



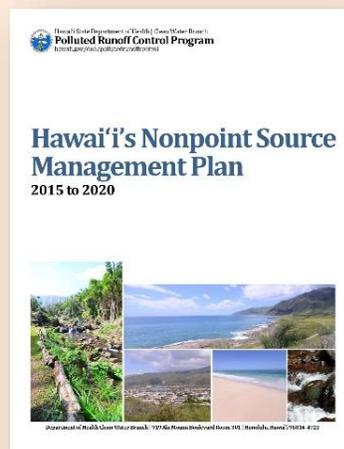
2017 End of Year Report

October 1, 2016 to September 30, 2017



Polluted Runoff Control Program Highlights for Fiscal Year 2017

In 1987, Congress enacted §319(h) of the Clean Water Act (CWA), establishing a national program to control nonpoint source (NPS) pollution, also known as polluted runoff. Administered by the U.S. Environmental Protection Agency (EPA), the §319(h) program provides funding to implement state NPS programs. The Hawai'i State Department of Health Clean Water Branch [Polluted Runoff Control Program](#) administers the state's NPS program to protect and improve the quality of Hawai'i's water resources by preventing and reducing NPS pollution. The Program's tasks include developing strategies and implementing projects to reduce NPS pollution and improve water quality. The Program also is responsible for updating [Hawai'i's Nonpoint Source Management Plan](#) every five years to focus the State's efforts on reducing polluted runoff.



The purpose of this End of Year Report is to assess the progress the Department of Health (DOH) Clean Water Branch (CWB) Polluted Runoff Control Program (Program) has made in implementing *Hawai'i's Nonpoint Source Management Plan* in Fiscal Year 2017 (FY17: October 2016 – September 2017).

This year, the Program became fully staffed with the addition of Contracts Specialist Joanna Yeh in April – the first time the Program has been fully staffed in over four years. While the position is only temporarily filled, the Program plans to permanently fill the position by December 2017. The addition of the Contracts Specialist has facilitated the development of two contracts with the Department of Land and Natural Resources Division of Forestry and Wildlife (DLNR-DOFAW) and the Program's Request for Proposals (RFP), which will be released in early FY18.

In FY17, the Program also completed a draft of the *Water Quality Monitoring Plan/Quality Assurance Project Plan for Hanalei Bay Watersheds* and conducted water quality monitoring in He'eia watershed and Hanalei Bay watershed (Goal 1 of *Hawai'i's NPS Management Plan*), where five CWA §319(h)-funded projects are being implemented. The Program also developed a protection project with DLNR-DOFAW and continued to assist with the development of Kaiaka Bay's and West Maui's watershed plans (Goal 2 of *Hawai'i's NPS Management Plan*). The Program has also begun discussions with groups to draft watershed plans in East Kaua'i and Moloka'i.

The Program implemented nine §319(h) projects and one Supplemental Environmental Project (SEP) project and developed two new projects in FY17 (Goal 3 of *Hawai'i's NPS Management Plan*). Due to these efforts, the Program is proud to report the following estimated pollutant load reductions for this fiscal year:

Total nitrogen load reduction:	6,506 lb
Total phosphorus load reduction:	1,591 lb
Sediment load reduction:	2,521 tons

The Program also collaborated with DLNR-DOFAW to fund projects in Maui and the Big Island. One of the new projects is a water quality protection project in West Maui, a priority watershed for the CWB. The Program also began conducting outreach in Hanalei Bay, another CWB priority watershed, for its upcoming FY18 RFP.

The Program continued to develop strategies and programs to manage NPS pollution statewide (Goal 4 of *Hawai'i's NPS Management Plan*). The Program and Office of Planning made progress in preparing the State's Coastal Nonpoint Pollution Control Program (CNPCP) for submission to the EPA and the National Oceanic and Atmospheric Administration (NOAA) by completing all but two outstanding management measures and streamlining CNPCP submission for approval. The Program also continued to participate with the DOH Wastewater Branch (WWB), Safe Drinking Water Branch (SDWB), and the EPA to develop the State's cesspool strategy, which will culminate in a report to the State Legislature that includes cesspool prioritization for replacement. The Program also began to develop its agricultural runoff strategy by identifying problems, challenges, and potential solutions in priority watersheds with the Natural Resources Conservation Service (NRCS), the Hawaii Department of Agriculture (HDOA), and University of Hawai'i College of Tropical Agriculture and Human Resources (CTAHR).

To ensure the Program continued to achieve its goals, the Program performed its fiscal and administrative duties. The Program completed its annual workplan and budget, which were approved by the EPA. The Program also successfully negotiated its FY18 grant and managed its funds and contracts.

Implementation of Hawai'i's Nonpoint Source Management Plan

Goal 1: Assessment

Identify water quality trends and waters and watersheds impaired or threatened by nonpoint source pollution

Goal 1 of *Hawai'i's NPS Management Plan* sets forth the State's objectives and strategies for assessing water quality, including the development of monitoring plans and assessment methods (Objective 1) and monitoring and assessing waters to identify water quality impairments and trends (Objective 2).

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

Under Goal 1, the State set a goal to complete three monitoring plans by 2020. The Program completed a draft of the *Water Quality Monitoring Plan/Quality Assurance Project Plan for Hanalei Bay Watersheds*, which includes monitoring both inland and coastal waters. Two new streams, Waipa and Waioli, will be monitored and will expand the State's scope of inland water quality monitoring from one to three streams. The monitoring plan is currently under EPA review and is expected to be implemented in early FY18. The Program plans to complete the West Maui watershed monitoring plan in FY18.

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

The Program requires both qualitative and quantitative water quality monitoring from its contractors for most projects. Monitoring is not restricted to water quality sampling; other monitoring methods include modeling, biological indicator surveys, and photo-points. Incorporating a multi-faceted approach to monitoring has enabled the Program to assess the impacts each §319(h) project has with respect to water quality and environmental results (e.g., an increase in habitat for native species). Data collected by the Program and provided by contractors were reviewed, analyzed, assessed, and submitted to the CWB's Monitoring and Analysis Section for use in the 2018 Integrated Report.

Since 2013—before the implementation of four §319(h) projects (Windward Mall Low-Impact Retrofit, He'eia Stream Riparian Restoration Phase II, He'eia Watershed Restoration and Education, He'eia Fishpond Mangrove Removal and Water Quality Improvement)—the Program has implemented a water quality monitoring plan for He'eia watershed. The primary goal of the Program's monitoring efforts in He'eia is to determine if He'eia Stream is responding positively to §319(h) projects. Over the course of FY17, the Program collected a total of 39 water samples from three He'eia Stream sites (upper, lower, and mouth) for chemical analysis by the DOH State Laboratory. The Program looked at changes in nutrients (Total Nitrogen and Total Phosphorous) and turbidity starting from 2013.

