



# 2016 End of Year Report

## October 1, 2015 to September 30, 2016



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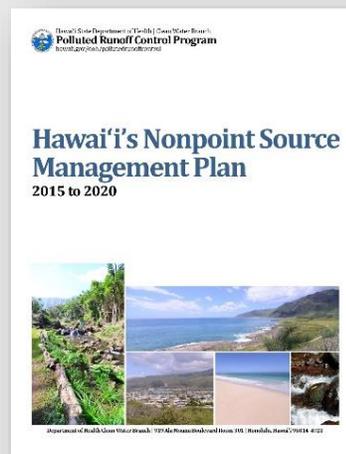
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## Polluted Runoff Control Program Highlights for Fiscal Year 2016

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) under the CWA, the §319(h) program provides funding to implement state NPS programs. In Hawai'i, the Hawai'i State Department of Health (DOH) Clean Water Branch (CWB) [Polluted Runoff Control Program](#) (Program) administers the state's NPS program, with the mission to protect and improve the quality of Hawai'i's water resources by preventing and reducing NPS pollution. In addition to providing §319(h) grants to reduce NPS pollution and improve water quality, the Program is responsible for updating [Hawai'i's NPS Management Plan](#) every five years and developing annual NPS assessment reports pursuant to CWA §319(h). The purpose of this End of Year Report is to assess the progress the Program has made in Fiscal Year 2016 (FY16; October 2015 – September 2016) in implementing Hawai'i's NPS Management Plan.



In FY16, the Program made progress in identifying water quality trends and waters impaired by NPS pollution (Goal 1 of Hawai'i's NPS Management Plan). Specifically, the Program monitored and assessed water quality for He'eia Stream, which was removed from the CWA §303(d) list of impaired waters for total phosphorus and turbidity this fiscal year. The Program also began developing a monitoring plan for Hanalei Bay watershed, where two CWA §319(h)-funded projects are being implemented.

The Program collaborated with DOH-CWB sections and agencies to develop strategies, watershed-based plans (WBPs), and Total Maximum Daily Load implementation (TMDL+) plans to prevent and reduce NPS pollution (Goal 2 of the NPS Management Plan). The Program also participated in the development of the Waikele Total Maximum Daily Load implementation (TMDL+) plan with the DOH-CWB Monitoring and Analysis Section, the Kaiaka Bay WBP with the City and County of Honolulu (CCH), and the West Maui WBP for Kahana, Honolua, Honokahua with various federal, state, and local agencies. The West Maui WBP was completed this fiscal year and will be implemented in Fiscal Year 2017 (FY17).

The Program also continued to implement NPS management strategies to restore impaired waters and protect high quality waters (Goal 3 of the NPS Management Plan). In FY16, the Program supported eleven CWA §319(h)-funded projects and one Supplemental Environmental Project (SEP). Four §319(h) projects were located within the DOH-CWB's priority watersheds (He'eia, West Maui, and Hanalei Bay). Two projects were completed this fiscal year, and the Program awarded funding to four new §319(h) projects that will begin implementation in FY17. Due to these efforts, the Program is proud to report the following estimated pollutant load reductions for FY16:

<b>Total nitrogen load reduction:</b>	<b>10,613 lb</b>
<b>Total phosphorus load reduction:</b>	<b>1,275 lb</b>
<b>Sediment load reduction:</b>	<b>2,736 tons</b>

The Program also made progress in developing and employing an effective statewide program to manage NPS pollution (Goal 4 of the NPS Management Plan). In collaboration with the Office of Planning (OP) Coastal Zone Management Program, the Program met the conditions for two management measures and an administrative element for the Coastal Nonpoint Pollution Control Program (CNPCP), and plans to complete the remaining management measures and obtain approval of the CNPCP in 2017. The Program also joined the DOH Wastewater Branch (WWB), Safe Drinking Water Branch (SDWB), DOH-CWB, and EPA to form the Cesspool Workgroup, which developed a conceptual plan to address the State's cesspool problem. The Cesspool Workgroup will develop a formal statewide cesspool strategy as it conducts a pilot project to replace cesspools on O'ahu.

To ensure the Program continued to achieve its goals, it continued to perform 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 FY17 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***

In FY16, the DOH-CWB Monitoring and Analysis Section completed the "Marine Water Quality Assessment Methodology for the 2016 Integrated Report" to establish consistency and transparency with respect to how marine water quality data are assessed for regulatory decision-making purposes by DOH-CWB programs. This methodology was utilized for the 2016 Integrated Report (IR), also known as the State's Water Quality Monitoring and Assessment Report, which was written by the DOH-CWB Monitoring and Analysis Section. Specifically, the "Marine Water Quality Assessment Methodology" documents changes from previous IR assessments with respect to replacing variable scopes of assessment with clearly defined decision units. The DOH-CWB will complete the "Inland Water Quality Assessment Methodology for the 2018 Integrated Report" in FY18, as described in the NPS Management Plan and as the DOH-CWB expands in water quality monitoring to include more inland waters.

Under Goal 1, the State also set a goal to complete three monitoring plans by 2020. In FY16, the Program, with the assistance of the DOH-CWB Monitoring and Analysis Section and the Waipa Foundation in Kaua'i, began developing a monitoring plan for the Hanalei Bay watershed, a DOH-CWB priority watershed and home to two current §319(h) projects. The monitoring plan, which will be completed in early 2017, is part of a multi-cooperator approach to watershed monitoring and project effectiveness in Hanalei Bay. Water quality sampling sites include six beach and estuary sites and seventeen stream sites that span the Hanalei, Waioli, and Waipa watersheds. Sampling locations were

selected to determine the effectiveness of BMP implementation throughout Hanalei Bay and to provide continuity with previous data collected for Hanalei Bay's TMDL. Sampling will be conducted by the DOH-CWB and the Waipa Foundation; the latter is currently implementing one of the two §319(h) projects in Hanalei Bay watershed.

The Program originally planned to complete West Maui watershed's monitoring plan in FY16, but postponed its development to FY17 to complete and implement the Hanalei Bay monitoring plan. The third water quality monitoring plan for Waikele is not scheduled for development until 2018.

***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 DOH-CWB's Monitoring and Analysis Section for use in the 2016 IR. The 2016 IR is currently under review by DOH and EPA and will be completed in 2017 after public comments have been addressed.

Since 2013, 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. The Program's Environmental Health Specialist (EHS) continued to collect stream samples from three He'eia Stream sites (upper, lower, and mouth) twice a month for chemical analysis by the DOH State Laboratory. In FY16, the Program collected and analyzed 45 samples from these sites.

He'eia Stream's total nitrogen was elevated in the urban corridor (lower site) of He'eia watershed (Figure 1). The low concentration of total nitrogen near the mouth of He'eia Stream relative to the lower sampling site suggests that remediated wetlands at the mouth were functioning and reducing total nitrogen inputs from the urban corridor. Total nitrogen concentrations were relatively stable, but the spikes of total nitrogen concentration after storms likely caused the re-listing of He'eia Stream for total nitrogen on the State's 303(d) list in the 2016 IR. He'eia Stream also continued to exceed water quality standards for nitrate and nitrite for both wet and dry seasons.

