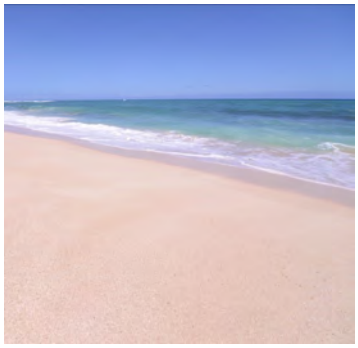
Hawai'i State Department of Health | Clean Water Branch

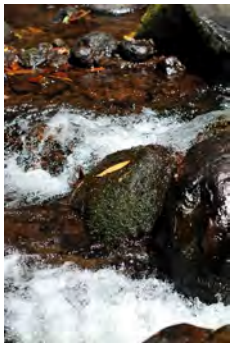
Polluted Runoff Control Program

hawaii.gov/doh/pollutedrunoffcontrol

2014 End of Year Report

October 1, 2013 to September 30, 2014





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Executive Summary

Fiscal Year (FY) 2014 demonstrated progress in the turnaround of the State Department of Health (DOH) Clean Water Branch's (CWB) Polluted Runoff Control Program (Program). After losing 50% of its staff in FY13, the Program was successful in filling its vacant Planner position in July. The Program is also involved in the process of converting its Public Participation Coordinator position into a permanent, full-time supervisor position to effectively guide the Program and is recruiting an Office Assistant to help the Program with its administrative needs.

Four Clean Water Act (CWA) Section 319(h)-funded projects have been completed during this fiscal year. Three of these projects improved water quality in local watersheds by reducing nitrogen, phosphorus, and sediment loads. The fourth project was a statewide nonpoint source (NPS) pollution education and outreach effort directed at elementary school children to encourage behavior changes that will result in healthier watersheds. In addition, the Program completed a project funded via a Supplemental Environmental Project (SEP) settlement to develop a Watershed-based Plan (WBP) in Leeward Oʻahu.

For FY14, the Program is proud to report the following load reductions:

Nitrogen Load Reduction: 13,679 lbs.
Phosphorous Load Reduction: 2,792 lbs.
Sediment Load Reduction: 5,543.3 tons

Currently there are thirteen new or ongoing 319(h) funded projects. These projects range from implementation of Best Management Practices (BMPs) on agricultural lands to the targeted construction of bio-swales and raingardens. Specific project descriptions and expected results are detailed in this report.

The FY12 targeted watershed approach of focusing the Program's resources, outreach, and monitoring in the Heʻeia Watershed is showing signs of success. This year, a portion of the Heʻeia Stream was delisted for total nitrogen. The Program expects to expand on this accomplishment in the Heʻeia Watershed through continued involvement, including regular in-stream water quality monitoring. While the Program expects that all of its contractors will conduct project monitoring to demonstrate project effectiveness, the CWB intends to maintain its technical and long-term in-stream water quality monitoring to validate water quality improvements and demonstrate the efficacy of the targeted watershed approach. As part of its updated NPS Management Plan, the Program will be investing in other priority watersheds in the State to cultivate additional delistings and demonstrate measurable water quality improvements on a watershed-wide basis.

The Program continues to support general public NPS education and outreach efforts to instill behavioral changes at all age levels, but at a reduced effort. Instead, the Program has been modifying its outreach activities to increase the effectiveness of its targeted watershed approach. The Program strongly believes that meeting with potential partners and discussing the 319(h) program and project opportunities prior to releasing its annual Request for Proposals (RFP) in specific watersheds will increase both the number of qualified 319(h) project proposals and the likelihood of immediate water quality improvements.

The DOH was awarded $1,262,300 in a FY14 CWA 319(h) grant from the U.S. Environmental Protection Agency (EPA) for the Program on September 3, 2014. The DOH will provide $841,535 in non-federal match as required by the grant conditions. This funding will support the Program's staff and overhead;

finance polluted runoff watershed implementation projects; and sponsor NPS education and outreach events. At the end of FY14 the DOH managed five grants, including this recently-awarded grant. The Program continues to concentrate its grant funds in targeted watersheds, with its FY14 RFP released in December 2014 that focuses on Kaua‘i’s Hanalei Bay watersheds.

319(h) Funded Projects

The following table summarizes all completed, continuing, and new projects for FY14. Detailed descriptions and additional information can be found in the following project-specific pages below.

Completed Projects	Key Outcomes/Results/Updates
Demonstrating Management Practices at Wailupe Beach Park (Figure 1, A)	The original proposal could not be fully implemented due to unforeseen City and County of Honolulu (CCH) regulatory hurdles. The contract was modified to include similar, allowable practices at an adjacent site (Kuliouʻou Beach Park). Two raingardens were installed at the Wailupe Beach Park and Kuliouʻou Beach Park. **Estimated Load Reductions:** **Total Nitrogen: 26 lbs/yr** **Total Phosphorous: 14 lbs/yr** **Sediment: 0.6 tons/yr**
Maui Monitoring Implementation and Ungulate Fencing Installation (Figure 11, A)	Ungulate fences were installed in the upper West Maui Mountain Watersheds and in the upper Hana Forest area, and a water quality monitoring plan was developed specifically to track ungulate fence implementation. **Estimated Load Reductions:** **Sediment: 40 tons/yr**
Hawaiʻi Association of Conservation Districts (HACD) Conservation Specialists (Statewide)	The contractor assisted the DOH with the approval of conservation plans for local agricultural operations. All four HACD Conservation Specialist positions were filled. **Estimated Load Reductions:** **Total Nitrogen: 8,156 lbs/yr** **Total Phosphorous: 820 lbs/yr** **Sediment: 2146 tons/yr**
Hawaiʻi Watershed Experience: A Hands-on Elementary Education Project (Statewide)	Two-day educational events for students to learn about their local watershed health and ways to combat NPS pollutants were held in priority watersheds on the five major islands.
Maʻiliʻili Watershed Management Plan (Figure 1, B)	The Maʻiliʻili WBP was completed and approved by the Program in June 2014. The Program anticipates funding implementation projects in Maʻiliʻili using SEP funds initially, and including the Maʻiliʻili Watershed on the list of approved watersheds in its future RFPs.

Continuing Projects	Key Outcomes/Results/Updates
Heʻeia Stream Riparian Restoration Phase II (Figure 1, C)	The riparian corridor mauka of the Phase I site has been planted with native sedges, and approximately 800 meters of streambank have been restored on both edges of the stream. Restoration along the corridor continues up to the U.S. Geological Survey (USGS) Stream Gage Station. **Estimated Load Reductions:** **Total Nitrogen: 303 lbs/yr** **Total Phosphorous: 50 lbs/yr** **Sediment: 25 tons/yr**

Continuing Projects	Key Outcomes/Results/Updates
He‘eia Stream Riparian Restoration Phase III (Figure 1, C)	The contractor is currently removing and replacing mangroves with native plants at the lower He‘eia Stream restoration site. Approximately 1 of the 4 acres has been cleared. The contractor is also procuring equipment and securing manpower for hillside scarring restoration. **Estimated Load Reductions:** **Total Nitrogen: 2,200 lbs/yr** **Total Phosphorous: 800 lbs/yr** **Sediment: 250 tons/yr**
Hawai‘i Homeowner Raingarden Manual and Implementation (Figure 1, D)	Three raingardens have been installed in the Ko‘olaupoko watersheds in public areas (He‘eia State Park, Hawai‘i Pacific University, and Windward Community College) for the community to view and to demonstrate practices featured in the approved Raingarden Manual. The manual has been distributed to local community groups and libraries and is also available online. Ten raingardens have been installed at private homeowner residences. **Estimated Load Reductions:** **Total Nitrogen: 75 lbs/yr** **Total Phosphorous: 36 lbs/yr** **Sediment: 3 tons/yr**
Windward Mall Raingarden Retrofit (Figure 1, E)	The contractor has received a Memorandum of Understanding (MOU) from the Windward Mall property owners to begin raingarden and BMP installation. As-built plans have been approved and installation will begin in early 2015. **Estimated Load Reductions:** **Total Nitrogen: 44.4 lbs/yr** **Total Phosphorous: 7.2 lbs/yr** **Sediment: 0.7 tons/yr**
Waimanalo Stream Restoration and Community Outreach Phase II (Figure 1, F)	The contractor has begun implementation of developed conservation plans. Seven farms have committed to cost-share BMP implementation in the Waimanalo and Kahawai watersheds. The contractor has held two field days for local farmers and other community members. **Estimated Load Reductions:** **Total Nitrogen: 75 lbs/yr** **Total Phosphorous: 35 lbs/yr** **Sediment: 110 tons/yr**
Manoa Watershed Improvement Project (Figure 1, G)	The contractor will restore approximately 1,800 feet of riparian corridors in the upper Ala Wai Watershed by implementing BMPs from the property owner’s conservation plan. BMPs include streambank stabilization and replacing invasive species with native plants. **Estimated Load Reductions:** **Sediment: 198 tons/yr**

Continuing Projects	Key Outcomes/Results/Updates
Reducing Sedimentation in the Hakioawa Watershed (Figure 11, B)	The contractor is continuing to revegetate barren lands with native plants and install geotextile rolls to reduce sediment runoff. A site visit is being scheduled for early 2015 to observe the contractor's progress in this project as well as BMPs installed in previous 319(h) funded projects. **Estimated Load Reductions:** **Sediment: 500 tons/yr**
Agricultural District Erosion Control in Wahikuli and Honokowai Watersheds: Assessment and Installation (Figure 15, C)	Agricultural roads and fallow fields in Wahikuli and Honokowai are targeted for BMP installation to decrease sediment loading. Conservation plan implementation is also being planned on prioritized farms. **Estimated Load Reductions:** **Sediment: 140 tons/yr**
"Curbing" Nonpoint Source Pollution in Wahikuli and Honokowai Watersheds: Installation of Curb Inlet Baskets (Figure 15, D)	The contractor will install storm drain curb inlet baskets at 38 locations throughout the Wahikuli and Honokowai watersheds to decrease sediment and nutrient loading. **Estimated Load Reductions:** **Total Nitrogen: 200 lbs/yr** **Total Phosphorus: 200 lbs/yr** **Sediment: 80 tons/yr**
Pelekane Bay Watershed Restoration Project, Phase 3 (Figure 15, B)	The contractor will continue maintenance of previously constructed sediment check dams, continue feral ungulate control, and install 15 additional check dams to decrease loading on Pelekane Bay by approximately 10 tons per check dam. **Estimated Load Reductions:** **Sediment: 150 tons/yr**