He'eia Stream's Total Nitrogen at the lower site has shown a dramatic decrease since 2014, whereas Total Nitrogen at the mouth and upper sites have remained relatively stable, with Total Nitrogen at the upper location showing a slight increase (Figure 1). The marked decrease of Total Nitrogen over time at the lower site may be a result of the implementation projects in the upper areas of the watershed (He'eia Stream Riparian Restoration Phase II, He'eia Watershed Restoration and Education). Interestingly, Total Nitrogen at the mouth of the stream remained lower than the urban lower site (Figure 1). This trend suggests that §319 project activities near and below the lower site (Windward Mall Low-Impact Retrofit and He'eia Watershed Restoration and Education) are helping to reduce Total Nitrogen inputs from urban areas before reaching the mouth. The lower concentration also suggests that the remediated wetlands (resulting from the He'eia Watershed Restoration and Education project) near the mouth are functioning and may continue to reduce Total Nitrogen inputs. This fiscal year, He'eia Stream also appears to be closer to attaining water quality standards (WQS) for the wet season (Figure 1).

He'eia Stream's Total Phosphorous has significantly decreased since 2013 at the upper and lower reaches of the stream (Figure 2), resulting in the stream's delisting for this pollutant for the wet season in 2016. He'eia Stream appears to be attaining WQS for the wet season for Total Phosphorous in FY17 (Figure 2). The dramatic reduction in Total Phosphorous and attainment of WQS may be the result of the He'eia Stream Riparian Restoration Phase II and the He'eia Watershed Restoration and Education projects, which reduced Total Phosphorous by approximately 800 lb/year. He'eia Stream's turbidity however has not decreased since 2013 (Figure 3), although the stream was delisted for turbidity for the wet season in 2016 and appears to continue to attain WQS for turbidity for the wet season through FY17.

In February 2017, monitoring water quality began in Hanalei Bay watershed with the assistance of neighbor island CWB Monitoring and Analysis staff and a contractor (the Waipa Foundation). Monitoring will continue for the next three years to determine whether two §319(h) implementation projects in Hanalei Bay are improving water quality.

Figure 1: He'eia Stream Total Nitrogen

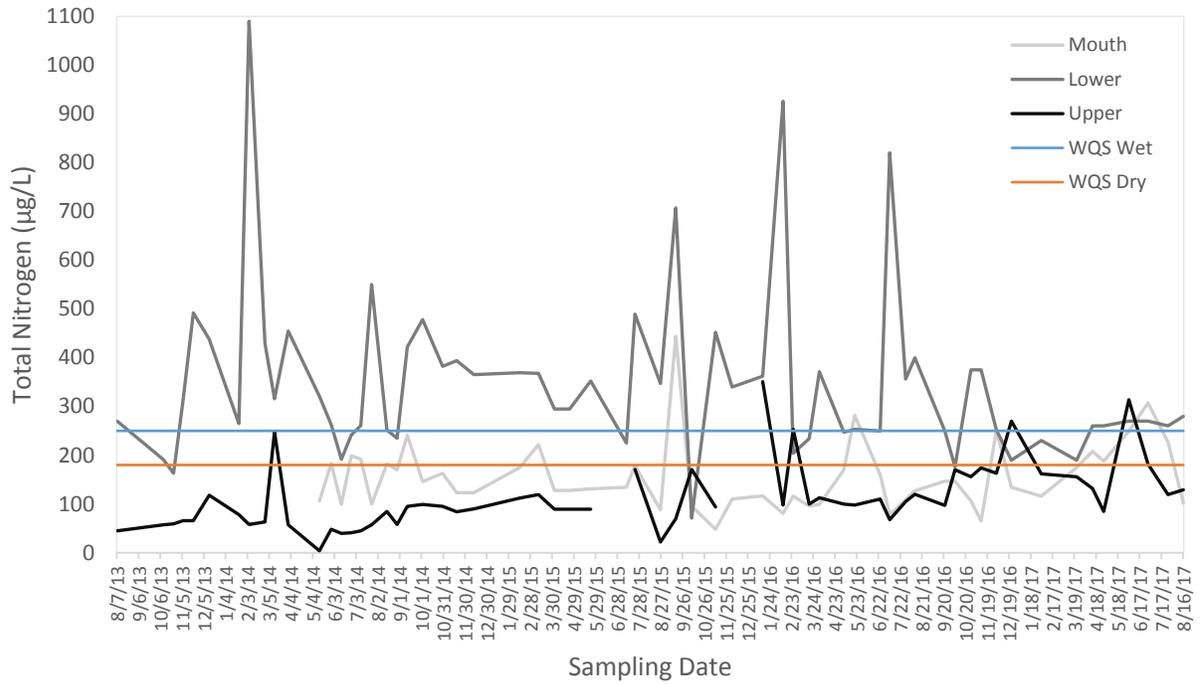


Figure 2: He'eia Stream Total Phosphorous

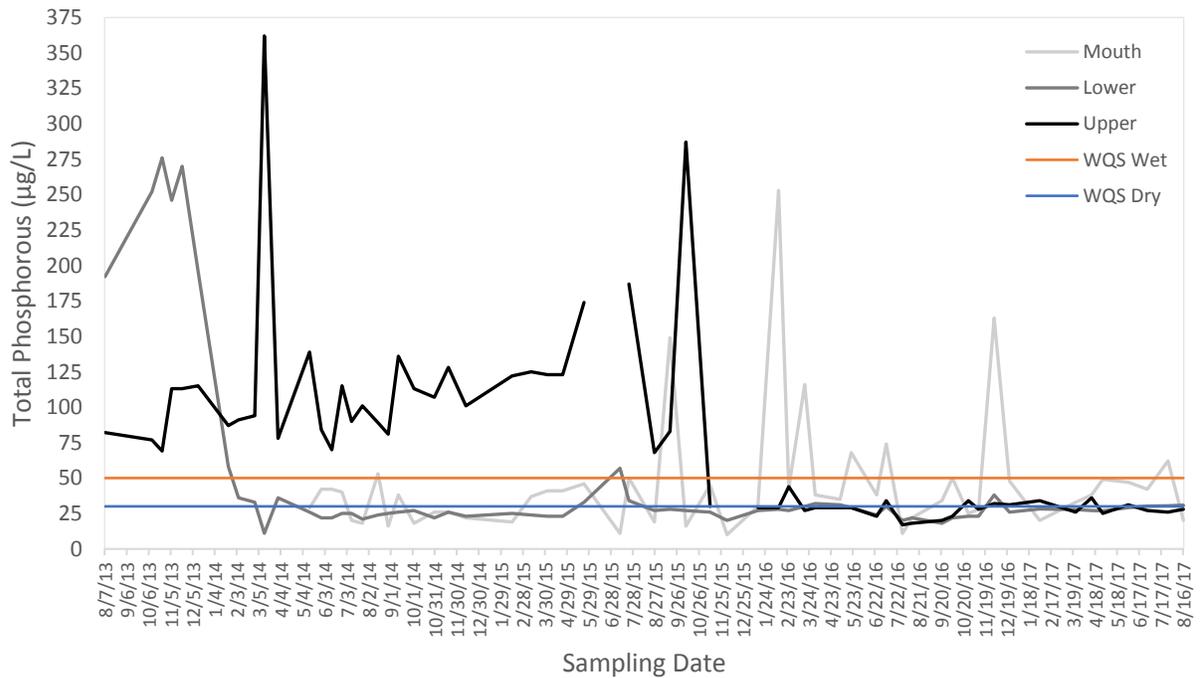
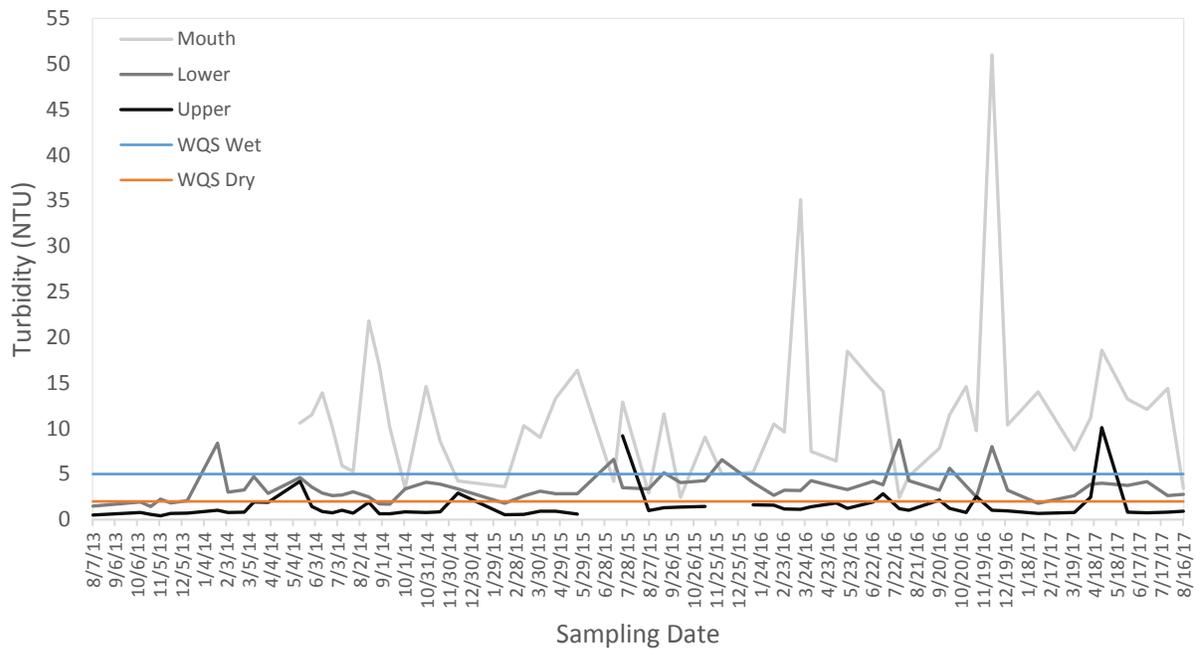