He'eia Stream's total phosphorus concentrations decreased over time (Figure 2), most likely as a result of §319(h) project implementation throughout He'eia watershed. The upper and lower sites improved dramatically over the past several years, and total phosphorus remained consistently low at the lower sampling site. Total phosphorus for He'eia Stream was removed from the §303(d) list in the 2016 IR.

The mouth of He'eia Stream had elevated turbidity relative to both the lower and upper stream sites (Figure 3). The difference in turbidity levels between sites was probably due to mangrove removal just upstream of the mouth and tidal influence of fine sediments trapped by the wetland. However, overall, turbidity decreased for He'eia Stream, and it was de-listed for turbidity in the 2016 IR.

Figure 1: He'eia Stream Total Nitrogen ( $\mu\text{g/L}$ )

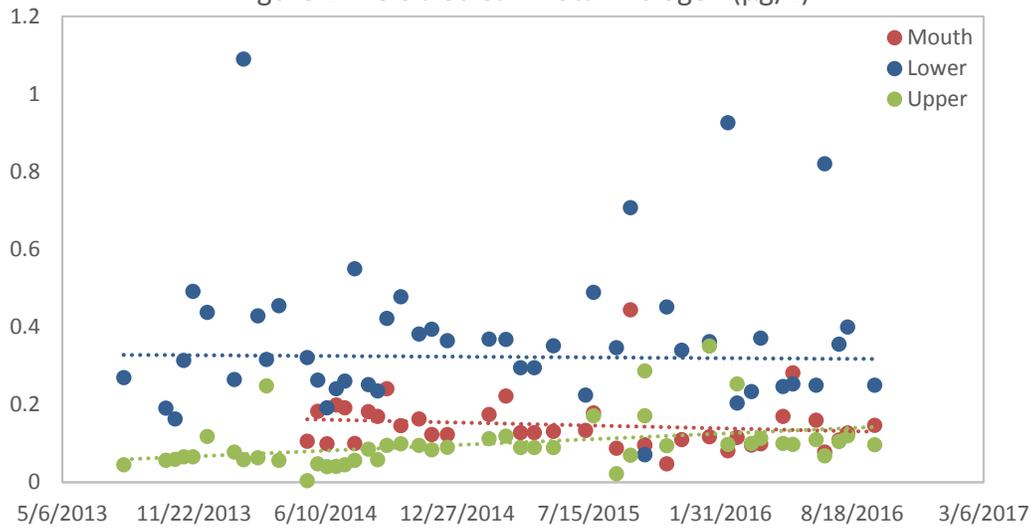


Figure 2 : He'eia Stream Total Phosphorus ( $\mu\text{g/L}$ )

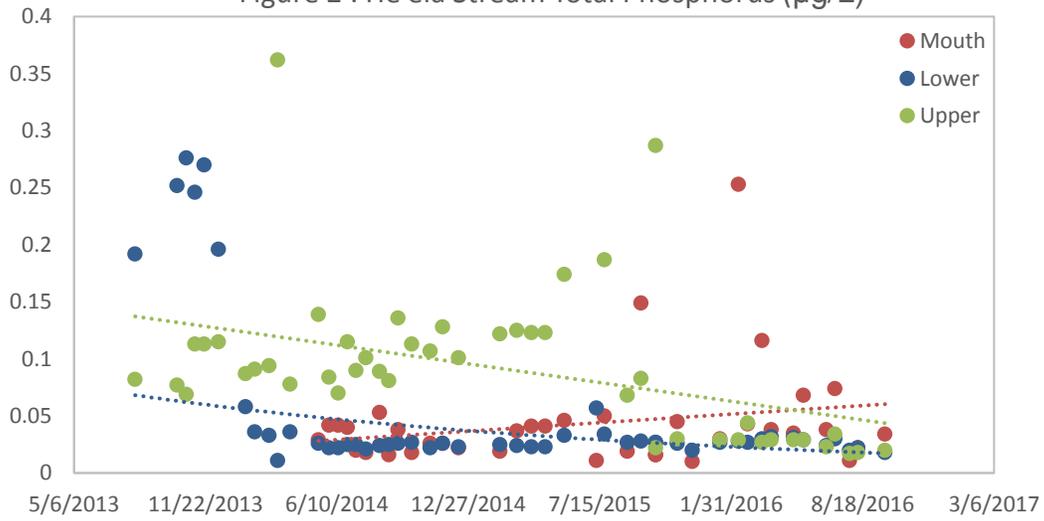
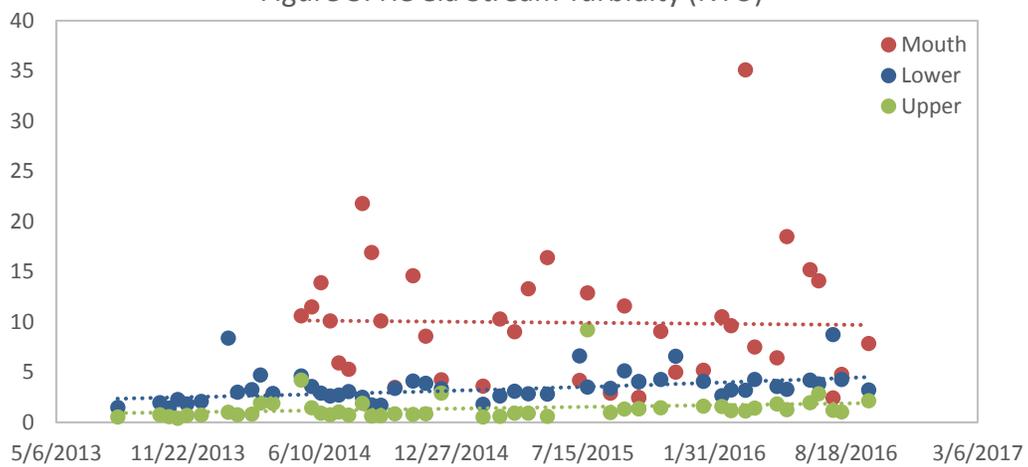


Figure 3: He'eia Stream Turbidity (NTU)



The de-listing of He'eia Stream for total phosphorus and turbidity indicates that the three phases of the §319(h)-funded He'eia Stream Riparian Restoration Project Phase III positively impacted He'eia Stream's water quality. The Program plans to submit a NPS Success Story (WQ-10) to the EPA in April 2017.

The Program continues to work with the DOH-CWB Monitoring and Analysis Section to target water quality sampling for assessment of priority watersheds. Pollutants to monitor and sampling stations were determined for the Program's monitoring year and included He'eia Stream and sites in Hanalei Bay (for the Hanalei Bay monitoring plan). Sampling needs have been provided to the Monitoring and Analysis Section with regards to He'eia Stream and will be determined in FY17 for Hanalei Bay and West Maui watersheds. The Program is on track to begin implementation of the Hanalei Bay watershed monitoring plan in FY17.

