**);
3. Implement NPS management strategies to restore impaired waters and protect high quality waters from NPS pollution (**Implementation**); and
4. Develop and employ an effective statewide program to manage NPS pollution (**Statewide NPS Program Development**).

By implementing this plan and working towards achieving these goals, the State anticipates the following major milestones:

- Implementation of at least 10 CWA Section 319-funded polluted runoff control projects, including a minimum of three projects implemented through partnerships;
- Approval and implementation of the CNPCP;
- Measurable water quality improvements in at least four NPS-impaired watersheds;
- Prioritization of watersheds to focus the State's water quality improvement efforts;
- Water quality monitoring and assessment for three new inland waters;
- The State's first TMDL+ plan;
- Three new watershed-based plans;
- New statewide strategies that address water quality protection and runoff from cesspools, agriculture, and urban areas; and
- Increased coordination among federal, state, and local agencies to control polluted runoff.

The State's NPS Management Plan also has four appendices that contain additional information about various aspects of NPS management in Hawai'i. Appendix A provides information on land use and land cover in Hawai'i, including land use statistics and maps of the State Land Use Districts (agriculture, urban, rural, conservation). Appendix B contains maps of Hawai'i's streams and rivers by county. Appendix C provides a list of waterbodies that have TMDLs for specific pollutants. Finally, Appendix D has a table of additional federal, state, and local agencies and organizations that are involved, or could be potentially involved, in NPS management in Hawai'i.

The next update of Hawai'i's NPS Management Plan is scheduled for 2020 and will provide an assessment of this plan's implementation as well as new objectives, strategies, and milestones for 2020-2025.

# Chapter 1: Introduction

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With no point of land more than 30 miles from the ocean, Hawai‘i’s entire land mass lies within the coastal zone, closely linking activities on land to stream and coastal water quality and health. In addition to land-based activities, Hawai‘i’s steep rainfall gradients and frequent torrential rains have the potential to create nonpoint source (NPS) pollution, also known as polluted runoff. NPS pollution occurs when rainwater moves over the surface of the land or through the ground, carrying pollutants with it and depositing them into streams and lakes, coastal waters, groundwater, and wetlands. Common NPS pollutants include sediment, nutrients, bacteria, and toxic chemicals, which can negatively impact aquatic ecosystems, human health, and economic development. Human choices and actions, such as agricultural practices, wastewater disposal, hydrological modifications, and urban development, can result in NPS pollution problems that require management in order to restore water quality and protect human health and marine life.

Because of its diffuse nature and broad range of sources, polluted runoff can be difficult to prevent and control. To this end, the State has developed this NPS Management Plan, which establishes goals and strategies for protecting Hawai‘i’s waters from the negative impacts of NPS pollution and for restoring waters already impaired by NPS pollution. This chapter provides an overview of Hawai‘i’s water quality problems, including how climate and land use contribute to NPS pollution.

## 1.1 Water Quality in Hawai‘i: A Brief Overview

The importance of water quality to Hawai‘i cannot be overstated. Water quality is vital to public health, Native Hawaiian cultural practices, leisure and recreation, food resources, research, and technology. Clean streams and coastal waters are also essential to Hawai‘i’s most important economic industry, tourism. Hawai‘i’s aquatic environment is one of the main reasons the State receives over eight million visitors annually.<sup>1</sup> Water recreation, including swimming, surfing, snorkeling, and boating, is an important aspect of tourism in Hawai‘i. In particular, coral reefs play a large role in water recreation and generate approximately \$800 million annually in added value to the state’s economy from marine tourism.<sup>2</sup> Therefore, water pollution that damages coral reefs not only negatively impacts marine life and coastal resilience, but also can have a significant negative impact on the State’s economy. Preventing water pollution and restoring water quality are therefore essential to keep life in Hawai‘i thriving.

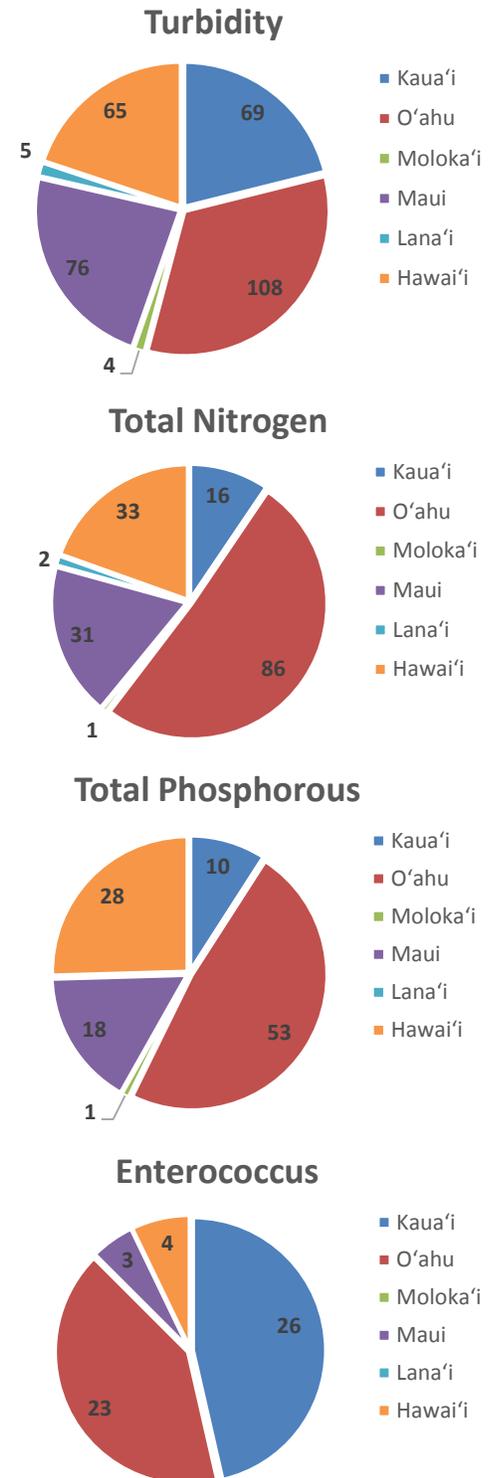
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<sup>1</sup> Hawai‘i Tourism Authority (2014). 2014 Annual Visitor Research Report.

<sup>2</sup> Friendlander, A.G. Aeby, R. Brainard, E. Brown, K. Chaston, A. Clark, P. McGowan, T. Montgomery, W. Walsh, I. Williams and W. Wiltse (2008). The State of Coral Reef Ecosystems of the Main Hawaiian Islands. pp. 219-261. In: Waddell, J.E. and A.m. Clarke (eds.), 2008. *The State of Coral Reef Ecosystems of the United States and Pacific Freely Associated States: 2008*. NOAA Technical Memorandum NOS NCCOS 73. NOAA/NCCOS Center for Coastal Monitoring and Assessment’s Biogeography Team, Silver Spring, MD. 569 pp.

To determine the recreational and ecosystem health of Hawai'i's waters, the Department of Health (DOH) [Clean Water Branch](#) (CWB) is responsible for assessing the State's marine and inland surface waters every two years as required by the federal Clean Water Act (CWA). The CWB routinely monitors for bacteria, nutrients, and biogeochemical parameters (including chlorophyll *a*, total suspended solids (TSS), and turbidity). In 2014, the CWB published its most recent State of Hawai'i Water Quality Monitoring and Assessment Report, also known as the [Integrated Report](#), one of the key water quality planning documents for the State. It describes the status of the State's water quality (CWA Section 305(b)) and provides a list of impaired waterbodies (CWA Section 303(d)). Impaired waters do not meet the State's numeric water quality criteria, which are governed by [Chapter 11-54](#) of the Hawai'i Administrative Rules (HAR). The Integrated Report also lists conventional pollutants associated with these impairments. Conventional pollutants include, but are not limited to, bacteria (*Enterococcus*), total nitrogen, total phosphorous, nitrate and nitrite, orthophosphate, ammonia, turbidity, total suspended solids (TSS), and chlorophyll *a*.

In the 2014 Integrated Report, the CWB assessed 160 marine waterbodies and two inland freshwater waterbodies out of 582 waterbodies statewide. Out of the 160 assessed marine water bodies, 136 (85%) did not attain numeric water quality criteria for at least one or more conventional pollutants. Turbidity standards were exceeded most frequently (86%), followed by nutrients (43%). Historically, sediment, nutrients, and bacteria problems have occurred in the majority of the marine waters assessed on the islands of Hawai'i (the Big Island), Maui, Lana'i, Moloka'i, O'ahu, and Kaua'i (Figure 1). Both assessed inland waters (Hanalei Stream and He'eia Stream) did not attain for total phosphorous and were impaired by bacteria (Hanalei) and nitrate and nitrite (He'eia). A breakdown by pollutant categories of marine and stream impairments in the 2014 Integrated Report is illustrated in Figure 2. More information regarding impairments from water quality assessments can be found at the [CWB](#)



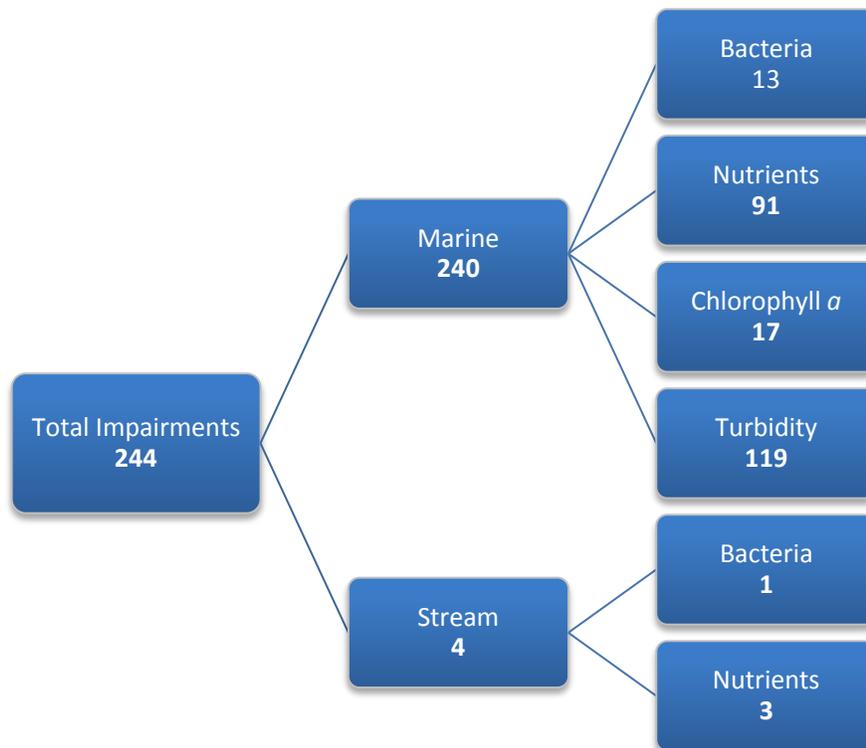
**Figure 1.** Marine and stream listings by island for four common pollutants in Hawai'i since 2001

[Integrated Report and Total Maximum Daily Loads webpage](#), and more information about the Integrated Report and its applications can be found in Chapters 3 and 4.

## 1.2 Hawai'i's Geography and Climate

The 1,523 mile-long Hawaiian Archipelago is located in the central Pacific Ocean, approximately 3,000 miles from the continental United States. The State of Hawai'i consists of eight major and 124 minor islands. The eight major islands include Hawai'i, Maui, Kaho'olawe, Lana'i, Moloka'i, O'ahu, Kaua'i and Ni'ihau. Altogether, there are 3,326 miles of rivers and streams, 303 miles of marine recreational shoreline, 37 square miles of bays and harbors, and five square miles of lakes and reservoirs in Hawai'i. The highest lake in the nation, Lake Waiau, is located at an elevation of 13,020 feet on Mauna Kea on the Big Island.

The topography, geology, and climate in Hawai'i are characterized by extreme variations, which include unique and diverse microenvironments. Almost every major Hawaiian island has pali, or steep mountain cliffs, that exceed 3,000 feet in elevation. These mountains are high enough to cause orographic lifting, where moisture-laden northeasterly trade winds rise, condense into clouds, and provide vital rainfall, creating lush conditions on the windward sides of the islands and drier conditions on the leeward sides of the islands. Thus rainfall can vary from 444 inches/year (Mt. Wai'ale'ale, Kaua'i, 5,148 feet above sea



**Figure 2.** Marine and stream water quality impairments for bacteria, nutrients (including total nitrogen, total phosphorous, nitrate and nitrite, and ammonia), turbidity, and chlorophyll *a* by waterbody and pollutant categories based on the 2014 State of Hawai'i Water Quality Monitoring and Assessment Report

level) to nine inches/year (Kawaihae, Big Island, 7 feet above sea level). In addition, abrupt changes in altitude within an island can result in abrupt shifts in ecosystems. On the Big Island, for example, the ecosystem shifts from coastal marine coral reefs to the snow-capped summit of Mauna Kea within just 30 miles.

In addition to its steep rainfall gradients, Hawai'i is also characterized by frequent torrential rains, which give streams flashy flows and add to Hawai'i's unique polluted runoff management challenges. Relative to streams in the continental U.S., Hawai'i's streams are short and only a few miles long, with the longest stream (Kaukonahua Stream on O'ahu) stretching for only 29 miles. (See Appendix B for stream maps by island.) Furthermore, Hawai'i has no extensive river basin system; on O'ahu, the average drainage basin area is only five square miles. Each major island has its own discrete hydrologic system, characterized by numerous small watersheds with steep slopes ranging from 40-70 degrees. In addition, many of Hawai'i's volcanic soils are highly erodible and, combined with steep slopes and heavy rains, present major challenges to controlling NPS pollution.

Hawai'i's extreme geographic isolation has also given rise to its unique flora and fauna, with a high rate of endemic plant and animal species. Hawai'i has rates of endemism of at least 25% for most coral fish and invertebrate species. Unfortunately, human activities, including the introduction of non-native species, have led to the loss of habitat for many native species, resulting in the proliferation of endangered and threatened species in Hawai'i. Climate change is predicted to further modify land cover and exacerbate habitat loss, which may threaten an increasing number of native species and also create new water quality challenges for the State. Land use as it relates to NPS pollution in Hawai'i is discussed in the following section.

### **1.3 Land Use and Nonpoint Source Pollution in Hawai'i**

Land-based activities are the primary source of NPS pollution statewide. Conventional land-based pollutants include sediment, nutrients, and pathogens (Table 1), as well as toxic chemicals. Sediment from soil erosion and human and animal disturbances can increase the turbidity of coastal waters and threaten aquatic ecosystems, especially highly sensitive coral reefs. Nutrients from fertilizers, detergents, and sewage can be washed into coastal waters and lead to eutrophication, which can have dramatic consequences for biodiversity, fisheries, and recreation. Pathogens from human and animal fecal material in streams and beaches can pose risks to human health. In addition, wastewater from cesspools and other wastewater systems can contribute to both pathogen and nutrient runoff. Toxic chemicals, including metals, petroleum-based products, and pesticides, can also pose significant risks to drinking water and human health and negatively impact marine organisms.

Because all land in Hawai'i falls within the coastal zone, land-based activities not only have a significant impact on inland water quality, but also on coastal water quality and overall coastal zone health. The close proximity of all land to the sea increases the likelihood that surface water runoff will be carried into coastal waters. In addition, groundwater discharge also impacts near-shore areas. Groundwater in

**Table 1.** Nonpoint source pollutants of concern and their sources

Pollutants	Major Sources
Sediment, Turbidity	Soil erosion from unstable streambanks, feral ungulate activity, improperly constructed roads, and urban, agricultural, and conservation land uses
Bacteria	Animal waste, wastewater from cesspools and septic systems, contaminated soil
Nutrients	Fertilizer applications, agricultural practices, wastewater from cesspools and septic systems

*Source: Hawai'i Coral Reef Strategy, University of Hawai'i Cooperative Extension Service, and the Hawai'i Department of Health 2006 State of Hawai'i Water Quality Monitoring and Assessment Report*

Hawai'i can contain two to three orders of magnitude higher concentration of dissolved nitrogen and phosphorous than seawater.<sup>3</sup>

The Hawai'i Land Use Law (HRS Chapter 205) places land use into four districts: agriculture, conservation, rural, and urban (Figure 3). According to the State Land Use Commission, agricultural lands cover 45.7% of the State, conservation lands cover 49.1%, urban lands cover 4.9%, and rural lands cover 0.3% (Figure 3; see Appendix A for acreages and percentages for each island and county).<sup>4</sup> Jurisdiction over agricultural and rural districts is shared by the State Land Use Commission and individual counties. Lands in conservation districts are managed by the State, and responsibility for zoning within urban districts is delegated to the counties.

While only a small percent of the State is classified as urban, the proximity of urban areas—which are often characterized by impervious surfaces, development, and industrial and human waste—to coastlines presents significant challenges to controlling polluted runoff. Construction and development activities can be major sources of sediment, which can increase turbidity and TSS in streams and coastal areas. Other NPS pollutants include nutrients and toxic chemicals that originate from residential and commercial activities. Stormwater washes pollutants from homes, roads, and industrial areas into streams, where degraded riparian areas and streambanks, as well as flood control structures and other hydromodifications, can facilitate the transport of NPS pollution to nearshore areas.

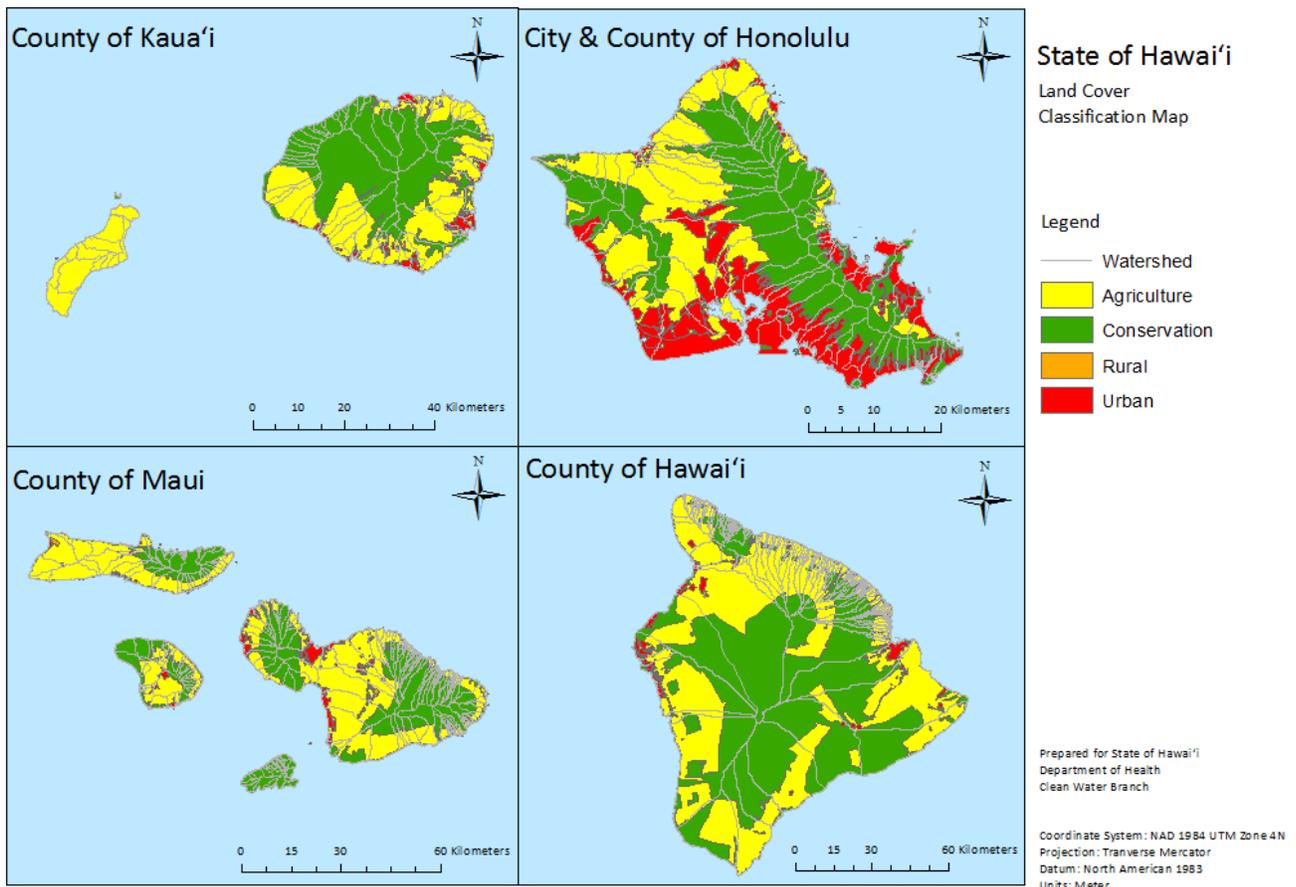
In urban and rural areas, effluent from onsite disposal systems (OSDS) is thought to be a major source of NPS pollution in surface waters. OSDS include cesspools, septic systems and aerobic treatment units discharging to seepage pits, and any wastewater system receiving soil treatment. Wastewater from OSDS contains pathogens such as bacteria, protozoa, and viruses, which when released untreated into

<sup>3</sup> Ibid.

<sup>4</sup> Hawai'i Statewide GIS Program (2014). State of Hawai'i, State Land Use District Boundary Acreages by Island. [http://files.hawaii.gov/dbedt/op/gis/data/slud2014\\_table.pdf](http://files.hawaii.gov/dbedt/op/gis/data/slud2014_table.pdf)

streams and coastal areas can pose serious human health risks. In addition, wastewater can negatively impact drinking water wells by introducing biological and chemical contamination into a well's intake. Wastewater is also a major source of nutrients, which can result in excessive algae growth and negatively impact coral reefs. Wastewater may also contain pharmaceuticals, which can adversely affect human health and aquatic organisms.

There are approximately 110,000 OSDs in Hawai'i, including approximately 88,000 cesspools and over 21,000 septic systems. Of the 88,000 cesspools in the state, nearly 50,000 are on the Big Island, nearly 14,000 are on Kaua'i, over 12,000 are on Maui, over 11,000 are on O'ahu, and over 1,400 are on Moloka'i. Approximately 6,900 cesspools are located within 750 feet of the shoreline and therefore have a greater potential to introduce harmful pollutants into coastal waters. Cesspools in Hawai'i discharge approximately 55,000,000 gallons of untreated sewage into the ground daily and release as much as 23,700 pounds of nitrogen and 6,000 pounds of phosphorous daily, which can stimulate the growth of undesirable algae and negatively impact coral reefs. In addition, because cesspools concentrate wastewater in one location and are often constructed deep within the ground and in direct contact with groundwater, they can result in groundwater and drinking water well contamination.



**Figure 3.** State Land Use Districts in Hawai'i by county

Septic systems can also contribute to water quality and health problems. In particular, septic systems that are poorly sited, designed, installed, operated, or maintained can result in excessive nutrient discharges as well as contamination of surface waters and groundwater with disease-causing pathogens and nitrates. Proper use of septic systems and septic maintenance, as well as outreach to homeowners about maintaining their septic symptoms, can improve water quality and save homeowners from costly repairs.

Despite the potential threats that untreated wastewater from cesspools poses to human health and aquatic ecosystems, Hawai'i is the only state in the U.S. that allows the construction of new cesspools. Approximately 800 new cesspools are approved for construction in the State each year. However, the State recognizes that cesspools are a source of water pollution, and therefore has recently taken steps to reduce the number of cesspools in Hawai'i. Under Act 120, the State will provide a tax credit of up to \$10,000 per homeowner to upgrade or convert cesspools into a septic system or aerobic treatment system if the cesspool is located within 200 feet of a shoreline, perennial stream, wetland, or a source water assessment program area. Up to \$5,000,000 total in tax credits will be available for those who qualify from January 1, 2016 through December 31, 2020. The State also has recently invested in cesspool replacement projects in Kaua'i (Hanalei Bay watershed) with Section 319 funding, and will invest in additional cesspool replacement projects in the following years. In addition, the DOH [Wastewater Branch](#) (WWB), which leads the State's efforts to manage OSDS, will continue its attempts to ban the construction of new cesspools through changes to the State's administrative rules. The WWB is also revamping its OSDS inspection program pursuant to the Coastal Zone Act Reauthorization Amendments (CZARA) Section 6217, which will help prevent NPS pollution from OSDS that are not properly operated or maintained. Finally, over the next two years, the State will develop a statewide strategy that specifically addresses cesspools and pollution problems associated with their use. More information about managing OSDS can be found in Chapter 3, Section 3.3.1, and more information about the State's cesspool strategy can be found in Chapter 5, Goal 4.

Agricultural districts account for over 45% of land use in Hawai'i. Agricultural practices, including soil disturbance, grazing, nutrient and pesticide applications, and irrigation can contribute to NPS pollution, especially during heavy rains. Agricultural activities can be sources of sediment, nutrients, and toxic chemicals (e.g., pesticides, herbicides, and insecticides), which can negatively impact water quality and aquatic ecosystems. Agricultural stormwater discharges and return flows from irrigated agriculture also are sources of NPS pollution, posing potential water quality problems for downstream and coastal areas. In addition, soil erosion is a major source of NPS pollution and is prevalent in both cultivated and previously forested, degraded agricultural lands. Vegetation cover, cultivation practices, conservation practices, soil erodibility, slope, field layout, grazing management techniques, and the amount of rainfall are among the factors that affect soil erosion on agricultural lands, which in turn affects the amount of sediment and other pollutants that run off into streams and coastal areas. Hydromodifications, including reservoirs and irrigation canals, that support agricultural practices alter stream and coastal hydrology, may also impact water quality.

Conservation lands account for nearly 50% of land use in the State and are thought to be a major source of NPS pollution in Hawai'i. Higher elevation conservation lands are often forested, but these areas still contribute sediment, which is the most prevalent water pollutant from forested areas in Hawai'i. Poorly constructed roads and improper tree planting and harvesting practices in forested areas contribute to sediment pollution. Feral ungulates, which disturb the soil and destroy vegetation in forests, are also a major source of sediment in conservation lands. In addition, animal waste can introduce pathogens into streams and coastal areas, which can adversely impact water quality and human health. Invasive plants in conservation lands also contribute to NPS pollution due to their shallow root systems, which fail to retain soil during rain events. When combined with feral ungulate digging, invasive plants cause sloped areas to become destabilized and eventually erode, resulting in sediment pollution in streams and coastal waters.

# Chapter 2: Legal Authority over Nonpoint Source Pollution

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This chapter provides the legal basis for Hawai'i's NPS program, including federal statutes and state statutes and rules that address NPS pollution Hawai'i.

## 2.1 Federal Statutes

Hawai'i's statutes and rules concerning water quality and NPS pollution are guided by three federal laws: the Clean Water Act (CWA), the Coastal Zone Act Reauthorization Amendments (CZARA), and the Safe Drinking Water Act (SDWA).

### 2.1.1 Clean Water Act, Section 319

The CWA, which was passed in 1972, established the basic structure for regulating discharges of pollutants into U.S. waters and for regulating water quality standards for surface waters. To address NPS pollution, Section 319 of the 1987 amendments to the CWA established a federal NPS program to guide states, territories, and tribes with their NPS management efforts. Hawai'i receives Section 319 grant money from the U.S. Environmental Protection Agency (EPA) to assist in the implementation of the State's [Polluted Runoff Control \(PRC\) Program](#). As the leader of Hawai'i's NPS management program, the PRC Program is responsible for developing and implementing statewide and watershed-specific strategies to control NPS pollution. The PRC Program funds NPS reduction and prevention projects through the State's procurement process. The State collaborates with local watershed stakeholders to implement watershed-based plans and Best Management Practices (BMPs) that reduce NPS pollutant loadings. In addition, pursuant to Section 319, the PRC Program tracks pollutant load reductions achieved by projects, reports these load reductions in the EPA's Grants Reporting and Tracking System (GRTS), submits annual reports and work plans detailing program activities and projects, and updates the State's NPS Management Plan every five years to address new priorities and goals for managing NPS pollution.

Sections 305(b) and 303(d) of the CWA drive Hawai'i's surface water quality efforts. Under Section 305(b), the State is required to assess, characterize, and report the quality of its surface waters every two years. Under Section 303(d), the State identifies impaired waters and develops Total Maximum Daily Loads (TMDLs) to address these impairments. Impaired waters do not meet the State's numeric water quality criteria, which are governed by Chapter 11-54 of the Hawai'i Administrative Rules (HAR). The State of Hawai'i Water Quality Monitoring and Assessment Report, known as the [Integrated Report](#), addresses 305(b) and 303(d) requirements and is submitted to the EPA and U.S. Congress by the Department of Health (DOH) [Clean Water Branch](#) (CWB) every two years.