Figure 3: He'eia Stream Turbidity



The Program continues to work with the CWB Monitoring and Analysis Section to target water quality sampling for assessment of priority watersheds. Targeted pollutants and sampling stations were determined for the Program’s monitoring year and included He’eia Stream and sites in Hanalei Bay (for the *Water Quality Monitoring Plan/Quality Assurance Project Plan for Hanalei Bay Watersheds*).

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

Under Goal 2 of *Hawai‘i’s NPS Management Plan*, the State aimed 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).

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

Prioritizing watersheds will help the State focus its resources in specific areas to improve and protect water quality. Specifically, watershed prioritization will focus water quality monitoring efforts, §319(h) project implementation, TMDL+ plan development, and CNPCP monitoring and tracking efforts.

All CWB sections and programs worked together for three years to develop the prioritization matrix and the prioritization flow chart. The prioritization matrix evaluates watersheds based on several criteria, including whether the watershed is impaired or pristine, whether there are existing and/or potential investments in the watershed to improve water quality, and the extent to which restoring or protecting the watershed will benefit the public. The Program will apply the CWB's prioritization matrix in FY18,

when it will begin considering new priority watersheds to focus on as it updates *Hawai'i's NPS Management Plan*. The Program will identify three priority watersheds; one of these watersheds will be selected based on criteria for protecting unimpaired waters. In addition to identifying priority watersheds, the CWB will create a list of candidate watersheds for future water quality monitoring and assessment efforts.

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

Water quality protection is a relatively new priority for the CWB. In FY17, the Program collaborated with DLNR-DOFAW, whose mission includes watershed protection, to develop protection strategies and identify projects that would target high quality waters. The Program and DLNR-DOFAW agreed to fund an ungulate fencing project in pristine forested areas of watersheds in West Maui to reduce sediment in runoff. The Program also discussed funding opportunities with the SDWB as part of the Hawai'i Groundwater Protection Strategy, whose mission is "to safeguard groundwater quality and public health by protecting Hawai'i's groundwater from contamination." While the Program and SDWB did not identify a future project they could jointly fund, they continue to meet as part of the State's Cesspool Workgroup to protect groundwater from cesspool pollution (see Goal 4).

Objective 3: Develop comprehensive watershed-based plans (WBPs)

The State relies on approved WBPs to implement on-the-ground water quality improvement projects. The State set a goal to have at least three more WBPs approved by 2020, thereby increasing the number of watersheds eligible for §319(h) Project Funds.

In FY17, the Program assisted in the development of West Maui WBP for Wahikuli, Honokowai, Kahana, Honokahua, and Honolua watershed. The plan is being spearheaded by West Maui Ridge to Reef Initiative (West Maui R2R) with assistance from its partners, including CWB. West Maui R2R leverages resources across agencies and community groups to implement actions to reduce sediment and other land-based pollutants that adversely impact coral reefs in West Maui. The Program contributed to the WBP's development by participating in quarterly meetings with the West Maui R2R Funding and Agency Support Team, which is composed of federal and state agencies that are involved in funding, policy oversight, and plan management. A date has not yet been set for the plan's completion.

The Program continued to work with the City and County of Honolulu (CCH) to develop a WBP for Kaiaka Bay watershed, which comprises six watersheds (Ki'iki'i, Poamoho, Kaukonahua, Opa'e'ula, Helemano, and Paukauila) on O'ahu. The Kaiaka Bay WBP builds off of previous planning efforts in the watershed, such as the 2010 TMDLs for total nitrogen and turbidity in upper Kaukonahua Stream, and will include implementation projects aimed at restoring impaired waters. In FY16, the watershed characterization portion of the WBP was completed. The implementation portion will be completed in April 2018. The Program also has provided technical assistance and support to community groups in Southwest Maui, East Kaua'i, and Moloka'i who intend to develop WBPs in the near future.

In FY17, the Program continued to support the CWB Monitoring and Analysis Section's development of the Waikele watershed TMDL+ plan, which will meet the EPA's requirements for both a WBP and a TMDL. The TMDL+ plan will define, prioritize, and locate implementation projects that address both point source and NPS pollution within the watershed and will guide the CWB's water quality monitoring and restoration efforts in Waikele once the TMDL+ is completed.

The CWB developed a timeline for the development of the TMDL+ plan, which was originally scheduled for completion in FY17. The TMDL portion of the plan is being developed by TetraTech, EPA's in-kind contractor. Because of delays in developing and reviewing the draft TMDL, the TMDL portion of the plan will not be completed until mid-FY18. This delay has pushed the completion of the implementation portion of the plan to FY19. Once the TMDL is completed, the 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.

Because the success of TMDL+ plan implementation rests heavily on landowner and stakeholder support, the CWB continues to engage stakeholders in the TMDL+ planning process. In FY17, stakeholders were identified, and outreach will continue through the TMDL development and factor into the implementation portion.

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

Implementation of NPS strategies is at the core of Hawai'i's §319(h) program. The State's main NPS implementation objective is to invest in projects to achieve measurable water quality improvements.