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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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Under Goal 2 of the NPS Management Plan, the State planned 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***

Watershed prioritization is an important part of the State's planning process to reduce and prevent NPS pollution. 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 DOH-CWB sections and programs worked together for three years to develop the prioritization matrix and the prioritization flow chart, which were completed this fiscal year. 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. Based on the watershed's score, the DOH-CWB will determine whether or not the watershed is a high or low priority. The watershed prioritization flowchart (Figure 4) summarizes the DOH-CWB's general approach to prioritizing watersheds and includes the same elements as the prioritization matrix.

The Program plans to implement the prioritization matrix in 2017, when it will begin considering new priority watersheds to focus on as it updates the State's NPS Management Plan for 2020-2025. The Program plans to 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 DOH-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 DOH-CWB. The Program and Monitoring and Analysis Section will develop goals, strategies, and measures of success to protect high quality

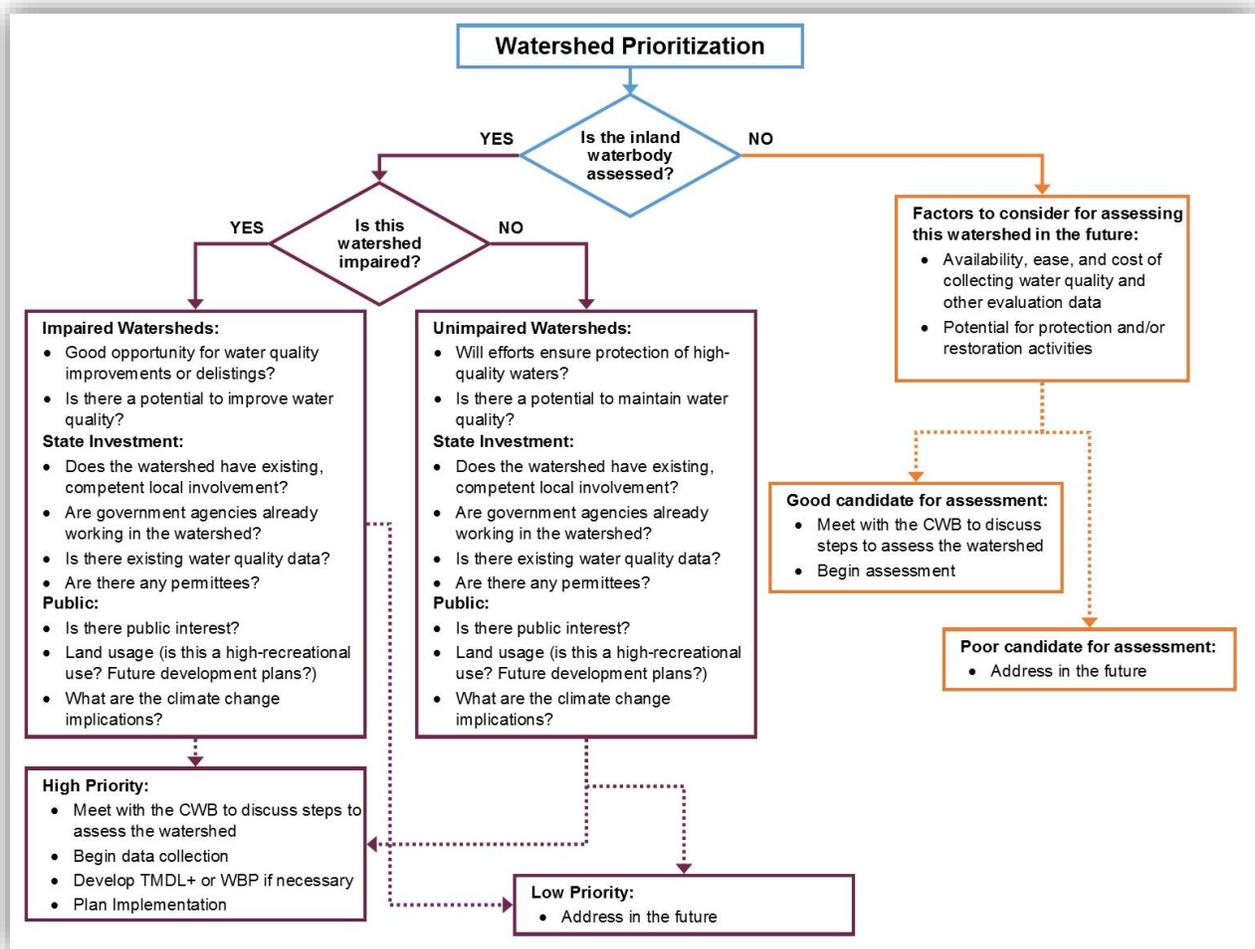


Figure 4. Watershed prioritization flow chart

(unimpaired) waters and watersheds and will coordinate these efforts with other programs to protect waters and prevent NPS impairments. In FY16, the Program created a goal to address water quality protection via the watershed prioritization matrix, giving unimpaired watersheds the opportunity to become priority watersheds in future years. The prioritization matrix also took into account measures of success for protection, including the potential to maintain water quality. The Program plans to identify a priority watershed for protection in 2017.

In addition, in FY16 the Program continued to discuss water quality protection projects with the Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW). The Program and DOFAW, whose mission includes watershed protection, determined protection areas for a jointly funded ungulate fencing protection project in West Maui, which is slated for implementation in FY17.

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

The State relies on approved WBPs to implement on-the-ground water quality improvement projects using §319(h) Project Funds. 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 FY16, the West Maui WBP for Kahana, Honokahua, and Honolua was completed by the [West Maui Ridge to Reef Initiative](#) (West Maui R2R) and its partners, which includes DOH-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 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. The Program participated in monthly calls regarding the WBP and provided technical reviews and feedback on the plan's development. West Maui R2R plans to complete a comprehensive West Maui watershed-based plan, which will include Wahikuli, Honokowai, Kahana, Honokahua, and Honolua watersheds, but a date has not been set for its development or 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 FY17.

In FY16, the Program continued to assist the Monitoring and Analysis Section with 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, which will guide the DOH-CWB's water quality monitoring and restoration efforts. Waikele Stream was selected for TMDL+ plan development due to the CCH's previous efforts (which include water quality sampling) to prepare a TMDL for Waikele Stream.

The DOH-CWB developed a timeline for the development of the TMDL+ plan, which is scheduled for completion in FY18. The TMDL portion of the TMDL+ plan is being developed by a contractor, TetraTech, who will complete it in late FY17. This portion will address point sources (wasteload allocations, which are regulated by NPDES permits) and nonpoint sources (load allocations, which are not regulated by NPDES permits) of sediment and nutrients within the Waikele watershed. 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 DOH-CWB plans to engage stakeholders early in the TMDL+ planning process. In FY16, the DOH-CWB identified all stakeholders within Waikele watershed, but will not conduct outreach to stakeholders until FY18, when the TMDL portion of the plan is complete.