New Projects	Key Outcomes/Results/Updates
Ka'alaea and Waiahole Stream Restoration (Figure 1, H)	The Ko'olaupoko WBP identifies agricultural inputs to be the main contributors to NPS impairments in the Ka'alaea and Waiahole watersheds. This project will implement cost-share practices from approved conservation plans for approximately 20 farms to reduce inputs. **Estimated Load Reductions:** **Total Nitrogen: 1,200 lbs/yr** **Total Phosphorus: 410 lbs/yr** **Sediment: 700 tons/yr**
WBP for the Kaiaka Watershed (Figure 1, I)	The Program will jointly fund the development of a WBP for the Kaiaka Watershed with the CCH.
Implementation of Best Management Practices in the Wai'ula'ula Watershed (Figure 15, A)	The Waikoloa/Wai'ula'ula Watershed is currently considered a pristine watershed with no impaired waterbodies on Hawai'i's 303(d) list. Working towards keeping the stream in pristine condition, the contractor will install raingardens in the urbanized core, stabilize streambanks, and restore riparian corridors via revegetation throughout the watershed. **Estimated Load Reductions:** **Total Nitrogen: 1,400 lbs/yr** **Total Phosphorus: 220 lbs/yr** **Sediment: 1,200 tons/yr**

Projects on the Island of O‘ahu

Total 319(h) funds allocated to projects on O‘ahu: $2,386,689
Total matching funds for 319(h) projects on O‘ahu: $1,244,216
Total State funds for projects on O‘ahu: $211,451

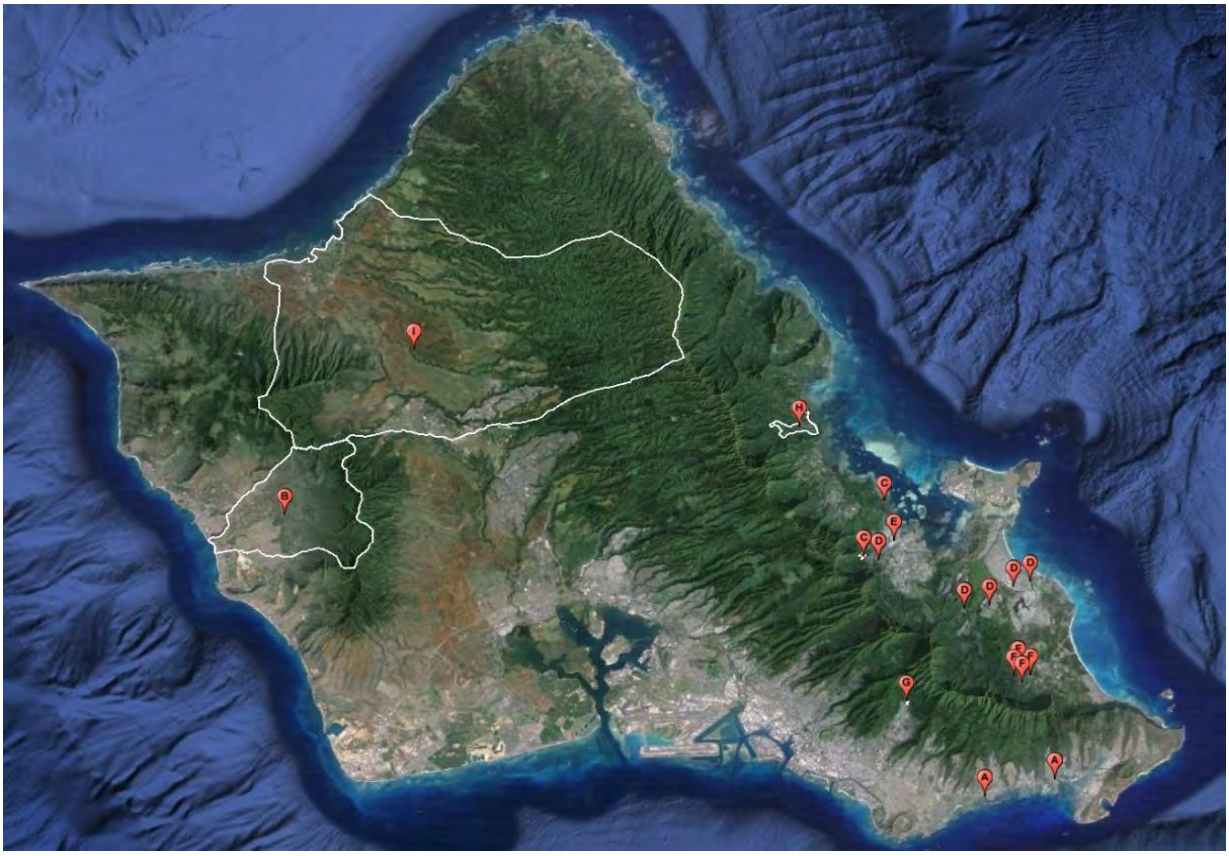

Figure 1: Locations of all 319(h) funded projects on the Island of O’ahu.

<u>Demonstrating Management Practices at Wailupe Beach Park (Figure 1, A)</u>

Sustainable Resources Group Int’l, Inc. (SRGII)
Kristin Duin, Principal
111 Hekili Street, Suite A373, Kailua, HI 96734
(P) 808-356-0552
www.srgii.com

319(h) Funds: $131,877
Match: $133,785

Location: Wailupe Watershed, O‘ahu

Start/End: 6/16/11 – 9/30/14

Partners: CWB, CCH, Malama Maunalua, CPK Planning, Project Management Plus LLC, Geotech Solutions Inc.

Pollutants Addressed:
Total Nitrogen, Sediment, and Vehicular Residue

Description:
The Wailupe and Kuliouʻou Beach Parks are prime candidates for installing BMPs due to their proximity to Kalanianaole Highway, a highly-traveled roadway by residents and tourists. Per the applicable WBP, Wailupe Beach Park is one of only a few publicly accessible locations in the Wailupe Watershed. With the assistance and approval of the CCH's Parks and Recreation Division, the contractor designed, installed, and is maintaining BMPs at Wailupe and Kuliouʻou Beach Parks on the south shore of Oʻahu (Figure 2). An infiltration swale was constructed at the drainage of the existing parking lot at both locations. Due to permit restrictions, funding for coir logs that were to be installed at the Wailupe Beach Park were repurposed to install a bio-retention cell at the adjacent Kuliouʻou Beach Park. The Program permitted the BMP relocation because Maunalua Bay is the receiving water for both sites. The project continues to receive support from the local community group Malama Maunalua, which will maintain the installed raingardens and bio-retention cell for the life of the BMPs.

Figure 2: Raingarden installed at Wailupe Beach Park (top, December 2014) and retention cell installed at Kuliouʻou Beach Park at (bottom, August 2014).

Environmental Results:
A raingarden was installed at each beach park to reduce loads entering the Wailupe and Kuliouʻou Streams, and ultimately Maunalua Bay. The Total Nitrogen load, Total Phosphorous load, and Sediment load are estimated to be reduced by 26 pounds per year, 14 pounds per year, and 0.6 tons per year, respectively.

Maʻiliʻili Watershed Management Plan (Figure 1, B)

Townscape, Inc.
Bruce Tsuchida, President and Principal Planner
900 Fort Street Mall, Suite 1160, Honolulu, HI 96813
(P) 808-536-6999
www.townscapeinc.com

319(h) Funds:	Not Applicable
Match:	Not Applicable
State Funds:	$211,451
Start/End:	1/24/13 – 7/31/14
Location:	Maʻiliʻili Watershed, Oʻahu
Partners:	CCH, United States Navy

Figure 3: Aerial view of the Maʻiliʻili Watershed.

Description:
The Program assisted the CWB with the review and approval of the Maʻiliʻili Watershed Management Plan as part of a SEP between the DOH and the CCH. The WBP was completed and approved in June 2014. Implementation projects from the plan will be awarded through an RFP and funded through additional SEP funds in 2015.

Environmental Results:
The Program's RFP will implement projects detailed in the plan. Prioritized implementation projects include agricultural outreach and conservation plan implementation, streambank stabilization, and riparian restoration. These implementation projects are projected to collectively reduce Total Nitrogen, Total Phosphorous, and Sediment loads by 9,000 pounds, 3,000 pounds, and 2,200 tons, respectively.

<u>Heʻeia Stream Riparian and Water Quality Improvements Phases II & III</u> <u>(Figure 1, C)

Hui O Koʻolaupoko
Todd Cullison, Director
1051 Keolu Drive #208, Kailua, HI 96734
(P) 808-277-5611
www.huihawaii.org

Phase II 319(h) Funds:	$215,526	Phase III 319(h) Funds:	$747,026
Phase II Match:	$232,238	Phase III Match:	$284,372

Phase II Start/End: 6/29/2012 – 1/28/2015
Phase III Start/End: 6/20/2013 – 6/19/2016

Location: Heʻeia Watershed, Oʻahu

Partners: CWB, Hui Ku Maoli Ola, Hawaiʻi Pacific University

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

Description:
Implementation of the Koʻolaupoko WBP in Heʻeia is necessary due to streambank erosion and overgrowth of harmful non-native invasive plant species. The contractor is stabilizing streambanks and riparian areas along the Heʻeia Stream by removing the non-native plants and replacing them with native plants (Figure 4), which have a greater potential to reduce erosion and increase nutrient uptake. The contractor is also educating the nearby community about NPS pollutants via pamphlets, hosting public site visits and volunteer

Figure 4: Heʻeia Stream upper riparian restoration site (December 2014).

restoration days, and meeting with nearby homeowners to discuss proper fertilizer usage. Over 10,000 volunteer hours have been contributed to the three phased projects. In Phase II of the project, an additional 800 meters of streambank is being restored with native vegetation.

In Phase III of the project, the contractor is working in both the upper and lower areas of the watershed. The upper watershed has large erosional scars due to invasive vegetation with shallow roots on steep gradients, which creates unstable land. The project will stabilize the scarring by installing approximately 24,000 square feet of erosion control matting planted with native vegetation. Sedimentation basins measuring approximately 6,000 square feet each will be installed at the base of the scars to remove most of the erosional inputs. The lower watershed is dominated by mangroves and other non-native invasive vegetation (Figure 5). The contractor will clear approximately four acres of wetlands in the lower watershed of mangroves and replant with native plants.