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

In FY17, the Program did not release its RFP targeting West Maui, a priority watershed for the CWB. In lieu of the RFP, the Program worked directly with DLNR-DOFAW to develop a protection project in West Maui watersheds. The project includes the installation, retro-fit, and replacement of over 16,000 ft in ungulate fencing to protect upper forested conservation lands from feral ungulate disturbances. The project aims to reduce sediment loads and will begin implementation in FY18 (the project contract is currently under review by the DOH Administrative Services Office).

The Program also worked with DLNR-DOFAW to fund a polluted runoff control project in Pelekane Bay watershed on the Big Island. This project aims to reduce fuel loads and fires in Pelekane Bay watershed through facilitating rotational grazing in the area by: 1) repairing an existing paddock fence that was damaged by a bulldozer installing a fuel break in a 2015 fire; 2) building an additional paddock fence to create a second paddock for rotational grazing; and 3) moving a watering trough away from Mekeahua Stream. The proposal is also under review by ASO, and implementation is expected in FY18.

In FY17, the Program continued to support existing projects in other watersheds, including Hanalei Bay (Hanalei and Waipa), He'eia, Ala Wai, Ka'alaea, Waiahole, Wai'ula'ula, Kea'ahala, and Ma'ili'ili. Project details, including pollutant load reductions, can be found in Table 1. The Program closed out its Ka'alaea & Waiahole Stream Restoration (Phase I) project this fiscal year, resulting in a reduction of sediment by 700 tons/year.

The Program assessed and documented water quality trends and environmental results achieved by §319(h) projects (Table 1) through site visits, quarterly status reports (QSRs), and final project reports. All contractors receiving §319(h) funding are required to conduct monitoring to demonstrate project efficacy and to report load reductions and environmental results in QSRs and final reports. The Program documented load reductions for each project to determine the efficacy of each project. For FY17, §319(h) project implementation resulted in load reductions of total nitrogen by 6,506 lb, total phosphorus by 1,591 lb, and sediment by 2,521 tons. Load reductions were reported to GRTS to track pollutant load reductions for each project.

The Program also monitored the progress of its §319(h) projects. Site visits were conducted for all open projects to measure contractor progress and to close out projects. Updated information regarding these ongoing projects is included in Table 1.

The Program made project tracking easier through the development of its PRC Viewer website. However, the viewer is currently being updated as part of a branch-wide effort to overhaul its web applications, and will be available again to view §319(h) projects and information by FY18. Much of the Program's information, including all Program plans, reports, and approved WBPs, is still available online.

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

A critical component *Hawai'i's NPS Management Plan* is developing and implementing a statewide approach to managing NPS pollution. To accomplish this goal, the State draws upon various programs and resources, including its NPS program, the CNPCP, and the DOH water branches. 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 NPS management in Hawai'i.

The State laid out four objectives under this goal in *Hawai'i's NPS Management Plan*. The status of these objectives is described in detail below.

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 Office of Planning (OP) CZM Program and the Program, who jointly administer the State's CNPCP. Hawai'i's CNPCP remains under conditional approval from the EPA and NOAA. Management measures for Agriculture, Forestry, Hydromodifications, Marinas and Recreational Boating, and Wetlands have been approved. However, the following six Urban Area management measures still require approval: 1) New Development; 2) New Onsite Disposal Systems (OSDS) 3) Operating OSDS; 4) Planning, Siting, and Developing Roads and Highways; 5) Operation and Maintenance of Roads and Highways; and 6) Bridges (siting, design, and maintenance). In addition, one CNPCP administrative element, Monitoring and Tracking, requires approval. Once the Program obtains approval of these management measures, it will be able to implement and assess the water quality impacts of the CNPCP.

This fiscal year, the Program made progress in developing management measures that meet the conditions stated in the EPA and NOAA's 2012 Interim Decision Document regarding Hawai'i's CNPCP. The Program and the OP completed management measures for New Development; Planning, Siting and Developing Roads and Highways; and Bridges (siting and design). In addition, the Program and OP developed an alternative management measure under Operating OSDS, which will require updating in FY18 as a result of the new State law banning cesspools by 2050 and the expansion of the tax credit system. In addition, the format of the submission of the CNPCP was streamlined to reduce redundancy and improve readability. In FY18, the Program plans to spearhead efforts to amend the Hawaii Administrative Rules to include septic system and cesspool inspections. The Program expects the final CNPCP to be submitted for approval by the end of 2018.

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

The State plans to develop strategies to address NPS pollution from cesspools, urban runoff, and agricultural runoff. The State currently is developing a cesspool strategy and agricultural runoff strategy.

In FY16, the State began developing a statewide cesspool strategy to address pollution from the State's nearly 90,000 cesspools. The first step in developing the State's strategy was the creation of the Cesspool Workgroup, which is headed by the WWB Branch Chief and consists of staff from the DOH CWB, SDWB, and EPA Region 9. The mission of the Cesspool Workgroup is to reduce the widespread use of cesspools in Hawai'i. Its purpose is to develop a collaborative strategy and framework to address the problem of cesspool pollution throughout the State. The Cesspool Workgroup commenced in June 2016 and began developing a pilot program in Kahalu'u, which has a large number of cesspools and high bacteria counts.

This fiscal year, the Program conducted a site visit to Kahalu'u and met with members of the Kahalu'u Neighborhood Board to discuss community issues regarding cesspool use. Importantly, the Cesspool Workgroup undertook prioritizing cesspools for replacements and started drafting a report to the State Legislature regarding cesspool replacements.

The Program also began to develop its agricultural runoff strategy by identifying problems, challenges, and potential solutions in priority watersheds. The State has existing management measures to control NPS pollution from agricultural sources, and the Program plans to use those measures to guide its agricultural runoff control strategies. In addition, the Program plans to collaborate with State and federal agencies to develop and implement strategies to reduce runoff from farms. The Program met with the NRCS Conservation Specialist in Kaua'i to discuss agricultural issues and potential ag-related projects in Hanalei Bay and Nawiliwili Bay watersheds. The Program also discussed ag strategies on O'ahu with UH CTAHR Extension. In addition, the Program has been actively involved with potential NPDES enforcement settlement discussions with the Hawai'i Department of Agriculture (HDOA) and will continue to foster outreach opportunities with HDOA after the settlement action is concluded. The Program looks forward to working with these partners to develop a more comprehensive strategy to reduce runoff from farms.

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

In FY17, the Program strengthened existing partnerships and formed new partnerships with other agencies and programs involved in water quality. The DOH water branches have contributed goals,

objectives, maps, data, and other knowledge to better inform the State's watershed protection and restoration strategies. The Program also continued to consult with the DOH-WWB to develop CNPCP management measures and made progress with its Operating OSDS management measures.

The Program also worked closely with the other DOH-CWB sections as it conducted stream monitoring and developed the Hanalei Bay monitoring plan. The Program's Program Specialist has also been active in assisting the CWB Chief with assessing the CWB through a consultant, Blue Earth.

The Program and the OP maintained a close relationship as they worked to obtain approval of the State's CNPCP. The OP and the Program regularly discussed management measure solutions, updated each other on progress, and provided feedback on management measure write-ups. The Program also continued to partner with CCH to develop Kaiaka Bay's WBP, meeting once a month to work on the plan.