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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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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***

The Program annually releases a request for proposals (RFP) to select NPS control projects to fund with its §319(h) grant. In January 2016, the Program released an RFP targeting He'eia watershed, one of the DOH-CWB's priority watersheds. Prior to releasing the RFP, the Program conducted outreach in He'eia watershed to discuss water quality issues and potential §319(h) projects. The Program met with four He'eia-based nonprofit organizations interested in conducting water quality improvement projects. In February and March, the Program and other Evaluation Committee members reviewed proposals and Best and Final Offers. Although He'eia watershed was the target for the RFP, the Program followed the Evaluation Committee's recommendation to award §319(h) funds to Oahu RC&D for two projects that will implement agricultural BMPs and develop conservation plans in Ma'ili'ili and Ka'alaea watersheds, thereby moving the State forward in meeting its goal to invest in at least three projects in watersheds that target agricultural runoff and other sources of pollution.

Because He'eia watershed is a priority watershed for the DOH-CWB, the Program continued to pursue projects there to move closer to achieving its goal of investing in two additional NPS control projects in He'eia. The Program discussed projects with the University of Hawai'i (UH) Sea Grant Program, which plays an active role in federal and state projects in He'eia, over several meetings, in which a He'eia-based nonprofit also participated. The Program decided to invest §319(h) funds to implement a He'eia Fishpond restoration project to improve water quality by eliminating sources of phosphorous. The project will begin in FY17, and will also involve additional water quality monitoring by UH Sea Grant. Data from these monitoring efforts will be used in the 2018 and 2020 IR.

In FY16, the Program continued to support existing projects in its other priority watersheds in Hanalei Bay and West Maui. The Program supported its new watershed restoration and cesspool replacement projects in Waipa and Hanalei watersheds and will continue to search for ways to implement one additional cesspool replacement project in Hanalei Bay by 2020. The Program closed out its Wahikuli and Honokowai project in West Maui watershed this fiscal year, resulting in a reduction of sediment by 140 tons/year. The Program met its goal to fund a watershed coordinator in West Maui, and will meet another goal to fund an additional §319(h) project that addresses sediment and nutrients in West Maui (Kahana, Honokahua, and Honolulu watersheds) through an ungulate fencing project with DOFAW planned for FY17. Finally, the Program will begin developing West Maui's monitoring plan in FY17 with assistance from DOH-CWB Monitoring and Analysis Section, the West Maui watershed coordinator, and West Maui R2R.

The Program also continued to support projects in the following watersheds: Hakioawa, He'eia, Pelekane Bay, Ala Wai, Ka'alaea, Waiahole, Wai'ula'ula, Kea'ahala, and Ma'ili'ili (Figure 5). Project details, including pollutant load reductions, can be found in Table 1.

The Program assessed and documented water quality trends and environmental results achieved by §319(h) projects (Table 1; Figures 1-3) 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 FY16, §319(h) project implementation resulted in load reductions of total nitrogen by 10,613 lb, total phosphorus by 1,275 lb, and sediment by 2,736 tons. Load reductions were entered into GRTS to track pollutant load reductions for each project. Importantly, through its assessment of water



Figure 5. Watersheds with active Clean Water Act § 319(h) projects

quality trends in He'eia Stream, the Program met one of its 2020 goal early with the de-listing of He'eia Stream for total phosphorus and turbidity in the 2016 Integrated Report. The Program plans to submit a NPS Success Story (WQ-10) for He'eia Stream to the EPA in April 2017.

The Program also monitored the progress of its §319(h) projects. Site visits were conducted to measure contractor progress and to close out projects. Site visits were conducted for all projects except the two recently funded projects on Kaua'i (Hanalei and Waipa watersheds). Site visits in Kaua'i will take place in FY17 in conjunction with the finalization and/or implementation of the Hanalei Bay monitoring plan.

The Program formerly made project tracking easier through the PRC Viewer. 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.

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

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A critical component Hawai'i's NPS Management Plan is the goal to develop and implement 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 statewide NPS management in Hawai'i.

Outside of DOH, several federal, state, and local organizations have water resource responsibilities, including protecting and restoring water quality and watersheds. The State utilizes overlapping objectives and resources between programs to address NPS pollution in order to increase the State's effectiveness in controlling NPS pollution and demonstrate the State's commitment to addressing NPS pollution on a statewide basis.

The State laid out four objectives under this goal in the 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. The Program's goal is to obtain approval of the CNPCP in 2017.

This fiscal year, the Program made progress in developing management measures that meet the Coastal Zone Act Reauthorization Amendments (CZARA) requirements and the conditions stated in the EPA and NOAA's 2012 Interim Decision Document regarding Hawai'i's CNPCP. The Program and the OP developed management measures for New Onsite Disposal Systems; Planning, Siting and Developing Roads and Highways; and Bridges (siting and design). In addition, the Program completed its documentation for the Monitoring and Tracking administrative element. The Program worked with the OP and submitted progress and updates to the EPA in December 2015 and June and August 2016. The Program and OP also participated in monthly Coastal States Organization calls to learn about other states' strategies in developing their respective CNPCPs.

The status of management measures that have yet to be completed are described below.

***New Development Management Measure***

The New Development management measure aims to control runoff from new development and redevelopment. In order to obtain approval for this management measure, the State needs to show that three of the four counties either 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. The Program investigated the possibility of Maui's MS4 permit exempting Maui County from the New Development management measure, but the MS4 permit coverage did not extend to the entire county. The Program and the OP are considering alternatives to meet the requirements of this management measure.

#### *Operating Onsite Disposal Systems Management Measure*

The Operating OSDS management measure requires the State to establish policies to ensure that existing OSDS are 1) maintained to prevent discharge on the ground, 2) inspected to ascertain failure, and 3) replaced or upgraded to treat influent and manage nitrogen loadings. In order to obtain approval, the Program must develop an OSDS inspection program that can ascertain system failures. The Program, OP, and WWB are working together to develop an inspection program, which has been challenging because of the large number (approximately 90,000) of cesspools in Hawai'i. This fiscal year, the Program submitted a document to EPA Region 9 describing the status of OSDS and OSDS inspections in Hawai'i and made the case to either exempt cesspools from this management measure or conduct cesspool inspections via water quality monitoring. The EPA understands the difficult situation Hawai'i faces with cesspool inspections, and has encouraged the State to develop a new management measure that specifically addresses reducing the number of existing cesspools. The Program plans to develop this management measure in FY17 by working closely with the DOH-EPA Cesspool Workgroup. The State also has taken several steps to reduce water pollution from cesspools, including banning the construction of new cesspools and providing financial incentives to replace cesspools. In addition, this fiscal year the Program funded two §319(h) projects that will replace cesspools with aerobic treatment units.