Figure 5: He‘eia Stream mouth mangrove removal (December 2014).

Environmental Results:
Ground cover has increased in the riparian areas and improved the overall water quality by decreasing sediment loads and water movement from the streambanks during rain events. Sediment loading has been reduced by approximately 25 tons per year. Total Nitrogen has been reduced by 303 pounds, and Total Phosphorous has been reduced by 50 pounds. Revegetation with native plants has also increased diversity in the streambank areas, increasing the probability that native flora and fauna to return to their natural habitats. Native and naturalized shrubs and sedges used in restoration include Ti (*Cordyline* spp.), Hinahina (*Heliotropium anomalum*), Kalo (*Colocasia esculenta*), Hapu‘u (*Cibotium* spp.) ferns and Kukui (*Aleurites moluccana)*. Mangrove removal has begun and will continue through 2015.

The CWB delisted the He‘eia Stream from Hawai‘i’s 303(d) list of impaired waterbodies for Total Nitrogen in the wet season after conducting water quality sampling and analysis in the He‘eia Stream for two years (2013-2014). He‘eia Stream is still listed for Nitrate+Nitrite, Total Phosphorous, Turbidity, and Total Suspended Solids.

Hawai‘i Homeowner Raingarden Manual and Implementation (Figure 1, D)

Hui O Ko‘olaupoko
Todd Cullison, Director
1051 Keolu Drive #208, Kailua, HI 96734
(P) 808-277-5611
www.huihawaii.org

319(h) Funds: $107,064
Match: $119,687

Start/End: 3/1/2011 – 8/31/2015

Location: Ko‘olaupoko Watershed, O‘ahu

Partners: CWB, Hui Ku Maoli Ola

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

Description:
Hui O Ko‘olaupoko developed a raingarden manual that enables homeowners to customize raingardens for their specific location (e.g., Windward, Leeward, Mauka (mountain), and Makai (ocean) locations). Raingardens have been installed in the He‘eia State Park, Hawai‘i Pacific University’s Windward Campus, and Windward Community College to demonstrate to the community the results of implementing the manual. Eight raingardens have been installed by residents specifically in the Pikoiloa neighborhood and an additional twenty raingardens have been installed in homes throughout the Ko‘olaupoko Watershed. The contractor plans to install an additional twenty raingardens prior to the project’s conclusion.

Figure 6: A raingarden installed at Hale Imiloa at the Windward Community College, planted with native vegetation from a local nursery (December, 2014).

The contractor is working with the community to increase raingarden awareness and installation throughout the Koʻolaupoko Watershed. The raingarden manuals have also been distributed to local public libraries and community groups for use by the public and is available online at: www.huihawaii.org/uploads/1/6/6/3/16632890/raingardenmanual-web-res-smaller.pdf

Environmental Results:
Total Nitrogen, Total Phosphorous, and Sediment load reductions resulting from raingarden installations have been estimated at 75 pounds, 36 pounds, and 3 tons, respectively.

Windward Mall Raingarden Retrofit (Figure 1, E)

Hui O Koʻolaupoko
Todd Cullison, Director
1051 Keolu Drive #208, Kailua, HI 96734
(P) 808-277-5611
www.huihawaii.org

319(h) Funds: $222,218
Match: $62,516

Start/End: 6/21/2013 – 6/20/2015

Location: Kaʻelepulu Watershed, Oʻahu

Partners: CWB, Hui Ku Maoli Ola, Kamehameha Schools Bishop Estate, Roth Ecological Design Inc., Green Girl Land Development Solution

Figure 7: One of three locations proposed for the Windward Mall Stormwater Retrofit. Note the slope and location of the road to Kahuhipa Stream (December 2014).

Pollutants Addressed:
Total Nitrogen, Nitrate+Nitrite, Total Phosphorous, Sediment, and Vehicular Residue

Description:
Windward Mall is located in the He'eia Watershed and is the largest single site of impervious surface in the watershed. This project will reduce the amount of NPS pollutants entering directly into the Kahuhipa Stream from parking lots at the Windward Mall (Figure 8) by mimicking the natural processes of infiltration. Three raingardens with six BMPs have been strategically sited to address stormwater flows and impervious surface runoff. The project will also inform the public about NPS pollutants in a highly visible area via interpretive signs, an informational kiosk, and landowner presentations.

Figure 8: Second site for the Windward Mall Stormwater Retrofit project. The existing curb cut drains runoff directly into the stream without any treatment. (December 2014)

Environmental Results:
The installed BMPs will treat and reduce NPS pollutants from entering the stream by capturing and infiltrating stormwater. This will be accomplished by replacing impervious surfaces with raingardens composed of soils that aid infiltration and planting native plants for phytoremediation. Once the raingardens are installed, storm flow will be greatly reduced at each drainage site. Load reductions for Total Nitrogen, Total Phosphorous, and Sediment are estimated to be 44.4 pounds, 7.2 pounds, and 0.7 tons, respectively. Blueprints for the BMPs have been submitted to the Program and were approved in November 2014. Installation is slated to begin in early 2015.

Waimanalo Stream Restoration and Community Outreach Phase II (Figure 1, F)

O'ahu Resource Conservation & Development Council
Jean Brokish, Interim Executive Director
P.O. Box 209, Kunia, HI 96759
(P) 808-622-9026
oahurcd.org

319(h) Funds: $155,975
Match: $51,100

Start/End: 4/30/2013 – 4/29/2015

Location: Waimanalo Watershed, O'ahu

Partners: CWB, Hui O Ko'olaupoko, US Department of Agriculture Natural Resources Conservation Service (NRCS), Windward O'ahu Soil and Water Conservation District

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

Description:
In Phase I, the Contractor assisted eight farmers with installing agricultural BMPs in areas of concern. All cooperators who received funding in Phase I continue operating and maintaining these installed BMPs. In Phase II, four farms were pre-selected and will receive a portion of 319(h) funding to cost-share the installation of BMPs from their conservation plans. The project calls for the installation of compost structures, soil remediation and mulching, riparian area protection (riparian vegetative buffers), and slope stabilization. Initial installation was completed and a second round of funding as part of the project is underway with two more farms selected. The second of two field days is planned for 2015 to demonstrate the effectiveness of the installed BMPs.

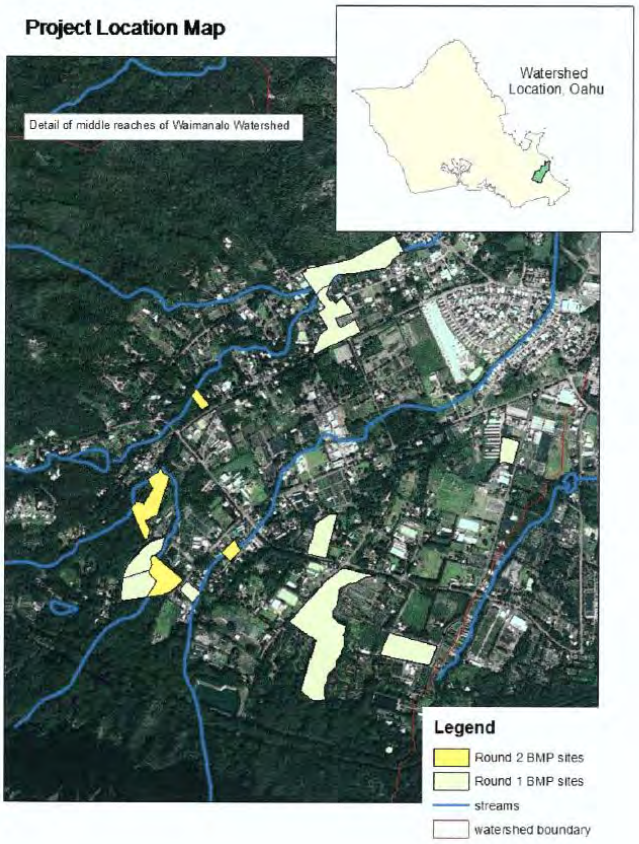

Figure 9: Locations of the farms within the Waimanalo Watershed that have or will be receiving BMP implementation agreements.

Environmental Results:
Estimated load reductions from implementation of the six conservation plans are approximately 75 pounds of Total Nitrogen, 35 pounds of Total Phosphorous, and 110 tons of Sediment.

Manoa Watershed Improvement Project (Figure 1, G)

Ala Wai Watershed Association, Inc.
Karen Ah Mai, Executive Director
2146 St. Louis Drive, Honolulu, HI 96816
(P) 808-955-7882
www.alawai.org

319(h) Funds: $298,212
Match: $75,000

Location: Manoa Watershed, O'ahu

Start/End: 6/5/2014 – 12/5/2016

Partners: NRCS, O'ahu RC&D, CCH Department of Environmental Services, U.S. Army Corps of Engineers, South O'ahu Soil and Water Conservation District, Department of Land and Natural Resources (DLNR)

Pollutants Addressed:
Sediment

Description:
Manoa Stream is listed in the DOH's 303(d) list for Total Nitrogen, Nitrate+Nitrite, Total Phosphorous, and Turbidity. Both the WBP and the Total Maximum Daily Loads (TMDL) identify conservation area sediment as a major pollutant affecting the water quality of Manoa Stream and ultimately the Ala Wai Canal. The goal of this project is to reduce sedimentation loading by improving and stabilizing 1,800 feet of streambanks and forest buffers in and adjacent to a private parcel operated by Paradise Park. This will be accomplished via the removal of invasive species, row planting of native flora on sloping and near-vertical banks, installing vegetated buffers and erosion matting while new plants take root, and removing trees to increase sunlight. The contractor is currently working on the draft restoration plan and a draft water quality monitoring plan.

Environmental Results:
Implementing these management measures will decrease erosion in the upper conservation areas of the watershed, resulting in Sediment load reductions of 198 tons per year. Community education will also be a key to increase stewardship of the watershed at a local level.