This year the Program also embarked on outreach to potential agriculture partners. The Program met with the NRCS Conservation Specialist in Kaua'i to discuss potential projects in Hanalei Bay and Nawiliwili Bay watersheds. The Program also discussed the NRCS's National Water Quality Initiative (NWQI), which it later discussed with other CWB staff and the EPA in a meeting with the NRCS. The Program also discussed potential projects on O'ahu with a UH CTAHR Extension Agent. The Program has also been actively involved with potential NPDES enforcement settlement discussions with the State Department of Agriculture and will continue to foster outreach opportunities with the Department of Agriculture after the settlement action is concluded. The Program looks forward to working with these partners to develop a more comprehensive strategy to reduce runoff from farms.

The Program also worked with the DOFAW Watershed Partnerships Program to develop a water quality protection project in West Maui watershed and an ag-related project in Pelekane Bay watershed (see Goal 3 for more information). These projects will be implemented beginning in FY18. In addition, the Program assisted DOFAW with its annual RFP, scoring proposals and participating in the review meeting.

The Program believes that effective education and outreach rely heavily on partnerships. In April, the Program and CCH co-sponsored the annual Mauka to Makai Earth Day event at Waikiki Aquarium. More than 3,500 people attended the event, and the Program distributed over 1,000 coloring books to families and youth, who had the opportunity to learn about preventing and reducing water pollution and to pose for pictures with the Program's mascot, Apoha. The Program also donated approximately 1,000 water quality-themed coloring books to elementary schools and community groups throughout FY17.

In addition, the Program conducted outreach as part of its FY19 RFP in Hanalei Bay. The Program met with the County of Kaua'i, NRCS, U.S. Fish and Wildlife Service, and two local non-profits to discuss State procurement procedures, the RFP process, and potential projects.

The Program also requires all §319(h) contractors to conduct outreach, including a minimum of two press releases describing their projects (at least one is required prior to on-the-ground implementation, and one after the project's completion). These press releases are designed to provide the public with basic information about NPS pollution and provide an opportunity for members of the community to become involved in watershed activities in their area. In conversations with the Program's partners, the press releases have had the desired effect of generating local interest, specifically in helping to attract volunteers to projects. This fiscal year, approximately 4,000 volunteer hours were spent assisting with

319(h) polluted runoff control project activities. Each awarded project also includes an education and outreach component to inform and engage local residents with polluted runoff control efforts.

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

The Program assessed its progress in this End of Year Report and its semi-annual progress report. The Program also revised its RFP evaluation criteria and the RFP to facilitate contract development.

The Program participated in various training workshops and conferences to discuss NPS management approaches, learn about new NPS concerns in Hawai'i, and enhance skills. In October-November 2017, the Program Specialist and Planner attended the National Nonpoint Source Training Workshop, where they learned about other States' approaches to addressing wastewater pollution and discussed CNPCP requirements with the EPA. The EHS participated in various local conferences, including the Hawaii Water Environment Association Pacific Water Conference, the He'eia Symposium, and the West Maui Researcher Round Table. The Program also participated in a UH-sponsored town hall event on OSDs and attended the Hawai'i Conservation Conference to learn about new cesspool challenges and research in Hawai'i. The Planner also attended the National 303(d)/TMDL Webinar series with the CWB's TMDL Coordinator.

The Program continued to successfully implement its targeted monitoring approach, which started with He'eia in 2013. The Program targeted Hanalei Bay this fiscal year with the development of the Hanalei Bay water quality monitoring plan, and will begin targeting West Maui for monitoring in FY18.

Finally, the Program became fully staffed this fiscal year and was able to fill its Contracts Specialist with an 89-day (temporary) hire. The addition of a Contracts Specialist has expedited contract development for new DLNR-DOFAW projects as well as managing the Program's RFP.

Program Staff:

Clean Water Branch Chief (General Funded)	Alec Wong
Program Specialist V	Michael Burke
PRC Environmental Health Specialist IV	Greg Takeshima
PRC Contracts Specialist	Joanna Yeh
PRC Planner IV	Darcey Iwashita
PRC Office Assistant III	Amy Kawai

General funded staff that meet the Program's §319(h) match obligation include the Branch Chief, an IT Specialist, a Quality Assurance/Quality Control Specialist, three outer-island Environmental Health Specialists (EHSs), and five Individual Wastewater System Engineers (IWSs).

Clean Water Act §319(h) Grant Implementation

In the past year, the Program managed five EPA CWA §319(h) grant awards (FY12, FY13, FY14, FY15, & FY16). At the end of September 2017, the FY12 grant closed and the Program was awarded a FY17 grant. Individual grant awards and §319(h)-funded projects are listed below by fiscal year:

Fiscal Year 2012 (Federal C996978712-0/State 9290-12); 10/1/2012 to 9/30/2017

The FY12 EPA CWA §319(h) grant is \$1,209,000 of federal funds with a State in-kind contribution of \$807,970. \$789,670 of federal funds has been expended or is currently encumbered for project implementation, including \$44,500 of unspent personnel funds that were reclassified to project implementation due to vacancies. \$419,330 has been spent to support the Program.

Fiscal Year 2013 (Federal C996978713-0/State 9290-13); 9/30/2013 to 9/29/2018

The FY13 EPA CWA §319(h) grant is \$1,146,000 of federal funds with a State in-kind contribution of \$764,000. Approximately \$755,800 of federal funds were expended or is currently encumbered for project implementation, including \$69,210 of unspent personnel funds that were reclassified to project implementation due to vacancies. \$390,200 has been spent to support the Program.

Fiscal Year 2014 (Federal C996978714-1/State 9290-14); 10/1/2014 to 9/30/2019

The FY14 EPA CWA §319(h) grant is \$1,262,300 of federal funds with a State in-kind contribution of \$841,540. \$872,560 of federal funds were expended or is currently encumbered for project implementation, including \$79,270 of unspent personnel funds that were reclassified to project implementation due to vacancies. \$389,740 was spent to support the Program.

Fiscal Year 2015 (Federal C996978715-0/State 9290-15); 10/1/2015 to 9/30/2020

The total FY15 EPA CWA §319(h) grant is \$1,161,300 of federal funds with a State in-kind contribution of \$774,200. Approximately \$761,500 of federal funds were expended or is currently encumbered for project implementation, including \$77,200 of unspent personnel funds that were reclassified to project implementation due to vacancies. \$399,8220 has been spent to support the Program.

Fiscal Year 2016 (Federal C996978716-0/State 9290-16); 10/1/2016 to 9/30/2021

The Program was awarded an EPA CWA §319(h) grant of \$1,199,000 of federal funds with a State in-kind contribution of \$799,333. Approximately \$661,000 has been encumbered for project implementation. Approximately \$535,800 of federal funds was spent to support the Program.

Fiscal Year 2017 (Federal C996978717-0/State 9290-17); 10/1/2017 to 9/30/2022

The Program was awarded an EPA CWA §319(h) grant of \$1,240,000 of federal funds with a State in-kind contribution of \$830,000. Approximately \$546,640 of federal funds will be spent to support the Program and \$693,360 is available to fund implementation projects. The Program anticipates that its 2017 procurement efforts will yield projects that can be funded by this grant and that all grant project funds will be encumbered in one year.