The Program also met with the DOH-WWB to discuss septic system inspections and determined that point of sale septic system inspections would be feasible, but would require changes to the wastewater rules (Hawaii Administrative Rules §11-62). The DOH-WWB is in the process of finding ways to hire additional staff to amend the rules and conduct other OSDS and Cesspool Workgroup related tasks.

#### *Operation and Maintenance for Roads and Highways, Bridges (Maintenance) Management Measures*

These management measures require the State to incorporate pollution prevention procedures into the operation and maintenance of roads, highways, and bridges to reduce pollutant loadings to surface waters and protect aquatic ecosystems from adverse effects. The OP worked with the counties and DOH-CWB to gather evidence that the conditions for these management measures are being met by the State.

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

The State plans to develop three distinct strategies to address NPS pollution from cesspools, urban runoff, and agricultural runoff. The State currently is developing a cesspool strategy and will develop urban and agricultural runoff strategies in FY18 as specified in the NPS Management Plan.

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 (Figure 6), which is headed by the DOH-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.



Figure 6. Kahalu'u Lagoon, O'ahu

The Cesspool Workgroup met monthly starting in June 2016 and completed its conceptual plan in the fall, which includes goals and objectives related to cesspool assessments and inspections, planning, funding, and replacement of cesspools with alternatives. The Cesspool Workgroup will develop strategies, including funding mechanisms, for replacing cesspools and will refine its strategies by working in a pilot watershed, Kahalu'u, which has a large number of cesspools. Kahalu'u Lagoon also had high bacteria counts in FY15 that resulted in DOH posting caution signs.

A final version of the cesspool strategy will be completed once the Program can incorporate lessons learned from Kahalu'u. Efforts in the pilot area will include:

1. Developing monitoring plans for the collection of data to track the water quality trends pre and post effort;
2. Analyzing the data and determining if cesspools are the sources contributing to the contamination of the water sources;
3. Determining solutions using state and federal regulatory authorities, funding mechanisms, and voluntary programs to mitigate water quality impacts from cesspools;
4. Develop recommendations for a state-wide strategy based on lessons learned in the pilot effort; and
5. Inform the development of the management measure for OSDS inspections pursuant to CZARA.

The Cesspool Workgroup also met with CCH to discuss OSDS and sewer options for Kahalu'u and plans to further engage with the Kahalu'u community in FY17 to discuss cesspools and OSDS options that would benefit water quality in the area.

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

In FY16, The Program made an effort to strengthen existing partnerships and form new partnerships with other agencies and programs involved in water quality protection and restoration. This year the Program strengthened its partnerships with other DOH water branches through the formation of the Cesspool Workgroup. Together, the CWB, WWB, and SDWB, along with EPA Region 9, met monthly to create a conceptual framework for the state's cesspool strategy and develop a pilot project on O'ahu. The DOH water branches have contributed goals, objectives, maps, data, and other knowledge to better inform the State's strategy. The Program also continued to work with the DOH-WWB to address 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 and the TMDL+ plan. The Program also provided data and feedback on the DOH-CWB's marine waters standardized assessment methodology and the 2016 Integrated Report.

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.

The Program continued to collaborate with UH Sea Grant on §319(h) projects. This fiscal year, the Program worked with UH Sea Grant to develop a project targeting sources of nutrients in He'eia Fishpond (estuary), and is in the process of contracting with UH Sea Grant to implement and oversee the project. The existing §319 projects led by UH Sea Grant is the implementation of BMPs in Wai'ula'ula watershed (Table 1).

This year the Program also embarked on new collaborations. The Program met with the NRCS Conservation Specialist in O'ahu to discuss the implementation of two agriculture-related projects that were awarded §319(h) project grants in 2016. Because these two projects involve conservation plan development and review for various farms on O'ahu (Ma'ili'ili and Ka'alaea watersheds), the Program wanted to work with NRCS to ensure that the plans were developed according to NRCS guidelines and with NRCS feedback. NRCS' involvement will help ensure that farmers develop approved plans, whose implementation will be eligible for cost-sharing through §319(h) funds and Farm Bill Environmental Quality Incentives Program (EQIP) funds, which are administered by the NRCS. The Program also looks forward to working with the NRCS as it develops a more comprehensive strategy to reduce runoff from farms.

The Program also worked with the DOFAW Watershed Partnerships Program to develop potential water quality protection projects in West Maui watershed. Because the Program plans to target its §319(h) project funds in West Maui in FY17, the Program intends to collaborate with DOFAW on an ungulate fencing project in West Maui to reduce sediment pollution beginning in FY17.

The Program believes that effective education and outreach rely heavily on partnerships. In April 2016, 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 2,200 water quality-themed coloring books to elementary schools and community groups throughout FY16.

In addition to conducting outreach with its partners to the public, the Program conducted outreach to community groups, local contractors, and residents. In FY16, the Program met with local non-profit organizations and community groups in He'eia watershed prior to releasing its RFP in January 2016 to discuss watershed restoration projects. The Program visited the watershed and discussed State procurement procedures, the RFP process, and potential projects arising from the Ko'olaupoko WBP with these community groups.

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. 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 throughout the development of this End of Year Report. The Program also evaluated its RFP process and revised its evaluation criteria by modifying scoring categories and by facilitating 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 May 2016, the Program's EHS participated in the TMDL Training Workshop in Shepherdsville, WV to gain knowledge of TMDL planning and implementation and the 303(d) program. In October 2015 and August 2016, the Program attended Green Infrastructure summits hosted by UH in Honolulu to learn more about ways to target green infrastructure projects with §319(h) funds.

The Program also investigated new approaches to address NPS pollution. The Program will participate in enforcement training to learn about methods of enforcing NPS pollution when the DOH-CWB Enforcement and Compliance Section has developed a program for enforcement training and certification. This enforcement training program most likely will not be completed until FY19. The previous fiscal year, the DOH-CWB explored water quality trading. However, as of FY16, a water quality trading program will not be funded by the Association of Clean Water Administrators, and therefore the DOH did not continue to pursue this approach to NPS management.

The Program continued to strive to be fully staffed this fiscal year, and is still in the process of converting its vacant Grants Management Specialist IV position into a Contracts Specialist IV. The conversion is necessary to facilitate recruitment of a qualified candidate that can meet the Program's needs and required by the State's Department of Human Resources Development. However, converting positions requires coordination between several State agencies and is a time-consuming process. The Program anticipates getting final approval and filling this position by May 2017. Program personnel funds

budgeted but unspent due to this unfilled position continue to be reclassified and used for implementation projects.

*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 IV	Vacant
PRC Planner IV	Darcey Iwashita
PRC Office Assistant III	Amy Young

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).



Figure 7. The Polluted Runoff Control Program conducting outreach at the Waikiki Aquarium

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### ***Checklist of NPS Management Outcomes***

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The State anticipated specific outcomes to achieve by 2020 as a result of implementing the NPS Management Plan. The NPS Management Plan included a checklist of these outcomes to measure the State’s progress in meeting its goals and objectives. The following provides a summary of the FY16 status in delivering these outcomes, which were described in detail earlier in this report.