### **2.1.2 Coastal Zone Act Reauthorization Amendments (CZARA) of 1990, Section 6217**

The purpose of the CZARA of 1990 is to improve the management of the coastal zone and enhance environmental protection of coastal zone resources. Section 6217 of CZARA seeks to address NPS pollution problems in coastal waters by implementing the [Coastal Nonpoint Pollution Control Program \(CNPCP\)](#). The CNPCP is a statewide coastal zone program that establishes and oversees a set of management measures to prevent and reduce NPS pollution from six sources: forestry, agriculture, urban areas, marinas, hydromodifications, and wetlands and riparian areas. The CNPCP also includes a monitoring and tracking condition to ensure that the management measures are being implemented.

Section 6217 of CZARA is administered jointly by the U.S. National Oceanic and Atmospheric Administration (NOAA) and the EPA. In Hawai'i, the State Department of Business, Economic Development and Tourism's (DBEDT) [Office of Planning Coastal Zone Management \(CZM\) Program](#) coordinates the CNPCP with the DOH to develop and implement the management measures as well as a statewide approach to reducing NPS pollution.

### **2.1.3 Safe Drinking Water Act**

The SDWA, which was originally passed in 1974, protects public health by regulating the nation's drinking water supply. It is administered by the EPA and implemented by the DOH [Safe Drinking Water Branch \(SDWB\)](#). The SDWB is responsible for protecting the State's drinking water resources, including both surface and groundwater sources, and ensures that public water systems meet federal and state health-related standards for drinking water. The DOH's [Wastewater Branch \(WWB\)](#) is also responsible for protecting drinking water and public health by ensuring that the use and disposal of wastewater does not contaminate water sources.

## **2.2 State Statutes and Rules Governing Nonpoint Source Pollution**

The following section describes the Hawai'i Revised Statutes (HRS) and Hawai'i Administrative Rules (HAR) pertaining to NPS pollution.

### **2.2.1 State Water Code**

Chapter 174C of the HRS, known as the [State Water Code](#), was enacted into law in 1987 for the purpose of protecting Hawai'i's water resources. The State Water Code requires the development of the [Hawai'i Water Plan](#) to guide a comprehensive effort in managing Hawai'i's waters. The State Water Code also establishes the legal basis of the [Commission on Water Resource Management \(CWRM\)](#) and its authorities and responsibilities, including water resource protection. (See Chapter 3 for more information on CWRM.) Water quality management, including water pollution control, is included in the Hawai'i Water Plan to ensure the protection of the State's waters.

## **2.2.2 Hawai'i Revised Statutes Chapters 342D and 342E**

The Hawai'i legislature enacted [HRS Chapter 342D](#) (Water Pollution) and [Chapter 342E](#) (Nonpoint Source Pollution Management and Control) to address point source and NPS water pollution in the State. HRS Chapter 342D is Hawai'i's equivalent to the CWA and states that “[n]o person, including any public body, shall discharge any water pollutant to state waters, or cause or allow any water pollutant to enter state waters except in compliance with this chapter, rules adopted pursuant to this chapter, or a permit or variance issued by the director [of the DOH].” Under Chapter 342D, the DOH has the authority to administer, enforce, and carry out all laws, rules, and programs relating to both point source and NPS pollution.

HRS Chapter 342E directly addresses NPS pollution management, requiring within the DOH “a nonpoint source pollution management and control program to administer, enforce, and carry out all laws, rules, and programs relating to nonpoint source pollution in the State.” As part of the DOH, the PRC Program manages and coordinates the State's NPS management and control program and works with the DOH water branches to administer Chapters 342D and 342E.

## **2.2.2 Hawai'i Administrative Rules**

Pursuant to the CWA and HRS Chapter 342D, HAR Chapter 11-54 (Water Quality Standards) establishes Hawai'i's water quality standards, including limits for conventional and toxic pollutants. Chapter 11-54 also classifies the State's water bodies and prohibits unauthorized discharges from both point source and nonpoint sources in inland and marine waters. HAR Chapter 11-55 (Water Pollution Control) provides for the prevention, abatement, and control of new and existing water pollution, primarily through permitting and permit compliance. Chapters 11-54 and 11-55 are administered by the CWB and are reviewed and amended every three years or as needed.

HAR Chapter 11-62 (Wastewater Systems) is enforced by the WWB and sets rules to ensure that wastewater and wastewater sludge do not contaminate or pollute drinking water, beaches, shores, streams, and groundwater. Chapter 11-62 also guides appropriate uses of recycled water and wastewater sludge in Hawai'i. The WWB reviews and proposes amendments to Chapter 11-62 as needed and is currently making an effort to amend the rules to limit or ban the construction of new cesspools.

# Chapter 3: Overview of Water Quality and Nonpoint Source Pollution Management in Hawai‘i

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This chapter provides an overview of agencies and organizations involved in water quality and NPS pollution management in Hawai‘i, including their key roles and programs. This chapter is not meant to provide an exhaustive inventory of all the agencies and programs, but instead is intended to provide context to the State’s approach to managing NPS pollution (Chapter 4) as well as the State’s NPS goals and objectives (Chapter 5). Information about other agencies and organizations involved in water quality or water resource management can be found in Appendix D.

Water quality management in Hawai‘i is guided by the [State Water Code](#) (HRS Chapter 174C) and the [Hawai‘i Water Plan](#). The Hawai‘i Water Plan serves as a framework for comprehensive water resource planning to address the State’s water quantity and quality issues. Specifically, it sets forth an integrated and coordinated approach to managing the State’s waters and consists of plans prepared and implemented by the State Department of Health (DOH), the Department of Land and Natural Resources (DLNR), the Department of Agriculture (HDOA), and the four counties (Figure 4). These agencies and their respective plans address the State’s water protection policies, water quality, water needs, and sustainable water use. DLNR’s Water Resource Protection Plan and DOH’s Water Quality Plan provide the overall legal and policy framework that guides the development, conservation, and use of water resources. DLNR’s State Water Projects Plan and HDOA’s Agricultural Water Use and Development Plan provide guidance for the State’s agricultural water needs and development. The information from these plans is integrated into County Water Use and Development Plans, which set forth the broad allocation of water use within each county.

In addition to the agencies that contribute to the Hawai‘i Water Plan, the State Department of Business, Economic Development and Tourism (DBEDT) Office of Planning Coastal Zone Management (CZM) Program, which oversees coastal zone management, works with the DOH to develop and implement the State’s strategy for controlling coastal NPS pollution through the Coast Nonpoint Pollution Control Program (CNPCP).

## 3.1 Department of Health

The DOH Environmental Management Division (EMD) establishes the State’s water quality standards and is the lead agency responsible for protecting the State’s surface and groundwater quality. The EMD administers the State’s surface water and groundwater quality assessment, management, permitting, and enforcement programs through the [Clean Water Branch \(CWB\)](#), the [Safe Drinking Water Branch \(SDWB\)](#), and the [Wastewater Branch \(WWB\)](#). All branches have NPS management responsibilities that require coordination (Figure 5), which is described in more detail in Chapter 4 and in Chapter 5, Goal 4.



**Figure 4.** State and county departments with water quality and resource management responsibilities in Hawai'i. DOH = Department of Health, HDOA = Hawaii Department of Agriculture, DLNR = Department of Land and Natural Resources, DBEDT – Department of Business, Economic Development and Tourism. \*Component of the Hawai'i Water Plan.

### 3.1.1 Clean Water Branch

The CWB implements the Surface Water Quality Management Program for recreational and ecosystem protection. The CWB's mission is "to protect the public health of the residents and tourists who recreate in and on Hawai'i's coastal and inland water resources, and to also protect and restore inland and coastal waters for marine life and wildlife." This mission is accomplished through a coordinated approach that includes water quality monitoring and assessment, engineering and permitting, water quality violation enforcement, and polluted runoff control management.

The CWB's [Polluted Runoff Control \(PRC\) Program](#) is responsible for developing and managing Hawai'i's NPS management program pursuant to Section 319 of the Clean Water Act (CWA). The PRC Program's

mission is to protect and improve the quality of water resources by preventing and reducing NPS pollution. This program sets forth Hawai'i's goals, objectives, and strategies to reduce the impacts of polluted runoff on the State's waters.

To support the implementation of Hawai'i's NPS Management Plan, the State receives funding from the U.S. Environmental Protection Agency (EPA) under CWA Section 319. This funding is directed to the PRC Program under a cooperative agreement between the State and the EPA. For the 2015-2016 annual budget, Hawai'i will receive approximately \$1.16 million from the EPA in an annual federal grant fund appropriation, and the State will contribute approximately \$780,000 (40% of the total budget) in non-federal matching funds. This funding supports NPS projects aimed at water quality restoration and protection, as well as staff and technical assistance to develop and implement the NPS Management Plan. The PRC Program also annually uses \$100,000 of these federal grant funds to develop the CNPCP, which includes developing management measures for approval and implementing approved management measures. Goal 4 in Chapter 5 addresses the State's efforts to obtain full approval of the CNPCP from the EPA and the National Oceanic and Atmospheric Administration (NOAA) by 2017.

The PRC Program's highest priority is to invest in the restoration of NPS-impaired waters through implementation of watershed-based plans. Specifically, the PRC Program invests at least 50% of its CWA Section 319 funding (Project Funds) towards on-the-ground efforts to reduce or prevent NPS pollution. These Project Funds are made available to potential contractors (usually local organizations) through a Request for Proposals (RFP) or to a state or county agency through direct disbursement in order to support NPS projects. Through the RFP process, the PRC Program awards contractors Section 319 grant money to implement BMPs to prevent and reduce NPS pollution. The PRC Program monitors project progress through annual site visits and quarterly reports submitted by contractors. In addition, Section 319 projects engage the local community in NPS control efforts through education and outreach activities, including field workshops for farmers, volunteer days to assist in restoration activities, and public school involvement in water quality monitoring.

Project selection during the State RFP procurement process is weighted towards projects within priority watersheds, where the State focuses its efforts to capitalize on cross-program coordination and maximize water quality benefits. Priority watersheds are a subset of watersheds with an approved watershed-based plan that have been selected by the CWB based on specific evaluation criteria. The State directs technical resources at priority watersheds and targets them for implementation project investments and water quality monitoring and assessments to achieve pollutant load reductions and demonstrate improving water quality trends. Hawai'i's priority watersheds are currently Waimanalo, He'eia, Hanalei Bay, and West Maui. Watersheds not designated as a priority by the CWB, but with approved watershed-based plans, are also eligible for implementation project funding, but without the benefit of weighted scoring. More about watershed prioritization can be found in Chapter 4 and Chapter 5, Goal 2.

The PRC Program assesses its Section 319 implementation projects and documents water quality improvements in its annual End of Year Report. In addition, the PRC Program has developed the [PRC](#)

[Viewer](#), a publicly available, cloud-based database that records and presents all Section 319 project and monitoring data. The PRC Viewer is used to track Section 319 implementation projects (including BMPs), funding, and water quality improvements. The PRC Program will also use the PRC Viewer to host CNPCP management measure monitoring and tracking data.

The CWB Monitoring and Analysis, Engineering, and Enforcement and Compliance Sections are key to helping the PRC Program accomplish its mission. The Monitoring and Analysis Section monitors surface waters, identifies pollutants and sources of water pollution, and develops and implements water quality assessment methodologies. The Monitoring and Analysis Section also ensures the safety of the public by posting warnings and advisories through its Water Quality Alert Notification system and [viewer](#). In addition, the Monitoring and Analysis Section makes its water quality data available to the public on the CWB website.

The Monitoring and Analysis Section also prepares the State's [Integrated Report](#) every two years to fulfill federal requirements under Sections 303(d) and 305(b) of the CWA. This report describes water quality conditions for surface waters in Hawai'i per Section 305(b), including the extent to which water quality provides for the protection of fish and wildlife and for recreational activities in or on the water. The Integrated Report also includes a list of impaired or threatened waters per CWA Section 303(d), identifies pollutants causing impairments, and highlights water quality improvements and removals from the impaired waters list. Waters are removed from the 303(d) list, or de-listed, when they attain the State's numeric water quality criteria. Section 4.3 in Chapter 4 discusses the importance of the 303(d) list in the State's planning procedures in more detail.

The Monitoring and Analysis Section is also responsible for developing the State's "[Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303\(d\) Program](#)," a new 303(d) Program Vision to enhance the overall efficiency of the 303(d) program by allowing flexibility in using available tools beyond TMDLs to attain water quality restoration and protection. The new vision, which the EPA released in 2013, identifies six goals for 303(d) program management: Engagement, Prioritization, Protection, Integration, Alternatives, and Assessment. The State plans to integrate overlapping 303(d) Program Vision and Section 319 program goals, which is discussed in Chapter 4, Section 4.4.4 and Chapter 5, Goal 4.

The PRC Section works closely with and shares resources with the CWB Monitoring and Analysis Section. When short-staffed, the PRC Section assists the Monitoring and Analysis Section with monitoring tasks. Additionally, the Monitoring and Analysis Section assists the PRC Section with its priority watershed water quality monitoring. Both programs are working closely to integrate common goals and develop the State's first TMDL plan (Chapter 5, Goal 2).

The Engineering Section of the CWB administers the [NPDES permit program](#) for point source discharges of wastewater from municipal, industrial, and federal facilities and for discharges of stormwater from municipal systems and industrial facilities. It modifies NPDES permits and also issues CWA Section 401 Water Quality Certifications for federal permits for construction in nearshore and inland waters.

Currently, permits only apply to point source discharges. The Engineering Section is also taking the lead to assess a system to allow trading of pollution credits between point source and nonpoint sources to address the State's water quality concerns. More information about this water quality trading program can be found in Chapter 5, Goal 4.

The CWB's Enforcement and Compliance Section enforces NPDES permits and regulates Section 401 Water Quality Certification. The Enforcement Section also determines compliance with NPDES permit conditions and applies corrective measures against non-compliance through administrative or court actions. In addition, the Enforcement Section investigates complaints related to point source and NPS pollution, and often works with CWB Monitoring Section when investigating general water pollution complaints or evaluating water pollution problems. The Enforcement and Compliance Section will be working with the PRC Program to potentially expand the State's water quality enforcement to include NPS pollution (Chapter 5, Goal 4).

### **3.1.2 Safe Drinking Water Branch**

NPS pollution can impact Hawai'i's drinking water supply by leaching into groundwater and contaminating wells, which are major sources of drinking water in Hawai'i. The mission of the SDWB is "to safeguard public health by protecting Hawai'i's drinking water sources (surface water and groundwater) from contamination and assure that owners and operators of public water systems provide safe drinking water to the community." The SDWB accomplishes this mission by ensuring that the State's drinking water supply meets federal and state drinking water standards through its Source Water Assessment and Protection Program, the Underground Injection Control Program, and the Groundwater Protection Program. The SDWB also hosts an online Groundwater Contamination Viewer and Safe Drinking Water Information System Viewer that identifies contaminants that have been detected and confirmed in drinking water wells, select non-potable wells, and fresh water springs throughout Hawai'i.

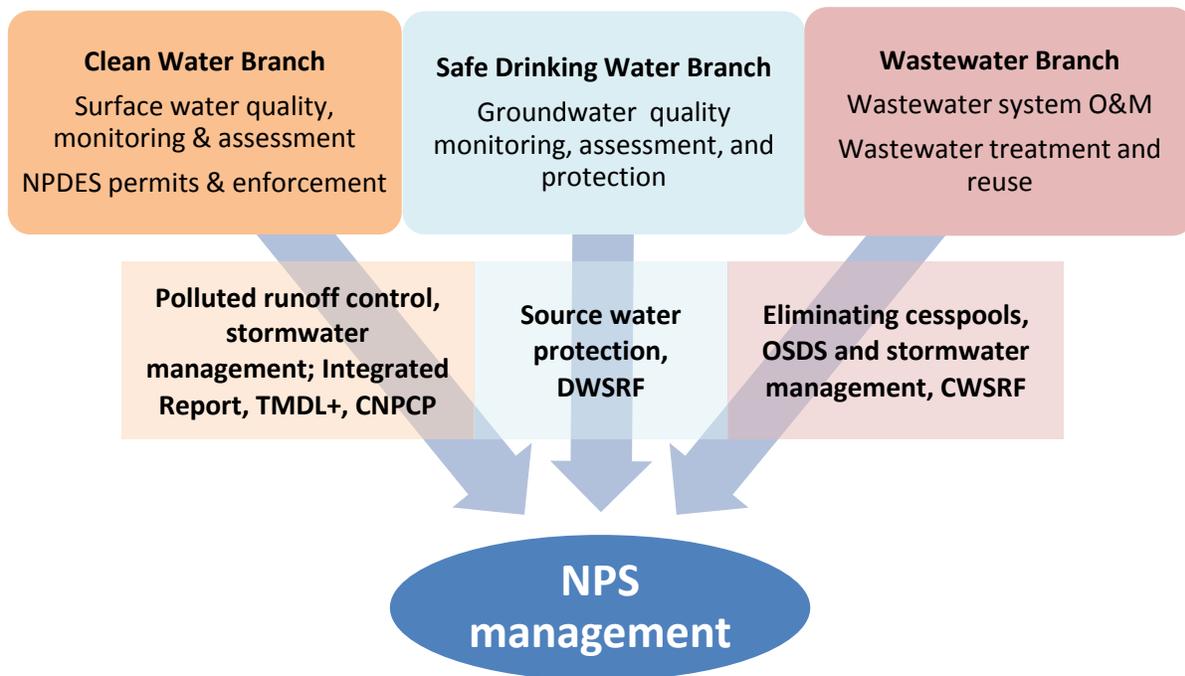
The SDWB administers the Drinking Water State Revolving Fund (DWSRF), which was created under the SDWA to finance state drinking water system infrastructure improvements. The DWSRF supports projects and activities aimed at protecting Hawai'i's drinking water quality. DWSRF local assistance set-aside funds can be used to address NPS activities through established wellhead protection or source water protection plans. Elements of these plans such as erosion control and closing OSDS can be funded through the 15% set-aside program. The State may also develop a loan program with the 15% set-aside funds to provide funds for land acquisition and conservation easements in targeted areas.

The SDWB also prepares the State's Water Quality Plan, which is an integral component of the Hawai'i Water Plan. The purpose of the Water Quality Plan is to ensure the protection of human health and ecological systems by outlining a path forward to protect, restore, and enhance water quality in Hawai'i. It describes the DOH water programs administered by its water branches that are responsible for protecting the State's surface and groundwater quality. The Water Quality Plan will be completed by 2016.

### 3.1.3 Wastewater Branch

If not disposed of or treated properly, wastewater can pollute surface and groundwater. The WWB's mission is to ensure that wastewater is properly treated and disposed of without contaminating or polluting water resources or posing a risk to public health and safety. The WWB is divided into two sections: the Construction and Operations Section and the Planning and Design Section. The Construction and Operations Section regulates and enforces existing wastewater systems in accordance with HAR Section 11-62 (Wastewater Systems) and also performs annual operation and maintenance inspections of wastewater treatment plants. The Planning and Design Section reviews and approves new wastewater systems, water reclamation facilities, and projects and also issues individual permits for wastewater sludge reuse facilities. Additionally, the Planning and Design Section assists with performing land use reviews and managing the Clean Water State Revolving Fund (CWSRF) program.

The CWSRF program provides financial assistance for the construction of water pollution control projects necessary to prevent contamination of groundwater and coastal water resources and to protect and promote the health, safety, and welfare Hawai'i's residents. The program provides low interest loans to local communities to construct point source and NPS water pollution control projects. Projects include replacement of cesspools with septic tanks or aerobic treatment units (ATUs), remediation of stormwater runoff, and the capping and closure of municipal solid waste landfills.



**Figure 5.** Department of Health water branches responsibilities that pertain to nonpoint source pollution management

The DOH, and particularly the WWB, is focusing efforts on eliminating cesspools, which are thought to be a major source of NPS pollution in Hawai'i. (See Chapter 1 for more information on cesspools and associated NPS pollutants.) The WWB is working with the new administration to update its administrative rules (HAR Section 11-62) and evaluate its statutes (HRS Chapter 322, Nuisances; Sanitary Regulations and Chapter 342D, Water Pollution) to ban the construction of new cesspools, and will be certifying cesspools qualified for upgrades and conversions under Act 120, which, beginning in 2016, will provide tax credits to homeowners seeking to replace their cesspools. Replacing cesspools with improved treatment systems like ATUs will not only improve water quality, but will enable the WWB to shift its inspection resources from failing cesspools to upgraded OSDS. This effort will create a path for the State to meet its CZARA Section 6217 OSDS management measure requirements and will involve collaboration between the WWB, PRC Program, and CZM Program. The WWB also is providing technical assistance to the PRC Program with implementing Section 319-funded cesspool replacement projects from 2015 to 2020.

The WWB also oversees Individual Wastewater System (IWS) engineers, whose salaries support the PRC Program's Section 319(h) match obligations. The IWSs are responsible for the review and approval of plans and specifications for wastewater systems, construction inspections, and regulation of individual wastewater systems in the State. In 2014, the IWSs conducted 207 plan reviews on Kaua'i, 200 reviews on O'ahu, 274 reviews on Maui, and 839 reviews on the Big Island.

### **3.1.4 Environmental Planning Office**

The Environmental Planning Office reviews and disseminates land use and planning documents, tracks environmental legislation, provides Water Quality Standards maps and Geographic Information System (GIS) support, reports on environmental indicators, and assists with public outreach on the DOH's environmental programs. In addition, the Environmental Planning Office participates in Hawai'i's CZM Program and assists the SDWB in preparing the State's Water Quality Plan.

### **3.2 Office of Planning, Department of Business, Economic Development and Tourism**

Within DBEDT, the Office of Planning oversees the State's CZM Program, whose purpose is "to provide for the effective management, beneficial use, protection, and development of the coastal zone." The CZM Program serves as the State's coastal resource management policy umbrella, providing a common platform for state and county efforts concerning land and water uses. It also collaborates with federal, state, and local agencies to address coastal issues through stewardship, planning, permitting, education and outreach, policy development, and policy implementation.

The Office of Planning co-implements the CNPCP with the DOH to prevent and reduce NPS pollution in the State's coastal areas. The purpose of the CNPCP is "to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters, working in close conjunction with other State and local authorities." Hawai'i's CNPCP is currently under conditional approval from the EPA and NOAA. Developing and implementing a fully approved CNPCP are priorities

for the CZM and PRC Programs, and are key milestones of the State's NPS Management Plan. Under collaboration between DBEDT and the DOH, and full approval from the EPA and NOAA, the CNPCP will enable the State to implement a statewide coastal zone program that effectively protects its coastal zone resources, including water quality.

The CZM Program also promotes the development of watershed-based plans. The CZM and PRC Programs jointly developed the [Hawai'i Watershed Guidance](#) in 2010, which provides interested community groups with tools to develop effective watershed-based plans. In addition to outlining appropriate practices to include in watershed-based plans, the Hawai'i Watershed Guidance identifies the CNPCP management measures for major sources of coastal NPS pollution, including agriculture, forestry, urban areas, marinas, hydromodifications, and wetlands. It also describes BMPs to implement these management measures, which are implemented and enforced by relevant government agencies and monitored and tracked by the Office of Planning and PRC Program.

Another major component of the CZM Program is the [Ocean Resources Management Plan](#) (ORMP), which was updated in July 2013 to continue its mission to advance a place-based approach to management of ocean resources in Hawai'i. Specifically, the ORMP sets priorities for the management of Hawai'i's ocean and coastal resources, identifies responsible agencies and resources, and provides methods for performance measures and reporting. The CZM Program and the PRC Program will use the ORMP to help track CNPCP management measure implementation in the State's coastal zone (see Chapter 5, Goal 4).

### **3.3 Department of Land and Natural Resources**

The Department of Land and Natural Resources (DLNR) is the lead State agency responsible for protecting and conserving Hawai'i's unique and natural, cultural and historic resources held in public trust for current and future generations of the people of Hawai'i. DLNR manages public lands, water resources, ocean waters, navigable streams, and coastal areas, and therefore plays an important role in protecting water quality. There are 10 divisions and offices within DLNR, as well as several programs supported by DLNR, which participate in water quality and water resources management.

#### **3.3.1 Division of Forestry and Wildlife**

The Division of Forestry and Wildlife (DOFAW) manages State-owned forests, natural areas, public hunting areas, and plant and wildlife sanctuaries. Many of DOFAW's programs cover watershed protection and restoration to protect Hawai'i's unique and fragile ecosystems. DOFAW's efforts to protect the State's land and water resources play a critical role in NPS pollution control, particularly with respect to preventing and reducing soil erosion on conservation lands. DOFAW also implements several conservation programs aimed at protecting rare and endangered plants and animals and also administers several landowner assistance programs to protect forest, wildlife, and water resources.

Through the State’s Natural Area Reserve Special Fund, DOFAW provides support for the Watershed Partnerships Program, which provides technical and financial support for the implementation of watershed management plans to protect forested areas of watersheds. As a result of the Watershed Partnerships Program, there are currently eleven watershed partnerships, which comprise the Hawai’i Association of Watershed Partnerships (HAWP). More information about HAWP can be found below in Section 3.6. Because the PRC Program supports watershed protection and restoration, it assists DOFAW with the annual Watershed Partnerships Program request for proposals (RFP).

### **3.3.2 Division of Aquatic Resources**

Because polluted runoff directly affects Hawai’i’s marine and freshwater resources, the Division of Aquatic Resources (DAR) is invested in preventing and reducing NPS pollution. DAR’s mission is to manage, conserve, and restore the State’s aquatic resources and ecosystems. DAR designates and oversees the State’s Marine Life Conservation Districts and manages the State’s fisheries. In addition, DAR is the lead agency responsible for coordinating Hawai’i’s coral reef management efforts, which addresses major threats to coral reefs, including land-based pollution, in two priority areas—South Kohala and West Maui. The DOH participates in the State’s Coral Reef Working Group, which is led by DAR.

DAR also participates in water quality assessments with the DOH. Recently, DAR and the CWB worked together to conduct the 2013-2014 National Rivers and Streams Assessment on Kaua’i and the 2012 National Lakes Assessment on O’ahu. DAR and CWB will continue to coordinate water quality monitoring efforts for the State’s inland waters.

### **3.3.3 Division of Boating and Ocean Recreation**

The Division of Boating and Ocean Recreation (DOBOR) manages and promotes statewide ocean recreation and coastal area programs pertaining to ocean waters and navigable streams, including 21 small boat harbors, 54 launching ramps, 13 offshore mooring areas, 10 designated ocean water areas, and 108 designated ocean recreation management areas. Boating and recreational activities can contribute to NPS pollution problems and negatively impact marine ecosystems. DOBOR is the primary agency responsible for reducing and preventing polluted runoff in marinas by implementing the CNPCP Marinas and Recreational Boating management measures.

### **3.3.4 Commission on Water Resource Management**

The Commission on Water Resource Management (CWRM) was established by the State under HRS 174C (the State Water Code) in order to protect and enhance Hawai’i’s water resources through wise and responsible management. CWRM’s primary task, along with other state agencies and counties, is to “formulate an integrated and coordinated program for the protection, conservation, and management of waters in each county” (HRS 174C-31(d)). CWRM prepares the Water Resource Protection Plan, whose objective is to protect and sustain ground and surface water resources, watersheds, and natural

stream environments. The plan includes water quality and watershed management, including point source and NPS pollution control.

### **3.3.5 Soil and Water Conservation Districts**

Agricultural activities can contribute NPS pollution to surface and groundwater. To control polluted runoff from agricultural areas in Hawai'i, 16 Soil and Water Conservation Districts (SWCDs) administer and conduct soil and water conservation planning, which includes nutrient management plans, soil retention plans, and irrigation management plans. While DLNR provides the SWCDs with funding and administrative support, the SWCDs often work with other federal and state agencies to implement conservation practices.

### **3.4 Department of Agriculture**

Agriculture can contribute nutrients, sediment, pesticides, and other pollutants to waters in Hawai'i. In order to conserve soil and water resources, the Hawai'i Department of Agriculture (HDOA) requires farmers who lease State lands zoned for agriculture to develop and implement conservation plans. By implementing the conservation practices in these plans, farmers can help prevent and reduce NPS pollution.

HDOA also implements measures relating to safe and effective pesticide use, which can reduce pesticide concentrations in State waters. In addition, HDOA prepares the Agricultural Water Use and Development Plan, which is a component of the Hawai'i Water Plan and acts as the State's long-range management plan for State and private agricultural water use and supply.

### **3.5 Counties**

Each of the State's four counties address point source and NPS pollution through their respective planning, permitting, public works, water supply, and environmental services departments and through policies outlined in county general plans and specific community development plans. County general plans provide guidelines within each county for decision-making regarding future growth and development and protection of natural and cultural resources. In addition, each county prepares a County Water Use and Development Plan, which is a component of the Hawai'i Water Plan that sets forth water use and allocations within each county. Counties are also responsible for stormwater management and erosion control during development to protect sensitive natural features. Counties implement several CNPCP management measures, particularly those pertaining to controlling runoff in urban areas.

### **3.6 Hawai'i Association of Watershed Partnerships**

HAWP was established in 2003 to build public and private support for watershed protection. HAWP comprises eleven island-based watershed partnerships that work collaboratively with more than 71

public and private partners on six islands to protect over 2.2 million acres of forested watershed lands, which are vital to maintaining water quality and water supply in Hawai'i. HAWP's mission is to increase the effective management and protection of mauka (upper elevation) watershed areas by raising the capacity of watershed partnerships, facilitating sharing of watershed management expertise, building public support for protecting watershed values, and developing sustainable funding sources. Many watershed partnerships actively manage for feral ungulates and invasive species and restore watersheds with native and endangered plant species. These efforts not only protect native ecosystems, but also the State's water resources.