Ka'alaea and Waiahole Stream Restoration (Figure 1, H)

O'ahu Resource Conservation & Development Council
Jean Brokish, Interim Executive Director
P.O. Box 209, Kunia, HI 96759
(P) 808-622-9026
oahurcd.org

319(h) Funds: $298,791
Match: $75,518

Start/End: 9/19/2014 – 9/18/2017

Location: Ka‘alaea & Waiahole Watersheds, O‘ahu

Partners: NRCS, Windward Soil and Water Conservation District

Pollutants Addressed:
Total Nitrogen, Nitrate+Nitrite, Total Phosphorus, and Sediment

Description:
Ka‘alaea Stream is listed in Hawai‘i’s 2014 Integrated Report as impaired for Total Nitrogen, Nitrate+Nitrite, and turbidity. Waiahole Stream is listed in Hawai‘i’s 2014 Integrated Report as impaired for Total Phosphorous and Nitrate+Nitrite. Agricultural BMP implementation in the Ka‘alaea and Waiahole watersheds are identified as priorities in the Ko‘olaupoko WBP. Several agricultural parcels have been identified for conservation planning and implementation in the Ka‘alaea and Waiahole watersheds. The O‘ahu Resource Conservation and Development Council will implement cost-share agreements similar to the Waimanalo Stream Restoration and Outreach Project with at least 20 farmers to install and maintain BMPs identified in approved conservation plans. Four field days will be scheduled over the 36-month project period so local farmers can see the benefits of conservation planning and implementation.

Figure 10: Taro farm located in the Ka’alaea Watershed near a tributary of Ka’alaea Stream. (December 2014)

Environmental Results:
Implementation of conservation plans and load reductions in the Ka‘alaea and Waiahole watersheds will vary based on acreage and types of practices installed. The contractor has estimated that with 20 farms implementing varied approaches, the project should decrease Total Nitrogen by 1,200 pounds per year, Total Phosphorous by 410 pounds per year, and Sediment by 700 tons.

Watershed-Based Plan for the Kaiaka Watershed (Figure 1, I)

CCH Department of Environmental Services, Storm Water Quality Branch
Randall Wakumoto
1000 Uluohia Street, Suite 212, Kapolei, HI 96707
(P) 808-768-3300
www.cleanwaterhonolulu.com/storm

319(h) Funds: $210,000
Match: $210,000

Start/End: TBD

Location: Kaiaka Watershed, O‘ahu

Partners: AECOM, Townscape Inc.

Description:
Kaiaka Bay is listed in Hawai‘i’s 2014 Integrated Report as impaired for Enterococci, Total Nitrogen, Nitrate+Nitrite, Ammonium, Turbidity and Chlorophyll-A. A WBP that meets the EPA’s 9 key elements will be developed to fund implementation projects. The Watershed Analysis Risk Management Framework (WARMF) model has been selected and will be used to determine loads and load reductions for proposed projects and to prioritize these projects.

Projects on the Islands of Maui & Kahoʻolawe

Total 319(h) funds allocated to projects on Maui & Kahoʻolawe: $1,067,838
Total matching funds for 319(h) projects on Maui & Kahoʻolawe: $686,037

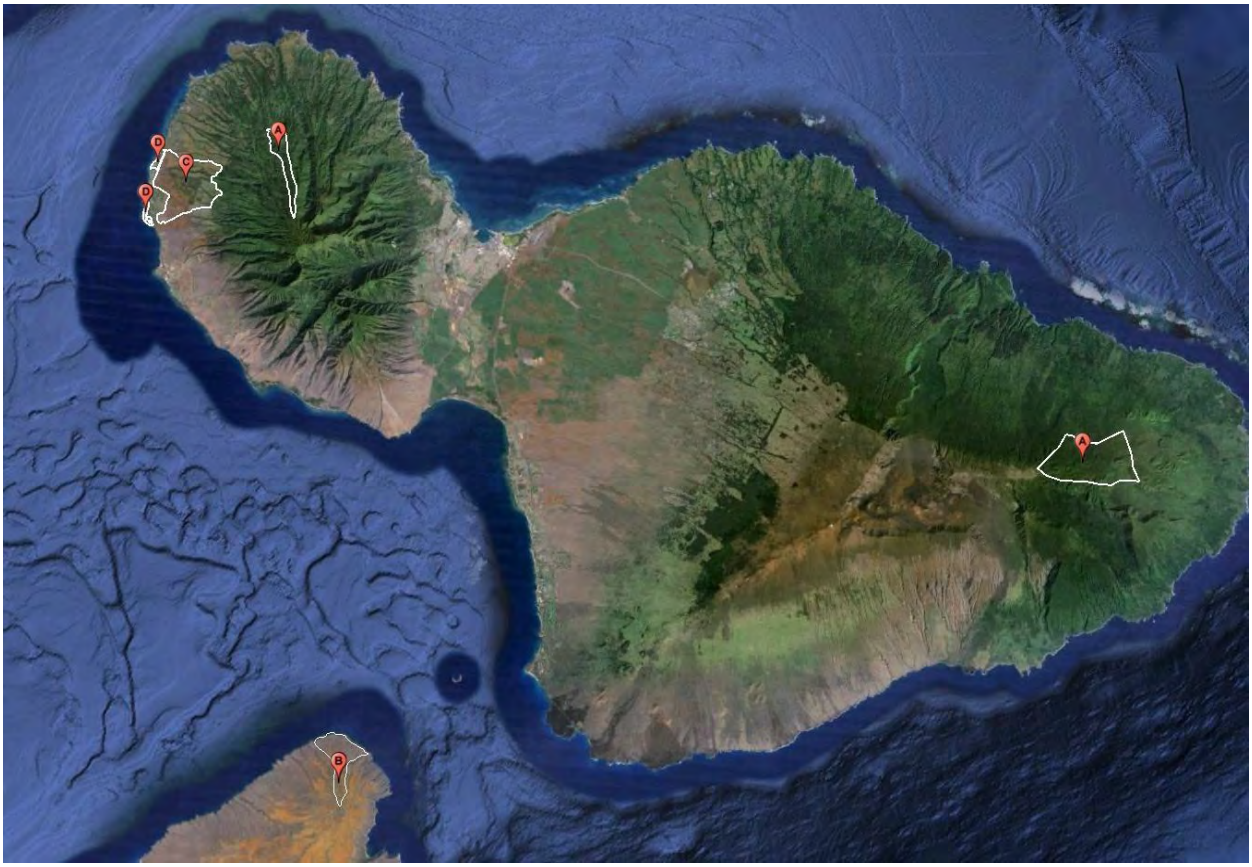

Figure 11: Locations of all 319(h) funded projects on the Islands of Maui and Kahoʻolawe.

<u>Maui Monitoring Implementation and Ungulate Fencing Installation (Figure 11, A)</u>
University of Hawaiʻi (UH) and the Hawaiʻi Association of Watershed Partnerships (HAWP)
Chris Brosius and Randy Bartlett, Program Managers
1151 Punchbowl Street, Room 325, Honolulu, HI 96813
(P) 808-388-9699
hawp.org

319(h) Funds: $249,958
Match: $255,452

Start/End: 4/20/2010 – 6/30/2014

Location: Hana Forest Reserve and Honolua Watershed, Maui

Partners: CWB, UH, East Maui and West Maui Mountains Watershed Partnerships, DLNR, U.S. Fish and Wildlife Service, National Park Service, EPA, USGS

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

Description:
HAWP drafted a comprehensive monitoring plan that is available as a reference for other ungulate fencing projects throughout the State. The contractors have developed chemical, physical, and pollution load modeling monitoring practices for the State and other interested parties to characterize watershed projects and NPS pollutant reduction implementation. In addition, the HAWP East Maui and West Maui Mountain Watershed Partnerships have installed approximately 14 miles of fencing and removed feral ungulates in those fenced areas.

Environmental Results:
The removal of feral ungulates (primarily wild pigs, *Sus scrofa*) in fenced areas has led to an increase in vegetation regrowth and a reduction in sediment loading. The development of local monitoring guidelines customized for the State's climate and watersheds are assisting cooperators with developing monitoring plans related to fencing projects.

Figure 12: Looking towards a fencing site just outside of the Hana Bay Watershed. (July 2014)

Reducing Sedimentation in the Hakioawa Watershed (Figure 15, B)

Kahoʻolawe Island Resource Commission
Lyman Abbott, Project Manager
844 Kolu Street, Suite 201, Wailuku, HI 96793
(P) 808-243-5020
kahoolawe.hawaii.gov

319(h) Funds: $204,188
Match: $246,600

Start/End: 4/1/2013 – 4/1/2015

Location: Hakioawa Watershed, Kahoʻolawe

Partners: USGS, DLNR

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

Figure 13: Endemic Aweoweo bush was used in highly erodible areas in Hakioawa. Note the barren landscape around the plantings. (January 2015)

Description:
Hakioawa Watershed is largely impacted by soil erosion because of high winds, low rainfall, and lack of wind protection due to low elevations. Approximately 30% of the island is barren due to severe erosion. Over 82% of the watershed is bare soil. Over the last decade, the contractor has revegetated the island by planting in priority areas and removing feral ungulates (primarily goats, *Capra aegagrus hircus,* and sheep, *Ovis aries*). Previous projects sponsored by the Program focused on 50 hectares in the Kaulana Watershed and 100 hectares in the Hakioawa Watershed for restoration and revegetation.

Within the Hakioawa Watershed there is a large area of barren land that was prioritized in the Hakioawa WBP. This project revegetated the area with native plants that can survive Kahoʻolawe's harsh growing conditions with an innovative strategy called the kipuka (clear place or oasis within a lava bed where vegetation may grow).

Figure 14: Burlap bags are used as sediment dams and are seeded with native plants to stabilize gullies and slow erosion. (January 2015)

Environmental Results:
Approximately 20,000 native plants are being planted in 1,300 kipuka to restore ground cover in the watershed. Geotextile rolls are included to decrease sedimentation rates by slowing and retaining water flows and facilitating infiltration into the porous ground. Over 1,000 volunteers have devoted more than 10,000 hours on the ground in the Hakioawa watershed.

Agricultural District Erosion Control in Wahikuli and Honokowai Watersheds: Assessment and Installation (Figure 15, C)

SRGII
Kristin Duin, Principal
111 Hekili Street, Suite A373, Kailua, HI 96734
(P) 808-356-0552
www.srgii.com

319(h) Funds: $376,143
Match: $99,618

Start/End: 6/10/2014 – 6/9/2016

Location: Wahikuli and Honokowai Watersheds, Maui

Partners: Tova Callendar (West Maui Watershed Coordinator), NRCS, West Maui Soil and Water Conservation District

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

The Wahikuli and Honokowai Watersheds have an approved WBP and the agricultural districts in the watersheds were prioritized as problem areas that contribute large sediment loads from derelict agricultural roads and fallow fields. The Wahikuli Stream is not listed on Hawai'i's 303(d) list for any known pollutant, but the Honokowai Stream is listed visually for turbidity.