Non-Federal Match

The State relies on general funded salaries from personnel supporting the Program to meet its CWA §319(h) match obligation. General funded positions include the DOH-CWB Branch Chief, a DOH-CWB Clerical employee, an IT Specialist, a Quality Assurance/Quality Control Specialist, three outer-island EHSs, and five IWSs.

The EHSs collect marine surface water samples and investigate complaints related to both point-source and NPS pollution. Because of Program personnel limitations, these neighbor island employees act as the Program's eyes and ears and provide a physical presence on the neighbor islands that the Program cannot provide. In FY17, the EHSs responded to 10 complaints. Some of the NPS pollution complaints addressed include: soil imported for the construction of a septic system stored without BMPs for soil erosion in place, trees cut down and left in the river, and horse manure piled on a stream bank.

The IWSs are responsible for reviewing and approving plans and specifications for wastewater systems, inspecting wastewater system construction, and regulating wastewater systems in the State. In FY17, the IWSs conducted 248 IWS plan reviews and 31 inspections on Kaua'i, 189 IWS plan reviews and 91 inspections on O'ahu, 309 IWS plan reviews and 13 inspections on Maui, and 1,073 IWS plan reviews and 21 inspections on the Island of Hawai'i (703 reviews and 5 inspections in Hilo and 370 reviews and 16 inspections in Kona).

All implementation project contractors are required to contribute a minimum of \$0.25 for every \$1 in federal grant funds received from the State. This supplements the State's general funded salary match and assists the State with meeting its non-federal match requirement via pass-through to the EPA, while also demonstrating contractor commitment to their proposed project(s).

Grants Summary						
State Fiscal Year	FY12	FY13	FY14	FY15	FY16	FY17
EPA Grant Award	\$1,209,000	\$1,146,000	\$1,262,300	\$1,161,300	\$1,199,000	\$1,240,000
Program Personnel & Overhead	\$419,330	\$390,200	\$389,740	\$399,820	\$535,800	\$546,640
On-going, Encumbered & Completed Projects	\$745,170	\$686,590	\$793,290	\$761,500	\$661,000	\$0
Unspent Personnel Funds Reclassified for Projects	\$44,500	\$69,210	\$79,270	\$77,200	\$0	\$0
Project Funds Currently Available	\$0	\$0	\$0	\$0	\$0	\$693,360

Below is a summary of the Program's fiscal and administrative milestones and tasks for FY17.

Perform fiscal and administrative duties to ensure the Program can continue to achieve its mission		
Program Objective	Milestones	Tasks, Deliverables, and Progress
1. Obtain the 2017 CWA §319(h) grant	a. Develop the 2017 Workplan Table, Narrative, and Budget	The Workplan and Budget were completed and approved.
	b. Negotiate grant	The grant was negotiated in May.
2. Perform fiscal and program management to ensure successful and appropriate spending of §319(h) grant funds	a. Spend all awarded funds with no unobligated funds	All awarded funds were spent.
	b. Reallocate unspent Personnel costs to contracts	Unspent funds were reallocated to contracts/projects.
	a. Oversee contracts	Contracts are being managed by the Program. QSRs and final project reports are reviewed as received.
	b. Participate in End of Year meetings with the EPA and DOH	The Program participated in the End of Year meetings with EPA in December.
3. Assess personnel status and needs	d. Close out 2011 CWA §319(h) grant and review/manage status of 2012 CWA §319(h) grant	The 2011 CWA §319(h) grant was closed out. The Final FSR and associated reports were submitted. The 2012 grant has been reviewed and managed.
	a. Reclassify Grants Management Specialist IV position as General Professional III/IV and fill position	The position was reclassified as a Contracts Specialist IV and the position was filled with a temporary hire.

Nonpoint Source Management Plan Progress Checklist

The State anticipated specific outcomes to achieve by 2020 as a result of implementing *Hawai'i's NPS Management Plan*. The plan included a checklist of these outcomes to measure the State's progress in meetings its goals and objectives. The following provides a summary of the State's progress thus far.

Goal 1: Assessment

- ✓ **Water quality monitoring plans and a standardized water quality assessment methodology are developed to guide consistent and comparable water quality monitoring efforts.**
In FY16, the CWB completed a standardized assessment methodology for marine waters, which was implemented in the 2016 Integrated Report. In FY17, the Program completed a draft *Water Quality Monitoring Plan/Quality Assurance Project Plan for Hanalei Bay watersheds*, which is under review by the EPA.
- ✓ **Coastal and inland waters are monitored and assessed every two years.**
Coastal and inland waters were monitored in FY16 and FY17. The State's waters were assessed in the draft 2016 Integrated Report assessment, which utilized the Program's monitoring data. The Program's water quality data will be used and assessed in the 2018 Integrated Report.
- ✓ **Two new inland waters are monitored and assessed.**
The Program began monitoring two streams (Waipa Stream and Waioli Stream) in Hanalei Bay watershed in FY17 and will assess the water quality data in FY18.
- ✓ **Waterbodies that meet water quality standards or have impairments are identified.**
Waterbodies that were impaired or met water quality standards were identified in the 2016 Integrated Report.
- ✓ **Trends in water quality are identified.**
Trends in water quality were identified for assessed waterbodies in the 2016 Integrated Report. The Program identified He'eia Stream water quality trends, which included impairments for total nitrogen and nitrate and nitrite as well as de-listings (removal from the CWA §303(d) list of impaired waters) for total phosphorous and turbidity.



Goal 2: Planning

- ✓ **Priority watersheds for water quality protection and restoration are determined for 2020-2025.**
The Program currently is focusing its efforts on its three existing priority watersheds (Hanalei Bay, He'eia, and West Maui). New priority watersheds will be determined in 2019.
- ✓ **Strategies and goals for protecting high quality waters are developed.**
The Program included water quality protection in the CWB watershed prioritization matrix in FY16 to ensure that unimpaired waters were considered when new priority watersheds are determined. In FY17, the Program provided input on the Hawai'i Groundwater Protection Strategy (which is implemented by the SDWB) and is collaborating with DLNR-DOFAW to implement a watershed/water quality protection project in West Maui.
- ✓ **A TMDL+ plan for Waikele watershed is developed.**
The Waikele TMDL for sediment and nutrients is currently being developed by the CWB and will be completed in FY18. The Program and CWB have identified all stakeholders and will move forward with outreach and TMDL implementation plan development once the TMDL is completed.
- ✓ **Three new watershed-based plans are developed.**
The West Maui WBP for Kahana, Honokahua, and Honolua was completed in FY16. The Program, in partnership with CCH, continues to develop the Kaiaka Bay WBP, which will be completed in FY18. The Program anticipates the completion of the comprehensive plan for the West Maui watersheds (Kahana, Honokahua, Honolua, Wahikuli, and Honokowai watersheds) by 2020.



Goal 3: Implementation

- ✓ **At least ten new §319(h)-funded NPS projects implemented to reduce and prevent NPS pollution.**

Four new §319(h) projects were implemented in FY16 and FY17: an agricultural runoff control project in Ka'alaea and Waiahole watersheds, another ag-related project in Ma'ili'ili watershed, a West Maui watershed coordinator, and a fishpond restoration project in He'eia watershed. Two new projects with DLNR-DOFAW are awaiting approval from ASO.