HAWP has watershed partnerships within all four of the DOH's priority watersheds. The Kaua'i Watershed Alliance includes portions of the Hanalei Bay watershed, the Ko'olau Mountain Watershed Partnership includes higher elevation portions of the He'eia and Waimanalo watersheds, and the West Maui Mountains Watershed Partnerships includes higher elevation areas of the West Maui Watershed. In the past, the PRC Program awarded the Ko'olau Mountain Watershed Partnership Section 319 Project Funds for ungulate fencing, and the PRC Program is currently collaborating with the West Maui Mountains Watershed Partnership and other partners to develop a watershed-based plan for West Maui.

### **3.7 Federal Agencies**

#### **3.7.1 U.S. Environmental Protection Agency**

The mission of the EPA is to protect human health and the environment. Hawai'i's DOH supports the EPA's FY 2014-2018 Strategic Plan to "protect and restore waters to ensure that drinking water is safe and sustainably managed, and that aquatic ecosystems sustain fish, plants, wildlife, and other biota, as well economic, recreational, and subsistence activities" by focusing on the following objectives of the EPA's Strategic Plan: clean and safe water, protection of human health, and protection and improvement of water quality.

The EPA delegates CWA and SDWA programs to the DOH and provides grant funding to achieve these goals, including the PRC Program and CNPCP (under CWA Section 319); the Monitoring and Analysis, Engineering (NPDES permitting), and Enforcement CWB programs (under CWA Section 106); and the Safe Drinking Water Branch programs (under the SDWA). The EPA also provides funding for the DOH's CWSRF and DWSRF loan programs to support drinking water, clean water, and wastewater infrastructure improvements. The EPA has direct authority over managing the federal Underground Injection Control program and, under the SDWA, over enforcement of the federal ban of large capacity cesspools.

#### **3.7.2 National Oceanic and Atmospheric Administration**

NOAA administers the State's CZM Program as part of its mission "to conserve and manage coastal and marine ecosystems and resources." NOAA (under CZARA Section 6217) and the EPA jointly administer

and fund the CNPCP. In addition, NOAA also administers the National Estuarine Research Reserve System, which will support coastal management at a proposed site (He'eia) in Hawai'i. In addition, NOAA administers funding for the development of West Maui's watershed-based plan, which the PRC Program is providing feedback on as part of the West Maui Ridge to Reef Initiative Funding and Agency Support Team (FAST).

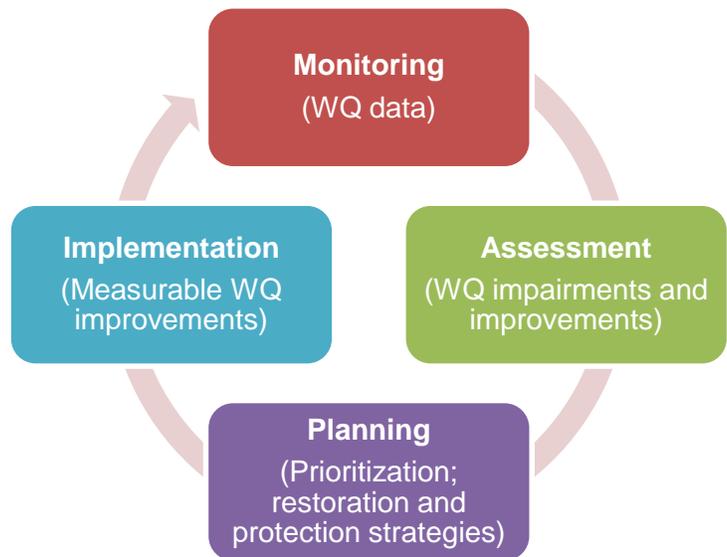
### **3.7.3 U.S. Department of Agriculture Natural Resources Conservation Service**

The Natural Resources Conservation Service (NRCS) provides financial and technical assistance to farmers and ranchers to develop and implement conservation practices, including conservation plans. NRCS administers many different Farm Bill programs including the Environmental Quality Incentives Program (EQIP), the Conservation Technical Assistance Program, and the National Water Quality Initiative (NWQI), which provide funding for on-the-ground conservation support to improve water quality. NRCS has partnered with the EPA on the NWQI to strategically target EQIP funds to address agricultural sources of water pollution, including nutrients, sediment, pesticides, and pathogens, with the goal of demonstrating water quality improvements. In Hawai'i, the NWQI is currently being implemented in the Hilo Bay watershed on the Big Island. The NRCS and the PRC Program plan to coordinate activities and work together to develop a statewide strategy to better address NPS pollution from agriculture over the next five years (See Chapter 5, Goal 4).

# Chapter 4: Coordinated Approach to Nonpoint Source Pollution Management

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Hawai'i relies on coordination between federal, state, and local water quality management programs and partners to effectively prevent and reduce NPS pollution. Coordinating efforts among agencies and using all the State's tools, including water quality monitoring and assessment, watershed prioritization, Total Maximum Daily Loads (TMDLs), watershed-based plans, and Coastal Nonpoint Pollution Control Program (CNPCP) management measures, will increase the State's effectiveness in controlling NPS pollution and demonstrate the State's commitment to addressing NPS pollution on a statewide basis. This chapter highlights these collaborative efforts, beginning with the State's overarching approach to NPS management, followed by specific programs, tasks, and plans that involve partnerships.



**Figure 6.** Cyclical approach to nonpoint source management in Hawai'i. WQ = water quality

## 4.1 Overview

In order to address NPS pollution, the State uses a cyclical approach (Figure 6). First, the State conducts water quality monitoring to obtain water quality data. An assessment of this data determines where impairments exist and what pollutants are causing these impairments. Based on these water quality assessments, the State develops and prioritizes goals and strategies to address water quality impairments. Finally, the State implements these strategies to reduce pollutant loads and achieve water quality improvements, which are tracked by continued water quality monitoring and assessment. Partnerships and coordination keep this process running smoothly. Each component of the approach will be discussed in the following sections.

## 4.2 Monitoring

The Department of Health (DOH) Clean Water Branch (CWB) and Safe Drinking Water Branch (SDWB) are responsible for beach, surface, and groundwater quality monitoring in the State (Figure 7).



**Figure 7.** Water quality monitoring and assessment conducted by the Department of Health Clean Water Branch (CWB) and Safe Drinking Water Branch (SDWB).

The goal of the CWB’s monitoring program is to enhance water quality monitoring efforts to better assess and identify impaired water bodies and restore their beneficial uses. The CWB focuses its monitoring efforts on beach water quality monitoring, using the Comprehensive Monitoring Strategy for the State of Hawai’i (2010) to guide its efforts. Monitoring is conducted at beach sites and nearshore waters weekly throughout the State at approximately 15 sites on Kaua’i, 24 sites on O’ahu, 15 sites on Maui, and 31 sites on the Big Island. The CWB’s routine monitoring efforts focus on identifying bacteria (specifically, *Enterococcus* and *Clostridium perfringens*) due to their potential adverse impacts on public health. Water chemistry testing is also conducted at certain sites, with samples analyzed for total nitrogen, ammonia, nitrate, nitrite, total phosphorous, total suspended solids (TSS), and chlorophyll *a*. Water conditions such as pH, salinity, turbidity, temperature, and dissolved oxygen are also recorded. The resulting monitoring data is analyzed to determine the health of the State’s waters (see Section 4.3, below).

Currently, the CWB Monitoring and Analysis Section and the PRC Program use the EPA’s Sampling and Analysis Guidance and Template (2000) to guide their cooperative stream monitoring efforts. The two sections assist each other with water quality monitoring projects and will continue to coordinate monitoring efforts over the next five years.

The CWB employs a coordinated approach to water quality monitoring and has partnered with universities and federal, state, and local agencies to conduct both monitoring and assessment. For the 2013 and 2014 [National Rivers and Stream Assessment](#), the CWB and Division of Aquatic Resources (DAR) collaborated to assess river and stream conditions (e.g., water quality, biological communities, fish habitat) for 50 rivers and streams on Kauaʻi. The CWB and DAR also worked together to assess the condition of two lakes on Oʻahu for the 2012 [National Lakes Assessment](#). The CWB and DAR will continue to coordinate water quality monitoring efforts for inland waters in Hawaiʻi over the next five years.

The CWB also participates in the National Coastal Condition Assessment, a national survey of coastal waters, to assess Hawaiʻi's bays and estuaries. The coastal surveys are performed mostly through contracts with the University of Hawaiʻi (UH). The CWB has also partnered with Stanford University and the UH Water Resources Research Center (WRRC) to conduct microbial source tracking at bays and beaches on Kauaʻi. In 2016, the CWB will collaborate with NOAA's coral reef monitoring program to conduct water chemistry sampling of reef sites to complement NOAA's coral habitat monitoring.

The CWB also assists other organizations with groundwater monitoring. From 2013-2014, the CWB partnered with the SDWB, UH WRRC, the U.S. Geological Survey (USGS), and the County of Maui to conduct wastewater source tracking in West Maui. The CWB has also coordinated studies with the USGS that included surveys of endocrine disruptors in fish, pharmaceutical monitoring, and deployment of semipermeable membrane devices to determine nutrient and wastewater indicators in West Maui.

The PRC Program and the Monitoring and Analysis Section plan to establish partnerships with other State and local groups, such as Hui O Ka Wai Ola in West Maui, to monitor surface waters to identify and track water quality improvements in DOH priority watersheds. These monitoring efforts will help the PRC Program report progress toward its goals and demonstrate the effectiveness of the CWB's efforts.

The CWB Monitoring and Analysis Section also responds to citizen complaints and is currently monitoring the Kahaluʻu Watershed on Oʻahu due to concerns over waters contaminated by cesspool effluent. The CWB is also addressing water quality concerns in the Mahaulepu Watershed on Kauaʻi due to a proposed dairy farm.

The SDWB also conducts water quality monitoring and focuses its monitoring efforts on groundwater, which is the source of most of the State's drinking water. SDWB monitors public drinking water, non-drinking water wells, and fresh water springs for contaminants of concern, such as herbicides, pesticides, industrial solvents, and fuels. The SDWB Groundwater Protection Program maintains a [Groundwater Contamination Viewer](#), which features maps showing wells with detectable levels of groundwater contamination. Statewide drinking water quality monitoring is funded through the federal 106 grant and DWSRF funds.

Because the SDWB focuses its monitoring efforts on groundwater quality for safe drinking and CWB focuses its monitoring efforts on surface water quality, the two programs generally do not sample for the same pollutants and therefore will continue to maintain separate monitoring and assessment programs. However, the SDWB and PRC Program plan to collaborate on a wellhead or source water protection project within the next five years, and the CWB will identify a priority watershed for protection within the next five years.

### 4.3 Assessment

Water quality assessment is a key step in managing NPS pollution in Hawai'i. The State uses its surface and groundwater quality assessments to guide its water quality restoration and protection strategies. Every two years, the CWB conducts a statewide surface water quality assessment and prepares the State of Hawai'i Water Quality Monitoring and Assessment Report ([Integrated Report](#)), which is available to the public. The Integrated Report analyzes water quality data from readily available data sources to determine the quality of the State's waters relative to the State's water quality standards and includes a list of waters that do not attain the State's numeric water quality criteria (referred to as the Section 303(d) list of impaired waters). Through the Integrated Report, the CWB also removes, or delists, waters from the Section 303(d) list of impaired waters when these waters attain water quality standards.

The 303(d) program is a major driver for the CWB's work. By identifying impaired waters and ranking them based on the severity of pollution and beneficial uses, the 303(d) list drives the CWB's watershed prioritization and planning efforts. In addition, by identifying impaired waters and associated pollutants, the 303(d) list serves as a baseline and mechanism to assess changes in water quality every two years. The PRC Program will utilize data collected to support the Integrated Report to identify and track water quality trends in priority watersheds.

Water quality impairments on the 303(d) list also may result in specific requirements under the NPDES or CWA Section 401 Water Quality Certification to address the pollutants causing impairments. Specific requirements may be included in NPDES permits to address the impact of a discharge on an impaired waterbody.

The Monitoring and Analysis Section also uses the 303(d) list to develop Total Maximum Daily Loads ([TMDLs](#)). A TMDL is a calculation of the maximum amount of a pollutant a waterbody can receive and still safely meet water quality standards. To keep waters safe and clean, the CWA requires the State to develop TMDLs for waterbodies that do not meet water quality standards. TMDLs therefore serve as a strategy to restore Hawai'i's waters. A more detailed description of TMDLs is provided in Section 4.4.3.

The SDWB conducts groundwater quality assessments to ensure the safety of the State's drinking waters. Through the SDWB's Source Water Assessment and Protection program, the SDWB delineates boundaries of areas providing source waters for public water systems. In addition, the SDWB identifies the origins of regulated and unregulated contaminants in these delineated areas to determine the

susceptibility of public water systems to contaminants. These assessments will assist the SDWB and PRC Program in identifying areas for potential water quality protection and efforts.

#### **4.4 Planning**

Because the CWB's Integrated Report identifies water quality impairments and pollutants of concern, it serves as an important planning document for watershed prioritization, watershed-based plans, TMDLs, and further water quality monitoring efforts. The PRC Program also develops an annual work plan that is specifically designed to address NPS pollution and achieve the Program's mission. With the completion of this updated NPS Management Plan, the Program's work plan will be redeveloped and outline specific tasks that the PRC Program will conduct pursuant to the goals and milestones identified in this plan.

##### **4.4.1 Watershed Prioritization**

Watershed prioritization is an important part of the State's planning process to reduce and prevent NPS pollution and is one of the new 303(d) Program Vision goals (see Section 4.4.4, below). Focusing state efforts and resources on priority watersheds has the potential to maximize water quality benefits. The DOH selected the Waimanalo, Hanalei Bay, and West Maui watersheds as priority watersheds in 2007 and He'eia watershed as a priority watershed in 2012. To date, significant investment has been made by federal, state, and local agencies and community groups in these watersheds, and water quality improvements have been reported in He'eia in the 2014 Integrated Report.

The CWB is currently creating a prioritization matrix to prioritize its watersheds based on specific criteria. Water quality impairments, past and potential water quality benefits of Section 319 implementation projects in a watershed, and other factors will be considered during this prioritization process. As part of this plan's goals (Chapter 5, Goal 2), new priority watersheds will be identified for 2020-2025, and the PRC Program and its partners plan to work together to leverage technical and funding resources to improve water quality in priority watersheds.

##### **4.4.2 Watershed-based plans**

Watershed-based plans are vital for identifying strategies and priority projects that address NPS problems in specific watersheds. In fact, watershed-based planning is so instrumental to mitigating Hawai'i's water quality and NPS pollution problems that the CZM and PRC Programs developed the [Hawai'i Watershed Guidance](#) in 2010 to provide state-specific assistance to develop effective watershed plans. (See Chapter 3, Section 3.2 for more information on this guidance.)

Approved watershed-based plans include the appropriate information to drive sound investments with a likelihood of contributing to water quality improvements. These plans must contain the EPA's nine minimum elements of an effective watershed plan, which are summarized as follows: 1) identify causes and sources of pollution; 2) estimate pollutant loading into the watershed and the expected load reductions; 3) describe management measures that will achieve load reductions and targeted critical

areas; 4) estimate amounts of technical and financial assistance and relevant authorities needed to implement the plan; 5) develop an information/education component; 6) develop a project schedule; 7) describe the interim, measurable milestones; 8) identify indicators to measure progress; and 9) develop a monitoring component. There are currently 12 approved watershed-based plans in Hawai'i: Hanalei Bay (2014), Nawiliwili (2004), Ala Wai (1998), Honouliuli (2013), Ko'olaupoko (2007), Kapakahi Stream (2006), Ma'ili'ili (2014), Wailupe Stream (2010), West Maui (Wahikuli-Honokowai, 2012), Kaho'olawe (Kaulana and Hakioawa, 2006), Pelekane Bay (2005), and Wai'ula'ula (2011).

The PRC Program relies on watershed-based plans to direct Section 319 implementation project funds. In addition, when targeting Section 319 Project Funds, the PRC Program relies on watershed-based plans to identify priority restoration and protection projects that have the greatest likelihood to contribute to water quality improvements. Because of the importance of watershed-based plans, the PRC Program will assist in the development of three watershed-based plans through partnerships between federal, state, and local agencies and organizations over the next five years (see Chapter 5, Goal 2).

#### **4.4.3 Total Maximum Daily Load**

Another important planning document developed by the CWB to address impaired waters is a water pollution reduction plan, or Total Maximum Daily Load (TMDL). As defined earlier, in Section 4.3, a TMDL is a calculation of the maximum amount of a pollutant a waterbody can receive and still meet water quality standards. To keep waters safe and clean, the federal CWA requires the State to develop TMDLs for water bodies that do not meet its water quality standards and are listed as Section 303(d) impaired waters. There are currently multiple TMDLs for 19 different waterbodies in Hawai'i (Appendix C), which were developed by the DOH and EPA.

TMDLs serve as a strategy and guide to control sources of pollution and restore Hawai'i's waters. The TMDL process begins with the CWB's water quality assessments, which identify impairments and pollutants causing the impairments. Water bodies for TMDL development are prioritized (low, medium, high) based on the number of parameters not attaining State water quality standards, severity of exceedances, and resource availability. During the development of the TMDL, the CWB determines pollutant loads from permitted point source discharges (wasteload allocation) and from nonpoint sources (load allocation). Once the TMDL is completed, it is implemented through watershed-based plans and National Pollutant Discharge Elimination System (NPDES) permits. TMDLs are periodically monitored and assessed and are enforced by the CWB Enforcement and Compliance Section.

TMDLs are open to public comment to ensure that landowners, local government agencies, and the public are included in their development. The time frame for establishing TMDLs is eight to 13 years from the date of the original listing per EPA guidance (U.S. EPA Watershed Branch 2005).

The PRC Program can implement TMDLs to reduce NPS pollution if the TMDL has an effective implementation plan or a watershed-based plan. Going forward, the CWB plans to improve and increase the number of implementable TMDL plans by integrating TMDL development with watershed-based planning to create TMDL implementation, or TMDL+, plans. The TMDL+ plan will meet both the EPA's TMDL requirements and the nine elements for an effective watershed-based plan as described in Section 4.4.2. These plans will include point source and NPS reduction implementation strategies and will provide the CWB with a clear road map for implementing projects to address both point source and NPS pollution. The CWB will complete its first TMDL+ plan for the Waikele watershed on O'ahu in 2017, which is described in more detail in Chapter 5, Goal 2.

#### **4.4.4 303(d) Program Vision and 319(h) Integration**

In December 2013, the EPA released "A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program," a new 303(d) Program Vision to enhance the efficiency of the 303(d) program by allowing more flexibility in using available tools to address water quality problems. The new vision identifies six goals for 303(d) program management: Engagement, Prioritization, Protection, Integration, Alternatives, and Assessment. Beginning in 2014, the CWB began implementing the Engagement goal, which calls for actively engaging the public and other stakeholders to improve and protect water quality via communication, consistent feedback, and greater understanding of 303(d) program objectives throughout the State. The State continues to engage stakeholders and inform them of the current movement towards the new vision and goals of the 303(d) program.

Because the 303(d) Program Vision and Section 319 program have overlapping goals, the CWB is seeking ways to improve integration among these programs. Watershed-based plans are one of the available tools that both programs utilize to address water quality programs. In 2015, all CWB sections and programs began implementing the Prioritization goal by developing a prioritization matrix, which will be utilized by the CWB to focus and integrate its monitoring, assessment, planning, and Section 319 implementation efforts. The CWB has developed strategies to integrate the remaining four 303(d) Program Vision goals (Protection, Integration, Alternatives, and Assessment) with the State's NPS goals, which can be found in Chapter 5, Goals 2 and 4.

#### **4.4.5 Coastal Nonpoint Pollution Control Program**

The Office of Planning's Coastal Zone Management (CZM) Program and DOH's PRC Program jointly implement the CZARA Section 6217 Coastal Nonpoint Pollution Control Program (CNPCP). The CNPCP identifies management measures for major sources of coastal NPS pollution, including agriculture, forestry, urban areas, marinas, hydromodifications, and wetlands. The CNPCP also requires the State to implement administrative elements, which include public participation, administrative coordination, monitoring and tracking, and enforceable policies and mechanisms, such as DOH's authority to enforce the State's water quality standards.

Management measures are defined in CZARA Section 6217 as “economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint source pollution, which reflect the greatest degree of pollutant reduction available through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives.” Management measures are implemented and enforced statewide by respective state and county agencies. Brief descriptions of management measures can be found in Table 2 and are described in greater detail in the 2010 update to the [CNPCP management measures](#) and in the [Hawai'i Watershed Guidance](#).

Nearly all of CNPCP management measures have been approved by the EPA and NOAA, with only six management measures for New Development, New and Operating OSDS, and Roads, Highways, and Bridges requiring approval. In addition, one administrative element, Monitoring and Tracking, still requires approval by NOAA and the EPA. Developing a fully approved CNPCP is a priority for the State, with a key goal being the implementation of the State's coastal zone program. The CZM and PRC Programs are working together to obtain full approval of the CNPCP by 2017 (Chapter 5, Goal 4).

#### **4.4.6 Outreach and Partnerships**

The State has also re-prioritized its planning efforts with respect to education and outreach. Until recently, the PRC Program focused its NPS pollution education efforts on elementary school students through Section 319 projects that encouraged behavior change. Although the PRC Program still provides educational materials to youth through an outreach event at the Waikiki Aquarium and through donation of water quality-themed coloring books to schools, it is refocusing its outreach efforts.

To improve partnerships throughout the State and to leverage resources, policies, and tools with key stakeholders, the PRC Program is focusing its outreach activities on federal, state, and county agencies to identify and implement projects that will help the State achieve its water quality goals. The DOH is already aligning its priorities and goals with counties, federal agencies, other State departments, and within its water branches to more efficiently and effectively plan and implement NPS strategies and water quality projects. Partnerships and collaboration among its federal, state, and local partners resulting from outreach efforts will enable the State to achieve its NPS management goals.

#### **4.5 Implementation**

Water quality improvements will only occur if the plans that identify the actions necessary to restore water quality are implemented. In addition to implementing NPS projects arising from watershed-based plans and TMDL+ plans, the State will also leverage its settlement agreements with dischargers to fund Supplemental Environmental Projects (SEPs) when appropriate.

#### **4.5.1 Watershed Restoration and Protection Projects**

The PRC Program targets its CWA Section 319 funding in NPS control projects with the annual release of its RFP. The RFP solicits proposals for water quality restoration and protection projects designed to achieve pollutant load reductions necessary to contribute to water quality improvements. These projects are selected from approved watershed-based plans, with an emphasis on projects located in priority watersheds. An evaluation committee reviews and scores proposals to fund the most effective, technically sound projects.

Once the awarded Section 319 project is underway, the PRC Program tracks progress and performance through reviewing quarterly reports and deliverables and conducting site visits. Sediment and nutrient load reductions achieved by project BMPs are reported in the EPA's national Grants Reporting and Tracking System (GRTS). The PRC Program also reports progress and pollutant load reductions through its annual End of the Year Report as well as the PRC Viewer, which serves as the central repository for the Program's stream water quality monitoring data, NPS implementation project locations, pollutant load reductions, and other relevant information regarding implementation activities.

The PRC Program requires its Section 319 project contractors to conduct community education and public outreach. This helps to ensure that the local community supports these projects and will continue to maintain them after the contract is completed. Section 319-supported outreach includes field days and workshops for farmers, volunteer days to replace invasive plants with native plants to stabilize streambanks and riparian areas, educational workshops and activities for students of all ages, community talk story gatherings, and educational guides and tools, including a widely distributed raingarden manual. Engaging the public and volunteers not only directly helps with controlling polluted runoff, but has the potential to influence behavior changes that provide long-lasting benefits to water quality in Hawai'i.

#### **4.5.2 Supplemental Environmental Projects**

The State also implements supplemental environmental projects (SEP), which are funded through settlement agreements between the State and dischargers who violate the CWA or the terms of their permits. The PRC Program and CWB Enforcement and Compliance Section aim to leverage Supplemental Environmental Project settlement funds to further reduce NPS pollution. In 2014, the CWB funded the development of the Ma'ili'ili Watershed Management Plan through SEP settlement funds, and in 2015 the CWB will begin implementing this watershed plan and use additional SEP settlement funds to restore a reservoir with native vegetation in Ma'ili'ili watershed.

**Table 2.** Coastal Zone Act Reauthorization Amendments Section 6217 management measures

Category	Management Measure	Description
Agriculture	Erosion and Sediment Control	Apply conservation and management practices to minimize the delivery of sediment to surface waters or install practices to settle solids for storms up to a 10-year, 24-hour frequency.
	Wastewater and Runoff from Confined Facility	Limit discharge by containing wastewater and managing stored runoff and solids through a waste utilization system.
	Nutrients	Develop and implement a nutrient management plan to apply nutrients to achieve realistic yields, improve timing of application, and use technology to increase efficiency.
	Pesticides	Use integrated pest management strategies that minimize chemical uses, manage pesticides efficiently, use anti-backflow devices on hoses, and enhance degradation or retention by increasing organic matter in the soil or manipulating soil pH.
	Grazing	In sensitive areas, implement livestock exclusion, provide stream crossings, provide alternative drinking locations, locate salt and shade away from sensitive areas, and use improved livestock management to reduce waste loading. In other areas, implement conservation practices and/or maintain lands in accordance to plans.
	Irrigation Water	Operate irrigation to meet needs and use backflow preventers when chemigation is used.
Forestry	Preharvest Planning	Perform advance planning for harvesting.
	Streamside Management Zone	Establish a management zone along surface waters to provide streambank stability.
	Road Construction/ Reconstruction	Follow planning and designs developed during preharvest planning, install drainage structures, guard against sediment loads when installing stream crossings, protect waters from materials when clearing, use favorable practices on disturbed soils, and avoid constructing new roads in streamside management zones.
	Road Management	Avoid using roads during wet conditions when not designed for the conditions, evaluate need to close roads, remove drainage if potential to plug without maintenance, install practices on temporary roads, inspect roads, conduct maintenance, and properly maintain permanent stream crossings.

Category	Management Measure	Description
Forestry (continued)	Timber Harvesting	Follow planning developed during preharvest planning, install landing drainage structures where practicable, construct landings away from slopes, protect stream channels from debris, and use appropriate areas for chemical storage.
	Site Preparation and Forest Regeneration	Select a method of regeneration suitable for site conditions, conduct mechanical planting on the contour of erodible terrain, do not conduct mechanical preparation or regeneration in streamside management zones, protect surface waters from debris, suspend operations during wet conditions if equipment causes excessive soil disturbance, locate windrows at a safe distance from drainages, conduct bedding operations in high water table areas, and protect small drainages from equipment.
	Fire Management	Prescribe fire or suppress wildfire in a manner that reduces potential NPS pollution of surface waters.
	Revegetation of Disturbed Areas	Reduce erosion and sedimentation by rapid revegetation of areas disturbed by harvesting operations or road construction.
	Forest Chemical Management	Use chemicals when necessary, conducted by skilled applicators, carefully prescribe the type and amount of pesticides, establish and identify buffer areas for surface waters, inspect the mixing and loading process, calibrate equipment, identify appropriate weather conditions, and immediately report accidental spills.
	Wetlands Forest Management	Plan, operate, and manage forestry activities to adequately protect the aquatic functions of forested wetlands.
Urban Areas	New Development	By design or performance, reduce the average annual total suspended solid loadings by 80% or reduce the post-development loadings of solids so that the average annual loadings are no greater than pre-development loadings, and maintain post-development peak runoff rate and average volume at levels similar to pre-development levels.
	Watershed Protection	Develop a watershed protection program to avoid conversion of areas susceptible to erosion, preserve areas that provide water quality benefits, and protect the natural integrity of waterbodies.

Category	Management Measure	Description
Urban Areas (continued)	Site Development	Plan, design, and develop sites to protect areas that provide important water quality benefits, limit increases of impervious areas, limit land disturbance activities, and limit disturbance of natural drainage features.
	Existing Development	Develop and implement watershed management programs to reduce runoff pollutant concentrations and volumes from existing development.
	New Onsite Disposal Systems (OSDS)	Ensure that new OSDS prevent the discharge of pollutants into ground waters, direct installation away from unsuitable areas, establish protective setbacks from surface waters, establish separation between OSDS and groundwater, and regulate nitrogen loadings where conditions indicate that excess nitrogen adversely affects surface waters.
	Operating OSDS	Establish policies to ensure that existing OSDS are maintained to prevent discharge on the ground, inspect OSDS adequately to ascertain failure, and replace OSDS to treat influent and manage nitrogen loadings.
	Pollution Prevention	Implement pollution prevention and education programs to reduce NPS pollutants generated from the following activities: improper household chemical storage, lawn and garden activities, turf management at recreational areas, improper operation of OSDS, discharge of pollutants into storm drains, commercial activities not regulated by NPDES, and improper disposal of pet waste.
	Golf Course Management	Develop and implement grading and site preparation plans to install management practices to settle solids, prevent erosion, protect areas that provide water quality benefits, avoid construction in areas susceptible to erosion, establish streamside buffers, and follow guidelines when constructing greens. Also develop and implement nutrient management guidelines, integrated pest management plans, and irrigation management practices.
	Planning, Siting and Developing Roads and Highways	Plan, site, and develop roads and highways to protect areas that provide water quality benefits, limit land disturbances to reduce erosion, and limit disturbance of natural drainage features.