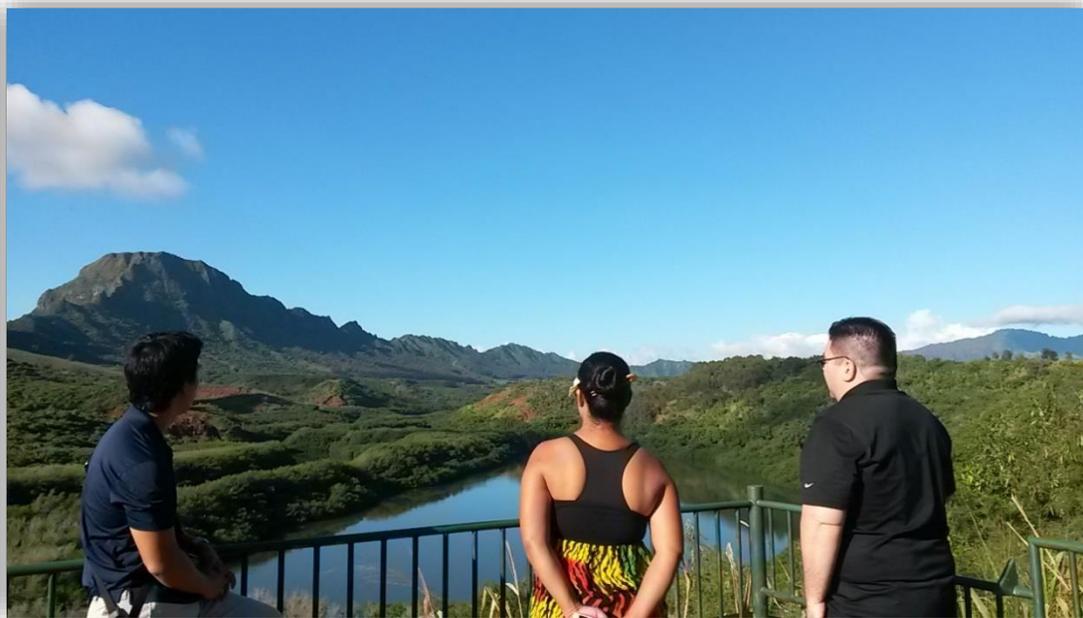
## Goal 1: Assessment

- ✓ **Water quality monitoring plans and a standardized water quality assessment methodology are developed to guide consistent and comparable water quality monitoring efforts.**  
The DOH-CWB completed a standardized assessment methodology for marine waters, which was implemented in the 2016 Integrated Report. The Program and its partners began developing the water quality monitoring plan for Hanalei Bay watershed, which will be completed and implemented in 2017.
- ✓ **Coastal and inland waters are monitored and assessed every two years.**  
Coastal and inland waters were monitored and assessed from 2014-2016. The 2016 Integrated Report assessment will utilize the Program's monitoring data and will be released in 2017.
- ✓ **Two new inland waters are monitored and assessed.**  
The Program will begin monitoring streams in Hanalei Bay watershed in FY17 and West Maui watershed in FY18. Waters in Waikele watershed will be monitored once the TMDL+ implementation plan and monitoring plan are completed.
- ✓ **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 and in this report for He'eia Stream. 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 2017.
- ✓ **Strategies and goals for protecting high quality waters are developed.**  
The Program included water quality protection in the DOH-CWB watershed prioritization matrix to ensure that unimpaired waters were considered when new priority watersheds are determined. The matrix included measures of success for protection. The Program will partner with DOFAW to implement protection projects in West Maui in FY17.
- ✓ **A TMDL+ plan for Waikele watershed is developed.**  
The Waikele TMDL for sediment and nutrients is currently being developed by the DOH-CWB and will be completed in FY17. The Program and DOH-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 FY17. The Program anticipates the completion of the comprehensive West Maui WBP (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)-funded NPS projects were implemented in FY16: 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.

- ✓ **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 this year. The Program will submit an EPA WQ-10 Success Story in FY17.

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

The Program continued to implement restoration projects in watersheds with impaired water quality in FY16 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 Heeia watershed, the Program hopes to identify improving trends in other watersheds once water quality plans are implemented in Hanalei Bay and West Maui.



#### Goal 4: Statewide NPS Program Development

- ✓ **CNPCP receives full approval under CZARA.**  
The Program plans to submit the final CNPCP to the EPA and NOAA for approval in 2017.
- ✓ **Status of CNPCP management measure implementation is determined.**  
The Program will determine the status of CNPCP management measure implementation once the CNPCP is approved.
- ✓ **At least three NPS restoration and protection projects are implemented through partnerships, including one funded through the DWSRF or CWSRF.**  
The Program will implement a project with UH Sea Grant Program to restore He'eia Fishpond in FY17. The Program also will collaborate with DOFAW to implement protection projects in West Maui in FY17. The Program has been unsuccessful so far with funding a project using the DWSRF (funds were used for other SDWB projects) and has not developed projects that will be eligible for CWSRF funds, but will explore CWSRF options through the Cesspool Workgroup.
- ✓ **Statewide approaches to managing NPS pollution from cesspools, urban areas, and agriculture are developed.**  
The DOH has started its statewide strategy to address pollution from cesspools and is currently participating in the Cesspool Workgroup to develop and implement the cesspool strategy. Strategies for agriculture and urban areas will be developed in FY18.
- ✓ **Integration among DOH CWB, SDWB, and WWB programs is improved to more effectively target resources towards water quality improvements.**  
The DOH CWB, SDWB, and WWB are working together in the Cesspool Workgroup to create solutions for the State's cesspool problems. The Program also continued to work with the DOH-WWB to meet the conditions of the CNPCP and with the DOH-CWB to monitor and assess water quality and develop monitoring and TMDL+ plans.



## Clean Water Act §319(h) Grant Implementation

In the past year, the Program managed five EPA CWA §319(h) grant awards (FY11, FY12, FY13, FY14, & FY15). At the end of September 2016, the FY11 grant closed and the Program was awarded a FY16 grant. Individual grant awards and §319(h)-funded projects are listed below by fiscal year.

### ***Fiscal Year 2011 (Federal C996978711-0/State 9290-11); 10/1/2011 to 9/30/2016***

The total FY11 EPA CWA §319(h) grant is \$1,355,490 with a State in-kind contribution of \$1,144,510. Approximately \$840,010 of federal funds were expended for project implementation and \$515,480 was spent to support the Program.

### ***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 with a State in-kind contribution of \$807,970. \$789,670 of federal funds has been expended or is currently encumbered for project implementation and \$419,330 has been spent to support the Program. This includes \$44,500 of unspent personnel funds reclassified to projects due to vacancies.

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

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

### ***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 with a State in-kind contribution of \$841,535. \$872,560 of federal funds has been expended or is currently encumbered for project implementation and \$389,740 supports the Program. This includes \$79,270 of unspent personnel funds reclassified to projects due to vacancies.