- ✓ **Measurable water quality improvement in at least one NPS-impaired waterbody, resulting in a delisting and a WQ-10 success story.**

Measurable water quality improvements were documented in He'eia Stream, which was de-listed for total phosphorus and turbidity in FY16.

- ✓ **Improvement in water quality in an impaired watershed due to restoration activities, resulting in a SP-12 success story.**

The Program implemented restoration projects in watersheds with impaired water quality in FY16 and FY17 and is tracking all environmental results and water quality improvements resulting from §319(h) projects. The Program hopes to achieve this outcome by FY19.

- ✓ **Measurable pollutant load reductions and trends in water quality improvement in at least two additional NPS-impaired watersheds.**

In addition to water quality improvements documented in He'eia watershed, the Program hopes to identify improving trends in other watersheds as monitoring plans are implemented in Hanalei Bay and West Maui in FY18. In FY17, the Program has achieved pollutant load reductions in five additional watersheds; details can be found in the project summaries in Table 1.



Goal 4: Statewide NPS Program Development

✓ **CNCP receives full approval under CZARA.**

The Program has completed all outstanding measures except two – Operating OSDs and Operation and Maintenance for Roads, Highways and Bridges. The Program is working with the WWB to make changes to the wastewater rules for FY18. In the meantime, the Program and OP plan to submit completed management measures for EPA review by the end of 2017. The Program/OP plans to submit the final CNCP to the EPA and NOAA for approval in 2018.

✓ **Status of CNCP management measure implementation is determined.**

The Program will determine the status of CNCP management measure implementation once the CNCP is approved.

✓ **At least three NPS restoration and protection projects are implemented through partnerships, including one funded through the DWSRF or CWSRF.**

The Program began implementing a project with UH Sea Grant Program to restore He'eia Fishpond in FY17 and is collaborating with DLNR-DOFAW on two projects that will begin in FY18. The Program discussed funding opportunities with SDWB using the DWSRF but was unsuccessful (funds were used for other SDWB projects). The Program will explore CWSRF options through the State's Cesspool Workgroup.

✓ **Statewide approaches to managing NPS pollution from cesspools, urban areas, and agriculture are developed.**

The DOH began developing a statewide strategy to address pollution from cesspools in FY16 with the formation of the Cesspool Workgroup, which developed a framework for the State's approach to reducing pollution from cesspools and upgrading cesspools. Cesspool Workgroup efforts in FY17 have gone towards prioritizing cesspools for replacement. The Program began developing a statewide agriculture strategy through meetings with potential ag partners (HDOA, NRCS, CTAGR Extension) and plans to complete it in FY18.

✓ **Integration among DOH CWB, SDWB, and WWB programs is improved to more effectively target resources towards water quality improvements.**

The CWB, SDWB, and WWB are working together in the Cesspool Workgroup to create solutions for the State's cesspool problems. The Program continued to work extensively with the CWB to monitor and assess water quality and develop monitoring plans and with the WWB to meet the conditions of the CNCP.



Table 1. Clean Water Act §319(h) Project Summaries for Fiscal Year 2017

Project Title (watershed), Contractor(s)	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
He'eia Watershed Restoration and Education (He'eia), Hui O Ko'olaupoko	<p>The project stabilized erosion scarring by installing approximately 24,000 square feet of erosion control matting. Sedimentation basins measuring approximately 6,000 square feet were installed at the base of the scars to remove most of the visible erosional inputs. In upper He'eia, the contractor completed rain gardens with continued erosion pin monitoring by Hawaii Pacific University through August 2017. The contractor completed mangrove removal in approximately 4.2 acres of wetland and replaced them with native and naturalized plants. The contractor continues to maintain the area to prevent mangroves from re-establishing.</p>	<ul style="list-style-type: none"> • Reductions in Total Phosphorus and Turbidity in He'eia Stream resulted in the removal of He'eia Stream for those pollutants from the CWA 303(d) list of impaired waters for 2016 • Sediment reduced by 286 tons/year • Total nitrogen reduced by 2,200 lbs/year • Total phosphorus reduced by 800 lbs/year • Ground cover increased in the riparian areas, resulting in sediment load reductions and improved water quality • Revegetation with native plants increased native plant diversity in the streambank and stream mouth areas, increasing the probability that native flora and fauna will repopulate their natural habitats • During water quality monitoring, O'opu were spotted in the stream mouth corridor 	<p>6/20/13 – 10/31/17 \$747,030 (§319(h)) \$284,370 (match)</p>
Manoa Watershed Improvement Project (Ala Wai), Ala Wai Watershed Association, Inc.	<p>The contractor cleared 1,100 feet of non-native invasive plants, including Albizia, and replaced them with native vegetation along the banks of Manoa Stream. The contractor also completed installation of erosion socks and continues with their community and outreach efforts. The contractor recently partnered with Maryknoll School to increase its volunteer staff to include over 1500 students, parents, staff, faculty.</p>	<p>Sediment reduced by 198 tons/year</p>	<p>6/5/14 - 6/30/18 \$298,210 (§319(h)) \$75,000 (match)</p>
Ka'alaea and Waiahole Stream Restoration Phase I (Ka'alaea and Waiahole), O'ahu Resource Conservation & Development Council	<p>The contractor implemented cost-share agreements with 12 farmers to install and maintain BMPs from approved conservation plans. The contractor made efforts to implement agreements with 3 additional farmers who are waiting for approval of their conservation plans from their Soil & Water Conservation District. The contractor conducted two outreach events targeting local farmers and community members.</p>	<ul style="list-style-type: none"> • Sediment reduced by 700 tons/year • Total nitrogen reduced by 1,200 lbs/year • Total phosphorus reduced by 410 lbs/year 	<p>9/19/14 - 9/18/17 \$298,790 (§319(h)) \$75,520 (match)</p>

Project Title (watershed), Contractor	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
Watershed Based Plan for the Kaiaka Watershed (Kaiaka), City and County of Honolulu (CCH)	Watershed characterization was completed. The contract has ended, but the Program continues to meet with CCH to discuss the plan's development. The final plan will be completed in 2018.	N/A	12/2/14 - 12/1/15 \$210,000 (\$319(h)) \$210,000 (match)
Implementation of Best Management Practices in the Wai'ula'ula Watershed (Wai'ula'ula), University of Hawai'i (UH) Sea Grant College Program	The contractor completed the installation of a rain garden at the Waimea Center (site 1) and removed invasive plants, including Castor and Christmasberry from the streambanks at the Waimea Center Riparian corridor (site 2) and Ulu La'au Park (site 3). The contractor will begin installation of coir matting and logs. A site visit was conducted in June 2017 and the parties agreed to eliminate projects for Ala Kahawai (site 4) and Mau'umae Beach (site 5) sites due to the rescission of right of entry from the owner of Ala Kahawai property and the requirement of a special management assessment permit from the county for Mau'umae Beach. A no cost extension was requested due to a change in staff and the need to hire and train new staff.	<ul style="list-style-type: none"> • Sediment reduced by 1,200 tons/year • Total nitrogen reduced by 1,200 lbs/year • Total phosphorus reduced by 220 lbs/year 	12/15/14 – 8/31/2017 \$506,750 (\$319(h)) \$128,160 (match)
Watershed Implementation Project for the Ahupua'a of Waipa (Waipa), Waipa Foundation	The contractor replaced two cesspools with septic systems and is awaiting approval from the WWB on the third replacement. The contractor is preparing to outplant with native plants in the constructed wetland. The contractor stabilized the Waipa Stream streambank by removing invasive vegetation and replacing it with native plants. Approximately 1,000 feet of barbed wire was installed to create 2 paddocks for rotational grazing. Project staff and volunteers also hunted feral pigs as part of its ungulate control BMP.	Estimated Load Reductions: <ul style="list-style-type: none"> • Sediment: 20 tons/year • Total nitrogen: 1,263 lbs/year • Fecal coliforms: 2.41×10^{17} CFU/year • Biological oxygen demand: 169.2 lbs/year • Total suspended solids: 663 lbs/year 	2/22/16 - 7/20/18 \$386,290 (\$319(h)) \$108,650 (match)
Windward Community College Low-Impact Retrofit Phase II (Kea'ahala), Hui O Ko'olaupoko	The contractor will reduce the amount of impervious surface at the site and install a pre-treatment area, two large infiltration islands, retrofitted storm drains, and interpretive signage in the Windward Community College parking lot. WCC delayed the project due to issues with CIP funding for the parking lot and procurement. The contractor will continue to meet and work with WCC to discuss next steps for the project.	Estimated Load Reductions: <ul style="list-style-type: none"> • Sediment: 0.25 tons/year • Total nitrogen: 16 lbs/year • Total phosphorus: 2 lbs/year 	2/22/16 - 12/31/18 \$186,020 (\$319(h)) \$46,900 (match)