Category	Management Measure	Description
Urban Areas (continued)	Bridges	Site, design, and maintain bridge structures so aquatic ecosystems are protected from adverse effects.
	Operation and Maintenance, Roads and Highways	Incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters.
	Runoff Systems for Roads, Highways and Bridges	Develop and implement runoff management systems for existing roads, highways, and bridges to reduce polluted runoff.
Marinas and Recreational Boating	Marina Flushing	Site and design marinas so tides and/or currents will aid in flushing of the site.
	Water Quality Assessment	Assess water quality as part of marina siting and design.
	Habitat Assessment	Site and design marinas to protect against adverse effects on coral reefs and other important riparian and aquatic habitat areas.
	Shoreline Stabilization	Stabilize shorelines where shoreline erosion is a serious NPS pollution problem, with a preference for vegetative methods.
	Stormwater Runoff	Implement effective runoff control strategies which include the use of pollution prevention activities to reduce the average annual loadings of total suspended solids from hull maintenance by 80%.
	Fueling Station Design	Design fueling stations to allow for ease in cleanup of spills.
	Sewage Facility Management	Install pumpout and restroom facilities where needed at new and expanding marinas to reduce the release of sewage into surface waters, design for ease of access and promote use with signage.
	Solid Waste Management	Properly dispose of solid wastes produced by marina operations to limit entry of solid wastes into surface waters.
	Fish Waste Management	Promote sound fish waste management through a combination of restrictions, education, and proper disposal of fish waste.
	Liquid Material Management	Provide and maintain appropriate storage and disposal facilities for liquid material and encourage recycling where appropriate.
	Petroleum Control	Reduce the amount of fuel and oil from bilges and fuel tank air vents entering marina and surface waters.
	Boat Cleaning	Perform cleaning operations to minimize the release of harmful solvents and cleaners to surface waters.

Category	Management Measure	Description
Marinas and Recreational Boating (continued)	Public Education	Public education should be instituted for boaters and marina operators to prevent improper disposal of pollutants.
	Maintenance of Sewage Facilities	Ensure that sewage pumpout facilities are maintained in operational condition and encourage their use.
	Boat Operation	Restrict boating activity where necessary to decrease turbidity and destruction of shallow-water habitat.
Hydromodification Activities	Physical and Chemical Characteristics of Surface Waters	Evaluate the potential effects of channel modifications on surface waters, plan and design modifications to reduce undesirable impacts, and develop an operation and maintenance program for existing modified channels.
	Instream and Riparian Habitat Restoration	Evaluate the potential effects of channel modifications on instream and riparian habitat, plan and design modifications to reduce undesirable impacts, and develop an operation and maintenance program for existing modified channels.
	Protection of Surface Water Quality and Instream and Riparian Habitat from Dams	Develop and implement a program to manage the operation of dams that assesses surface water quality and potential for improvement, and assesses significant NPS pollution problems that result from excessive surface water withdrawals.
	Eroding Streambank and Shorelines	Stabilize streambanks and shorelines where erosion is a serious NPS pollution problem, with a preference for vegetative methods, protect streambanks with the potential to reduce NPS pollution, protect streambanks from erosion due to uses, and remove artificial fill that is eroding.
Wetlands, Riparian Areas, and Vegetated Treatment Systems	Protection of Wetlands and Riparian Areas	Protect wetlands and riparian areas that are serving a significant NPS pollution abatement function.
	Restoration of Wetlands and Riparian Areas	Promote the restoration of damaged and destroyed wetlands and riparian systems in areas where they will serve a significant NPS pollution abatement function.
	Vegetated Treatment Systems	Promote the use of engineered vegetated treatment systems like constructed wetlands or vegetated filter strips where applicable.

# Chapter 5: Hawai‘i’s Five-Year Plan for Controlling Nonpoint Source Pollution

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This chapter describes the State’s five-year goals, objectives, and strategies for accomplishing its mission to reduce and prevent NPS pollution and restore and protect water quality for the benefit of people and aquatic ecosystems statewide. This five-year planning narrative also includes key milestones and desired outcomes to measure the State’s progress in meeting its goals and objectives, which are summarized in Table 3.

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***Goal 1: Assessment***  
***Identify water quality trends and waters and watersheds impaired or threatened by nonpoint source pollution***

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In order to control NPS pollution and restore and protect Hawai‘i’s waters, the State must first assess the quality of its waters. This goal details the State’s objectives and strategies for assessing water quality, starting with the development of monitoring plans and assessment methods (Objective 1) and continuing with conducting monitoring and assessments to identify water quality impairments, waterbodies that meet water quality standards, and water quality trends (Objective 2). By working towards achieving this goal, the State anticipates the following:

- ✓ Water quality monitoring plans and a standardized water quality assessment methodology are developed to guide consistent and comparable water quality monitoring efforts;
- ✓ Coastal and inland waters are monitored and assessed every two years;
- ✓ Two new inland waters are monitored and assessed;
- ✓ Waterbodies that meet water quality standards or have impairments are identified; and
- ✓ Trends in water quality are identified.

***Objective 1: Develop surface water quality assessment methods and monitoring plans to guide monitoring efforts***

To streamline water quality monitoring and assessment across the State, the CWB plans to implement a two-pronged approach. First, the CWB will complete a standardized water quality assessment methodology for marine and inland waters (Strategy A). Second, the CWB will develop watershed-specific monitoring plans to guide monitoring efforts in priority watersheds (Strategy B).

*Strategy A: Develop a standardized water quality assessment methodology to guide assessments, maintain data integrity, and promote data and information sharing within CWB*

Given the multiple uses of Hawai'i water quality standards, the CWB is developing a standardized assessment methodology (SAM) to guide its interpretation and application of the State's water quality standards. The SAM will establish consistency and transparency with respect to how data is assessed for regulatory decision-making by the CWB programs. Specifically, the SAM will standardize decision unit boundaries, sample size requirements, and sample frequency among other data requirements for water quality assessments. The SAM will be utilized to report on the status of statewide water quality and listing and delisting decisions for the State of Hawai'i Water Quality Monitoring and Assessment Report (Integrated Report) and, as such, will help guide the State's water quality restoration activities for point source and NPS pollution. Standardization of the State's assessment methods will also facilitate water quality data sharing within the CWB and with CWB partners. The PRC Program in particular will support the development of the SAM with respect to data requirements for inland waters. The SAM is scheduled for completion in 2016.

To ensure that a consistent approach is used for water quality assessments, the CWB Monitoring and Analysis Section is developing the Marine Water Quality Assessment Methodology—an implementation document based on the SAM—for the 2016 Integrated Report. The CWB Monitoring and Analysis Section and the PRC Program also will complete an Inland Water Quality Assessment Methodology based on the SAM for the 2018 Integrated Report.

*Strategy B: Develop watershed-specific monitoring plans to document water quality trends*

The CWB will continue to use the Comprehensive Monitoring Strategy for the State of Hawai'i to guide its monitoring efforts. In addition, the PRC Program will coordinate with the other CWB sections and partners to expand its inland surface water quality monitoring efforts. Specifically, the PRC Program plans to develop monitoring plans for three watersheds where Section 319 Project Funds have been invested: Hanalei Bay, Waikele, and West Maui. Development and implementation of these monitoring plans will enable the PRC Program to document water quality trends in these watersheds.

The CWB regularly conducts water quality monitoring in Hanalei Bay watershed, focusing its current efforts on marine sampling. The PRC Program plans to expand the scope of water quality monitoring to include inland waters. To this end, the PRC Program will collaborate with the CWB Monitoring and Analysis Section and potential partners in Hanalei Bay to complete a monitoring plan for Hanalei Bay watershed. The PRC Program plans to monitor Hanalei Stream, which was listed for bacteria and total phosphorous in the 2014 Integrated Report and has TMDLs for *Enterococcus*, turbidity, and TSS (Appendix C). In addition, the PRC Program will consider additional monitoring sites where bacteria levels have been historically high in the development of the monitoring plan, which is scheduled for completion in 2016.

In addition to Hanalei Bay, the State plans to invest in inland water quality monitoring efforts in West Maui, where the PRC Program will continue investing Section 319 funds over the next five years (Goal 2). The CWB Monitoring and Analysis Section currently conducts beach monitoring in West Maui to determine water quality safety for recreational use; currently there is no stream water quality data. The CWB will work with its West Maui partners to develop a monitoring plan and coordinate stream water quality monitoring efforts by 2016.

Because the State is developing a TMDL implementation (TMDL+) plan for Waikele watershed, the Monitoring and Analysis Section and PRC Program will work together to develop a water quality monitoring plan for Waikele inland waters by 2018. The CWB will use existing City and County of Honolulu (CCH) Waikele Stream water quality data to inform its planning efforts. In 2019, the CWB plans to implement its water quality monitoring plan for Waikele watershed in conjunction with the implementation of the TMDL+ plan for Waikele. (See Goals 2 and 3 for information about TMDL+ planning and implementation in Waikele watershed.) Monitoring and assessing water quality in Waikele will provide the state with data that will help guide TMDL+ implementation efforts in the watershed and demonstrate the effectiveness of TMDL+ plan development and implementation.

Finally, the CWB will investigate the feasibility of a regional monitoring program in order to obtain surface water quality conditions for an entire region. The program will draw upon the collective expertise of the DOH, permittees, government agencies, non-profits, volunteer and student groups, and organizations involved in water quality monitoring to coordinate monitoring efforts and assess water quality conditions based on data from stormwater outfalls, beaches, and streams. This coordinated, regional effort will enable the State to track water quality trends on a broader scale and determine where to target its resources for water quality protection and restoration. The PRC Program will participate in the development of the regional monitoring program to ensure that NPS issues and concerns in the region are addressed. The CWB plans to begin the development of the program in 2017, first by selecting potential regions and coordinating partners for the program's development. The CWB will report on its recommendations for the regional monitoring program by 2019.

### ***Objective 2: Monitor and assess water quality to identify water quality impairments and improvements***

Water quality monitoring and assessment form the foundation for many of CWB's water quality improvement efforts. Strategy C describes the State's monitoring and assessment approach for the next five years.

#### ***Strategy C: Conduct water quality monitoring and assessments of streams and coastal zones***

The CWB conducts water quality monitoring and assessments and focuses its monitoring efforts on recreational beaches in support of the Beaches Environmental Assessment and Coastal Health (BEACH) Act, which requires the State to develop performance criteria for testing, monitoring, and notifying public users of possible coastal recreation water problems. The CWB's routine monitoring efforts focus

on identifying bacteria (specifically, *Enterococcus* and *Clostridium perfringens*) due to their potential public health risks. Water chemistry testing is also conducted at certain sites, with samples analyzed for total nitrogen, ammonia, nitrate and nitrite, total phosphorous, total suspended solids (TSS), and chlorophyll *a*. Water conditions such as pH, salinity, turbidity, temperature, and dissolved oxygen are also recorded. Monitoring is conducted weekly throughout the State, and data is entered into the CWB's water quality monitoring database (STORET/WQX) monthly.

The CWB will conduct water quality monitoring in its priority watersheds. In He'eia watershed, the PRC Program and the Monitoring and Analysis Section will continue to monitor the upper, middle, and mouth of He'eia Stream twice a month. In addition, as part of the CWB's efforts to expand inland surface water quality monitoring, the CWB will begin to implement monitoring plans in Hanalei Bay and West Maui in 2017 and Waikele in 2019. The PRC Program will also coordinate with the Monitoring and Analysis Section to target water chemistry monitoring at priority sites within these watersheds.

The CWB also will prioritize water quality monitoring based on collaborations with other agencies and organizations, including the Division of Aquatic Resources (DAR), the University of Hawai'i (UH), UH's Pacific Islands Ocean Observing System (PacIOOS), and the U.S. Geological Survey (USGS). As mentioned in Chapter 3, the CWB has partnered and will continue to partner with several of these agencies to assess water quality in Hawai'i. The PRC Program and the Monitoring and Analysis Section also plan to establish partnerships with other State and local groups, such as Hui O Ka Wai Ola in West Maui, to track water quality improvements.

The CWB conducts water quality assessments every two years (2016, 2018, and 2020) and publishes its findings in the Integrated Report. The Integrated Report documents the overall status of Hawai'i's waters and identifies water quality impairments and improvements as well as pollutants of concern. It includes new listings of impaired waters as well as delistings of previously impaired waters that have attained the States numeric water quality criteria. The Integrated Report serves as a critical document for NPS planning efforts and activities, which is described below in Goal 2.

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***Goal 2: Planning***  
***Develop strategies, watershed-based plans, and TMDL implementation***  
***(TMDL+) plans to prevent and reduce NPS pollution***

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Once the State has identified impaired and unimpaired waters, pollutants of concern, and sources of NPS pollution, the next step is to develop strategies to restore impaired waters and protect unimpaired waters. The State plans to prioritize watersheds for restoration and protection (Objective 1), develop strategies for protecting high quality waters (Objective 2), and prepare watershed plans and TMDL implementation (TMDL+) plans (Objective 2). By working towards achieving these planning goals, the State anticipates the following:

- ✓ Priority watersheds for water quality protection and restoration are determined for 2020-2025;
- ✓ Strategies and goals for protecting high quality waters are developed;
- ✓ A TMDL+ plan for Waikele watershed is developed; and
- ✓ Three new watershed-based plans are developed.

### *Objective 1: Prioritize watersheds to focus water quality improvement and protection efforts*

Watershed prioritization will be an important part of the State's planning process to reduce and prevent NPS pollution. Prioritizing watersheds for restoration and protection is the CWB's first step in focusing its water quality improvement planning efforts. Watershed prioritization will focus water quality monitoring efforts, Section 319 project implementation, TMDL+ development and implementation, and CNPCP implementation.

### *Strategy D: Prioritize waters and watersheds to focus water quality improvement efforts statewide*

In 2015, all sections and programs of the CWB (Monitoring and Analysis, Engineering, Enforcement and Compliance, and PRC Program) began working together to develop a prioritization matrix to prioritize watersheds for restoration and protection. Prioritization will be used by the CWB to guide water quality monitoring and assessment, restoration planning, NPS management, and TMDL+ development. For the next five years, the DOH will continue to focus on the current priority watersheds as described in this plan and will use the prioritization matrix to guide the selection of priority areas for 2020-2025.

The watershed prioritization matrix will incorporate several criteria, including water quality impairments, land use, public interest, and existing State investments in a watershed. The potential to improve water quality, restore impaired waters, delist waters, protect drinking water sources, and prevent NPS pollution from impacting unimpaired waters will be considered as part of the prioritization process. The CWB will also consider current and future land use in a watershed as well as public interest in a watershed, including the potential impact on public health that may result from water quality improvements. Finally, the CWB will consider current or future federal, state, county, or local investments in a watershed that will facilitate or enhance NPS management efforts and water quality improvements in a given watershed.

During the watershed prioritization process, the CWB will utilize EPA's WATERSCAPE tool, a GIS-based framework for identifying priority watersheds. Waterscape includes layers for designated uses, impaired waters, Section 319 grant activity, habitat, and point source discharges. The GIS framework for Hawai'i is still under development, but the information currently available will provide another resource for the CWB to incorporate in the watershed prioritization process.

Once the prioritization matrix is completed in 2016, the CWB will begin to prioritize watersheds. Water quality assessments will indicate whether or not an inland water body is impaired or unimpaired, and thus determine whether a watershed will be prioritized for restoration or protection activities. By 2017, the CWB will have identified at least three priority watersheds in which it will focus its future efforts.

One of these watersheds will be selected based on criteria for protecting high quality waters, and Section 319 projects may be implemented in that watershed as early as 2017. Existing priority watersheds will continue to be the focus of this plan, with the expectation that priority watersheds identified through the CWB prioritization matrix will be implemented as part of the State's 2020 Management Plan.

There are a significant number of watersheds that have inland waters that have not been monitored or assessed. Because watershed prioritization is strongly influenced by water quality assessment information (e.g., impairments), many of these watersheds may not be priorities until assessments are performed. Therefore, in addition to identifying priority watersheds, the CWB will create a list of candidate watersheds for future water quality monitoring and assessment efforts in 2019.

### *Objective 2: Develop strategies and measures of success for NPS protection*

Although protecting high quality waters is already a priority for the State, water quality protection is a relatively new priority for the CWB. The PRC Program and Monitoring and Analysis Section will develop goals, strategies, and measures of success to protect high quality waters and watersheds, and will coordinate these efforts with other programs, including those implemented by the Safe Drinking Water Branch (SDWB) and the Department of Land and Natural Resources (DLNR), to protect waters and prevent NPS impairments.

#### *Strategy E: Assess needs and opportunities to develop and implement water quality and watershed protection strategies*

Protecting waters and watersheds from pollution are shared goals within the DOH, and protection is a goal of the new 303(d) Program Vision. In 2016, the DOH will develop and coordinate protection strategies across CWA Section 319, 303(d), source water, and watershed protection programs. Specifically, the DOH will establish protection area criteria to determine where protection should occur, establish goals for protecting high quality waters, and determine how to measure success once protection projects are implemented. Factors to consider include potential threats to high quality waters and drinking water sources, potential for water quality improvements, restoration potential of areas near high quality waters, and current CWA and SDWA investments in a watershed. The CWB will review existing watershed-based plans for protection strategies and consult with the SDWB and DLNR on their protection priorities to develop a comprehensive protection strategy.

Once protection goals and strategies have been defined, they will be included in the CWB's watershed prioritization matrix. As a result, the CWB will identify at least one watershed for protection by 2017. Once a priority watershed for protection is selected, the PRC Program plans to coordinate with the SDWB and other partners to target CWA and SDWA resources to implement protection measures in the watershed as early as 2017.

### *Objective 3: Develop comprehensive watershed-based plans*

The State relies on approved watershed-based plans to implement on-the-ground water quality improvement projects using Section 319 Project Funds. Strategies F and G describe the State's plan to increase the number of watershed plans, including the State's first TMDL implementation (TMDL+) plan, thereby increasing the number of watersheds eligible for Section 319 projects.

#### *Strategy F: Develop a TMDL+ plan*

While the State has many TMDLs (Appendix C), comprehensive strategies to implement the TMDLs have rarely been utilized. To maximize the State's limited resources, the CWB will develop TMDLs with implementation strategies (TMDL+ plans) to guide actions to control sources of pollution. Specifically, the TMDL+ plan will define, prioritize, and locate implementation projects that address both point source and NPS pollution within the watershed, which will guide the CWB's water quality restoration efforts. The TMDL+ plan will meet the EPA's requirements for both a TMDL and an effective watershed-based plan.

The CWB and City and County of Honolulu (CCH) have taken the first steps in developing a TMDL+ plan for Waikele Stream in the Waikele watershed on O'ahu. Waikele Stream is currently listed as impaired for total nitrogen, nitrate and nitrite, and turbidity (2014 Integrated Report). While not located in an existing priority watershed, Waikele Stream was selected for TMDL+ plan development due to CCH's previous efforts (which include water quality sampling) to prepare a TMDL for Waikele Stream.

Because of the substantial amount of resources that the CWB and CCH are investing in the State's first TMDL+ plan, the CWB is creating a step-by-step process for developing a TMDL+ plans to ensure that all components are included in a timely manner and that the TMDL+ plans are implementable upon their completion. For Waikele, the TMDL+ plan will consist of 1) a TMDL that addresses point sources (wasteload allocations, which are regulated by NPDES permits) and nonpoint sources (load allocations, which are not regulated by NPDES permits) of sediment within the Waikele watershed, and 2) an implementation plan to control sources of sediment pollution and improve Waikele Stream's water quality. In addition, because the success of TMDL+ plan implementation rests heavily on landowner and stakeholder support, the CWB will encourage stakeholder involvement early in the TMDL+ planning process.

To address both the point source and NPS components of the TMDL+ plan, all CWB sections and programs will assist in the plan's development. The CWB Monitoring and Analysis Section is leading the development of the TMDL component and utilizing CCH's water quality data. A TMDL for sediment is scheduled for completion in 2015. Once the TMDL is completed, the PRC Program will take the lead in developing the implementation portion of the plan to identify NPS-related projects and estimate potential pollutant load reductions. The implementation section of the TMDL+ plan will include an identification of polluted runoff control projects and funding partners, project ranking and prioritization, and mechanisms for evaluating implementation progress.

Once the TMDL+ is completed in 2017, the PRC Program plans to implement at least one Section 319 project and begin water quality monitoring in Waikele watershed by 2019. In addition, in 2020 the DOH will assess and evaluate the TMDL+ approach and make changes to it if necessary. In 2020, the PRC Program will coordinate with the other CWB sections to develop a schedule for the next TMDL+ plan.

*Strategy G: Support the development of at least three new watershed-based plans*

Watershed-based plans identify strategies to address NPS problems in a particular watershed. The PRC Program relies on watershed-based plans to identify priority restoration and protection projects that have the greatest likelihood of improving water quality. Currently, there are 12 approved watershed-based plans in Hawai'i. Approved plans are those that contain the appropriate information, including the nine elements of an effective watershed plan, necessary to drive sound investments in water quality improvements within a given watershed. In 2010, the Hawai'i CZM Program and the PRC Program developed the [Hawai'i Watershed Guidance](#) to provide state-specific assistance to develop effective watershed plans. The State supports the development of watershed-based plans through partnerships between federal, state, and local agencies and organizations. Currently, the CWB is participating in the development of watershed-based plans in West Maui and Kaiaka Bay watersheds.

In 2012, a watershed-based plan for the Wahikuli and Honokowai watersheds in West Maui was completed. Currently, a watershed-based plan for three adjacent watersheds in West Maui (Kahana, Honokahua, and Honolua) is being developed by the West Maui Ridge to Reef Initiative and is scheduled for completion in late 2015. The West Maui Ridge to Reef Initiative leverages resources across agencies and community groups to implement actions, including watershed plan development, to reduce sediment and other land-based pollutants that adversely impact coral reefs in West Maui. The PRC Program is contributing to the watershed-based plan's development by participating in the West Maui Ridge to Reef Funding and Agency Support Team (FAST), which is composed of several federal and state agencies that are involved in funding, policy oversight, and plan management for the West Maui Ridge to Reef Initiative. The PRC Program is providing monthly technical reviews and feedback on the plan's development.

In addition, in 2017 the West Maui Ridge to Reef Initiative plans to complete a comprehensive West Maui watershed-based plan, which will include Wahikuli, Honokowai, Kahana, Honokahua, and Honolua watersheds. The PRC Program will continue to provide technical assistance and participate monthly in FAST meetings to review and discuss the plan.

The PRC Program and CCH are collaborating to develop a watershed-based plan for Kaiaka Bay watershed, which comprises six watersheds (Ki'iki'i, Poamoho, Kaukonahua, Opa'e'ula, Helemano, and Paukaula) on O'ahu. Kaiaka Bay is listed in the 2014 Integrated Report for bacteria, nutrients, turbidity, and chlorophyll *a*. The Kaiaka Bay watershed plan will build off of previous planning efforts in the watershed (including the 2010 TMDL for nitrogen and turbidity in upper Kaukonahua Stream), and will include implementation projects aimed at restoring impaired waters. The scheduled completion date for the Kaiaka Bay watershed plan is 2017.

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***Goal 3: Implementation***  
***Implement NPS management strategies to restore impaired waters  
and protect high quality waters from NPS pollution***

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Once the State has developed strategies for preventing and reducing NPS pollution, the next step is to implement these strategies to demonstrate water quality improvements through continued water quality monitoring and assessment. The State anticipates the following:

- ✓ *At least ten new Section 319-funded NPS projects implemented to reduce and prevent NPS pollution;*
- ✓ *Measurable water quality improvement in at least one NPS-impaired waterbody, resulting in a delisting and a WQ-10 success story<sup>5</sup>;*
- ✓ *Improvement in water quality in an impaired watershed due to restoration activities, resulting in an SP-12 success story;*
- ✓ *Measurable pollutant load reductions and trend in water quality improvement in at least 2 additional NPS-impaired watersheds*

***Objective 1: Invest in projects to achieve and demonstrate water quality improvements through implementation of watershed-based plans and TMDL+ plans***

The first step to implementing NPS management strategies is targeting investments in projects that prevent and reduce polluted runoff. Currently, there are Section 319 project investments in nine watersheds, including three priority watersheds. The PRC Program plans to invest more heavily in priority watersheds over the next five years.

The highest measure of success for most Section 319 implementation projects is an improvement in water quality. As a result of implementing watershed-based and TMDL+ plans, the State anticipates achieving measurable pollutant load reductions and water quality improvements, resulting in at least one delisting of an impaired waterbody for one or more pollutants and one EPA WQ-10 success story (for He'eia Stream) by 2020. In addition, the State anticipates Section 319-funded restoration activities to result in improved water quality in an impaired watershed (Hanalei Bay), with the goal of achieving an EPA SP-12 success story by 2020.

The State has developed three strategies for demonstrating water quality improvements: implementation of watershed-based and TMDL+ plans in priority watersheds (Strategy K), support for existing Section 319 projects in watersheds (Strategy L), and assessment and documentation of water

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<sup>5</sup> The EPA tracks the number of NPS-impaired water bodies that are restored as a result of implementation efforts. Restoration of NPS-impaired waters is reported to the EPA as "Nonpoint Source Success Stories" under EPA measure WQ-10. The EPA Watershed Improvement measure SP-12 is also used as a tool to demonstrate improving water quality using a cumulative watershed approach.

quality trends and environmental results (Strategy M). Water quality improvements will be published on the PRC Program's website, the PRC Program's End of Year report, the CWB Integrated Report, and the PRC Viewer, a cloud-based database used by the PRC Program to store all of its project and monitoring data. Water quality improvements that meet criteria for WQ-10 and SP-12 success stories will be submitted to the EPA for approval.

*Strategy H: Invest Section 319 funds in priority watersheds and watersheds with approved watershed-based plans*

The State will invest in projects that prevent and reduce NPS pollution in priority watersheds. The PRC Program will target its Section 319 Projects Funds in priority watersheds on a rotating basis by county via a Request for Proposals (RFPs). As part of the RFP process, the PRC Program will meet annually with at least three to four community groups or government agencies in priority watersheds to discuss NPS problems, capacity, interest, watershed plan priorities, and potential projects. These meetings will also include watershed tours and site visits with stakeholders to get a sense of the extent of NPS-related water quality problems as well as an idea of where potential projects can be implemented within the watershed. These site visits and meetings will help guide the PRC Program's selection of implementation projects for the RFP and also will help the PRC Program gauge the level of community support for controlling polluted runoff. Community commitment to reducing NPS pollution is an important factor in the success of many projects, particularly those that heavily utilize volunteers and require maintenance after project completion.

The State will continue to focus its resources in He'eia, Hanalei Bay, and the West Maui watersheds over the next five years. He'eia has been a priority watershed for the PRC Program since 2012, and there is currently a Section 319-funded project underway in the watershed (see Objective 2, below). Within the next five years, the PRC Program intends to invest in at least two additional Section 319 project that address sediment and nutrients in He'eia, with the goal of delisting He'eia Stream for at least one of these pollutants and, by doing so, accomplishing an EPA WQ-10 success story by 2020. The PRC Program will continue water quality monitoring in He'eia over the next five years to track water quality improvements.

The PRC Program will also continue to invest in implementation projects in Hanalei Bay watershed. In 2015, the PRC Program will fund two projects in Hanalei Bay to replace a total of 18 cesspools and restore areas in the watershed that are sources of nutrients and sediment. Furthermore, the PRC Program anticipates funding at least one more implementation (cesspool replacement) project in the Hanalei Bay watersheds by 2019 and anticipates documenting watershed-wide water quality improvements (SP-12) in at least one Hanalei Bay watershed by 2020.

West Maui watershed is also an existing priority watershed for the CWB. The State plans to continue to invest in water quality improvements in West Maui by implementing projects that reduce sediment and nutrients. With the scheduled completion of the Kahana, Honokahua, and Honolua watershed plan in 2015, the PRC Program plans to invest in at least one NPS project in those watersheds. In addition, the

PRC Program will use Section 319 funds to support a West Maui watershed coordinator in 2016. The PRC Program will also continue to invest in the development of the comprehensive watershed plan in West Maui, which is scheduled for completion in 2017 (Goal 1).

The State will also target CWA and SDWA funds to implement its new protection measures in a priority watershed by 2017. The PRC Program has already discussed potential protection projects with the SDWB, DLNR, and Maui County with the intention to leverage Section 319 resources to support protection efforts. DWSRF set-asides may be available by 2017 to contribute funds for source water protection projects, and the PRC Program, SDWB, and DLNR have already discussed collaborating on a wellhead or source water protection project in 2017.