This project will reduce loads originating from the agricultural sections of the two watersheds by prioritizing critical eroding agricultural roads and lots. There are approximately 170 miles of relic agricultural roads eroding at differing rates throughout the two watersheds. A systematic inventory assessment of the roads and fields is being conducted to catalog conditions and rank and prioritize sites for BMP installation as part of the project.

Environmental Results:
BMPs planned for installation include: road surface improvements (grading, crowning, cross-sloping, and installing ditches and improved outlets), road drainage improvements (broad-based dips, water bars, energy dissipaters, road grading, drainage ditches, and detention basins), sediment retention basins, conservation cover, contour furrows, and vegetated filter strips. Approximately 150 tons of Sediment will be removed with BMP implementation and roadway remediation. The contractor will be completing the catalog of roads and fields in the first quarter of 2015.

"Curbing" Nonpoint Source Pollution in Wahikuli and Honokowai Watersheds: Installation of Curb Inlet Baskets (Figure 15, D)

SRGII
Kristin Duin, Principal
111 Hekili Street, Suite A373, Kailua, HI 96734
(P) 808-356-0552
www.srgii.com

319(h) Funds: $237,549
Match: $84,367

Start/End: 6/10/2014 – 6/9/2016

Location: Wahikuli and Honokowai Watersheds, Maui

Partners: Tova Callendar (West Maui Watershed Coordinator), County of Maui, Ka'anapali Operations Association, State Department of Transportation (DOT)

Pollutants Addressed:
Sediment and Trash

Description:
This project aims to install approximately 38 curb inlet baskets to remove sediment, trash, and other urban pollutants. The Wahikuli and Honokowai Watersheds have an approved WBP, and while installing curb inlet baskets was listed as a lower priority BMP, the project was awarded due to ease of access and proposed impact on reducing NPS pollution. The WBP labeled storm drains throughout the two watersheds to denote where curb inlet baskets should be installed. Targeted areas include roads owned by the County of Maui and the DOT, resort and residential condominiums, and commercial properties. Letters of support were obtained by the contractor to initially install a few baskets in several proposed areas, and the contractor will secure the permission to install approximately 38 baskets in total throughout the watersheds.

Environmental Results:
The baskets will filter pollutants carried in stormwater runoff mainly from impervious and pervious surfaces (roads, parking lots, etc.) as they enter storm drains, before flowing to the ocean. The contractor has spoken with County of Maui and DOT officials and will report their findings to the Program in the first quarter of 2015.

Projects on the Island of Hawai‘i

Total 319(h) funds allocated to projects on Hawai‘i: $503,638
Total matching funds for 319(h) projects on Hawai‘i: $150,895

Figure 15: Location of the 319(h) funded project on the Island of Hawai‘i.

Implementation of Best Management Practices in the Waiʻulaʻula Watershed (Figure 15, A)

UH Sea Grant College Program
Sierra Tobiason, South Kohala Coastal Partnership Coordinator
(P) 808-313-2653
www.southkohalacoastalpartnership.com

319(h) Funds: $427,218
Match: $107,077

Start/End: TBD

Location: Waiʻulaʻula Watershed, Hawaiʻi

Partners: Kohala Watershed Partnership, Parker School, Waimea Outdoor Circle, Ke Ala Kahawai O Waimea, NRCS, DLNR

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

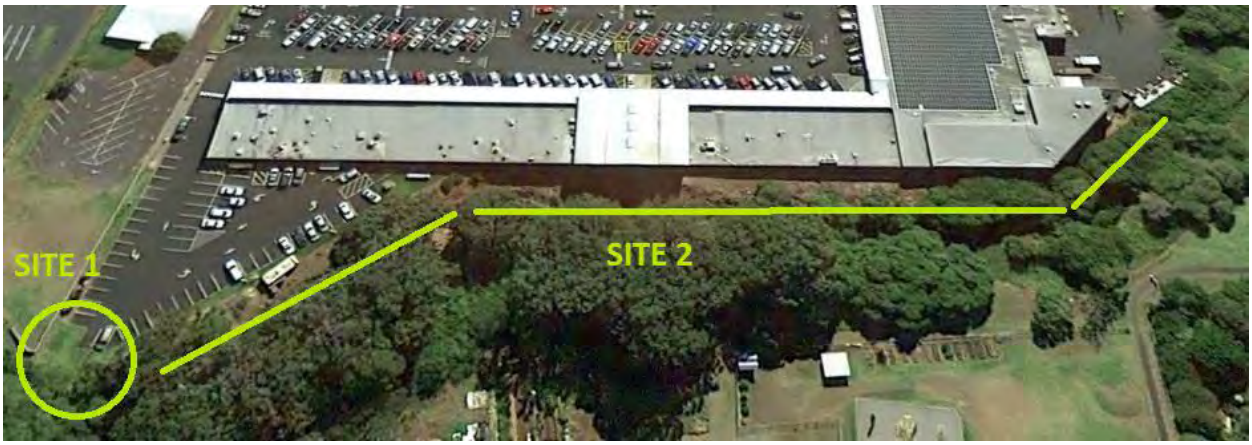

Figure 16: Urban location for raingarden and upper Waiʻulaʻula Stream riparian restoration.

Description:
The Waiʻulaʻula watershed is considered a high quality waterbody. Protection of high quality waters is one of the State's goals for controlling NPS pollution. The project aims to implement practices at five locations across the watershed. A 440 square foot raingarden will be installed at a local shopping center to decrease urban stormwater runoff. Three sections along the riparian corridor (totaling 11,000 linear feet) will be restored with vegetative buffers. Slope stabilization with erosion mats and coir logs will cover approximately 12 acres. One acre of riparian zone will be restored at the mouth of Waiʻulaʻula Stream to treat water before it flows out to the reefs and ocean.

This project also aims to involve the public and create behavior changes by providing site tours and establishing the South Kohala Stream Team, which will provide local knowledge and technical expertise about restoration, design, and implementation of BMP activities at each site.

Figure 17: Locations for the mid-stream and mouth restoration of Waiʻulaʻula Stream.

Environmental Results:
N-SPECT modeling estimates that the implemented BMPs and restoration of riparian areas will result in reductions in Total Nitrogen by 10%, Total Phosphorus by 8%, and Sediment by 11%. The contractor will also collect in-situ samples to analyze for Total Nitrogen, Nitrate+Nitrite, Total Phosphorous, and Total Suspended Solids to determine actual load reductions. An increase in native vegetation will also result in habitat improvement.

Pelekane Bay Watershed Restoration Project, Phase 3 (Figure 15, B)

The Kohala Center, Inc.
Melora Purell, Project Coordinator
P.O Box 437462, Kamuela, HI 96743
(P) 808-887-6411
kohalacenter.org

319(h) Funds: $76,420
Match: $43,818

Start/End: 3/12/2014 – 3/11/2016

Location: Pelekane Bay Watersheds, Hawaiʻi

Partners: NRCS, Mauna Kea Soil and Water Conservation District, DLNR, Parker Ranch, Kohala Watershed Partnership

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

Description:
Pelekane Bay is listed in Hawai'i's 303(d) list for Enterococci, Total Nitrogen, Nitrate+Nitrite, Total Phosphorous, Chlorophyll A, and Ammonia. Extensive areas of bare soil at lower, drier elevations developed over time by fire, uncontrolled populations of feral goats, and drought, resulting in large loads of sediment and nutrients in downstream waterways and nearshore environments after storm events. Watershed restoration and erosion mitigation measures have been implemented over the last 5 years to address these threats to water quality. The American Recovery and Reinvestment Act of 2009 funded the installation of 93 sediment check dams in the Pelekane Bay watersheds (Figure 18). This project continues sediment control measures by maintenance of a perimeter fence that restricts feral ungulates. Feral goats are also being removed from the fenced areas. The contractor is maintaining the 93 check dams and constructing an additional 15 check dams, of which six have already been completed.

Environmental Results:
The sediment check dams reduce Sediment by approximately 10 tons per rain event per dam.

Figure 18: An existing sediment check dam designed to mitigate runoff.

Statewide Projects

Total 319(h) funds allocated to Statewide Projects: $493,391
Total matching funds for 319(h) Statewide Projects: $30,470
Total State funds allocated to Statewide Projects: $505,121

Hawai‘i Watershed Experience: A Hands-on Elementary Education Project

Healthy Hawai‘i Coalition
Ali Riggs, Project Manager
P.O. Box 75505, Kapolei, HI 96707
(P) 808-778-4243
www.healthyhawaiicoalition.com

319(h) Funds: $22,779
Match: $30,470

Start/End: 6/29/2012 – 6/29/2014

Location: Hilo Bay Watersheds, Honokowai Watershed, Wahikuli Watershed Wai‘ula‘ula Watershed, Nawiliwili Watersheds, Hanalei Bay Watersheds, Ko‘olaupoko Watersheds, and the Ala Wai Watershed

Partners: CWB

Pollutants Addressed (Indirectly):
Total Nitrogen, Total Phosphorous, and Sediment

Description:
The Hawai‘i Watershed Experience: A Hands-on Elementary Education Program introduces the concepts of the watershed and ahupua‘a to fourth and fifth grade elementary school students throughout the State. The goal of the project is to raise awareness of water quality and NPS pollution in the State’s priority watersheds. The contractor addresses various NPS pollutant issues, including storm drain education, erosion control, and nutrient management. The program runs for of three days. On the first day, a short play titled “The Adventures of Waterwoman and Oily Al” is presented to the students. The second day consists of a field trip to a local, easily accessible area where the students are introduced to concepts such as erosion, nutrient and fertilizer control, and the local ecology. The third day consists of reviewing materials and lessons learned from the first two days.

The Program has been funding this project for approximately eight years, reaching over 60,000 children. During that time the contractor has shown that the students retain much of what was learned from the presentations, but not for longer than a school year. The Program has been working with the contractor to include additional follow-up testing with children who have previously participated in the program to gauge and further detail the retention of the information acquired from the initial presentations.

Environmental Results:
This type of education and outreach project is challenging to quantify for specific environmental impacts. Nonetheless, the Program strongly believes in the importance of influencing behavioral changes, and the contractor is monitoring its effectiveness via surveys.