### ***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 with a State in-kind contribution of \$774,200. \$579,600 of federal funds were expended or is currently encumbered for project implementation, with \$181,880 available for additional projects that will be funded as part of the Program's 2016 project procurement efforts. This includes \$77,200 of personnel funds unspent in FY15 due to the vacant Contracts Specialist position. Approximately \$399,820 of federal grant funds is budgeted 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 with a State in-kind contribution of \$799,333. Approximately \$535,800 of federal funds will be spent to support the Program and \$663,200 is available to spend on projects. The amount of federal funds available for supporting projects will increase slightly due to the vacant Contracts Specialist position, and the exact amount will be calculated at the end of the fiscal year or when the position is filled. The Program anticipates that its 2016 project procurement efforts will yield projects that can be funded by this grant and that all grant project funds will be encumbered in one year.

<b>Grants Summary</b>						
State Fiscal Year	FY11	FY12	FY13	FY14	FY15	FY16
EPA Grant Award	\$1,355,490	\$1,209,000	\$1,146,000	\$1,262,300	\$1,161,300	\$1,199,000
Program Personnel & Overhead	\$515,480	\$419,330	\$390,200	\$389,740	\$399,820	\$535,800
On-going, Encumbered & Completed Projects	\$840,010	\$745,170	\$686,590	\$793,290	\$684,280	\$0
Unspent Personnel Funds Reclassified for Projects	\$0	\$44,500	\$69,210	\$79,270	\$77,200	TBD
Project Funds Currently Available	\$0	\$0	\$0	\$0	\$181,880	\$663,200

### **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 outer island employees act as the Program's eyes and ears and provide a physical presence on the outer islands that the Program cannot provide. In FY16, the EHSs responded to 13 complaints. NPS pollution issues addressed included: oil entering a stream from equipment stored nearby, a property owner grading land without a grading and grubbing permit, and squatters installing a toilet that discharged into a stream.

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 FY16, the IWSs conducted 223 IWS plan reviews and 15 inspections on Kaua'i, 194 IWS plan reviews and 4 inspections on O'ahu, 288 IWS plan reviews and 14 inspections on Maui, and 1,041 IWS plan reviews and 36 inspections on the Island of Hawai'i (705 reviews and 18 inspections in Hilo and 336 reviews and 18 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).

Below is a summary of the Program's fiscal and administrative milestones and tasks for FY16.

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 2016 CWA §319(h) grant	a. Develop the 2016 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.
	d. Close out 2010 CWA §319(h) grant and review/manage status of 2011 CWA §319(h) grant	The 2010 CWA §319(h) grant was closed out with no unobligated funds. The Final FSR and associated reports were submitted. The 2011 grant has been reviewed and managed.
3. Assess personnel status and needs	a. Reclassify Grants Management Specialist IV position as General Professional III/IV and fill position	The position was not reclassified, and the PD is still under review with the Department of Human Resources Development.

Table 1. Clean Water Act §319(h) Project Summaries for Fiscal Year 2016

Project Title (watershed), Contractor(s)	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
<b>Reducing Sedimentation in the Hakioawa Watershed</b> (Hakioawa), Kaho‘olawe Island Resource Commission	This fiscal year, the contractor completed revegetating barren land with native plants and installed geotextile rolls to reduce sediment runoff. Approximately 20,000 native plants were planted in 1,300 kipuka to restore ground cover in the watershed. Over 1,000 volunteers devoted over 10,000 hours for this project.	<ul style="list-style-type: none"> <li>• Sediment reduced by 500 tons/year</li> <li>• Vegetated ground cover increased by approximately 200 acres</li> </ul>	4/1/13 - 6/30/16 \$294,190 (§319(h)) \$246,600 (match)
<b>He‘eia Stream Riparian Restoration Phase III</b> (He‘eia), Hui O Ko‘olaupoko	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. The contractor completed mangrove removal in approximately one acre of wetland and replaced them with native and naturalized plants. The contractor continues to maintain the area to prevent mangroves from re-establishing. A no-cost extension was requested by the contractor due to rain.	<ul style="list-style-type: none"> <li>• 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</li> <li>• Sediment reduced by 250 tons/year</li> <li>• Total nitrogen reduced by approximately 2,200 lb/year</li> <li>• Total phosphorus reduced by 800 lb/year</li> <li>• Ground cover increased in the riparian areas, resulting in sediment load reductions and improved water quality</li> <li>• 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</li> <li>• During water quality monitoring, O‘opu were spotted in the stream mouth corridor</li> </ul>	6/20/13 - 6/19/16 (10/31/17 extension pending) \$747,030 (§319(h)) \$284,370 (match)
<b>Pelekane Bay Watershed Restoration Project, Phase 3</b> (Pelekane Bay), The Kohala Center, Inc.	The contractor completed maintenance on existing sediment check dams, continued feral ungulate control, and installed 18 additional check dams to decrease sediment. Prior to project completion, a site visit was conducted in March.	<ul style="list-style-type: none"> <li>• Existing check dams reduced sediment by over 900 tons per rain event</li> <li>• New check dams reduced sediment by approximately 210 tons per rain event or 11.67 tons per check dam</li> <li>• 275 feral goats were removed</li> <li>• Over 6,000 acres were protected by the upkeep of ungulate fencing</li> </ul>	3/12/14 - 3/11/16 \$76,420 (§319(h)) \$43,820 (match)

Project Title (watershed), Contractor	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
<b>Manoa Watershed Improvement Project</b> (Ala Wai), Ala Wai Watershed Association, Inc.	The contractor began clearing non-native invasive plants, including Albizia, and replacing them with native vegetation along the banks of Manoa Stream. Community education is underway. A no-cost extension was requested due to medical reasons and unseasonably heavy rainfall in the watershed.	Implementing BMPs will decrease erosion in the upper conservation areas of the watershed, resulting in sediment load reductions of 198 tons per year.	6/5/14 - 6/30/18 \$298,210 (\$319(h)) \$75,000 (match)
<b>Agricultural District Erosion Control in Wahikuli and Honokowai Watersheds: Assessment and Installation</b> (Wahikuli and Honokowai), Sustainable Resources Group Intn'l Inc.	The contractor assessed agricultural roads and fallow fields in Wahikuli and Honokowai to target for BMPs. Implementation of BMPs was completed and a site visit will be conducted in November 2016 to close out the contract.	Approximately 140 tons/year of sediment was removed with BMP implementation and roadway remediation.	6/10/14 - 9/30/16 \$376,140 (\$319(h)) \$99,620 (match)
<b>Ka'ala'ea and Waiahole Stream Restoration Phase I</b> (Ka'ala'ea and Waiahole), O'ahu Resource Conservation & Development Council	The contractor implemented cost-share agreements with 12 farmers to install and maintain BMPs included in approved conservation plans. The contractor is making efforts to implement agreements with 3 additional farmers who are waiting for approval of their conservation plans from their Soil and Water Conservation District. The contractor conducted two outreach events targeting local farmers and community members.	<ul style="list-style-type: none"> <li>• Total nitrogen reduced by 480 lb/year</li> <li>• Total phosphorus reduced by 88 lb/year</li> <li>• Sediment reduced by 100 tons/year</li> </ul>	9/19/14 - 9/18/17 \$298,790 (\$319(h)) \$75,520 (match)
<b>Watershed Based Plan for the Kaiaka Watershed</b> (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 early 2017.	N/A	12/2/14 - 12/1/15 \$210,000 (\$319(h)) \$210,000 (match)
<b>Implementation of Best Management Practices in the Wai'ula'ula Watershed</b> (Wai'ula'ula), University of Hawai'i (UH) Sea Grant College Program	The contractor completed streambank stabilization and restoration of riparian corridors throughout the watershed. The contractor is redirecting some remaining funds to increase BMP implementation at the middle project site. A site visit was conducted in June 2016.	<ul style="list-style-type: none"> <li>• Total nitrogen reduced by 1,400 lb/year</li> <li>• Total phosphorus reduced by 220 lb/year</li> <li>• Sediment reduced by 1,200 tons/year</li> </ul>	12/15/14 - 12/14/16 \$427,220 (\$319(h)) \$107,080 (match) (extension pending: 8/31/2017) \$506,750 (\$319(h)) \$128,160 (match)