Watersheds with approved watershed-based plans, but not identified as priority watersheds, are still eligible for Section 319 funding opportunities. The State can invest Section 319 Project Funds in all watersheds with approved watershed-based plans, and may potentially invest in any one of these watersheds in the future to maintain water quality improvements and foster local capacity and interest in these watersheds. However, implementation project proposals located in priority watersheds will receive additional scoring points when evaluated during the PRC Program's annual RFP in order to demonstrate the Program's commitment to improving water quality in these priority watersheds. Over the next five years, the PRC Program plans to invest in at least three projects aimed at restoring or protecting water quality in watersheds with approved watershed plans. These projects may focus on reducing or preventing runoff from cesspools, agriculture, or urban areas, which are three sources of NPS pollution the State plans to target over the next five years (Goal 4, Objective 2).

#### *Strategy I: Implement watershed-based plans and TMDL+ plans in priority watersheds*

The State is currently implementing 319 projects in nine watersheds, including three priority watersheds (He'eia, West Maui, and Hanalei Bay). This strategy outlines existing and potential water quality improvements the State anticipates by implementing watershed-based plans within these watersheds.

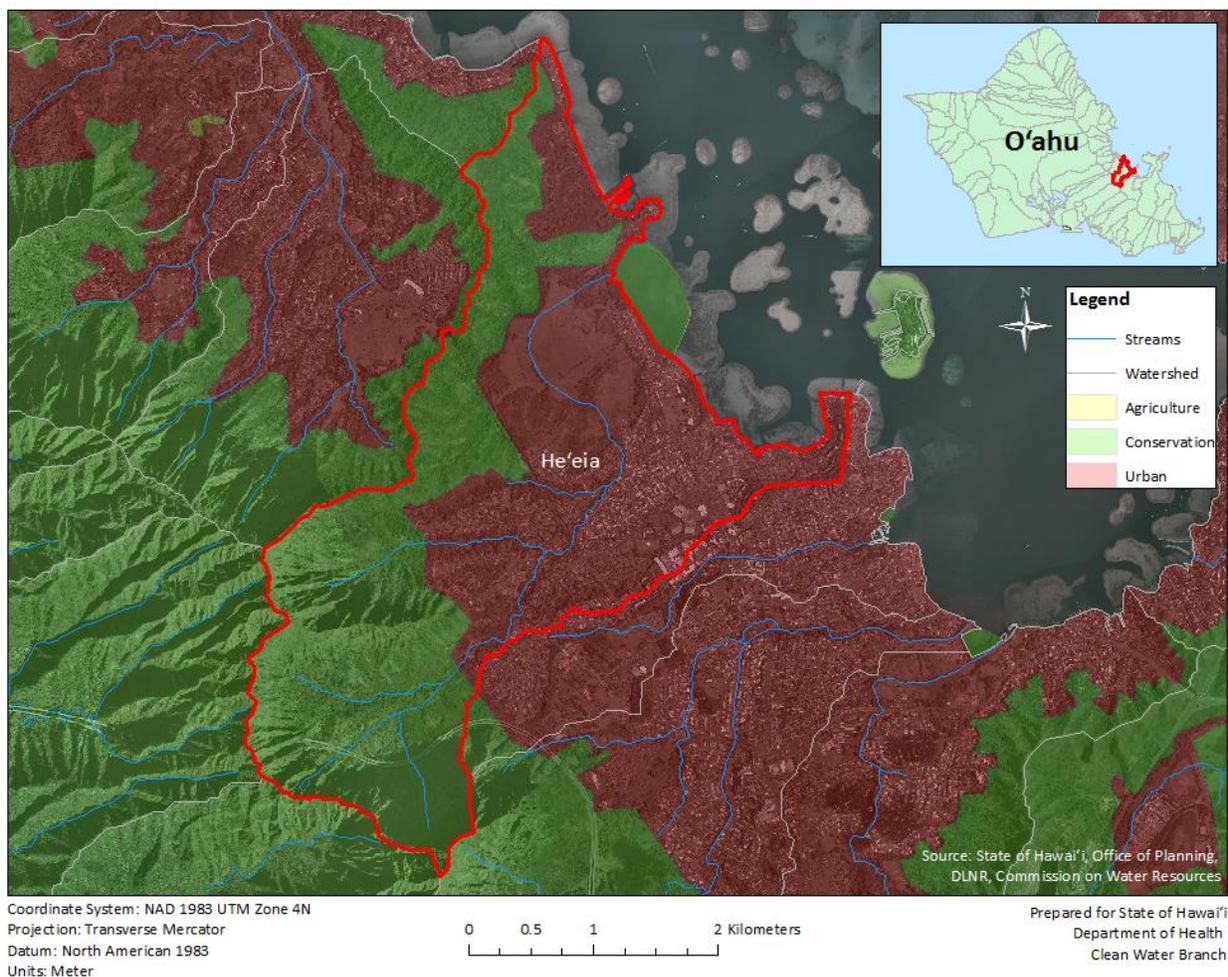
#### ***He'eia watershed (O'ahu): Reduce sediment and nutrients and restore streambanks***

He'eia watershed (Figure 8) is located within the larger Ko'olaupoko Watershed and is included in the 2007 Ko'olaupoko Watershed Restoration Action Strategy, the watershed-based plan for the region developed by the Kailua Bay Advisory Council. He'eia is listed for nitrate and nitrite (wet and dry seasons), total phosphorous (wet season), and turbidity (wet season) and was de-listed for total nitrogen (dry season) in the 2014 Integrated Report. Since 2009, the PRC Program has invested Section 319 funds in a multi-phased project in He'eia aimed at reducing sediment and nutrients by intensive restoration and erosion control efforts. In 2012, the contractor for this project, Hui o Ko'olaupoko, completed Phase I of He'eia Stream restoration, in which non-native plants were removed from 2,500 linear feet of riparian corridor and replaced with over 9,000 native plants. Phase II was completed in June 2015 and restored 2,000 linear feet of streambank located upstream from the previous project. Phase III of the He'eia restoration project will install upland landslide erosion control measures to stabilize approximately 1,400 linear feet of riparian habitat and 24,000 square feet (~0.5 acres) of

hillsides, which are prone to massive landslides. Sedimentation basins will also be installed beneath current mass wasting areas. Phase III also includes riparian restoration of 4 acres of wetlands in the lower He'eia watershed. The scheduled completion date for Phase III is June 2016.

Another Section 319 project in He'eia watershed is the Windward Mall Low-Impact Retrofit, which is located in an urbanized, high traffic area of He'eia watershed. This project aims to reduce loads of nitrate and nitrite, total nitrogen, total phosphorous, and TSS by use of structural BMPs, such as water bars and rain gardens. This project will be completed in October 2015.

Because He'eia is a priority watershed, the PRC Program intends to continue implementing projects that address NPS problems in He'eia. Specifically, the PRC Program plans to implement two additional Section 319 projects that will work towards attaining numeric water quality criteria for turbidity and nutrients, with the goal of delisting He'eia Stream for turbidity and/or total phosphorous or nitrate and nitrite and achieving a WQ-10 success story by 2020. The PRC Program is looking forward to



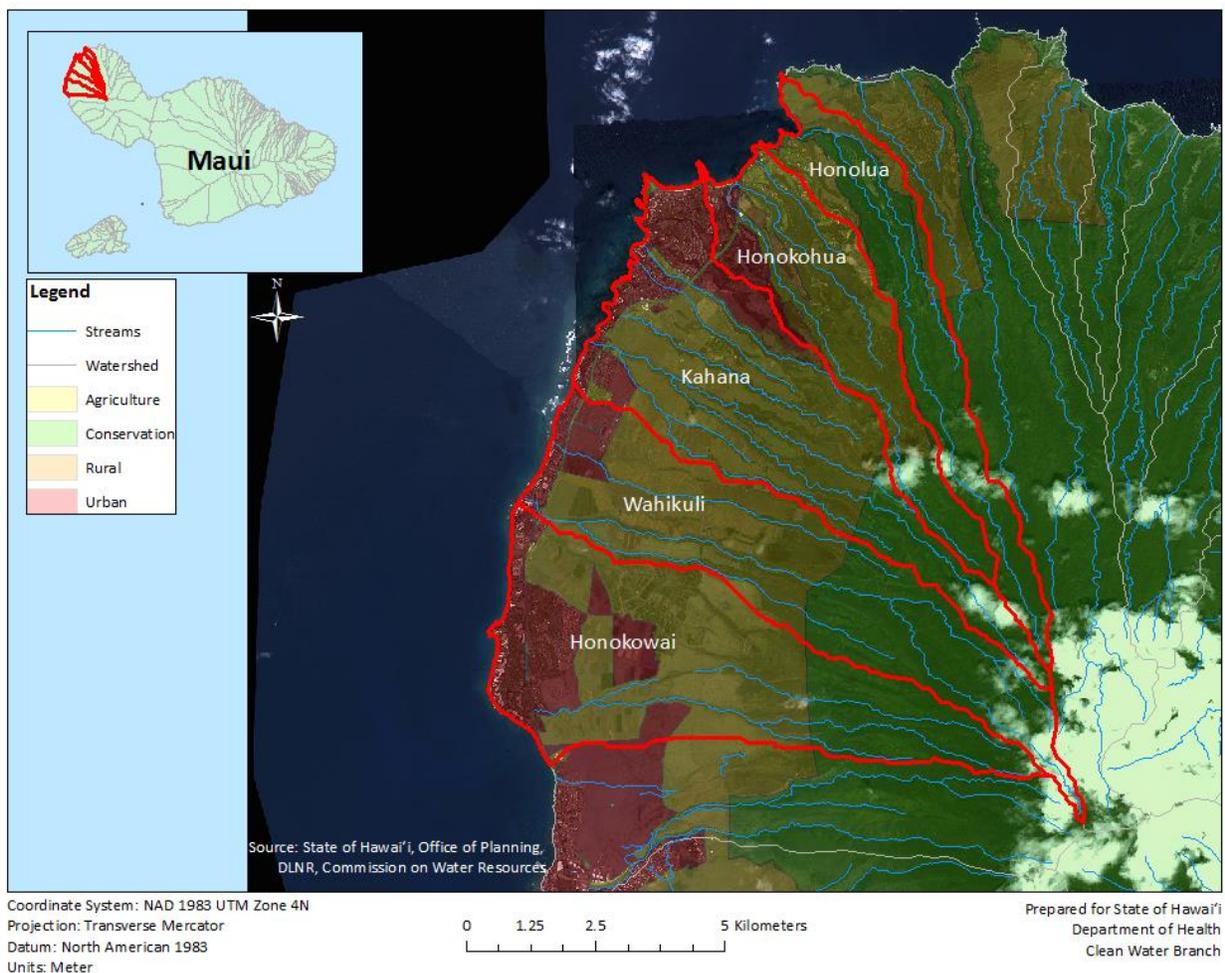
**Figure 8.** Priority watershed map of He'eia

collaborating with federal, state, and local partners actively involved in restoring Heeia watershed to implement these projects.

The CWB Monitoring and Analysis Section and PRC Program have also conducted water sampling in the He'eia Stream since 2013, and will continue to conduct water quality monitoring through 2020 to demonstrate water quality improvements in the watershed. Data collected will be analyzed and published in the PRC Program's End of Year Reports as well as the 2016, 2018, and 2020 Integrated Report.

**West Maui watershed (Maui): Reduce sediment and nutrients**

The West Maui watershed comprises ten watersheds, five of which have existing watershed plans or watershed plans being developed: Wahikuli, Honokowai, Kahana, Honokahua, and Honolua (Figure 9). The completed watershed-based plan in West Maui (West Maui Watershed Plan) for the Wahikuli and Honokowai watersheds was developed by the U.S. Army Corps of Engineers in 2012. The existing Section 319 project in Wahikuli and Honokowai addresses agricultural runoff and anticipates sediment load



**Figure 9.** Priority watershed map of West Maui

reductions of approximately 149 tons by June 2016. The watershed-based plan for Kahana, Honokahua, and Honolua watersheds is scheduled for completion by the end of 2015, with the comprehensive West Maui watershed plan scheduled for completion in 2017.

In addition to the current project, the PRC Program plans to begin implementation of at least two additional projects in West Maui between 2016 and 2020 to target sediment and nutrients. At least one of these projects will be located in Kahana, Honokahua, or Honolua, contingent upon the completion and approval of the watershed plan for those watersheds. In 2016, the PRC Program will also support a watershed coordinator for at least one year. The watershed coordinator will be responsible for coordinating various agencies and organizations involved in water quality improvement projects in West Maui, such as the West Maui Ridge to Reef Initiative. The watershed coordinator will also perform outreach to West Maui residents on water quality issues.

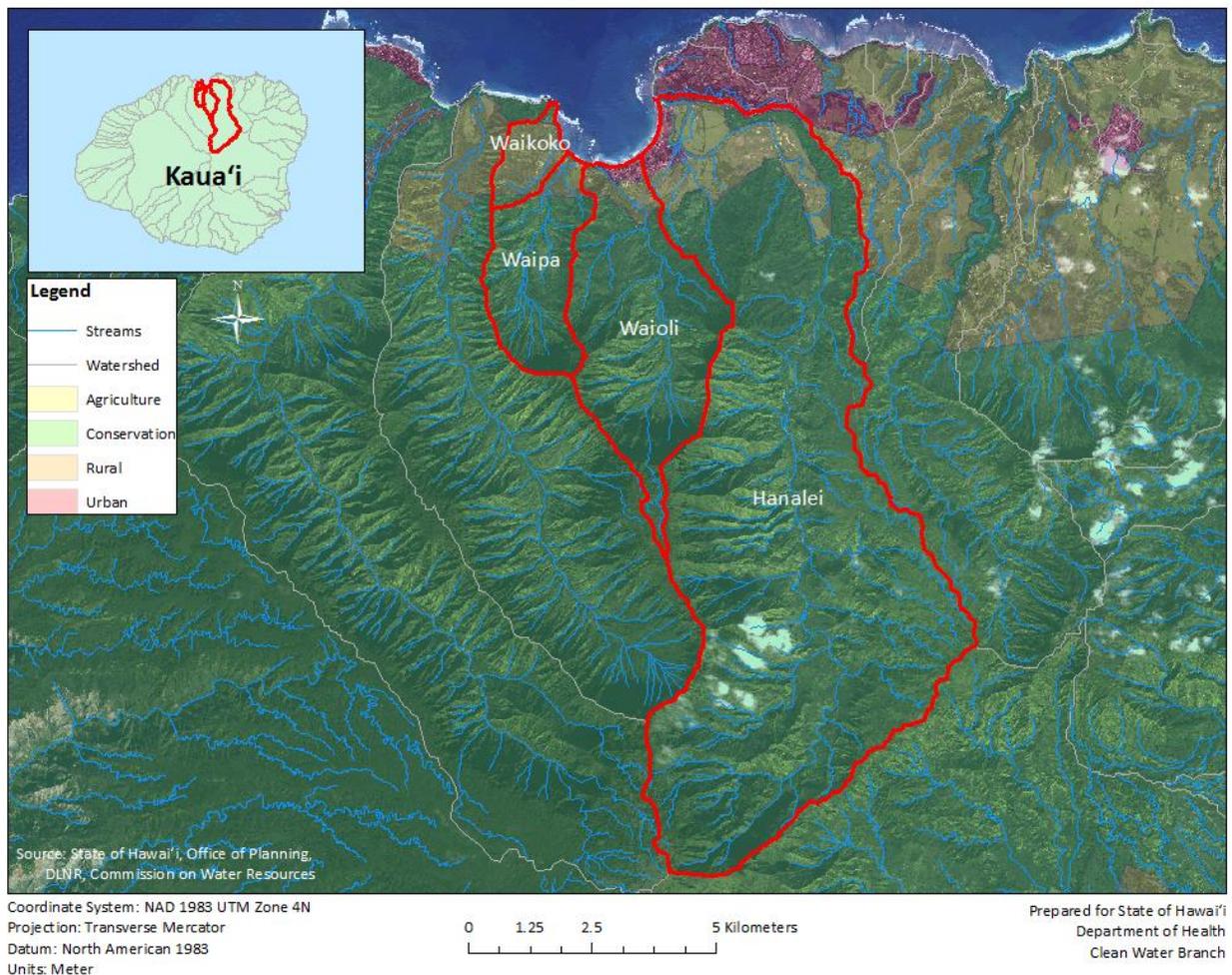
In addition to coastal water quality monitoring, the CWB plans to begin stream water quality monitoring for bacteria, nutrients, and biogeochemical parameters (including chlorophyll *a*, TSS, and turbidity) in West Maui to document water quality improvements starting in 2017. (See Goal 1 for more information on developing and implementing monitoring plans in West Maui.) Water quality assessments for West Maui will be included in the Integrated Report and PRC Program End of Year Reports.

#### ***Hanalei Bay watershed (Kaua'i): Reduce bacteria and nutrients***

Hanalei Bay watershed comprises four watersheds: Hanalei, Waioli, Waipa, and Waikoko. The Watershed Management Plan for Hanalei Bay was completed by the Hanalei Watershed Hui in 2014 and covers Hanalei, Waioli, and Waikoko watersheds. Primary NPS pollution concerns are bacteria, nutrients, sediment, and particulates that comprise TSS. Hanalei Bay has TMDLs for *Enterococcus* and TSS for streams and estuaries (Phase 1) and TMDLs for *Enterococcus* and turbidity for the embayment (Phase 2). Hanalei Stream is listed for *Enterococcus* (wet and dry seasons) and total phosphorous (dry season; 2014 Integrated Report).

The PRC Program will begin the implementation of a Section 319 project in 2015 to upgrade 15 cesspools to ATUs in the Hanalei watershed. As a result, the PRC Program anticipates reductions in *Enterococcus* concentrations, TSS, and nutrients in the Hanalei watershed. The PRC Program also will begin implementation of watershed-wide NPS management efforts in Waipa watershed in 2015, including three cesspool replacements, restoration of riparian areas, ungulate control, and BMPs for agriculture. The PRC Program anticipates reductions in bacteria, nutrients, and sediment as a result of these NPS management efforts in Waipa.

In addition to these projects, the PRC Program plans to use Section 319 funds to implement an additional cesspool replacement project by 2019. The PRC Program expects that these projects will help restore impaired watersheds within Hanalei Bay and meet the criteria for a SP-12 success story by 2020. To track water quality improvements, the PRC Program and CWB Monitoring and Analysis Section will



**Figure 10.** Priority watershed map of Hanalei

develop and implement a water quality monitoring plan for Hanalei that includes monitoring of both marine and inland surface waters, with the intention to implement this plan in 2017 (Goal 1).

***Waimanalo watershed (O’ahu) Reduce sediment and nutrients***

Located within the larger Ko’olaupoko watershed, Waimanalo Stream has visual listings for total nitrogen, nitrate and nitrite, total phosphorous, turbidity, and TSS. In 1998, Waimanalo Stream was among the first water bodies in Hawai’i to be listed as impaired under Section 303(d). A TMDL for sediment and nutrients was developed for Waimanalo Stream in 2001, and a TMDL implementation strategy was included in the 2007 Ko’olaupoko Watershed Restoration Action Strategy. Point source wasteload allocations have been incorporated into NPDES stormwater permits in the area, but there has not been widespread implementation of the NPS load allocations.

Since 2004, the PRC Program has invested four Section 319 projects in Waimanalo aimed at reducing sediment, total nitrogen, and total phosphorous through stream restoration, BMPs on small-scale farms, conservation plan development and implementation, and community outreach and education. The most

recent Section-319 funded implementation project in Waimanalo ended in June 2015. The PRC Program may continue to invest in Waimanalo as a priority watershed through 2020 as project proposals are received through the annual RFP process, and will continue to conduct water quality monitoring at Bellows Field Beach Park within the watershed.

***Protect high quality waters in a priority watershed***

In 2017, the CWB will collaborate with the SDWB, DLNR, and/or Maui County to implement a Section 319 project for protection in a priority watershed. The project that will most likely aim to protect source waters on conservation lands.

***Additional Section 319 projects***

The State will implement at least three additional water quality protection and restoration projects in watersheds with approved watershed plans by 2020, with a focus on projects addressing polluted runoff from cesspools, agriculture, and urban areas.

*Strategy J: Support existing Section 319 implementation projects in watersheds with approved plans*

In addition to investing in and implementing new projects in priority watersheds, the State is currently funding and implementing projects that continue to require support.

***Ala Wai watershed (O'ahu): Reduce sediment and restore streambanks***

The Ala Wai watershed has significant water quality problems, including nutrients, sediment, contaminants from vehicles, and litter, which are described in the Ala Wai Canal Watershed Water Quality Improvement Project Steering Committee's 1998 Ala Wai Watershed Management and Implementation Plan. There is a TMDL for nutrients in Ala Wai Canal, which was updated in 2002. The current Section 319 project in the Ala Wai includes streambank and riparian restoration, which will stabilize 1,800 feet of streambank with native plant species and reduce sediment loads by 199 tons by the end of 2016.

***Ka'alaea and Waiahole watersheds (O'ahu): Reduce sediment and nutrients***

Ka'alaea and Waiahole watersheds are located within the Ko'olaupoko watershed, and management strategies for these watersheds' NPS problems are included in the Ko'olaupoko Watershed Restoration Action Strategy. Ka'alaea Stream is listed for total nitrogen (wet and dry seasons), nitrate and nitrite (wet and dry seasons), and turbidity (dry season); Waiahole Stream is listed for nitrate and nitrite (wet and dry seasons) and total phosphorous (dry season). The existing Section 319 project in these watersheds aims to reduce sediment and nutrient loads and develop 10 new conservation plans by 2018.

***Hakioawa (Kaho'olawe): Reduce sediment and re-vegetate watershed***

Hakioawa watershed has been severely grazed and denuded by ungulates, resulting in bare soil exposed to wind and rain and severe erosion problems. Implementation of projects identified in the Kaho'olawe Island Reserve Commission's 2006 Assessment and Protection Plan for the Kaulana and Hakioawa

Watershed on Kaho'olawe, Hawai'i are underway until the end of 2015, with the goal of restoring bare areas with 20,000 native plants to reduce erosion and sediment loads.

***Pelekane Bay watershed (Big Island): Reduce sediment***

Pelekane Bay is listed for total nitrogen, nitrates and nitrites, ammonium, total phosphorous, turbidity, and chlorophyll *a*. The Pelekane Bay Watershed Plan (2005) is currently being implemented to reduce sediment loads by 150 tons and reduce turbidity in the bay by March 2016.

***Waikele watershed (O'ahu): Reduce sediment***

Waikele watershed on O'ahu has been chosen for the State's first TMDL+ plan, which will meet both the EPA's TMDL requirements and the nine minimum elements for an effective watershed-based plan (see Chapter 4 for more information on the TMDL+ plan). Once the TMDL+ plan for Waikele is completed in 2017, the State plans to implement at least one priority project from the plan in 2019. The PRC Program will also develop a water quality monitoring plan for Waikele and conduct water quality monitoring with the CWB Monitoring and Analysis Section beginning in 2019.

***Wai'ula'ula watershed (Big Island): Restore riparian areas and reduce sediment and nutrients***

Water quality in Wai'ula'ula watershed is threatened by sediment, nutrients, and pesticides from agricultural practices as well as urban and suburban runoff. The Wai'ula'ula Watershed Management Plan, which was developed by the Mauna Kea Soil and Water Conservation District in 2010, is currently being implemented to protect water quality of the Waikoloa Stream. This Section 319 project, which is scheduled for completion in 2017, includes restoration of 10,000 feet of priority stream corridors and BMPs to reduce total nitrogen, nitrate and nitrite, sediment by 11-15%, and total phosphorous by 8%.

*Strategy K: Assess and document water quality trends and environmental results*

The State will demonstrate that its efforts to reduce NPS pollution are effective and that it is making progress in achieving its water quality goals to restore impaired waters impacted by polluted runoff. The CWB Monitoring and Analysis Section will assess water quality data every two years and produce the Integrated Report, which will be used to indicate where impairments persist and no longer exist. By 2020, the State will demonstrate measurable water quality improvements in at least one NPS-impaired waterbody, resulting in a delisting and a WQ-10 NPS success story. The PRC Program will target He'eia Stream for this delisting (for turbidity, total phosphorous, and/or nitrate and nitrite), given the significant investment and the recent improvement in water quality (delisting for dry season total nitrogen in 2014) in this watershed.

In addition, the State anticipates water quality improvements in at least one watershed through restoration activities using the watershed approach, resulting in at least one SP-12 success story by 2020. Since the State has made past investments in Hanalei Bay watershed and is investing in watershed-scale Section 319 implementation projects, the PRC Program will track implementation and water quality data in the Hanalei Bay watershed for this SP-12 milestone. The State also plans to

document improving water quality trends in at least two additional watersheds by 2020, including West Maui, which the CWB plans to begin monitoring in 2017.

To ensure Section 319 projects are on track, the PRC Program will conduct site visits to each project site on an annual basis. Water quality improvements will be reported in the PRC Program's End of Year Report, the Integrated Report, GRTS, and the PRC Viewer. The PRC Program will also discuss each project's status as well as assess project effectiveness in its annual End of Year Report.

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***Goal 4: Statewide Nonpoint Source Program Development and Implementation***  
***Develop and employ an effective statewide program to manage nonpoint source pollution***

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A critical component of this plan is the implementation of a statewide approach to managing NPS pollution. To accomplish this, the State draws upon various programs and resources, including its NPS program, the CNPCP, the DOH water branches, and documents like the Integrated Report. As described in Chapter 4, the State relies on cross-program coordination to monitor and assess water quality, prepare and implement plans for NPS-related efforts, and demonstrate water quality improvements. Partnerships are therefore critical to the success of statewide NPS management in Hawai'i.

Several federal, state, and local organizations have water resource responsibilities with shared goals, including protecting and restoring water quality and watersheds. The State can utilize the overlapping objectives and activities of these organizations to more effectively address Hawai'i's NPS challenges. Coordinating efforts among agencies and using all the State's tools to address NPS pollution, including water quality monitoring and assessment, watershed prioritization, TMDLs, watershed-based plans, 303(d) and 319 program integration, and CNPCP management measures, will increase the State's effectiveness in controlling NPS pollution and demonstrate the State's commitment to addressing NPS pollution on a statewide basis.

As the State works to develop and implement an effective NPS program, it anticipates the following:

- ✓ *CNPCP receives full approval under CZARA;*
- ✓ *Status of CNPCP management measure implementation is determined;*
- ✓ *At least three NPS restoration and protection projects are implemented through partnerships, including one funded through the DWSRF or CWSRF;*
- ✓ *Statewide approaches to managing NPS pollution from cesspools, urban areas, and agriculture are developed; and*
- ✓ *Integration among CWB, SDWB, and WWB programs is improved to more effectively target resources towards water quality improvements.*

***Objective 1: Develop and implement the Coastal Nonpoint Pollution Control Program (CNPCP) to prevent and reduce coastal NPS pollution statewide***

Developing and implementing a statewide program to prevent and reduce coastal NPS pollution is a priority for the CZM Program and the PRC Program, who jointly administer the State's CNPCP. This objective addresses the State's strategy for developing and obtaining full approval of CNPCP by 2017 (Strategy L), followed by determining the status of CNPCP management measure implementation (Strategy M).

***Strategy L: Develop the CNPCP pursuant to CZARA Section 6217***

The first step in obtaining full approval of the CNPCP is to develop management measures pursuant to CZARA Section 6217. In 2012, the State received an Interim Decision Document from the EPA and NOAA that specified which management measures were not adequately developed to satisfy CZARA requirements. The six management measures which have not been fully approved fall under 1) New Development; 2) New and Operating Onsite Disposal Systems (OSDS); and 3) Roads, Highways, and Bridges. Monitoring and Tracking techniques, which are CNPCP administrative elements, also require approval. With guidance from NOAA and EPA, the State plans to develop strategies to meet the requirements necessary to obtain approval for these conditions, which are described below.

***New Development (Urban Areas)***

The New Development management measure controls urban runoff from new development and redevelopment. In order to obtain approval for this management measure, the State needs to develop a strategy that demonstrates the ability to ensure implementation of the New Development management measure. NOAA and EPA indicated that the State could meet this condition if three of the four counties have programs and policies consistent with the New Development management measure or NPDES municipal separate storm sewer (MS4) permits that exempt them from this management measure. Currently, CCH and Hawai'i County either have rules consistent with the New Development management measure or MS4 permits that exempt them from this management measure. In 2015, the Office of Planning CZM Program and CWB will determine the steps needed towards meeting this condition for Maui County, with the goal of satisfying this management measure by 2016.

***New and Operating Onsite Disposal Systems (Urban Areas)***

The New and Operating OSDS management measures establish requirements for location, design, operation, inspection, and maintenance of OSDS to control the discharge of pollutants to surface and groundwater. In order to obtain approval, these management measures must ensure inspection of existing OSDS to ascertain system failures and develop policies and mechanisms for denitrifying OSDS. The PRC Program, WWB, and CZM Program began working together in 2014 to satisfy these conditions and have made the first steps in developing an OSDS inspection program that meets the OSDS management measure requirements, including an evaluation of the current program. The WWB, PRC Program, and CZM Program plan to identify new inspection strategies in late 2015 and submit a

complete a draft of the updated inspection program, with a request for approval of the OSDS management measure, to the EPA and NOAA in 2016.