Hawaiʻi Association of Conservation Districts (HACD) Conservation Specialists

HACD
Michelle Watson, Executive Director
P.O. Box 1411, Wailuku, HI 96793
(P) 808-483-8600 x120

319(h) Funds: $470,612
Match: Not Applicable
State Funds: $505,121

Start/End: 4/17/2009 – 12/31/2013

Location: The Islands of Kauaʻi, Oʻahu, Maui, and Hawaiʻi

Partners: CWB, NRCS, UH, Oʻahu RC&D, CCH, County of Maui, County of Kauaʻi, County of Hawaiʻi, Hanalei Watershed Hui

Pollutants Addressed:
Total Nitrogen, Total Phosphorous, and Sediment

The HACD Conservation Specialists are tasked with reducing NPS pollutants through outreach and education, assisting local farmers with creating conservation plans for their farms, watershed planning support and implementation efforts, and monitoring exercises. The Conservation Specialists were tasked with assisting cooperators with developing and implementing conservation plans to improve water quality through prescribed BMP installation. Currently, there are approximately 118 approved conservation plans in the State, with BMPs implemented on over 2,200 acres of farmland. Conservation Specialists are also tasked with developing and implementing WBPs where applicable to aid in improving water quality. Each Conservation Specialist assists cooperators with installing BMPs on their respective farms. Some examples of farm BMPs include cover crops, wind breaks, bio-swales, and mulching.

This project was terminated at the end of 2013 due to the recurring inability of the Program to receive specific information regarding conservation plan implementation from the Contractor. In mid-2013, the Program met with the State Department of Agriculture and DLNR to fund the Conservation Specialist project through a different department, but both agencies could not support the project. The Program also met with the Soil and Water Conservation Districts to inform them of other funding opportunities for Conservation Specialists.

Environmental Results:
Reductions in NPS pollutant loads attributable to the Conservation Specialists include a Total Nitrogen reduction of 8,156 pounds, Total Phosphorous reductions of 820 pounds and Sediment reduction of 2,146 tons.

Hawai‘i’s Nonpoint Source Management Plan

The Program is updating the State’s Nonpoint Source (NPS) Management Plan (formerly Hawai‘i’s Implementation Plan for Polluted Runoff Control), which was last updated in 2000. The updated NPS Management Plan will provide a framework, goals, and implementation strategies to address the State’s polluted runoff challenges over the next five years. Specifically, the NPS Management Plan will serve as a guide to direct federal, state, and county resources towards NPS pollution control measures and activities that will improve water quality and help protect water resources in Hawai‘i. The updated plan is expected to be finalized and approved by the EPA by mid-2015.

The NPS Management Plan will include new long-term goals, short-term objectives, strategies, and milestones to measure progress towards achieving reductions in NPS pollution statewide. The four overarching, long-term goals for controlling polluted runoff in Hawai‘i are:

1. Restore waters impaired by polluted runoff through the development and implementation of watershed and Total Maximum Daily Load Plus plans;

2. Protect high quality waters and maintain healthy watersheds;

3. Develop and implement strategies and management measures to control polluted runoff; and

4. Implement a statewide NPS education and outreach program devoted to improving water quality.

Hawai‘i’s NPS Management Plan also advances the State’s efforts to obtain full approval of Hawai‘i’s Coastal Nonpoint Pollution Control Program (CNPCP), which was established under Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990. The CNPCP is part of the State’s Coastal Zone Management Program, which is administered by the Department of Business, Economic Development and Tourism’s Office of Planning. Since both the Program and the CNPCP aim to prevent and reduce polluted runoff, Hawai‘i’s NPS Management Plan seeks to integrate and coordinate the goals and activities of these programs. More information about the CNPCP can be found under the CNPCP section of this report.

Watershed-Based Plans & Total Maximum Daily Load Plans

Over the past four years, the Program has made an effort to increase the number of effective WBPs to increase funding opportunities. In FY14, the Program received completed WBPs for the Hanalei Bay and Ma‘ili‘ili watersheds. Both WBPs have been approved by the Program and the respective watersheds are eligible for 319(h) funding. The Program will also begin a cost-share with the CCH to develop the Kaiaka Watershed WBP, which is expected to be completed in FY15. In addition, partners involved in the West Maui Ridge to Reef (WMR2R) partnership are funding the development of a WBP for the Kahana, Honokahua and Honolua Watersheds in West Maui, which is also scheduled for completion in FY15.

The Program continues to review its existing WBPs to determine their effectiveness, and has documented the WBPs that require updating to qualify for 319(h) Project funds. The Program continues to work towards improving these incomplete WBPs through community outreach and by providing technical support to interested community groups. The Program intends to rehabilitate and update its WBPs in a measured fashion to balance having a sufficient number of effective WBPs while avoiding a surplus of plans without the means to implement projects.

In FY14, the Program began studying the costs and benefits of integrating WBPs with Total Maximum Daily Load (TMDL) plans into one TMDL+ Plan. The Program believes that merging an effective WBP with an approved TMDL would result in eliminating redundancies and reduce costs. The CWB continues to review its TMDL development process, while concurrently analyzing its monitoring strategies that underpin TMDL development. As the CWB resolves its monitoring approach and begins developing TMDLs, the Program anticipates partnering with the CWB TMDL Coordinator to draft a TMDL+ Plan as part of a trial evaluation.

Grant Implementation

At the start of FY14, the Program was actively managing six EPA CWA Section 319(h) grant awards (FY08, FY09, FY10, FY11, FY12, & FY13). The FY08 grant closed in December 2013 and the FY09 grant closed in September 2014. The Program was awarded a FY14 grant in September 2014. Specific challenges and accomplishments regarding grant implementation, as well as additional information regarding available and expended funds of the aforementioned grants, are listed below.

Contracting with public funds continues to be a challenge, since grant awards are required to undergo lengthy procedures throughout the procurement process. Understandably, as the procurement process involves public funds, there will always be thorough vetting and documentation requirements. The Program has been actively involved in reducing bureaucratic setbacks, resulting in shortening the contracting lag time from as much as twenty-four months to approximately six months. The Program is proud of its accomplishments in easing the overall contracting process and continues to enjoy a good working relationship with the various State departments that facilitate the process from Notice of Award to Notice to Proceed.

Individual grant awards are listed below by fiscal year, with specific 319(h) funded projects highlighted. Outcomes, load reductions, and other specific information for the 319(h) funded projects listed below can be found in the respective project-specific pages in this report, or in previous end-of-year reports.

Fiscal Year 2008 (8290-00)

The Program's Fiscal Year 2008 grant expired on December 31, 2013. The State spent $2,141,870 in federal funds and provided an additional $1,427,910 in non-federal match by the expiration date. A portion of this grant was used to fund the NPS and TMDL Intergovernmental Personnel Acts (IPAs) and an in-kind public outreach project with the EPA and its subcontractor, Tetra-Tech. Ten projects were to be funded under this grant; however, one project was cancelled due to non-responsiveness by the awarded vendor. Of the remaining nine projects, eight have been satisfactorily completed and one remains on-going because of its partial funding by more recent grant funds. Approximately $1,641,010 of federal funds was expended on project implementation, IPA funding, and in-kind services, and $500,240 was spent to support the Program. $620 of contractual funds was not spent on contracts.

The following eight FY08-funded projects, two IPA agreements, and one in-kind project have been completed:

- $151,030 to draft a WBP for the Southwest Maui Watershed (partially funded, remainder of the $194,390 project total from FY07);

- $89,670 for an on-site stormwater retrofit at Ka‘elepulu Stream;

- $15,850 for an education and outreach program targeting elementary school children in priority watersheds;

- $60,000 to draft a WBP for the Wailupe Stream Watershed;

- $191,890 for the He‘eia Stream riparian and water quality improvement project;

- $201,000 to fund the Hawai‘i Youth Conservation Corps;

- $178,530 to develop a Watershed Monitoring Plan and install ungulate-control fencing in Maui (partially funded, remainder of the $250,000 project total from FY09);

- $413,640 to fund the State Conservation Specialists Program (partially funded, remainder of the $975,730 project total from FY10 and State special funds);

- $130,000 for one year of NPS IPA funding;

- $90,000 for one-half year of TMDL IPA funding; and

- $40,000 for an in-kind Outreach Project with EPA and Tetra-Tech.

The following project remains on-going:

- $79,400 to fund Phase II of the He‘eia Stream riparian and water quality improvement project (partially funded, remainder of the $215,530 project total from FY10).

Fiscal Year 2009 (9290-00)

The Program’s Fiscal Year 2009 grant expired on September 30, 2014. The Program expended $1,503,630 in federal funds and provided an additional $1,002,420 in non-federal match. Nine projects were contracted for funding under this grant. Approximately $1,058,900 of federal funds has been spent on project implementation, and $442,430 spent to support the Program. Unfortunately, $2300 of contractual funds was not encumbered or spent on contracts.

The following six FY09 projects have been completed:

- $516,070 to install BMPs on agricultural lands in the Honouliuli Watershed;

- $118,280 to draft a WBP for the Hanalei Watershed;

- $71,430 to develop a Watershed Monitoring Plan and install ungulate-control fencing in Maui (partially funded, remainder of the $250,000 project total from FY08);

- $22,780 for an education and outreach program targeting elementary school children in priority watersheds;

- $86,070 to install BMPs in private agricultural lands in Waimanalo (partially funded, remainder of the $386,100 project total from FY06); and

- $19,990 for an education and outreach program targeting elementary school children in the Koʻolaupoko Watershed.

The following three projects remain on-going:

- $106,000 for the installation of low-impact designs in a shopping center parking lot in the Heʻeia Watershed (partially funded, remainder of the $222,220 project total from FY10);

- $13,280 to install BMPs in agricultural lands in the Wahikuli and Honokowai Watersheds (partially funded, remainder of the $376,140 project total from FY10, FY11 & FY12); and

- $105,000 to fund Phase II to install BMPs on agricultural lands in the Waimanalo Watershed (partially funded, remainder of the $155,970 project total from FY10).

Fiscal Year 2010 (9290-10)

The Program's Fiscal Year 2010 grant will expire on September 30, 2015. The Program expects to spend $1,596,300 in federal funds and provide an additional $1,064,200 in non-federal match by the 2015 expiration date. There were a total of fifteen projects contracted for funding under this grant; however two projects were later cancelled due to issues outside of the awarded vendors' control. Approximately $1,261,040 of federal funds has been expended or is currently encumbered for project implementation, and approximately $315,260 spent on supporting the Program. There is also $20,000 of Base contract funds unencumbered and available to spend on projects. This will be used to supplement a project arising from the Program's FY14 RFP.