Project Title (watershed), Contractor	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
Ma'ili'ili Reservoir Mitigation Project (Ma'ili'ili), Hui Ku Maoli Ola	The contractor will restore the Ma'ili'ili Reservoir by installing a ½ acre sediment retention basin and planting 4 acres of native sedges and ground cover to increase nutrient uptake and sediment catchment. The contractor will also improve habitat within 9 additional acres of the reservoir by removing invasive plants and replacing them with over 60,000 native plants. Outreach includes 18 community volunteer days and watershed education for 500 students. The landowner of the project area recently issued a permit for the DOH/DOH contractor to commence work in the area.	Estimated Load Reductions: <ul style="list-style-type: none"> Total nitrogen: 1,000 lb/year Total phosphorus: 200 lb/year Sediment: 100 tons/year 	2/29/16 - 2/28/19 Funded through a Supplemental Environmental Project (SEP) agreement between the State and the CCH \$727,080 (SEP) \$201,560 (match)
Replacing Small Capacity Cesspools with Advanced Wastewater Systems in Hanalei Bay Watershed (Hanalei), Hanalei Watershed Hui	To date, the contractor has contacted over forty homeowners but has received only three commitments from property owners for cesspool replacements. The primary concern is the cost of the replacement and maintenance of septic systems/ATUs. The contractor is continuing to explore third party funding sources to assist with the costs. The contractor is continuing outreach to the community to increase the number of cesspool replacement commitments.	Load reductions will be 84 lbs total nitrogen/year/unit and 1.6x10 ¹⁵ CFUs of enterococcus/year/unit; estimated load reductions for all 15 cesspools replacements are: <ul style="list-style-type: none"> Total nitrogen: 4,815 lbs/year Fecal coliforms: 1.21x10¹⁸ CFU/year Biological oxygen demand: 846 lb/year Total suspended solids: 418 lb/year 	4/15/16 - 4/14/19 \$467,130 (\$319(h)) \$311,820 (match)
West Maui Watershed Coordinator (West Maui), Department of Land and Natural Resources, Division of Aquatic Resources	The Watershed Coordinator will facilitate the West Maui Ridge 2 Reef committee meetings and work with agencies and the public to promote water quality restoration and protection for the five West Maui watersheds (Honokowai, Wahikuli, Kahana, Honokahua, Honolulu).	N/A	11/14/16 - 11/13/18 \$88,400 (\$319(h)) \$22,330 (match)
Agricultural Stewardship in the Ma'ili'ili Watershed (Ma'ili'ili), O'ahu Resource Conservation & Development Council	The contractor developed and received approvals for 2 out of 10 conservation plans and established a BMP investment fund. The contractor received and completed 3 applications from area farms for BMP assistance. The contractor continues to conduct field days and other outreach activities.	Estimated Load Reductions: <ul style="list-style-type: none"> Sediment: 62 tons/year Total nitrogen: 319 lbs/year Total phosphorus: 108 lbs/year 	12/19/16 - 12/18/18 \$190,040 (\$319(h)) \$61,680 (match)

Project Title (watershed), Contractor	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
Ka'alaea and Waiahole Stream Restoration Phase II (Ka'alaea and Waiahole), O'ahu Resource Conservation & Development Council	The contractor developed 2 out of 5 conservation plans. The first plan was approved in 7/2017 and the second plan is anticipated to be approved in 10/2017. The contractor received a total of 6 applications for BMP cost-share funding and completed 2 cost-share agreements. The contractor plans to execute 3 more cost-share agreements by December 2017.	Estimated Load Reductions: <ul style="list-style-type: none"> • Sediment: 55 tons/year • Total nitrogen: 124 lbs/year • Total phosphorus: 53 lbs/year • Total suspended solids: 418 lbs/year 	12/19/16 - 6/18/19 \$216,810 (\$319(h)) \$95,400 (match)
He'eia Fishpond Mangrove Removal and Water Quality Improvement (He'eia), UH Sea Grant College Program	The contractor completed water quality monitoring of the project area and removed approximately 7% of invasive mangroves. The project was delayed briefly due to approval of a burn permit from DOH Clean Air Branch. The burn permit was approved in early October 2017 and contractor will continue its mangrove removal work.	Estimated Load Reductions: <ul style="list-style-type: none"> • Total phosphorus: 657 lb/year 	3/14/17 - 3/13/19 \$189,500 (\$319(h)) \$10,000 (Sea grant) \$47,570 (match)
DLNR West Maui – Polluted Runoff Control Project for West Maui	The contractor will install, retrofit, and repair approximately 16,000 ft of ungulate control fencing in Wahikuli, Honokowai, Kahana, Honokahua, and Honolulu watersheds in West Maui to prevent feral ungulates from entering the Kapunakea Preserve and Pu'u Kukui Watershed Preserve.	Anticipated Load Reductions: <ul style="list-style-type: none"> • Sediment: 3358 tons/yr • Total nitrogen: 2,822 lbs/yr • Total phosphorous: 333 lbs/yr 	Notice to Proceed Pending \$735,160 (\$319(h)) \$184,000 (match)
DLNR Kohala – Polluted Runoff Control Project for Pelekane Bay Fencing	The contractor will repair an existing paddock fence and install a new paddock fence to divide the project area into a lower and upper paddock to implement rotational cattle grazing. Rotational grazing will controlling grass growth and stimulate healthy ground cover, thereby reducing erosion. A watering trough will also be relocated away from Mekeahua Stream to relocate the deposition of cow manure away from the riparian zone and to facilitate rotational grazing.	Anticipated Load Reductions: <ul style="list-style-type: none"> • Sediment: 10 tons/year • Total nitrogen: 1, 467 lbs/year • Total phosphorus: 1,833 lbs/year 	Notice to Proceed Pending \$90,000 (\$319(h)) \$22,500 (match)