### ***Roads, Highways, and Bridges (Urban Areas)***

The Roads, Highways, and Bridges management measures include planning, siting and developing roads and highways; operation and maintenance of roads, highways, and bridges; and siting, designing and maintenance of bridge structures. In order to obtain approval of these management measures, the State must incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loading to surface waters. For state roads, counties are required to adopt the Hawai'i Department of Transportation's (HDOT) BMP guide and contract clauses. For local roads, each county must have policies and procedures in place to meet the conditions of the management measure. The CZM Program and PRC Program have begun investigating ways to meet these conditions, including current coverage by HRS 343 and HAR Chapter 11-200 as well as ways to facilitate county adoption of the HDOT BMP manual for local roads. The State will seek NOAA and EPA's guidance on the best way to address these requirements in 2015 and anticipates submitting an update on this management measure for approval in 2016.

### ***Monitoring and Tracking***

Section 6217 of CZARA requires the State to describe its monitoring and tracking techniques to assess the success of the management measures in reducing pollution and improving water quality. The CZM Program and the PRC Program are developing strategies to meet the requirements for this management measure, including utilizing the Ocean Resource Management Plan (ORMP), GRTS, NPDES and Water Quality Certification, and the PRC Viewer, as well as gathering data from reports from partners involved in the ORMP. Putting together all the data collected from various federal, state, and county programs to determine management measure implementation and effectiveness will be a challenging task and require coordination among several agencies. Through its monitoring and tracking techniques, the State will be able to determine the status and effectiveness of management measure implementation, which is discussed below under Strategy M. The PRC Program and CZM Program expect to complete a statewide comprehensive strategy for monitoring and tracking management measure implementation by 2017.

### ***Strategy M: Determine the status and effectiveness of CNPCP management measure implementation***

This strategy addresses the needs to determine the status of CNPCP management measure implementation and to improve communication between the agencies responsible for their implementation, the CZM Program, and the PRC Program.

While management measures are most likely being implemented (e.g., as permit requirements) throughout the State, the overall status of management measure implementation in Hawai'i is largely unknown. This strategy therefore seeks to not only implement the CNPCP management measures, but also develop a mechanism or process for determining if management measures are being implemented and, where possible, if water quality is improving as a result of implementation. The Hawai'i Watershed

Guidance and the CNPCP 2010 update identify the lead agencies responsible for implementing management measures, which will guide the CZM and PRC Programs in undertaking this strategy. In addition, there are existing tools and resources that the PRC Program and the CZM Program can utilize to develop a tracking system for management measure implementation, including GRTS, the Ocean Resources Management Plan, and the PRC Viewer.

Since several management measures are implemented at the county level, the PRC Program and CZM Program plan to determine management measure implementation in a priority watershed on a rotating basis by county until management measures have been tracked in all four counties. Establishing how each county implements its management measures may facilitate a more comprehensive statewide approach to tracking management measures and will enable the State to better assess the water quality benefits of CNPCP implementation and better integrate PRC Program and CNPCP activities with respect to coastal NPS management.

The State will first determine the extent of currently approved management measure implementation in He'eia watershed (City and County of Honolulu), since it is a priority watershed. In 2017, the PRC Program and the CZM Program will produce a report that identifies the extent of management measure implementation in He'eia. By doing so, the PRC Program and the CZM Program can also identify reasons for lack of management measure implementation and possible ways to facilitate implementation, as well as whether pollutant load reductions resulting from management measure implementation are being documented. In 2019, the State will determine the status of management measure implementation in another priority watershed in another county and produce a report on its findings.

## ***Objective 2: Develop and implement strategies to address the State's major NPS pollution concerns***

With the implementation of this management plan, the State will begin to target Section 319 funds at sources of NPS pollution that are of major concern in Hawai'i: cesspools, urban areas, and agriculture. This approach is a departure from the State's current approach, which is based primarily on Section 303(d) impairments and various watershed-based plan priorities. This new, targeted approach will require the development of new strategies for addressing these sources of NPS pollution statewide.

### ***Strategy N: Develop and implement a statewide effort to address cesspools***

With the State's new capacity to provide tax credits for cesspool replacements (Act 120) and the DOH's ongoing efforts to eliminate cesspools, there is momentum to develop a comprehensive strategy to address runoff from cesspools in Hawai'i. In 2016, the DOH, with input from counties and other stakeholders, will develop a framework for a statewide strategy to address cesspool runoff. Coordination between the DOH water branches and their partners will provide a uniform approach to future cesspool replacement projects, whether funded through a State Revolving Fund or through Section 319 Project Funds. Developing a coordinated effort will also involve CNPCP OSDS management measure implementation.

By developing and implementing a strategy to upgrade and convert cesspools, the State anticipates long-term water quality benefits. In 2017, the DOH will complete the State's strategy for addressing polluted runoff from cesspools. The PRC Program plans to begin implementing this strategy by funding a cesspool replacement project in Hanalei Bay in 2019, with the possibility of leveraging resources for this project with the CWSRF.

*Strategy O: Develop and implement a statewide effort to address urban runoff*

Urban runoff is another major source of NPS pollution in Hawai'i. Currently in O'ahu and Maui counties, a portion of urban runoff is controlled through NPDES MS4 permits. MS4 permits require these counties to develop and implement stormwater management program plans, which include pollution prevention measures. The CNPCP also devotes several management measures to the prevention and reduction of pollution generated by development and maintenance of roads, highways, bridges, and facilities in urban areas.

The PRC Program has recently invested in projects that reduce urban runoff, including low-impact development and rain gardens, and believes that a more focused approach to handling urban runoff will be more effective for long-term water quality benefits. In 2018, the PRC Program, in coordination with the CWB Sections and other state agencies and the counties, will complete a statewide strategy to control urban runoff. By 2020, the PRC Program will implement the State's strategy and invest Section 319 funds in at least one project aimed at reducing urban runoff.

*Strategy P: Develop and implement a statewide effort to address agricultural runoff*

Since 45% of Hawai'i's lands are classified as agriculture, agricultural practices have the potential to significantly impact water quality. Therefore, a comprehensive strategy that addresses agricultural runoff is vital to protecting and improving water quality in the State. In 2018, the State will develop a strategy that addresses polluted runoff, including a framework for conservation plan development, implementation, and tracking.

As part of its effort to develop a statewide strategy to control agricultural runoff, the PRC Program hopes to strengthen communication and coordinated efforts with agriculture-related agencies and organizations, including HDOA, NRCS programs, SWCDs, and local organizations and stakeholders. By 2020, the PRC Program plans to invest in at least one technical assistance activity or project with one of these partners that addresses the water quality impacts of agricultural runoff in Hawai'i.

***Objective 3: Build new partnerships and strengthen existing partnerships to facilitate program coordination and integration for NPS management***

The following strategies highlight opportunities and milestones for building new partnerships, strengthening existing partnerships, and coordinating and integrating activities among water quality agencies and programs to address NPS and water quality issues in Hawai'i.

*Strategy Q: Identify potential partnerships and NPS projects that will benefit from cross-program coordination*

**Partnerships for Section 319 implementation**

The first task of creating new and strengthening partnerships for NPS management is to identify federal, state, county, and other local agencies and programs that have water quality responsibilities. The PRC Program has identified many of these organizations and programs in Chapter 3, and plans to meet with those that have NPS-related goals or program components to discuss opportunities to implement watershed plans to restore water quality.

As part of its commitment to developing a strategy to address agricultural runoff, the State plans to foster partnerships with agriculture-related programs. The State reaffirms its commitment to partnering with the NRCS through its Farm Bill programs, particularly the National Water Quality Initiative (NWQI), which targets implementation of conservation practices on agricultural lands to improve water quality. The PRC Program intends to work with the NRCS to determine overlapping priorities and areas of interest for erosion and polluted runoff control projects by meeting annually, with the goal of collaborating with NRCS on at least one agricultural-related water quality improvement project by 2020.

The PRC Program also will work with the Hawai'i Department of Agriculture (HDOA), counties, individual SWCDs, and other partners to track implementation of conservation plans throughout the State. Meetings with partners to develop a framework for conservation plan implementation and tracking will occur annually as the State's strategy to address agricultural runoff is being developed. With an increased ability to track conservation plans, the State will be able to assess the conservation plans' effectiveness in reducing NPS pollution. The framework for conservation plan implementation tracking will be completed in 2017 and will be incorporated in the State's strategy for agricultural runoff, which will be completed in 2018.

In addition, the PRC Program will partner with counties and the WWB to reduce OSDS-related runoff by developing a statewide strategy to address runoff from cesspools and by financing OSDS upgrades. The PRC Program anticipates one NPS pollution control project addressing OSDS runoff (specifically, cesspool replacements) on a county's Intended Use Plan (IUP) by 2018. Meetings between the PRC Program and the WWB will continue to be held semi-annually to evaluate and discuss the State's approach to cesspool runoff and replacements, OSDS inspections, and the CNPCP OSDS management measure.

In 2014, the PRC Program began meeting with the DLNR Division of Forestry and Wildlife (DOFAW) to identify water quality protection projects to jointly implement. The PRC Program plans to collaborate with DOFAW and the SDWB on a water quality protection project in 2017.

The PRC Program also plans to continue fostering its relationship with the University of Hawai'i (UH), which recently received Section 319 Project Funds to protect high quality water resources in Wai'ula'ula watershed. UH conducts water quality research and is developing a plan for integrating the State's water quality monitoring data, which it has discussed with the PRC Program. Potential outcomes of a UH

partnership include collaboration on water quality monitoring projects, data sharing to increase the number of streams assessed for the Integrated Report, and identifying NPS pollution and pollution sources. In addition, because UH is active in He'eia watershed, the PRC Program plans to coordinate water quality improvement efforts and monitoring activities over the next five years.

The PRC Program will also meet annually with at least two different county departments and at least three community groups to discuss watershed restoration, water quality improvement efforts, and potential Section 319 projects. The PRC Program will target meetings with counties and local organizations based on the annual RFP and on planning efforts concerning runoff from cesspools, agriculture, and urban areas.

The PRC Program will also strengthen its existing partnerships by participating in DOH-organized meetings with the State, counties, and water quality professionals. Each year, the SDWB, CWRM, and UH Department of Geology and Geophysics co-host the Joint Government Water Conference in each county to provide government agencies, water industry personnel, and local organizations with an overview of water-related activities in Hawai'i. Every other year, the conference will emphasize DOH priorities, including polluted runoff. The conference will provide an opportunity to showcase the PRC Program's successes and provide information on Section 319 funding opportunities. In addition, the conference will enable the PRC Program to stay up to date with water quality activities and to strengthen relationships with counties and with other water-related organizations to better coordinate future water quality improvement efforts.

### ***Education and Outreach***

The State also plans to continue its partnerships that specifically focus on education and outreach. The PRC Program's primary educational outreach will be through partnerships with the Waikiki Aquarium and CCH. At annual Earth Day events hosted by these partners, the PRC Program will be able to inform over 3,500 visitors about water quality problems and solutions and distribute approximately 1,000 water quality-themed coloring books. The PRC Program will continue to annually provide elementary schools with at least 250 coloring books that describe ways students and their families can prevent NPS pollution and keep streams and the ocean clean. These outreach opportunities are important to cultivate engagement in water quality protection and keep the local community informed about NPS pollution prevention throughout the State.

Education and outreach is not limited to hosting events for youth. As part of the PRC Program's outreach efforts to build new partnerships to control polluted runoff, the PRC Program will take an active role in promoting the [Hawai'i Watershed Guidance](#) to interested community members throughout the State. In 2016, the PRC Program will print 100 additional copies of the Guidance and distribute it at stakeholder meetings and relevant conferences. The PRC Program will also participate in local conferences and symposia, such as the annual Hawai'i Conservation Conference, to discuss the Section 319 Program, with the goal of giving presentations about the Section 319 program at a minimum of two conferences per year. These presentations will increase awareness of the PRC Program's mission and funding opportunities and provide another avenue to developing new partnerships for polluted runoff control.

*Strategy R: Coordinate Section 319 program activities and leverage Section 319 funding within DOH water branches to protect surface and groundwater quality*

The purpose of this strategy is to better integrate and coordinate NPS management efforts among the DOH water branch programs. While NPS management is already well integrated into CWB, there are still opportunities for better coordination within CWB, particularly with respect to aligning Section 303(d) and Section 319(h) goals. In addition, the PRC Program will direct much of its partnership efforts towards improving coordination with the WWB and SDWB.

***Clean Water Branch: Improve 303(d) and 319 Integration***

Because the 303(d) Program Vision and Section 319 program have overlapping goals, including watershed prioritization and water quality protection, the CWB is seeking ways to improve integrating both programs. The CWB is currently implementing the Engagement goal, which calls for actively engaging the public and other stakeholders to improve and protect water quality via communication, consistent feedback, and greater understanding of 303(d) program objectives throughout the State. The CWB will be focusing its efforts on the other five goals (Prioritization, Assessment, Protection, Alternatives, and Integration) by developing goal statements and making steps towards integrating 303(d) and 319 activities to meet those goals over the next five years.

Prioritization, Protection, and Integration are 303(d) Program Vision goals will be integrated with Section 319 goals starting in 2016. Prioritization involves the systematic review, prioritization and reporting of priority watersheds in the Integrated Report. The CWB's 303(d) Program, in consultation with the PRC Program, will develop priorities, including a prioritization matrix and a list of priority watersheds to target for monitoring, assessment, and Section 319 implementation. For the Protection goal, the CWB will develop criteria and schedules for protecting high quality waters. (See Chapter 5, Goal 2, for more information on the Prioritization and Protection goals). The 303(d) Integration goal is intended to integrate programs to effectively utilize all program tools to restore and protect priority watersheds. The 303(d) and 319 programs currently collaborate on water quality monitoring and watershed prioritization, and will be working towards better integration through the development of the Waikele TMDL+ plan (Goal 2). The CWB Monitoring and Analysis Section and PRC Program will work together to develop statements for these goals in 2016.

In addition, the State intends to develop a goal statement for, and begin implementation of, the Alternatives (to TMDLs) goal in 2017. This goal allows the 303(d) program to use alternative approaches to the TMDL where it is most cost-effective and efficient, and to define actions that will achieve water quality goals.

The site-specific Assessment goal is designed to assist the State with identifying the extent of healthy and impaired waters in previously prioritized watersheds by 2020. The PRC Program and the CWB Monitoring and Analysis Section will collectively increase inland water quality monitoring of prioritized watersheds and Waikele watershed to assess watershed implementation efforts by 2020.

### ***Wastewater Branch***

One of the WWB's goals is to ban the construction of new cesspools and phase out existing cesspools, which are sources of surface and groundwater pollution. In support of this goal, beginning in 2016 the State will provide financial assistance in the form of an income tax credit to homeowners who wish to upgrade or convert their cesspools into septic systems or ATUs. The WWB will assist in this effort by certifying cesspools that are qualified for upgrades and conversions.

Because eliminating cesspools will help achieve water quality improvements and reduce potential health risks, the PRC Program joined the WWB in their effort to eliminate cesspools by giving priority to cesspool replacement projects in the Program's 2014 RFP. Beginning in late 2015, the PRC Program will begin cesspool replacements with aerobic treatment units (ATUs) in Hanalei Bay watershed, and the WWB has agreed to assist the CWB with ATU inspections and other technical aspects of replacing cesspools. The WWB, SDWB, and PRC Program will also work together to develop an approach to cesspool runoff and replacement projects by 2017. Each DOH branch is currently approaching this problem using the available tools at hand; therefore, coordination between the water branches will provide a more effective, uniform approach to future cesspool replacement projects, whether funded through a State Revolving Fund or Section 319 Project Funds.

The WWB is also the lead responsible agency for implementing the New and Operating OSDS management measure under the CNPCP. Because this management measure still requires approval by the EPA and NOAA, the PRC Program and the CZM Program are working with the WWB to develop an OSDS inspection program that meets the requirements in the management measure. Full approval and implementation of the OSDS management measure will help reduce OSDS failures as well as reduce nutrient and bacterial loadings, thereby benefiting both surface and groundwater quality.

The WWB also administers the CWSRF, which provides low-interest loans to fund county infrastructure construction projects and can be used to support NPS pollution control projects. Priority for the State's CWSRF is given to the counties, and the PRC Program will meet with each county at the annual Joint Government Water Conference and during the RFP outreach process to discuss project opportunities, particularly projects involving cesspool upgrades. The PRC Program intends have one cesspool replacement project funded or partially funded with the CWSRF by 2020.

### ***Safe Drinking Water Branch***

While the SDWB and PRC Program strive to protect source waters from pollution, the two programs have not yet collaborated on a Section 319 project. In late 2014, the SDWB, PRC Program, and DLNR began meeting to discuss potential opportunities to jointly fund a wellhead or source water protection project using Section 319 Project Funds and the DWSRF set-asides. In anticipation of DWSRF set-aside availability in 2017, the SDWB, PRC Program, and DOFAW will identify source water protection areas and potential projects to implement in 2016. The PRC Program and the CWB Monitoring and Analysis Section will also consult with the SDWB as they develop water quality protection strategies in 2016.

#### *Objective 4: Apply adaptive management to improve the State NPS Program and investigate innovative approaches to address NPS pollution in Hawai'i*

The PRC Program recognizes the need to adapt its strategies and incorporate lessons learned as it develops and implements projects described in this plan. The PRC Program is also committed to investigating innovative approaches to managing NPS pollution. Below are strategies to guide the State in assessing and improving its efforts to manage NPS pollution as well as explore new ways to address Hawai'i's NPS challenges.

##### *Strategy S: Assess progress implementing this plan, apply lessons learned, and incorporate program improvements*

To ensure that the State is working towards achieving the goals described in this plan, the PRC Program will evaluate successes, challenges, and progress towards milestones in its annual End of Year Report. This report will detail the status of all Section 319 projects and include pollutant load reductions and water quality benefits that have resulted from these projects. The End of Year Report also will describe the PRC Program's monitoring, assessment, planning, and implementation activities and outcomes pursuant to the goals, objectives, and milestones identified in this plan. In addition, the PRC Program will include a review of lessons learned from watershed planning and implementation and identify technical assistance needs to address its limitations. The End of Year Report also will discuss program challenges and how the PRC Program will adapt to meet these challenges.

The PRC Program will incorporate lessons learned and program improvements from its end of year assessments into the 2020-2025 Hawai'i NPS Management Plan. New goals, and new approaches to accomplish these goals, will be proposed to address the challenges encountered over the course of implementing this five-year plan. A draft of the updated management plan will be completed in 2019. The PRC Program anticipates the updated plan's approval by the EPA in early 2020.

##### *Strategy T: Investigate innovative approaches to address NPS pollution*

The State will seek out new ways to develop and implement its NPS program to maximize water quality improvements. Beginning in 2016, the State will participate in new collaborations and explore new program possibilities, including water quality trading and NPS enforcement. In addition, the State plans to address ways it can improve its approach to NPS management by focusing more of its efforts on addressing chronic sources of NPS pollution that are impairing surface waters, which was discussed in Objective 2 of this goal.

In 2015, the CWB, led by its Engineering Section, began a collaboration with the Association of Clean Water Administrators to develop a water quality trading program in Hawai'i. Water quality trading has the potential to mitigate NPS pollution through NPS pollution reduction measures put in place to offset point source discharges (by permitted facilities) in the same watershed or waterbody. Trading may help improve water quality in situations in which compliance with permits under NPDES is difficult for a

discharger. Conditions to implement a trading program, such as BMPs to control NPS pollution to offset point source discharges, could be included in NPDES permits as part of this trading program. In 2015, the CWB will participate in webinars to familiarize itself with the elements of water quality trading program, and in 2016 will begin to set goals and a timeline for the development and implementation of the water quality trading program.

The CWB will also work towards advancing the State's approach to reducing NPS pollution by investigating opportunities for an NPS enforcement program. Under HRS Chapter 342D ("Water Pollution") and Chapter 342E ("Nonpoint Source Pollution Management and Control"), the DOH has the authority to administer, enforce, and carry out all laws, rules, and programs relating to NPS pollution. While expanding enforcement to address NPS pollution will give the State control over more sources of pollution, developing an NPS enforcement program may present several challenges to the CWB. Since NPS enforcement will require commitment from all CWB sections and programs and may require changes to the HAR, the CWB first will determine what resources are necessary to develop an NPS enforcement program. Specifically, the CWB will evaluate technical, legal, and personnel resources required for an effective NPS enforcement program. The CWB will also explore the possibility of enforcement of specific sources of NPS pollution or NPS enforcement in specific watersheds. The PRC Program will also receive enforcement training and participate in a complaint inspection with the CWB Enforcement and Compliance Section in 2016. The CWB will complete a report of its evaluation and its recommendations for an NPS enforcement program in 2017.

Another method the State will consider to improve NPS management is utilizing a targeted approach for water quality monitoring by focusing on specific pollutants of concern and their sources. Because the State's water quality monitoring program is not currently designed to address water quality problems or pollutant sources, there is little analytical data that the State can use to help guide its efforts to reduce NPS pollution, particularly with respect to the State's inland waters. The CWB recognizes that being proactive and targeting monitoring to address specific NPS pollutants and their sources have the potential to be more effective in reducing and preventing NPS pollution. In addition, shifting the focus of water quality monitoring to pollutants of concern and their sources may factor into the feasibility of an NPS enforcement program, since it will be easier to enforce NPS violations if sources of pollutants have been identified.

The CWB recognizes that beach monitoring will continue to be a State priority, and that it may take years to transition to this more targeted approach. To this end, the CWB sections and programs will meet annually to discuss ways to move in this direction and will consider employing a targeted monitoring approach as it develops and implements water quality monitoring plans for Hanalei Bay, West Maui, and Waialeale watersheds. The CWB will be able to evaluate the effectiveness of this approach based on its water quality assessments for the 2020 Integrated Report.

Finally, over the next five years, the CWB will also re-evaluate all the federal, state, and local tools (e.g., laws, agencies, programs, funding) that are available to address NPS pollution in Hawai'i. While the major laws, agencies, and programs involved in water quality management have been identified in

Chapters 2 and 3, the PRC Program will perform a gap analysis of the State’s programs and tools to determine where the State can improve its efforts and adapt its NPS approach. The PRC Program will perform this analysis as part of the CNPCP monitoring and tracking strategy (Goal 4, Objective 1) and will release a report of this evaluation and analysis in 2019.

**Table 3.** Hawai‘i’s NPS management goals, objectives, strategies, and milestones for 2015-2020

<b>Goal 1: ASSESSMENT</b>		
<b>Identify water quality trends and waters and watersheds impaired or threatened by nonpoint source pollution</b>		
<b>Objective 1:</b> Develop surface water quality assessment methods and monitoring plans to guide monitoring efforts		
<b>Strategy A:</b> Develop a standardized water quality assessment methodology to guide assessments, maintain data integrity, and promote data and information sharing within CWB		
<b>Milestones:</b>		
1. Complete Standardized Assessment Methodology		2016
2. Complete Marine Water Quality Assessment Methodology for the 2016 Integrated Report		2016
3. Complete the Inland Water Quality Assessment Methodology for the 2018 Integrated Report		2018
Participation: CWB Monitoring, PRC		
<b>Strategy B:</b> Develop watershed-specific monitoring plans to document water quality trends		
<b>Milestones:</b>		
1. Complete Hanalei Bay watershed monitoring plan		2016
2. Complete West Maui watershed water quality monitoring plan		2016
3. Complete Waikele watershed monitoring plan		2018
4. Report on recommendations for a regional monitoring program		2019
Participation: CWB Monitoring, PRC, CCH, partners		
<b>Objective 2:</b> Monitor and assess water quality to identify water quality impairments and improvements		
<b>Strategy C:</b> Conduct water quality monitoring and assessments of streams and coastal zones		
<b>Milestones:</b>		
1. Conduct beach monitoring		Annually
2. Conduct inland water quality monitoring in priority watersheds		Annually
3. Target chemistry monitoring at priority sites		Annually
4. Implement Hanalei Bay watershed monitoring plan		2017
5. Implement West Maui watershed monitoring plan		2017
6. Implement Waikele watershed monitoring plan		2019
7. Assess water quality and produce the Integrated Report every 2 years		2016-2020
a. Implement Marine Water Quality Assessment Methodology		2016-2020
b. Implement Inland Water Quality Assessment Methodology		2018, 2020
Participation: CWB Monitoring & Analysis, PRC, DAR, partners		
<b>GOAL 2: PLANNING</b>		
<b>Develop strategies, watershed-based plans, and TMDL implementation (TMDL+) plans to prevent and reduce NPS pollution</b>		
<b>Objective 1:</b> Prioritize watersheds to focus water quality improvement and protection efforts		
<b>Strategy D:</b> Prioritize waters and watersheds		
<b>Milestones:</b>		
1. Complete watershed prioritization matrix		2016
2. Prioritize watersheds to identify at least 3 priority watersheds, including one for protection, for 2020-2025		2017
3. Create list of candidate watersheds for future water quality monitoring and assessment efforts		2019
Participation: CWB		

**Objective 2:** Develop strategies and measures of success for NPS protection

**Strategy E:** Assess needs and opportunities to develop and implement water quality and watershed protection strategies

**Milestones:**

- |   |      |
|---|------|
| 1. Establish water quality and watershed protection criteria, goals for protection, and measures of success | 2016 |
| 2. Identify at least one priority watershed for protection  | 2017 |

Participation: CWB, SDWB

**Objective 3:** Develop comprehensive watershed-based plans

**Strategy F:** Develop a TMDL+ plan

**Milestones:**

- |  |      |
|--|------|
| 1. Establish step-by-step process for developing TMDL+ plan, resulting in a workplan | 2015 |
| 2. Complete (sediment) TMDL for Waikele Stream                                       | 2015 |
| 3. Complete implementation component (+) of plan                                     | 2017 |
| 4. Begin implementation of TMDL+ plan, invest in at least one 319 project            | 2019 |
| 5. Assess and evaluate TMDL+ approach  | 2020 |
| 6. Develop schedule for next TMDL+ plan  | 2020 |

Participation: CWB, stakeholders, contractors

**Strategy G:** Support the development of at least three new watershed-based plans

**Milestones:**

- |   |      |
|---|------|
| 1. Complete West Maui (Kahana, Honokahua, and Honolua) watershed plan                         | 2015 |
| a. Provide plan review/feedback monthly during FAST meetings                                  | 2015 |
| b. Approved plan that includes the required 9 elements  | 2015 |
| 2. Complete comprehensive West Maui watershed plan, provide technical assistance and feedback | 2017 |
| 3. Complete Kaiaka Bay watershed plan   | 2017 |

Participation: CWB, CCH, West Maui Ridge 2 Reef FAST

**Goal 3: IMPLEMENTATION**

**Implement NPS management strategies to restore impaired waters and protect high quality waters from NPS pollution**

**Objective 1:** Invest in projects to achieve and demonstrate water quality improvements through implementation of watershed-based plans and TMDL+ plans

**Strategy H:** Invest Section 319 funds in priority watersheds and watersheds with approved watershed-based plans

**Milestones:**

- |   |           |
|---|-----------|
| 1. Target RFPs in priority watersheds on a rotating basis   | Annually  |
| 2. Site visits: As part of RFP, meet with 3-4 community groups or government agencies to discuss potential projects and gauge level of community support  | Annually  |
| 3. Invest in priority watersheds  | 2015-2020 |
| c. He'eia: Monitor water quality, continue implementing 319 projects, invest in two additional 319 projects   |           |
| d. Hanalei: Monitor water quality, invest in additional cesspool project  |           |
| e. West Maui: Develop watershed plans and water quality monitoring plan; fund watershed coordinator; continue implementing 319 projects; invest in at least one additional 319 project targeting sediment and nutrients |           |

*Goal 3: Implementation (continued)*

- |  |           |
|--|-----------|
| 4. Target CWA and SDWA resources to implement protection measures in a priority watershed  | 2017      |
| 5. Invest in at least three additional projects in watersheds with watershed-based plans, with the goal of targeting runoff from cesspools, agriculture, and urban areas | 2015-2020 |

Participation: CWB, EPA, SDWB, DOFAW, Maui County, West Maui Ridge 2 Reef, community groups, contractors