The following two FY10 projects have been completed:

- $131,880 to install BMPs in the Wailupe Beach Park to reduce runoff; and

- $56,970 to extend the State Conservation Specialists Program (partially funded, remainder of the $975,730 project total from FY10 and State special funds);

The following eleven projects are new or remain on-going:

- $107,060 to develop a Homeowner's Raingarden Installation Booklet, and install raingardens throughout the Koʻolaupoko Watershed;

- $136,120 to fund Phase II of the Heʻeia Stream riparian and water quality improvement project (partially funded, remainder of the $215,530 project total from FY08);

- $140,000 to install BMPs and provide extensive community outreach in the Heʻeia Watershed (partially funded, remainder of the $747,030 project total from FY11 & FY12);

- $116,220 for the installation of low-impact designs in a shopping center parking lot in the Heʻeia Watershed (partially funded, remainder of the $222,220 project total from FY09);

- $84,450 to install BMPs in agricultural lands in the Wahikuli and Honokowai Watersheds (partially funded, remainder of the $376,140 project total from FY09, FY11 & FY12);

- $210,000 to develop a WBP in the Kaiaka Bay Watershed;

- $85,040 to install BMPs in the Hakioawa Watershed (partially funded, remainder of the $204,190 project total from FY11);

- $68,040 to install curb inlet baskets in the Wahikuli and Honokowai Watersheds (partially funded, remainder of the $237,550 project total from FY11);

- $25,000 to stabilize and remediate streambanks in the Ala Wai Watershed (partially funded, remainder of the $298,210 project total from FY11 & FY12);

- $49,290 to update Hawai‘i’s Implementation Plan for Polluted Runoff Control; and

- $50,970 to fund Phase II to install BMPs on agricultural lands in the Waimanalo Watershed (partially funded, remainder of the $155,970 project total from FY09).

Fiscal Year 2011 (9290-11)

The Program was awarded an EPA CWA 319(h) grant for the Fiscal Year 2011 that will expire on September 30, 2016. The total federal award is $1,355,490, with a State in-kind contribution of $1,144,510. There are a total of five projects contracted for funding under this grant. Approximately $840,010 of federal funds has been expended or is currently encumbered for project implementation, and approximately $515,480 spent to support the Program.

The five new or on-going projects are:

- $307,020 to install BMPs and provide extensive community outreach in the He‘eia Watershed (partially funded, remainder of the $747,030 project total from FY10 & FY12);

- $119,150 to install BMPs in the Hakioawa Watershed (partially funded, remainder of the $204,190 project total from FY10);

- $191,700 to install BMPs in agricultural lands in the Wahikuli and Honokowai Watersheds (partially funded, remainder of the $376,140 project total from FY09, FY10 & FY12);

- $169,510 to install curb inlet baskets in the Wahikuli and Honokowai Watersheds (partially funded, remainder of the $237,550 project total from FY10); and

- $52,630 to stabilize and remediate streambanks in the Ala Wai Watershed (partially funded, remainder of the $298,210 project total from FY10 & FY12).

Fiscal Year 2012 (9290-12)

The Program was awarded an EPA CWA 319(h) grant for the Fiscal Year 2012 that will expire on September 30, 2017. The total federal award is $1,209,000, with a State in-kind contribution of $807,970. Currently, there are a total of six projects contracted for funding under this grant. $723,140 of federal funds has been expended or is currently encumbered for project implementation, and $419,330 spent to support the Program. Approximately $44,500 of Base personnel funds remains unspent due to the formerly vacant Planner IV and vacant Public Participation Coordinator positions. There is also about $22,030 of Base contractual funds unencumbered and available to spend on projects. The combined $66,530 of unencumbered and unspent FY12 grant funds will be used to fund projects arising from the Program's FY14 RFP.

The six new or on-going projects are:

- $300,000 to install BMPs and provide extensive community outreach in the He‘eia Watershed (partially funded, remainder of the $747,030 project total from FY10 & FY11);

- $220,580 to stabilize and remediate streambanks in the Ala Wai Watershed (partially funded, remainder of the $298,210 project total from FY10 & FY11);

- $76,420 to install new and maintain existing sediment check dams, and maintain feral ungulate-proof fencing, in the Pelekane Bay Watershed;

- $86,720 to install BMPs in agricultural lands in the Wahikuli and Honokowai Watersheds (partially funded, remainder of the $376,140 project total from FY09, FY10 & FY11);

- $9730 to install BMPs in the Wai‘ula‘ula Watershed (partially funded, remainder of the $427,220 project total from FY13); and

- $29,690 to install BMPs in agricultural lands in the Ka‘alaea and Waiahole Watersheds (partially funded, remainder of the $298,790 project total from FY13).

Fiscal Year 2013 (9290-13)

The Program was awarded an EPA CWA 319(h) grant for the Fiscal Year 2013 that will expire on September 29, 2018. The total federal award is $1,146,000, with a State in-kind contribution of $764,000. Currently, there are two projects contracted for funding under this grant, totaling $686,590 in expended or encumbered funds. Approximately $390,200 is spent to support the Program. $69,210 of Base personnel funds is unspent due to the formerly vacant Planner IV and vacant Public Participation Coordinator positions, which will be used to fund projects arising from the Program's FY14 RFP.

The two new or on-going projects are:

- $417,490 to install BMPs in the Wai‘ula‘ula Watershed (partially funded, remainder of the $427,220 project total from FY12); and

- $269,100 to install BMPs in agricultural lands in the Ka‘alaea and Waiahole Watersheds (partially funded, remainder of the $298,790 project total from FY12).

Fiscal Year 2014 (9290-14)

The Program was awarded an EPA CWA 319(h) grant for the Fiscal Year 2014 that it anticipates will expire on September 30, 2019. The total federal award is $1,262,300, with a State in-kind contribution of $841,535. Approximately $469,010 of federal funds will be spent to support the Program. There is approximately $703,990 available to spend on projects and $89,300 available to support a West Maui Watershed Coordinator. The Program anticipates that its FY14 RFP will yield projects that shall be funded under this FY14 grant, and anticipates releasing its FY14 RFP in December 2014 to encumber all FY14 Project funds in one year.

Grants Summary							
Fiscal Year	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Budgeted Program Personnel & Overhead	$500,240	$442,430	$315,260	$515,480	$419,330	$390,200	$469,010
On-going, Encumbered & Completed Projects	$1,641,010	$1,058,900	$1,261,040	$840,010	$723,140	$686,590	$0
Available Contract Funds	$620	$2,300	$20,000	$0	$22,030	$0	$793,290
Reclassified Personnel Funds	$0	$0	$0	$0	$44,500	$69,210	TBD
Total EPA Award	$2,141,870	$1,503,630	$1,596,300	$1,355,490	$1,209,000	$1,146,000	$1,262,300

Non-Federal Match

The State primarily relies on general funded salaries for personnel supporting the Program to meet its EPA CWA 319(h) match obligation. General funded positions include: the Branch Chief of the CWB, a CWB Clerical employee, an IT Specialist, five outer-island Environmental Health Specialists (EHSs), and five Individual Wastewater System Engineers (IWSs).

The EHSs are tasked with collecting marine surface water samples and investigating complaints related to both point- and NPS pollution. Because of Program personnel limitations, these outer island employees effectively act as the Program's eyes and ears and provide a physical presence on the outer islands that the Program cannot provide. In FY14, the EHSs responded to approximately 12 complaints. Key issues raised include: illegal aquaponics discharges, dead livestock in a stream, and discharges due to a lack of installed BMPs.

Under the aegis of the CZARA and the EPA's Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, the IWSs are responsible for the review and approval of plans and specifications for wastewater systems, inspection of wastewater systems construction, and regulating wastewater systems in the State. In FY14, the IWSs conducted 207 plan reviews on Kaua'i, 200 reviews on O'ahu, 274 reviews on Maui, and 839 reviews on the Island of Hawai'i (544 in Hilo and 295 in Kona).

In FY14, all RFP implementation project contractors were required to submit a $1:0.25 grant/match proposal budget, which supplements the State's general funded salary match contribution. This match requirement assists the State with meeting its non-federal match requirement via pass-through to the EPA, while also demonstrating contractor commitment for its proposed project.

Monitoring

The Program requires both qualitative and quantitative water quality monitoring from its contractors for most projects. In FY13, the Program initiated its own water quality sampling efforts in the He‘eia Watershed on the Island of O‘ahu to demonstrate the effectiveness of a targeted watershed approach.

Water Quality Monitoring

In Hawai‘i, 319(h) projects are generally small in scale when compared to the watershed(s) they are located in. This creates issues for smaller capacity contractors with little to no knowledge of water quality monitoring techniques. To address this, the Program meets with contractors to assist with the development of monitoring plans and monitoring approaches to demonstrate project effectiveness. Data provided by contractors to the Program are reviewed, analyzed, assessed, modeled, and submitted to the CWB’s Monitoring and Analysis Section for use in the State’s Water Quality Monitoring and Assessment Report (Integrated Report).

The Program has developed and is implementing a monitoring plan that targets the He‘eia Watershed on the Island of O‘ahu. The primary goal of the Program’s water quality monitoring efforts in He‘eia is to determine if the He‘eia Stream is responding positively to 319(h) implementation projects. The Program’s Environmental Health Specialist has been collecting stream samples from three stream sites in the watershed (upper, lower, and mouth) twice a month for chemical analysis by the DOH State Laboratory. From January to September 2014, the Program collected and analyzed 42 samples from the three sites along He‘eia Stream. After a review and analysis of the data, the Program found that the He‘eia Stream attained water quality standards for dry season Total Nitrogen, and was de-listed for that pollutant in FY14. With 319(h) projects still underway in the He‘eia Watershed, the Program continues to monitor the He‘eia Stream to track reductions of pollutant loads.

319(h) Project Monitoring

All contractors receiving 319(h) funding are required to do some type of monitoring to indicate project efficacy. While most contractors conduct quantitative project monitoring, the methods vary by project type and contractor. Water quality monitoring is also used to determine effectiveness for projects that have on-the-ground implementation (e.g., He‘eia Stream Riparian and Water Quality Improvements). Other monitoring methods, including modeling, biological indicator surveys, and photo-points, are employed in conjunction with water quality sampling. Incorporating a multi-faceted approach to monitoring allows the Program to have a greater understanding of results from each project.