Project Title (watershed), Contractor	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
<b>Watershed Implementation Project for the Ahupua'a of Waipa</b> (Waipa), Waipa Foundation	The contractor replaced two cesspools with septic systems and drafted the project's monitoring plan in September, which the Program and the DOH-CWB Monitoring Section will provide feedback on in October 2016. The contractor will assist the State with data collection for nutrients and bacteria to determine the effectiveness of the project.	Estimated Load Reductions: <ul style="list-style-type: none"> <li>Total nitrogen: 1263 lb/year</li> <li>Fecal coliforms: 2.41x10<sup>17</sup> CFU/year</li> <li>Biological oxygen demand: 169.2 lb/year</li> <li>Total suspended solids: 663 lb/year</li> <li>Sediment: 20 tons/year</li> </ul>	2/22/16 - 7/24/17 \$386,290 (\$319(h)) \$108,650 (match)
<b>Windward Community College Low-Impact Retrofit Phase II</b> (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. Windward Community College delayed the project due to approvals required from its board and maintenance crews, but construction is slated to begin during the summer of 2017.	Estimated Load Reductions: <ul style="list-style-type: none"> <li>Total nitrogen: 12 lb/year</li> <li>Total phosphorus: 6 lb/year</li> <li>Sediment: 1.1 tons/year</li> </ul>	2/22/16 - 7/22/17 \$186,020 (\$319(h)) \$46,900 (match)
<b>Ma'ili'ili Reservoir Mitigation Project</b> (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 non-native invasive plants and replacing them with over 60,000 native plants. Outreach includes 18 community volunteer days and watershed education for 500 students.	Estimated Load Reductions: <ul style="list-style-type: none"> <li>Total nitrogen: 1000 lb/year</li> <li>Total phosphorus: 200 lb/year</li> <li>Sediment: 100 tons/year</li> </ul>	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)
<b>Replacing Small Capacity Cesspools with Advanced Wastewater Systems in Hanalei Bay Watershed</b> (Hanalei), Hanalei Watershed Hui	To date, the contractor has contacted over forty homeowners and has received commitments from four owners to replace their cesspools with aerobic treatment units, with the goal of replacing 15 cesspools. The contractor is continuing outreach to the community while concurrently implementing cesspool replacements.	Load reductions will be 84 lb total nitrogen/year/unit and 1.6x10 <sup>15</sup> CFUs of enterococcus/year/unit; estimated load reductions for all 15 cesspools replacements are: <ul style="list-style-type: none"> <li>Total nitrogen: 4,815 lb/year</li> <li>Fecal coliforms: 1.21x10<sup>18</sup> CFU/year</li> <li>Biological oxygen demand: 846 lb/year</li> <li>Total suspended solids: 418 lb/year</li> </ul>	4/15/16 - 4/14/19 \$467,130 (\$319(h)) \$311,820 (match)

Project Title (watershed), Contractor	Updates and Progress	Environmental Results and Pollutant Load Reductions	Start-End Dates and Funding
<b>West Maui Watershed Coordinator</b> (West Maui), Department of Land and Natural Resources, Division of Aquatic Resources	The Watershed Coordinator will facilitate the 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, Honolua).	N/A	Notice to Proceed pending \$88,400 (\$319(h)) \$22,330 (match)
<b>Agricultural Stewardship in the Ma'ili'ili Watershed</b> (Ma'ili'ili), O'ahu Resource Conservation & Development Council	The contractor will assist farmers in developing conservation plans and implementing conservation practices and BMPs to improve water quality. Targeted outreach to farms near streams is prioritized. The contractor will develop 10 new conservation plans, which may include 4,000 feet of vegetative barriers, 15 acres of cover crops, 3 acres of mulch, 5 acres of nutrient management, and 5 acres of integrated pest management. Outreach will consist of 4 farm-based workshops featuring information on conservation planning and BMPs to reduce impacts on water quality.	Estimated Load Reductions: <ul style="list-style-type: none"> <li>• Total nitrogen: 319 lb/year</li> <li>• Total phosphorus: 108 lb/year</li> <li>• Sediment: 62 tons/year</li> </ul>	Notice to Proceed pending \$190,040 (\$319(h)) \$61,680 (match)
<b>Ka'alaea and Waiahole Stream Restoration Phase II</b> (Ka'alaea and Waiahole), O'ahu Resource Conservation & Development Council	Phase II will continue with the implementation of conservation plans, with continued focus on implementing BMPs that will improve water quality within Ka'alaea and Waiahole. Specific BMPs include 800 feet of water bars to reduce concentrated flow, vegetated swales to capture runoff, and 400 feet of streambank restoration and revegetation. The contractor will also assist farmers in developing 5 new conservation plans.	Estimated Load Reductions: <ul style="list-style-type: none"> <li>• Total nitrogen: 124 lb/year</li> <li>• Total phosphorus: 53 lb/year</li> <li>• Sediment: 54.6 tons/year</li> <li>• Total suspended solids: 418 lb/year</li> </ul>	Notice to Proceed pending \$216,810 (\$319(h)) \$95,400 (match)
<b>He'eia Fishpond Mangrove Removal and Water Quality Improvement</b> (He'eia), UH Sea Grant College Program	The contractor will clear a ½ acre mangrove island in He'eia Fishpond that is an egret habitat, thereby removing a source of phosphorus inputs. The contractor also will remove non-native mangrove along the southwestern bank of He'eia Fishpond and replant with native and indigenous plant species.	Estimated Load Reductions: <ul style="list-style-type: none"> <li>• Total phosphorus: 657 lb/year</li> </ul>	Notice to Proceed pending \$189,500 (\$319(h)) \$10,000 (Sea grant) \$47,570 (match)