**Strategy I: Implement watershed-based plans and TMDL+ plans in priority watersheds**

**Milestones:**

- |   |            |
|---|------------|
| 1. He'eia watershed   |            |
| a. Complete implementation of existing 319 projects (Windward Mall retrofit, He'eia Stream Restoration Phase III) | 2015, 2016 |
| b. Implement two additional 319 projects to reduce turbidity and nutrients  | 2016-2020  |
| c. Delist He'eia Stream for turbidity and/or total phosphorous or nitrate and nitrite in the Integrated Report    | 2020       |
| d. Document an EPA WQ-10 success story for He'eia Stream  | 2020       |
| e. Conduct water quality monitoring to assess and document water quality improvements                             | 2015-2020  |
| 2. West Maui watershed  |            |
| a. Complete existing 319 project to reduce sediment by 149 tons   | 2016       |
| b. Support watershed coordinator position   | 2016       |
| c. Implement at least two new 319 projects to reduce sediment and nutrients                                       | 2016-2020  |
| i. One of the two projects located in Kahana, Honokahua, or Honolulu  |            |
| d. Implement monitoring plan to document water quality trends   | 2017-2020  |
| 3. Hanalei Bay watershed  |            |
| a. Implement two cesspool replacement projects in Hanalei and Waipa   | 2015-2018  |
| b. Implement at least one additional cesspool replacement project   | 2019-2020  |
| c. Implement monitoring plan to document/assess water quality improvements  | 2017-2020  |
| d. Achieve an EPA SP-12 success story for an impaired watershed (Hanalei or Waipa)                                | 2020       |
| 4. Implement at least one 319 project that protects high quality waters   | 2017-2020  |
| 5. Implement at least three additional 319 projects   | 2016-2020  |

Participation: CWB, EPA, SDWB, DOFAW, Maui County, monitoring partners, watershed and community groups, contractors

**Strategy J: Support existing Section 319 implementation projects in watersheds with approved plans**

**Milestones:**

- |   |      |
|---|------|
| 1. Ala Wai: Reduce sediment by 199 tons and restore 1,800 ft of streambanks                                     | 2016 |
| 2. Ka'alaea and Waiahole watersheds: Reduce sediment and nutrient loads, develop 10 new conservation plans      | 2018 |
| 3. Hakioawa: Restore bare areas with 20,000 native plants to reduce erosion and sediment                        | 2015 |
| 4. Pelekane Bay: Reduce sediment by 150 tons and reduce turbidity   | 2016 |
| 5. Waikele: Implement at least one project from TMDL+ plan to reduce sediment, conduct water quality monitoring | 2019 |

*Goal 3: Implementation (continued)*

6. Wai'ula'ula watershed: Restore 10,000 ft of stream corridor, reduce sediment by 11-15%, and reduce nutrients  
 Participation: CWB, EPA, partners, contractors

**Strategy K:** Assess and document water quality trends and environmental results

**Milestones:**

- |  |                  |
|--|------------------|
| 1. Assess water quality trends, including listings and de-listings, for the Integrated Report  | 2016, 2018, 2020 |
| a. He'eia Stream: delist for turbidity and/or total phosphorous or nitrate and nitrite   | 2020             |
| 2. Achieve WQ-10 success story (He'eia) and SP-12 success story (Hanalei)  | 2020             |
| 3. Report and document water quality improvements in at least four watersheds (He'eia, Hanalei Bay, and 2 additional watersheds) through GRTS, PRC Viewer, PRC End of Year Report, Integrated Report | 2020             |
| 4. Conduct site visits to each project site to ensure work is completed  | Annually         |
| 5. Assess effectiveness of Section 319 projects and PRC Program in the PRC Program's End of Year Report  | Annually         |

Participation: CWB, EPA

**Goal 4: Statewide NPS Program Development**  
**Develop and employ an effective statewide program to manage NPS pollution**

**Objective 1:** Develop and implement the Coastal Nonpoint Pollution Control Program (CNPCP) to prevent and reduce coastal NPS pollution statewide

**Strategy L:** Develop the CNPCP pursuant to CZARA Section 6217

**Milestones:**

- |  |      |
|--|------|
| 1. Obtain approval of remaining conditions |      |
| a. New Development                         | 2016 |
| b. New and Operating OSDS                  | 2016 |
| c. Roads, Highways, and Bridges            | 2016 |
| d. Monitoring and Tracking                 | 2017 |

Participation: CZM program, PRC Program, WWB, counties, HDOT, EPA, NOAA

**Strategy M:** Determine the status and effectiveness of CNPCP management measure implementation

**Milestones:**

- |  |      |
|--|------|
| 1. Develop system/process to determine implementation status of currently approved management measures in He'eia   | 2017 |
| 2. Produce report on management measure implementation status in He'eia, identify reasons for lack of implementation, and identify ways to improve implementation              | 2017 |
| 3. Use lessons learned from He'eia to determine status of management measure implementation in a priority watershed in another county; produce report on implementation status | 2019 |

Participation: CZM program, PRC Program, EPA, NOAA, agencies responsible for management measure implementation

**Objective 2:** Develop and implement strategies to address the State's major NPS pollution concerns

**Strategy N:** Develop and implement a statewide effort to address cesspools

**Milestones:**

- |                                     |      |
|-------------------------------------|------|
| 1. Framework for statewide strategy | 2016 |
| 2. Completed statewide strategy     | 2017 |

*Goal 4: Statewide NPS Program Development (continued)*

<p>3. Implement a new cesspool replacement project identified in the strategy in a priority watershed (Hanalei)</p> <p>Participation: PRC, WWB, SDWB, counties</p>	<p>2019-2020</p>
<p><b>Strategy O:</b> Develop and implement a statewide effort to address urban runoff</p>	
<p><b>Milestones:</b></p>	
<p>1. Complete statewide strategy</p>	<p>2018</p>
<p>2. Invest 319 funds in at least one project identified in the State’s strategy</p>	<p>2018-2020</p>
<p>Participation: CWB, counties, partners</p>	
<p><b>Strategy P:</b> Develop and implement a statewide effort to address agricultural runoff</p>	
<p><b>Milestones:</b></p>	
<p>1. Complete statewide strategy, including framework for conservation plan tracking</p>	<p>2018</p>
<p>2. Invest 319 funds in at least one project identified in the strategy</p>	<p>2020</p>
<p>Participation: CWB, NRCS, SWCD, HDOA, stakeholders</p>	
<p><b>Objective 3:</b> Build new partnerships and strengthen existing partnerships to facilitate program coordination and integration for NPS management</p>	
<p><b>Strategy Q:</b> Identify potential partnerships and NPS projects that will benefit from cross-program coordination</p>	
<p><b>Milestones:</b></p>	
<p>1. Implement at least one polluted runoff control project in collaboration with NRCS</p>	<p>2020</p>
<p>2. Collaborate with HDOA and other partners to develop framework for conservation plan tracking as part of the statewide strategy</p>	<p>2017</p>
<p>3. Counties and WWB: Cesspool replacement project on a county’s IUP</p>	<p>2018</p>
<p>4. DLNR and SDWB: Invest in one water quality protection project</p>	<p>2017</p>
<p>5. University of Hawai’i: Coordinate water quality monitoring and water quality improvement projects in He’eia</p>	<p>2015-2020</p>
<p>6. Participate in Joint Government Water Conferences to coordinate NPS management efforts with counties and other water-related agencies</p>	<p>Annually</p>
<p>7. Education:</p>	
<p>a. Distribute 250 coloring books to elementary schools</p>	<p>Annually</p>
<p>b. Waikiki Aquarium and CCH: Outreach to 3,500 visitors about NPS pollution, distribute 1,000 coloring books</p>	<p>Annually</p>
<p>c. Distribute 100 copies of the Hawai’i Watershed Guidance at stakeholder meetings to increase the number of effective watershed-based plans</p>	<p>2016-2020</p>
<p>d. Participate in at last two local conferences and symposia to provide outreach and spark interest in partnerships</p>	<p>Annually</p>
<p>Participation: DOH, federal, state, county and local agencies and organizations</p>	
<p><b>Strategy R:</b> Coordinate Section 319 program activities and leverage Section 319 funding within DOH water branches to protect surface and groundwater quality</p>	
<p><b>Milestones:</b></p>	
<p>1. Improve 303(d) and 319(h) integration and develop goal statements for:</p>	
<p>a. Prioritization, Protection, Integration</p>	<p>2016</p>
<p>b. Alternatives</p>	<p>2017</p>
<p>c. (Site-specific) Assessment</p>	<p>2020</p>
<p>2. Improve coordination with WWB</p>	
<p>a. Develop statewide approach to cesspool replacements</p>	<p>2017</p>

*Goal 4: Statewide NPS Program Development (continued)*

a. Articulate OSDS inspection program for CNPCP management measure approval	2016
b. Leverage 319 funds with CWSRF funds to implement one cesspool replacement project	2020
3. Improve coordination with the SDWB	
a. Identify source water protection areas and discuss protection strategies	2016
b. Use Section 319 Project Funds and DWSRF set-asides to implement a source water protection project	2017

Participation: CWB, WWB, SDWB

**Objective 3:** Apply adaptive management to improve the State NPS Program and investigate innovative approaches to address NPS pollution in Hawai'i

**Strategy S:** Assess progress implementing this plan, apply lessons learned, and incorporate program improvements

**Milestones:**

1. Evaluate success, challenges, and progress working towards achieving NPS management goals in the PRC Program End of Year Report	Annually
2. Incorporate lessons learned and program improvements from end of year assessments into the 2020-2025 State NPS Management Plan	2019
a. 2020-2025 NPS Management Plan draft	2019
b. Approval of 2020-2025 NPS Management Plan	2020

Participation: PRC, EPA

**Strategy T:** Investigate innovative approaches to address NPS pollution

**Milestones:**

1. Set goals and timeline for development and implementation of a water quality trading program	2016
2. Determine feasibility of an NPS enforcement program within CWB	
a. PRC Program enforcement training	2015
b. Participate in a complaint inspection	2016
c. Evaluate technical, legal, and personnel resources required for NPS enforcement	2016
d. Report on NPS enforcement opportunities	2017
3. Develop a targeted approach to water quality monitoring	2016-2020
a. Incorporate a targeted monitoring approach into Hanalei Bay, West Maui and Waikele watershed monitoring plans	2016-2018
b. Assess effectiveness of targeted monitoring approach through the Integrated Report	2020
4. Evaluate current NPS management tools, conduct gap analysis to address needs, and produce report	2019

Participation: CWB

# Appendix A

## State Land Use Districts: Acreages, Descriptions, and Maps

### State Land Use District Acreage by Island

The State Land Use District Acreage was obtained from 2014 State of Hawai‘i Land Use Commission GIS data ([http://files.hawaii.gov/dbedt/op/gis/data/slud2014\\_table.pdf](http://files.hawaii.gov/dbedt/op/gis/data/slud2014_table.pdf)).

Island	Agricultural		Conservation		Rural		Urban		Total (Acres)
	(Acres)	(%)	(Acres)	(%)	(Acres)	(%)	(Acres)	(%)	
Hawai‘i	1,183,344	45.8%	1,343,131	52.0%	1,618	0.1%	56,348	2.2%	2,584,440
Kaho‘olawe	0	0.0%	28,561	100.0%	0	0.0%	0	0.0%	28,561
Kaua‘i	144,318	40.7%	194,460	54.8%	1,374	0.4%	14,865	4.2%	355,016
Lana‘i	44,612	49.4%	40,570	44.9%	2,076	2.3%	3,039	3.4%	90,298
Maui	235,415	50.4%	204,149	43.7%	4,197	0.9%	22,928	4.9%	466,690
Moloka‘i	110,791	66.2%	52,511	31.4%	1,798	1.1%	2,287	1.4%	167,387
Ni‘ihau	46,045	99.4%	291	0.6%	0	0.0%	0	0.0%	46,335
O‘ahu	120,790	31.5%	158,670	41.4%	0	0.0%	104,232	27.2%	383,692
<b>Statewide</b>	<b>1,885,315</b>	<b>45.7%</b>	<b>2,022,343</b>	<b>49.1%</b>	<b>11,063</b>	<b>0.3%</b>	<b>203,699</b>	<b>4.9%</b>	<b>4,122,419</b>

### State Land Use District Descriptions

The State Land Use District descriptions below were obtained from the State of Hawai‘i Land Use Commission, State Land Use Districts website (<http://luc.hawaii.gov/about/state-land-use-districts/>).

#### AGRICULTURAL DISTRICT

The Agricultural District includes lands for the cultivation of crops, aquaculture, raising livestock, wind energy facility, timber cultivation, agriculture-support activities (i.e., mills, employee quarters, etc.) and land with significant potential for agriculture uses. Golf courses and golf-related activities may also be included in this district, provided the land is not in the highest productivity categories (A or B) of the Land Study Bureau’s detailed classification system.

Uses permitted in the highest productivity agricultural categories are governed by statute. Uses in the lower-productivity categories – C, D, E or U – are established by the Commission and include those allowed on A or B lands as well as those stated under Section 205-4.5, Hawai‘i Revised Statutes.

#### CONSERVATION DISTRICT

Conservation lands are comprised primarily of lands in existing forest and water reserve zones and include areas necessary for protecting watersheds and water sources, scenic and historic areas, parks, wilderness, open space, recreational areas, habitats of endemic plants, fish and wildlife, and all

submerged lands seaward of the shoreline. The Conservation District also includes lands subject to flooding and soil erosion. Conservation Districts are administered by the State Board of Land and Natural Resources and uses are governed by rules promulgated by the State Department of Land and Natural Resources.

#### **RURAL DISTRICT**

Rural Districts are composed primarily of small farms intermixed with low-density residential lots with a minimum size of one-half acre. Jurisdiction over Rural Districts is shared by the Commission and county governments. Permitted uses include those relating or compatible to agricultural use and low-density residential lots. Variances can be obtained through the special use permitting process.

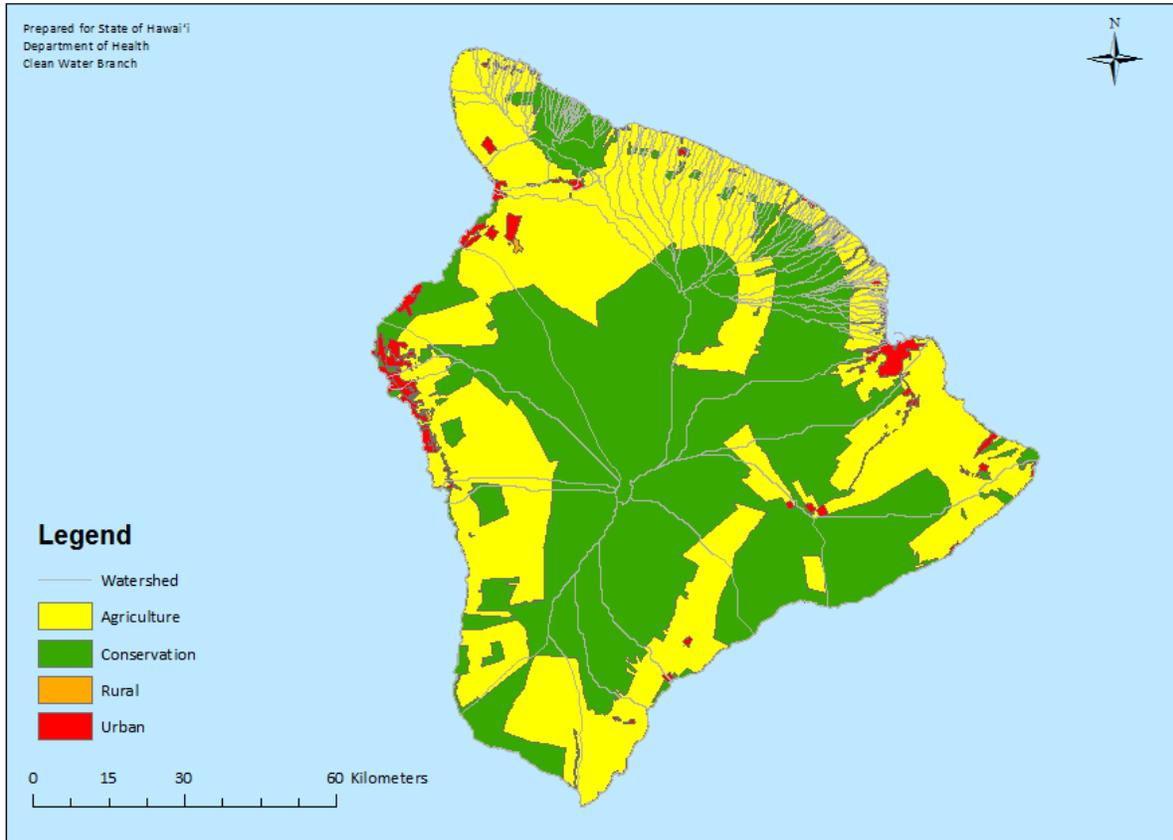
#### **URBAN DISTRICT**

The Urban District generally includes lands characterized by “city-like” concentrations of people, structures and services. This District also includes vacant areas for future development. Jurisdiction of the Urban Districts lies primarily with the respective counties. Generally, lot sizes and uses permitted in the district area are established by the respective county through ordinances or rules.

#### **State Land Use District Maps**

The following maps show state land use districts in each county, with watershed boundaries delineated.

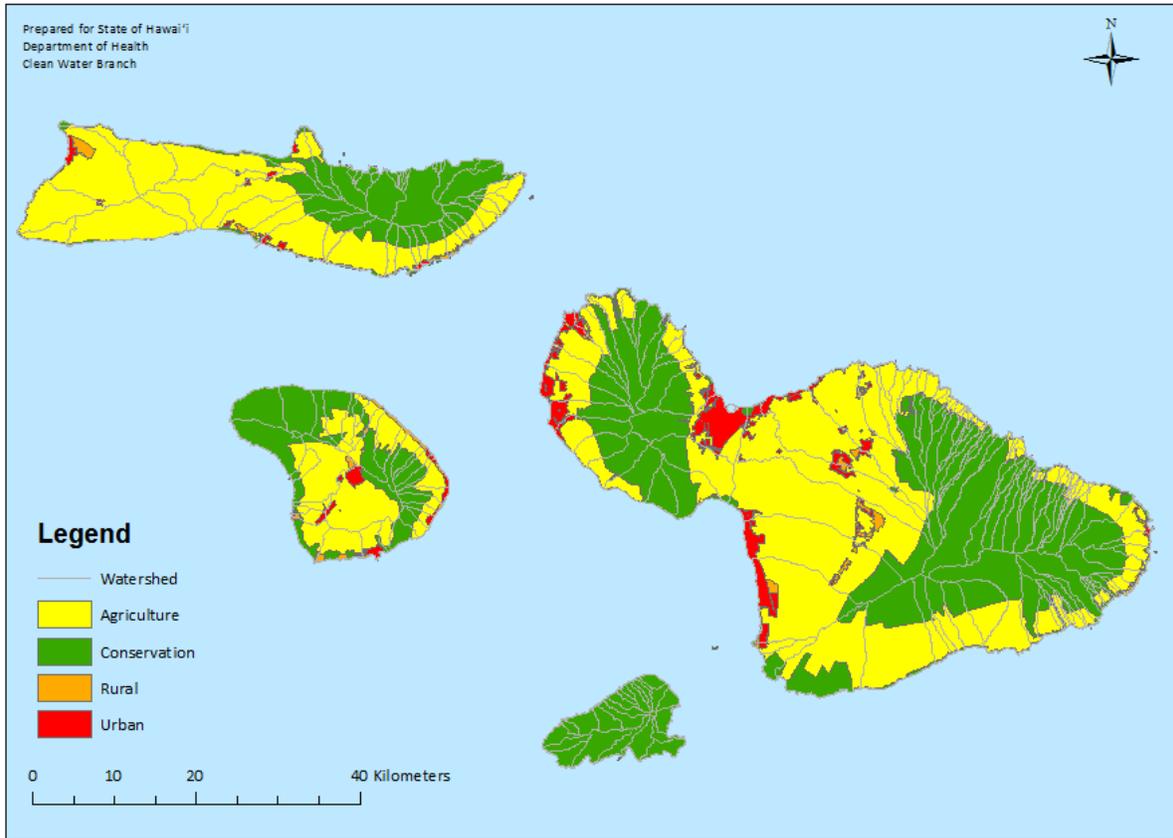
# County of Hawai'i



Source: State Definition and Delineation of Watersheds  
State Land Use Commission, July 2015  
Office of Planning, State of Hawai'i

Coordinate System: NAD 1983 UTM Zone 4N  
Projection: Transverse Mercator  
Datum: North American 1983  
Units: Meter

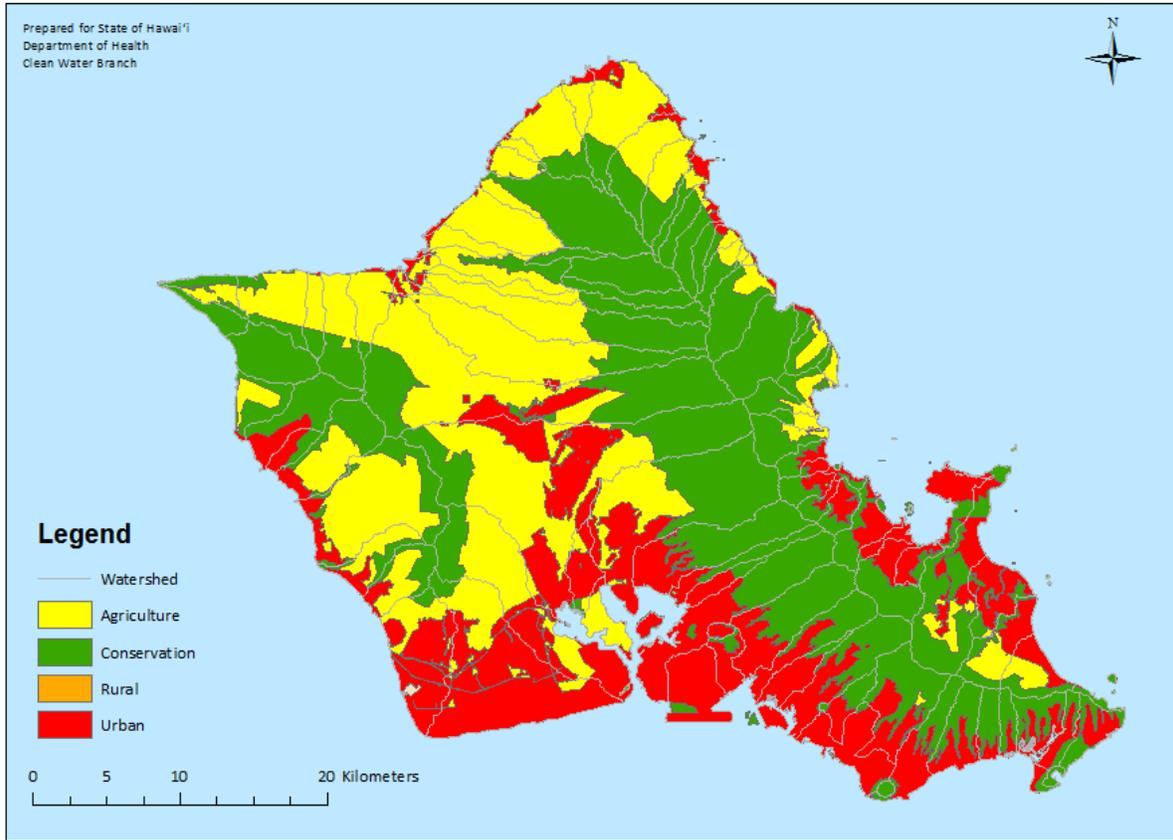
# County of Maui



Source: State Definition and Delineation of Watersheds  
State Land Use Commission, July 2015  
Office of Planning, State of Hawai'i

Coordinate System: NAD 1983 UTM Zone 4N  
Projection: Transverse Mercator  
Datum: North American 1983  
Units: Meter

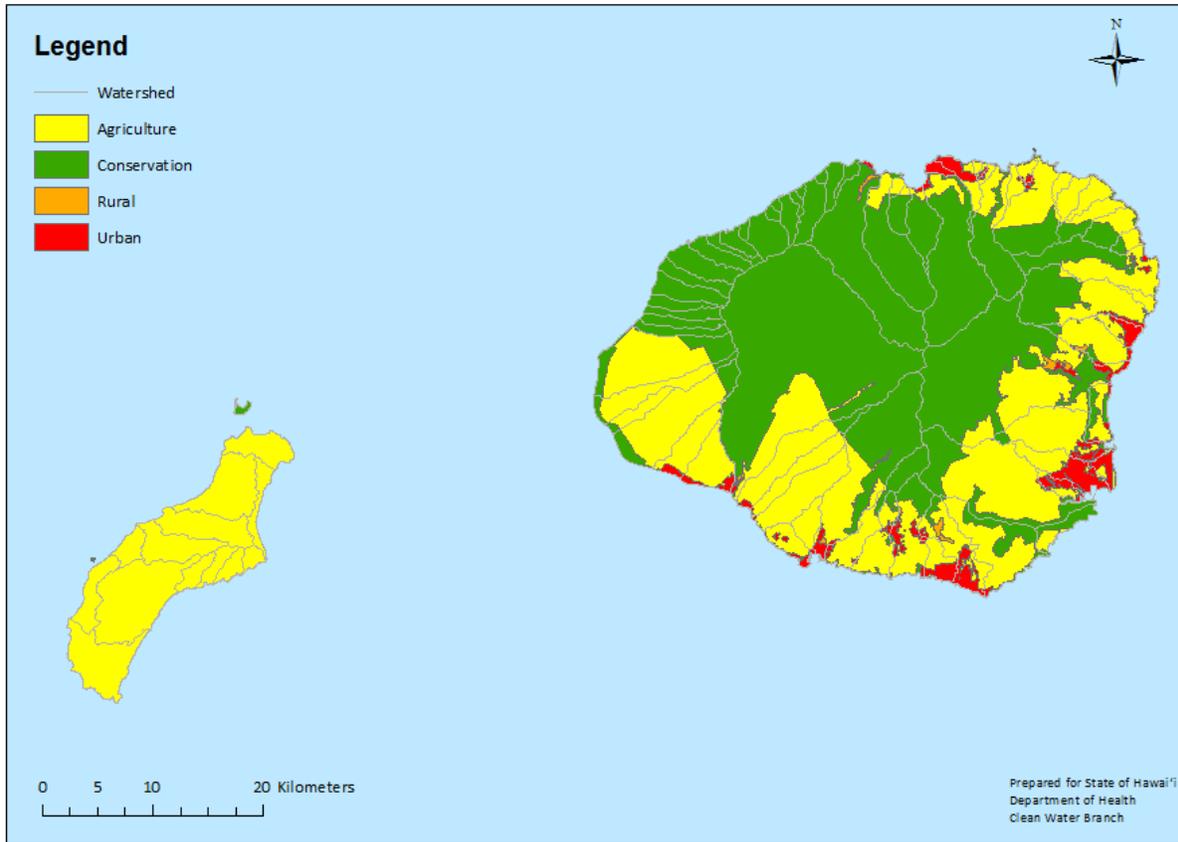
# City & County of Honolulu



Source: State Definition and Delineation of Watersheds  
State Land Use Commission, July 2015  
Office of Planning, State of Hawai'i

Coordinate System: NAD 1983 UTM Zone 4 N  
Projection: Transverse Mercator  
Datum: North American 1983  
Units: Meter

# County of Kaua'i



Source: State Definition and Delineation of Watersheds  
State Land Use Commission, July 2015  
Office of Planning, State of Hawai'i

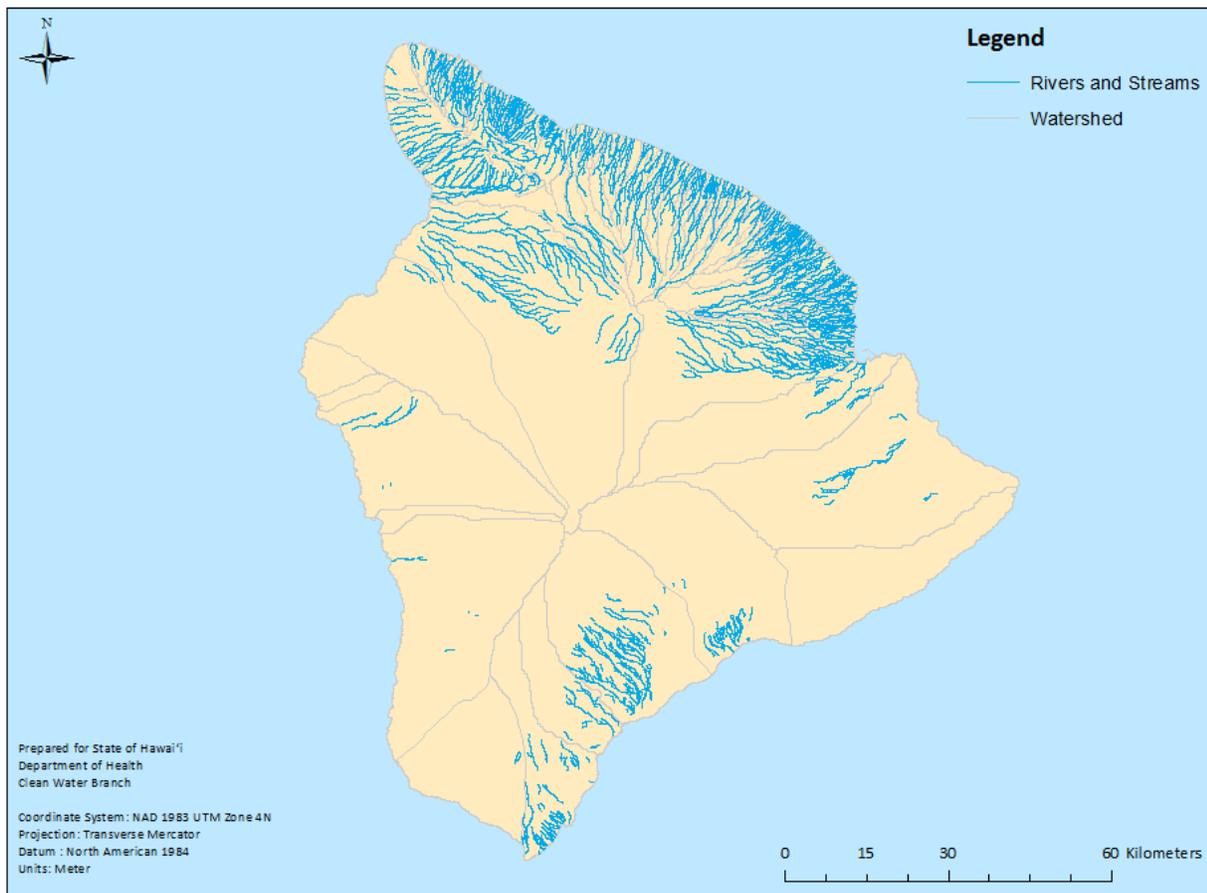
Coordinate System: NAD 1983 UTM Zone 4N  
Projection: Transverse Mercator  
Datum: North American 1983  
Units: Meter