Grant Reporting and Tracking System (GRTS) Load Reductions

Using water quality data and modeling, the Program has been able to approximate load reductions for each project it funds. Load reductions are the quantitative measuring stick for the Program and assist the DOH in determining the efficacy of each project. For FY14, the Program reported the following load reduction estimates:

Nitrogen Load Reduction:	**13,679 lbs.**
Phosphorous Load Reduction:	**2,792 lbs.**
Sediment Load Reduction:	**5,543.3 tons**

Load reductions assist with watershed restoration by decreasing targeted NPS pollutants. Progress is being made towards the Program’s ultimate goal of significantly decreasing these pollutants and delisting impaired water bodies through on-the-ground project implementation.

Coastal Nonpoint Pollution Control Program

The Program continues to coordinate its efforts with the Office of Planning to implement the CNPCP. Currently, Hawai'i's CNPCP remains under conditional approval from the EPA and NOAA. The following management measures still require approval: 1) New Development (Urban Areas); 2) New and Operating On-Site Disposal Systems (OSDS) (Urban Areas); 3) Roads, Highways, and Bridges (Urban Areas); and 4) Monitoring and Tracking. The status of approval of these management measures are described below. Management measures for Agriculture, Forestry, Hydromodifications, Marinas and Recreational Boating, and Wetlands have been approved, and the Program is focusing its efforts on determining the status of their implementation.

New Development

The New Development management measure controls urban runoff from new development and redevelopment. Three of the four counties (CCH, Hawai'i County, and Maui County) in the state have adopted rules consistent with the New Development management measure, thereby satisfying the conditions for approval. The State's request for approval for the New Development management measure is currently under review by the EPA and NOAA, and is expected to be approved in early 2015.

New and Operating On-Site Disposal Systems (OSDS)

OSDS management measures apply to new and operating OSDS, with requirements for location, design, operation, inspection, and maintenance of OSDS to prevent the discharge of pollutants to surface and groundwater. In order to obtain approval, the OSDS management measure must ensure inspections of OSDS to ascertain system failures, as well as develop policies and mechanisms for denitrifying OSDS.

The Program is currently working with the DOH Wastewater Branch and the Office of Planning to submit a letter of approval for the OSDS management measure in FY15. This letter describes the State's efforts to reduce bacteria and nutrient concentrations by phasing out cesspools and by implementing the State's current OSDS inspection program. The Wastewater Branch, Office of Planning, and the Program continues to meet twice a year to discuss improvements to the OSDS inspection program and investigate ways to integrate Program activities with OSDS management.

Roads, Highways and Bridges

With the implementation of the roads, highways, and bridges management measures, counties are expected to comply with State requirements for operating and maintaining state and local roads; planning, siting, and developing roads and highways; and siting, designing, and maintenance of local bridges. Reduction in reported failures of BMPs in road construction and maintenance are expected after counties adopt the State Department of Transportation's BMP guide, which will result in a reduction in NPS pollution from construction and maintenance of roads, highways and bridges.

The Program has met with the Office of Planning and the EPA to discuss ways of obtaining approval for the management measures. The Office of Planning is collaborating with the Department of Transportation and with the counties to meet the conditions of the Roads, Highways, and Bridges management measures, and will continue to update the Program on its progress in meeting the conditions.

Monitoring and Tracking

The Program continues to partner with the Office of Planning to obtain approval of the Monitoring and Tracking management measure. The Program currently uses EPA's GRTS online software to track implementation projects funded by 319(h) grants. This year, to better implement the monitoring and

tracking management measure, the Program developed the PRC Viewer, a cloud-based database that serves as a central repository for stream water quality monitoring data, NPS implementation project locations and details, load reductions, and other relevant information regarding 319(h) projects and activities. Once the PRC Viewer is fully vetted and implemented by the Program in FY15, the Program will expand the scope of its Viewer to include relevant CNPCP management measure implementation data from the Ocean Resources Management Plan and other networking meetings.

Concurrently, the Program also began making its 319(h) project information and monitoring data available on the existing DOH Environmental Health Warehouse, an online application that provides the public access to location-based environmental health impact information. The Environmental Health Warehouse includes information from all CWB programs, and will provide a more comprehensive presentation of monitoring data to assist the State with tracking pollutant loads and with determining the impacts that management measures are having on water quality over time.

Going forward, the State intends to develop a process to improve monitoring and tracking of CNPCP management measures and to determine if the management measures are effective in addressing the known sources of polluted runoff. Starting with the He‘eia Watershed, the State will determine what mechanisms need to be in place to obtain information about implementation of the management measures. Once these mechanisms are in place, load reductions and other NPS control practices can be accounted for and monitored using the PRC Viewer by 2019.

Education and Outreach

The Program continued to revise its education and outreach efforts in FY14 to increase the effectiveness of its targeted watershed implementation strategy. Previously, the Program’s education and outreach efforts were primarily composed of conducting school visits and sponsoring children’s plays. The Program believes that introducing awareness of NPS pollution at an early age is beneficial; however significant improvements in watershed water quality can be achieved more efficiently by meeting with state agencies, community groups and interested individuals that are able to immediately implement WBP projects.

In November 2013, the Program met with local community groups on the Big Island of Hawai‘i prior to releasing its RFP. The Program discussed State procurement procedures and specifically the Program’s RFP process; reviewed proposed projects arising from the respective WBPs; and visited potential site locations. Five proposals located on the Big Island were submitted as part of the RFP process, with one $430,000 project to install BMPs in the Wai‘ula‘ula Watershed awarded. The Program has identified the Hanalei and Nawiliwili Watersheds on Kaua‘i as its target for its next RFP, and will be visiting various community groups in late 2014 to facilitate proposal submissions prior to releasing its RFP.

Over the past year, the Program began focusing on expanding its outreach efforts beyond local contractors and community groups to increase its visibility among other State and local government agencies. Within the CWB, the Program began regularly meeting with the TMDL Coordinator to strategize on watershed prioritization and ways to integrate TMDLs and WBPs. The Program had a number of meetings with the Office of Planning as part of its efforts to achieve CNPCP approval, and participated in conversations with the DLNR as part of its development of a unified State watershed map. The Program will also be cost-sharing the development of a WBP for the Kaiaka Bay with the CCH. Going forward, the Program anticipates strengthening its relationships with the above-listed agencies, while also forging new relationships with DOH programs and other State and local agencies to reduce NPS pollution through leveraging various funding and other resources.

The Program continues to require all 319(h) contractors to draft and release a minimum of two press releases describing their projects (at least one is released prior to on-the-ground implementation, and one is released at 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 are having the desired effect of generating local interest when they are published.

In FY14, the Program participated in two annual Earth Day outreach events to increase awareness among the State's children and families. The first is an annual co-sponsorship (with the CCH) of the Waikiki Aquarium Mauka to Makai Earth Day. FY14 was the seventh year that this event has been held, and over 2,430 visitors attended the event. In addition, approximately twenty government agencies and local community groups participated in the event. FY14 was also the third year that the Program participated in an Earth Day event at Marine Corps Base Hawaiʻi. Approximately one dozen federal, State and local agencies attended this event, which attracted about 2,500 visitors. Quantifying the impact these outreach projects have on reducing NPS pollution is a challenge and would be prohibitively expensive. However, the cost-to-benefit ratio is favorable to the Program: the Waikiki Aquarium event costs $12,000 plus staff time and approximately 2,000 children's coloring books, and the Marine Corps event costs staff time and about 1,800 coloring books.

Fiscal Year 2015: Looking Ahead

Fiscal Year 2015 promises to be a year of growth for the Program. The Program plans to fill up to three positions this year, including a Program Specialist who will oversee the Program, a clerical position, and, if funding allows, another Environmental Health Specialist to assist in water quality monitoring and assessment. These additions will increase the capacity of the Program to improve its effectiveness and performance.

In FY15 the Program will also complete an update of the State's NPS Management Plan, which will guide the program's effort to prevent and reduce polluted runoff over the next five years. One of the new objectives in the updated NPS Management Plan is to strengthen its existing partnerships and build new partnerships to leverage resources and funding for 319(h) projects. To take steps in this direction, the Program plans to meet with other agencies involved in water quality management, including DLNR, NRCS, county agencies, and the water branches within DOH, to discuss potential projects. The NPS Management Plan also outlines the ways in which the Program will collaborate with the Office of Planning and other partners to develop and implement the CNPCP management measures, with the goal of obtaining approval for at least two of the management measures in FY15. The Program hopes to receive approval of its updated NPS Management Plan by mid-2015.

In November 2014, the Program will continue its outreach efforts within local communities through the RFP process. The Program will meet with different community groups on Kauaʻi to discuss potential 319(h) project ideas, State procurement procedures, and the Program's RFP process. In addition, the Program will have the opportunity to visit potential site locations in the Hanalei Bay and Nawiliwili Bay Watersheds, which are the two targeted watersheds on Kauaʻi. The State plans to release its FY14 RFP in December. In addition, the Program plans to increase its involvement with existing 319(h) projects in FY15 by increasing the number of site visits it conducts and by visiting all ongoing project sites statewide at least once during the year.

The Program plans to refine its process for selecting priority watersheds in FY15. In collaboration with the CWB, the Program will assist in developing a prioritization matrix for watersheds based on community involvement, potential water quality improvements, current water quality projects within the watersheds, and several other factors. Once priority watersheds are chosen, the Program will work with the CWB and other state agencies to target resources for NPS prevention and reductions in these priority watersheds. In addition, the Program will begin water quality monitoring in another priority watershed, while continuing to monitor He‘eia Stream.

Finally, in FY15 the Program will have several opportunities to learn new skills and strategies to address NPS challenges. In October, the Program plans to send a team member to the annual GRTS Training Workshop, which helps guide the Program’s tracking methods for its pollutant load reductions. Two Program staff will attend the EPA’s National NPS Training Workshop in November, which will provide the Program with information on how other states are developing and implementing their NPS programs, on how to integrate TMDLs and 303(d) priorities with 319(h) program activities, and on effective methods of promoting the Program’s mission and successes. Locally, the State plans to attend the annual Hawai‘i Conservation Conference in August 2015 to learn about State and local efforts to preserve watersheds and water quality.

While the Program faces challenges as it develops its updated NPS Management Plan, achieves CNPCP approval, and serves its mission to protect and improve the quality of water resources by preventing and reducing NPS pollution, it is optimistic that it is in the best position to meet those challenges and build on its FY14 successes in FY15.