# Appendix B

## Perennial and Intermittent Streams and Rivers in Hawai'i by County

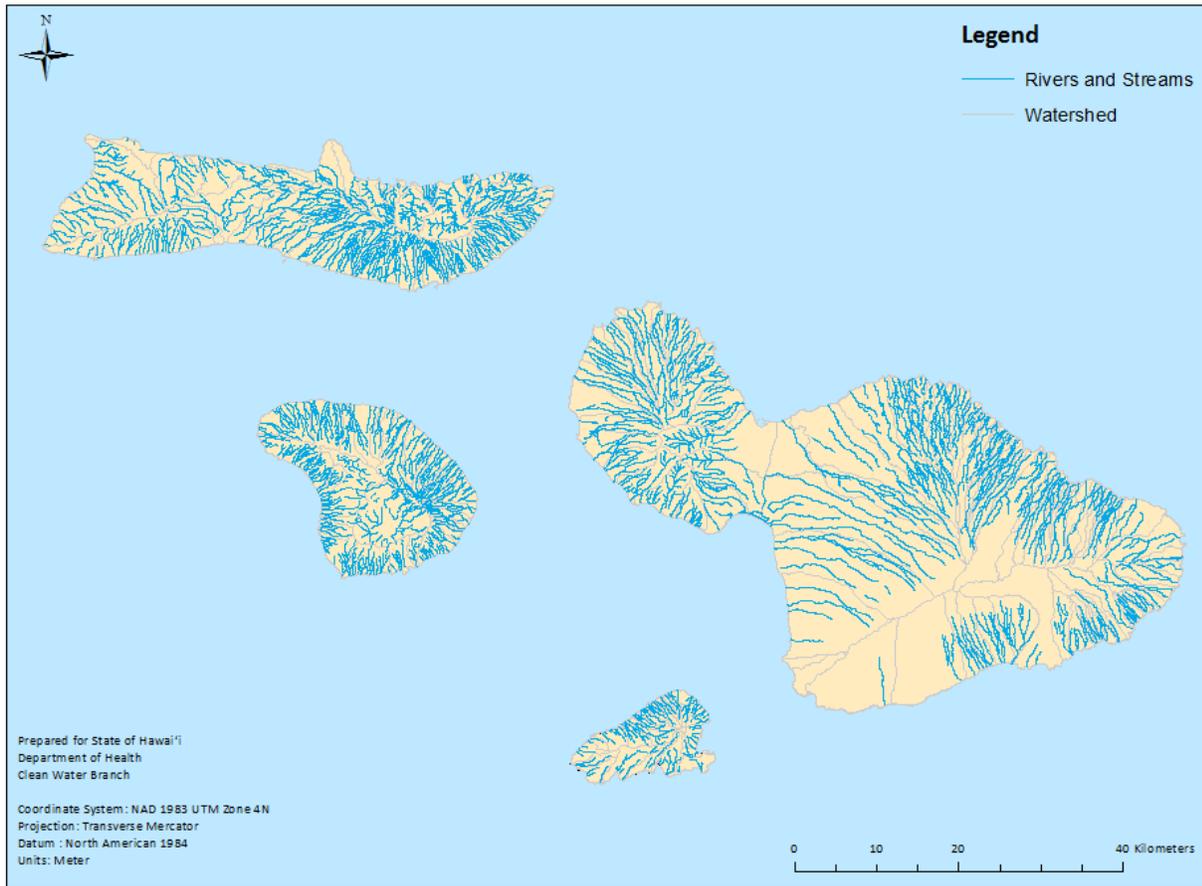
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### County of Hawai'i



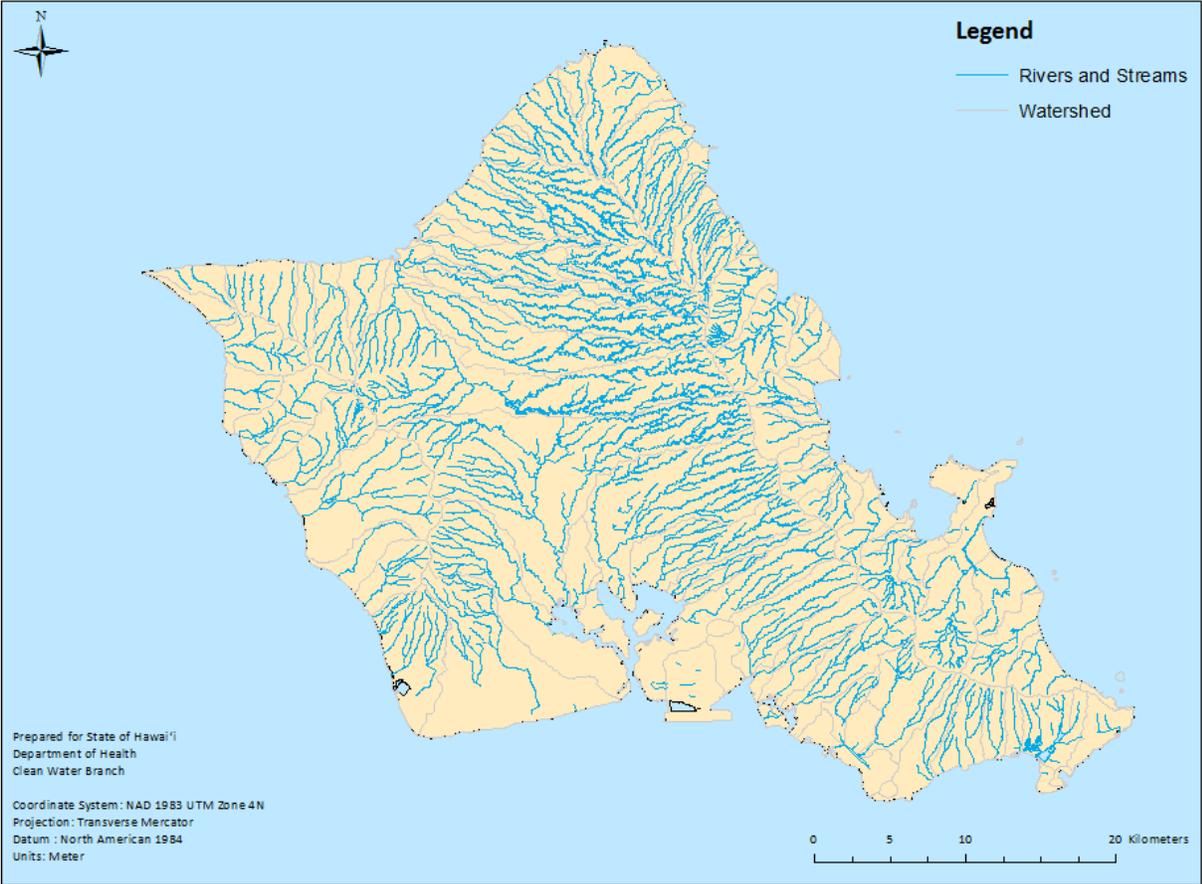
Sources: State Definition and Delineation of Watersheds. Office of Planning,  
State of Hawai'i, DLNR Division of Aquatic Resources

# County of Maui



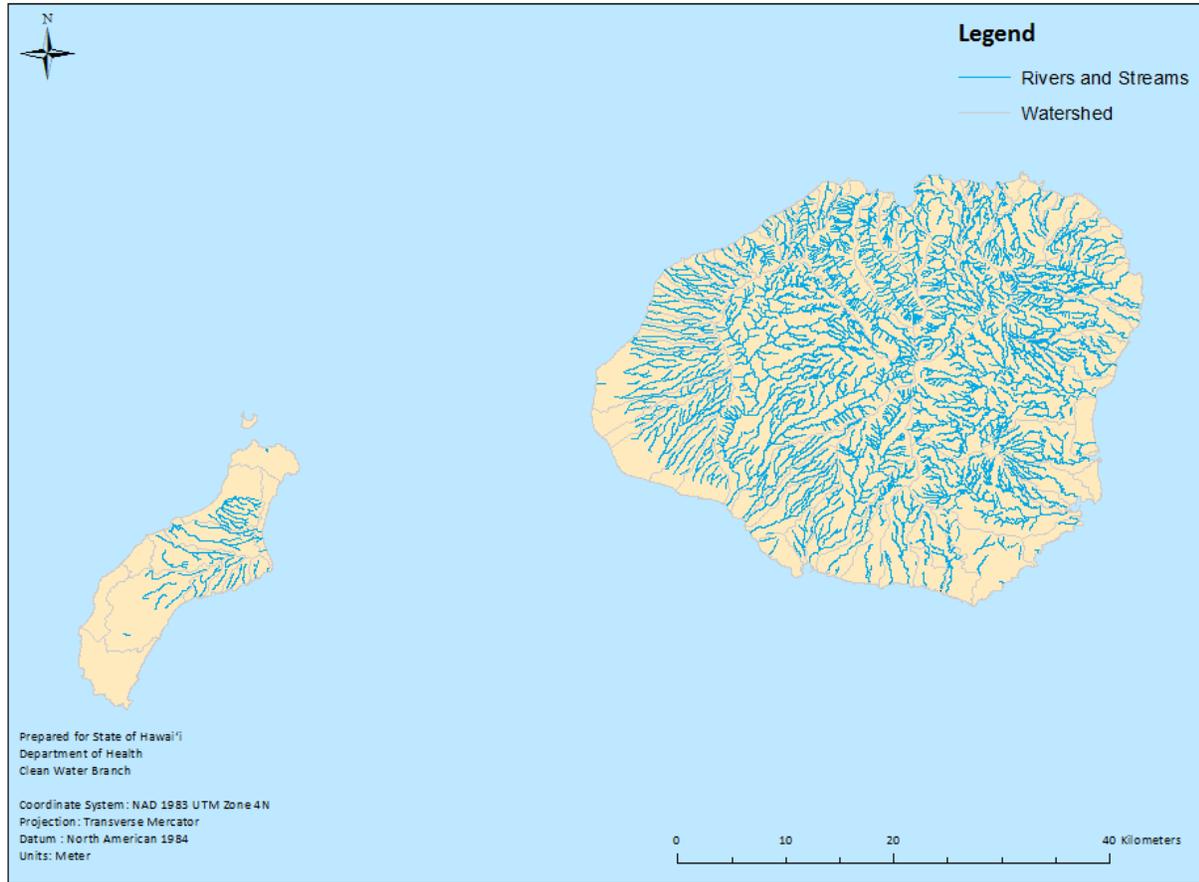
Sources: State Definition and Delineation of Watersheds, Office of Planning,  
State of Hawaii, DLNR Division of Aquatic Resources

# City & County of Honolulu



Sources: State Definition and Delineation of Watersheds, Office of Planning,  
State of Hawaii, DLNR Division of Aquatic Resources

# County of Kaua'i



Sources: State Definition and Delineation of Watersheds. Office of Planning,  
State of Hawaii, DLNR Division of Aquatic Resources

## Appendix C

### Total Maximum Daily Loads

Approved Total Maximum Daily Loads (TMDLs) for water bodies in Hawai‘i, based on the 2014 State of Hawai‘i Water Quality Monitoring and Assessment Report (Integrated Report).

Water Body	Island	Pollutants	Year Approved
Hanalei Stream	Kaua‘i	Enterococcus, Turbidity, TSS	2008
Hule‘ia Stream	Kaua‘i	Enterococcus, Nutrients, Turbidity, TSS	2008
Nawiliwili Stream	Kaua‘i	Enterococcus, Nutrients, Turbidity, TSS	2008
Papakolea Stream	Kaua‘i	Enterococcus, Nutrients, Turbidity, TSS	2008
Puali Stream	Kaua‘i	Enterococcus, Nutrients, Turbidity, TSS	2008
Waipa Stream	Kaua‘i	Turbidity, TSS	2008
Hanalei Bay	Kaua‘i	Enterococcus, Turbidity	2012
Hanalei River	Kaua‘i	Enterococcus, Turbidity	2008
Waikoko Estuary	Kaua‘i	Turbidity	2008
Waioli Stream Estuary	Kaua‘i	Turbidity	2008
Waipa Stream Estuary	Kaua‘i	Turbidity	2008
Kamo‘oali‘i Stream	O‘ahu	Nutrients, Sediment	2010
Kane‘ohe Stream	O‘ahu	Nutrients, Sediment	2010
Kapa‘a Stream	O‘ahu	Nutrients, Sediment	2007
Kawa Stream	O‘ahu	Nutrients, Sediment	2002, revised 2005
Kaukonahua Stream (N. Fork)	O‘ahu	Nitrogen, Turbidity	2010
Kaukonahua Stream (S. Fork)	O‘ahu	Nitrogen, Turbidity	2010
Waimanalo	O‘ahu	Nutrients, Sediment	2001
Ala Wai Canal & Boat Harbor	O‘ahu	Nutrients	1996, revised 2002

*Acronym key:*

TSS = Total Suspended Solids

# Appendix D

## Federal, State, and Local Agencies Involved in Nonpoint Source Management in Hawai‘i

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The following table provides information on federal, state, and local agencies involved in nonpoint source (NPS) management in Hawai‘i that are not included or described in detail in the NPS Management Plan. The Department of Health (DOH) water branches and the Department of Business, Economic Development and Tourism (DBEDT) Office of Planning are not included, since their roles are described in detail throughout the NPS Management Plan.

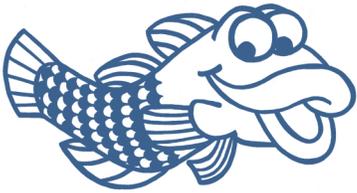
Organization	Nonpoint Source Management Responsibilities	Relationship & Partnership Opportunities with the Polluted Runoff Control (PRC) Program	Website
<b>FEDERAL</b>			
<b>National Oceanic and Atmospheric Administration (NOAA)</b>	Partners with the U.S. Environmental Protection Agency, the State Department of Business, Economic Development & Tourism’s Office of Planning Coastal Zone Management (CZM) Program, and the PRC Program to administer the Coastal Nonpoint Pollution Control Program (CNPCP), which establishes management measures designed to control runoff from various sources	Approves CNPCP management measures	<a href="http://www.noaa.gov">http://www.noaa.gov</a>
<b>U.S. Army Corps of Engineers (USACE)</b>	Administers the Clean Water Act (CWA) 404 permit program to regulate the discharge of dredged and fill materials into waters and wetlands; assists with wetlands and stream projects, including hydromodifications	Provides funding for ecosystem restoration and flood control projects	<a href="http://www.usace.army.mil">http://www.usace.army.mil</a>
<b>U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)</b>	Provides assistance to farmers in developing conservation plans and Best Management Practices (BMPs) in Soil and Water Conservation Districts (SWCDs); provides assistance to landowners to increase the sustainable use of soil, water, and other natural resources through the Regional Conservation Partnership Program (RCPP); works with farmers and ranchers to improve water quality through the National Water Quality Initiative (NWQI)	Potential collaboration with the PRC Program through the RCPP and NWQI	<a href="http://www.nrcs.usda.gov">http://www.nrcs.usda.gov</a>
<b>U.S. Environmental Protection Agency (EPA)</b>	Provides guidance for protecting and improving water quality on a watershed basis; provides CWA 319(h) funding for the PRC Program and its projects; partners with the DOH Clean Water Branch (CWB) for the National Pollutant Discharge Elimination System (NPDES) permit program; assists the CWB with monitoring and assessing water quality;	Provides funding for the PRC Program; approves the CNPCP management measures; assists the CWB with its permitting, monitoring, polluted runoff control, and enforcement activities	<a href="http://www.epa.gov">http://www.epa.gov</a>

	provides guidance with the development of Total Maximum Daily Load (TMDL) plans; partners with NOAA to administer the CNPCP		
<b>U.S. Geological Survey (USGS)</b>	Conducts research on water quality; provides water resource information, including water quality, streamflow, rainfall, and groundwater conditions	Partners with the CWB Monitoring and Analysis Section to track wastewater and nutrient sources; conducts the Statewide Pesticide Sampling Pilot Project; determines the existence of pollutant sources and the levels of chemical contaminants in streams and coastal waters	<a href="http://www.usgs.gov">http://www.usgs.gov</a>
<b>STATE</b>			
<b>Department of Accounting and General Services (DAGS)</b>			
State Procurement Office	Provides training for successful procurement; processes and mails payment claims to contractors undertaking PRC Program projects	Procurement training facilitates efficient PRC Program grant spending	<a href="http://spo.hawaii.gov">http://spo.hawaii.gov</a>
<b>Department of the Attorney General (AG)</b>			
Health and Human Services Division	Investigates violations of State laws and initiates civil and criminal actions to enforce the laws or prosecute persons who violate them; prepares legal opinions for the Governor, the Legislature, and the heads of State departments; advises State officials on legal matters	Provides legal support by reviewing all PRC Program contracts; will participate in the PRC Program's evaluation of developing a NPS enforcement program	<a href="http://ag.hawaii.gov">http://ag.hawaii.gov</a>
<b>Department of Hawaiian Homelands (DHHL)</b>			
DHHL	Develops a Water Policy Plan to develop and protect water sources, manage water systems, and plan for water needs	Potential to collaborate on projects in watersheds with approved watershed-based plans (WBPs)	<a href="http://dhhl.hawaii.gov">http://dhhl.hawaii.gov</a>
<b>Department of Health (DOH)</b>			
Administrative Services Office (ASO)	Manages all accounting, contractual, and administrative duties for the DOH	Reviews and processes PRC Program contracts	<a href="http://health.hawaii.gov/about/links-to-doh-program-information/office-of-the-deputy-director-of-health/#ASO">http://health.hawaii.gov/about/links-to-doh-program-information/office-of-the-deputy-director-of-health/#ASO</a>
Environmental Resources Office (ERO)	Handles grant, accounting, and administrative duties for the DOH's Environmental Health Administration	Provides the PRC Program with managing grant spending and personnel/human resources services	<a href="http://health.hawaii.gov/about/links-to-doh-program-information/environmental-health-administration/#ERO">http://health.hawaii.gov/about/links-to-doh-program-information/environmental-health-administration/#ERO</a>
Hazard Evaluation and Emergency Response (HEER)	Provides leadership, support, and partnership in preventing, planning for, responding to, and enforcing environmental laws relating to hazardous substance threats and releases	The Site Discovery, Assessment, and Remediation (SDAR) Section provides oversight of non-emergency environmental cleanups	<a href="http://eha-web.doh.hawaii.gov/eha-cma/Org/HEER">http://eha-web.doh.hawaii.gov/eha-cma/Org/HEER</a>
<b>Department of Land and Natural Resources (DLNR)</b>			
Division of Aquatic Resources (DAR)	Coordinates the State's Coral Reef Strategy, which seeks to integrate measures to address threats to coral	The DOH is a member of the Coral Reef Working Group and	<a href="http://dlnr.hawaii.gov/dar">http://dlnr.hawaii.gov/dar</a>

	reefs, such as land-based pollution, into a single approach; monitors water quality	collaborates on water quality monitoring	
Division of Boating and Ocean Recreation (DOBOR)	Manages and promotes statewide ocean recreation, including boating rules, small boat harbors, and boating safety	Implements the State's CNPCP management measure for marinas	<a href="http://dlnr.hawaii.gov/dobor">http://dlnr.hawaii.gov/dobor</a>
Division of Conservation and Resource Enforcement (DOCARE)	Promotes safe and responsible use of the State's natural resources by enforcing State laws along coastal zones, State forests, and other State lands	Where PRC Program and DLNR goals and activities overlap, DOCARE can potentially assist with enforcement	<a href="http://dlnr.hawaii.gov/docare">http://dlnr.hawaii.gov/docare</a>
Division of Forestry and Wildlife (DOFAW)	Manages and protects watersheds and native ecosystems; administers the Forest Stewardship Program, which requires a management plan that outlines management practices, including soil and water protection; administers Conservation District Use Permits (CDUP) for forestry operations	Partnership opportunity in protecting conservation lands and forested upper watersheds	<a href="http://dlnr.hawaii.gov/dofaw">http://dlnr.hawaii.gov/dofaw</a>
Engineering Division	Provides engineering services and technical assistance to other State agencies; prepares the State Water Projects Plan to provide a framework for planning and implementation of water development programs	Potential opportunities may arise when the PRC Program partners with DLNR for watershed restoration projects	<a href="http://dlnreng.hawaii.gov">http://dlnreng.hawaii.gov</a>
Land Division	Manages State-owned lands; leases some State lands to farmers with the requirement that lessees work with local SWCD and develop and implement conservation plans	Potential for the PRC Program to offer assistance with conservation plan development and implementation	<a href="http://dlnr.hawaii.gov/ld">http://dlnr.hawaii.gov/ld</a>
Office of Conservation and Coastal Lands (OCCL)	Approves Conservation District Use Application (CDUA) permits for public or private marina construction projects that are in compliance with EPA's National Management Measures Guidance to Control Nonpoint Source Pollution from Marinas and Recreational Boating	Potential to partner with the PRC Program to implement and monitor the management measure for marinas	<a href="http://dlnr.hawaii.gov/occl">http://dlnr.hawaii.gov/occl</a>
<b>Department of Transportation (DOT)</b>			
Airports Division	Operates the Small Municipal Separate Storm Sewer System (Small MS4) at Honolulu International Airport (HNL); implements the HNL Storm Water Management Program (SWMP) Plan to control stormwater pollution; provides construction BMP training	Obtains NPDES permits for airport MS4 discharges; airports administer large areas of paved land and control stormwater runoff	<a href="http://hidot.hawaii.gov/airports">http://hidot.hawaii.gov/airports</a>
Harbors Division	Implements the SWMP for Honolulu Harbor and Kalaeloa Barber's Point Harbor; provides stormwater awareness training for DOT Harbor tenants; implements BMPs for harbor activities	Obtains NPDES permits for stormwater discharges	<a href="http://hidot.hawaii.gov/harbors">http://hidot.hawaii.gov/harbors</a>
Highways Division	Develops BMP plans for State roads, highways and bridge construction; operates large MS4s	Obtains NPDES permits for stormwater discharges; implements CNPCP management measures for roads, highways, and bridges	<a href="http://hidot.hawaii.gov/highways">http://hidot.hawaii.gov/highways</a>

<b>University of Hawai'i</b>			
College of Tropical Agriculture and Human Resources (CTAHR) Cooperative Extension	Extension agents provide assistance with and educational outreach on farming, forestry, soil management, water quality, gardening, and natural resources	CTAHR programs on agriculture, soils and natural resources management overlap with the PRC mission	<a href="http://www.ctahr.hawaii.edu/site/Extprograms.aspx">http://www.ctahr.hawaii.edu/site/Extprograms.aspx</a>
Water Resources Research Center (WRRC)	Researches water-related issues in the Pacific Islands	Assists the DOH with water quality testing and statewide Onsite Sewage Disposal Systems (OSDS) surveys and assessments	<a href="http://www.wrcc.hawaii.edu/index.shtml">http://www.wrcc.hawaii.edu/index.shtml</a>
<b>JOINT FEDERAL &amp; STATE PROGRAMS</b>			
US Department of Agriculture Farm Service & DLNR	Administers the Conservation Reserve Enhancement Program (CREP), which seeks to enhance wildlife habitat, improve water quality, increase groundwater recharge, and improve coral reef health. Activities include restoration of riparian and wetland buffers to control agricultural runoff and tree planting to increase groundwater recharge in upland areas	Potential PRC Program collaborator	<a href="http://dlnr.hawaii.gov/forestry/lap/crep">http://dlnr.hawaii.gov/forestry/lap/crep</a>
<b>LOCAL GOVERNMENT</b>			
All Counties	Prepare County Water Use and Development Plan to establish current and future water allocations and uses	Potential collaboration with the PRC Program for water protection and cesspool replacement projects	<a href="http://dlnr.hawaii.gov/cwrm/planning/hiwaterplan/countypplans">http://dlnr.hawaii.gov/cwrm/planning/hiwaterplan/countypplans</a>
<b>City and County of Honolulu (CCH)</b>			
CCH	Administers Special Management Area (SMA) permits for developments in coastal zones; incorporates BMPs in grading and grubbing ordinances; implements stormwater pollution measures	Obtains NPDES permits for stormwater discharges from MS4s	<a href="http://www.honolulu.gov">http://www.honolulu.gov</a>
Board of Water Supply (BWS)	Manages the county's municipal water resources and distribution system	Potential partner for groundwater protection and restoration projects	<a href="http://www.hbws.org/cssweb">http://www.hbws.org/cssweb</a>
Department of Environmental Services (ENV)	Develops a stormwater management program and Stormwater BMP Manual to control construction site runoff, eliminate illicit discharges, reduce pollutants from City-owned facilities; provides outreach on reducing polluted runoff	Obtains NPDES permits for stormwater discharges from MS4s; partners with the PRC Program for local outreach opportunities	<a href="http://www.honolulu.gov/env.html">http://www.honolulu.gov/env.html</a>
Department of Planning and Permitting (DPP)	Develops and implements the General Plan that addresses development, growth, and quality of life; reviews and approves planning, building, zoning and land use, and site development and subdivision permits	Grading permits help regulate polluted runoff from construction and agricultural sites	<a href="http://www.honoluludpp.org/Home.aspx">http://www.honoluludpp.org/Home.aspx</a>
<b>County of Hawai'i (COH)</b>			
COH	Administers SMA permits for developments in coastal zones; implements stormwater pollution	Potential PRC Program partner	<a href="http://www.hawaiicounty.gov">http://www.hawaiicounty.gov</a>

	control measures; develops and implements its General Plan		
Department of Public Works (DPW)	Implements and enforces applicable regulatory requirements of Chapter 10, Hawai'i County Code (HCC), grading, grubbing and stockpiling	Grading permits help regulate polluted runoff from construction and agricultural sites	<a href="http://www.hawaiicounty.gov/public-works">http://www.hawaiicounty.gov/public-works</a>
<b>County of Kaua'i (COK)</b>			
COK	Administers SMA permits for developments in coastal zones; incorporates BMPs in grading and grubbing ordinances; implements stormwater pollution measures; develops and implements its General Plan	Potential PRC Program partner	<a href="http://www.kauai.gov">http://www.kauai.gov</a>
Department of Public Works (DPW)	The DPW implements and enforces applicable regulatory requirements of the Kaua'i County Grading, Grubbing and Stockpiling Ordinance	Grading permits help regulate polluted runoff from construction and agricultural sites	<a href="http://www.kauai.gov/default.aspx?tabid=62">http://www.kauai.gov/default.aspx?tabid=62</a>
<b>County of Maui (COM)</b>			
COM	Administers SMA permits for developments in coastal zones; incorporates BMPs in grading and grubbing ordinances; develops and implements its General Plan	Obtains NPDES permits for stormwater discharges; potential PRC Program partner	<a href="http://www.co.maui.hi.us">http://www.co.maui.hi.us</a>
Department of Public Works (DPW)	The DPW implements and enforces applicable regulatory requirements of the Maui County Grading, Grubbing and Stockpiling Ordinance	Grading permits help regulate polluted runoff from construction and agricultural sites; potential PRC Program partner	<a href="http://www.co.maui.hi.us/index.aspx?nid=124">http://www.co.maui.hi.us/index.aspx?nid=124</a>
<b>OTHER GOVERNMENTAL AGENCIES</b>			
Hawai'i Association of Watershed Partnerships (HAWP)	Eleven watershed partnerships statewide protect forested watersheds	Potential PRC Program partner	<a href="http://hawp.org">http://hawp.org</a>
Soil and Water Conservation Districts (SWCDs)	Partners with the NRCS to assist farmers and private landowners in developing and implementing conservation plans that include BMPs for erosion control and water use efficiency	Potential PRC Program partner	<a href="http://dlnr.hawaii.gov/swcd">http://dlnr.hawaii.gov/swcd</a>



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