

Department of Health  
Clean Water Branch- Polluted Runoff Control Program

Quarterly Status Reporting Form  
Clean Water Act 319(h) NPS Implementation Program

Quarterly Status Reports are required per contract terms. If no work was done during the reporting period, the CONTRACTOR must provide an explanation of the circumstances.

This Quarterly Status Report is for the period indicated below (**check only one and insert year**):

- ☐ January 1 – March 31, \_\_\_\_\_ (Due April 15<sup>th</sup>)  
☐ April 1- June 30, \_\_\_\_\_ (Due July 15<sup>th</sup>)  
☒ July 1 – September 30, 2017 (Due October 15<sup>th</sup>)  
☐ October 1 – December 31, \_\_\_\_\_ (Due January 15<sup>th</sup>)

Project Title: **Watershed Implementation Project for the Ahupua'a of Waipā**

Project Start/Completion Date: **2/22/2016 - 8/22/2018**

Estimated % of Project Completed: **45 %**

Estimated % of Grant Funds Previously Requested: **48 %**

Quarterly Status Report Number: **7**

Name, telephone number, and e-mail of person to be contacted for questions regarding this report: **Matt Rosener, (808) 639 2640, laminarmatt@gmail.com**

Please provide the following information for this reporting period. Additional sheets may be attached:

1. Progress/tasks started and/or completed as defined in the Contract's Scope of Services during **current** reporting period.
  - A. Summary of work completed (list all tasks and deliverables)

Task/Deliverable	Due Date	Date Task Completed/ Deliverable Submitted
<b>Commence Cesspool Replacement BMP</b>	<b>3/22/2016</b>	<b>3/22/2016</b>
<b>Submit Project Monitoring Plan</b>	<b>5/22/2016</b>	<b>12/12/2016</b>

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<b>Submit QAPP</b>	<b>5/22/2016</b>	<b>12/12/2016</b>
<b>Commence Education &amp; Outreach Program</b>	<b>6/22/2016</b>	<b>6/22/2016</b>
<b>Commence Taro Lo'i Management BMPs</b>	<b>6/22/2016</b>	<b>10/1/2016</b>
<b>Commence Project Monitoring</b>	<b>6/22/2016</b>	<b>4/1/2017</b>
<b>Complete Livestock Fencing &amp; Watering BMP Installation</b>	<b>8/22/2016</b>	<b>8/10/2017</b>
<b>Complete Constructed Wetland BMP Installation</b>	<b>10/22/2016</b>	<b>8/26/2017</b>
<b>Commence Feral Ungulate Removal Program BMP</b>	<b>11/22/2016</b>	<b>8/1/2017</b>
<b>Commence Upland Erosion Control &amp; Revegetation BMP</b>	<b>11/22/2016</b>	<b>7/21/2017</b>
<b>Press Release # 1</b>	<b>n/a</b>	<b>8/25/2017</b>

**B. GRTS Load Reductions**

	<b>Estimated Load Reduction</b>
<b>Nitrogen (lbs/yr)</b>	<b>n/a</b>
<b>Phosphorus (lbs/yr)</b>	<b>n/a</b>
<b>Sediment (tons/yr)</b>	<b>n/a</b>

**C. Narrative Progress Report**

**Much progress was made on the project during this reporting period. Starting in July 2017, work began on the Upland Erosion Control and Revegetation BMP in mauka areas of the ahupuaa. The Waipa Foundation hosts groups from the Hawaii Youth Conservation Corps (HYCC) for a week-**



**long experience every year in July, and this year this group assisted our project by installing erosion control measures on mauka trails that had become gullied over time. These included 1.) installing several waterbars across trails to provide drainage and minimize future gully erosion, and 2.) filling gullies with loose soil and compacting it, 3.) placing mulch and erosion control fabrics over disturbed**

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areas to reduce erosion potential, and 4.) out-planting native plants to provide ground cover and root strength to resist further sheet and gully erosion on these trails in the future. Additional Upland Erosion Control & Revegetation is planned for other areas within the ahupuaa and the 2018 HYCC group will likely help with implementation as this type of project fits their intended experience very well.

August 2017 marked the formal start of the Feral Ungulate Removal Program BMP. While Waipa staff have hunted feral pigs from the ahupuaa for years, we have just started a program to remove pigs strategically while recording data on pigs removed. Photopoints were established in August 2017 in wallow areas where pigs are thought to congregate (judging by the amount of soil disturbance). These photopoints will be documented repeatedly throughout the remaining project period as a means to assess effectiveness of the Feral Ungulate Removal Program BMP. So far, pigs are being removed by traditional hunting methods as well as snares on animal trails. An automated pig trap is being assembled using the Jager Pro M.I.N.E. gate system. It is hoped that this trap can be used to catch multiple pigs at one time. During August 2017 the project manager and project staff met with staff from The Nature Conservancy (TNC) of Hawaii to hear about their experiences with pig hunting and trapping in other mauka areas on Kauai. TNC has offered to provide some guidance on Waipa's hunting/trapping program, and they are already assisting with the monitoring protocol.



Also during August 2017, significant work was completed on the Livestock Fencing and Watering BMP. Approximately 1,000 linear feet of 5-strand barbed-wire was installed in the Waipa cattle pastures. This new fenceline resulted in a single large pasture with an existing perimeter fence to be broken into two smaller paddocks that are now also fully bound by perimeter fencing. This will

allow for rotational grazing by livestock in the Waipa pasture area. In between the two new paddocks is a drain ditch that was regularly used in the past by cattle and horses in the large pasture for both drinking water and shade (since that's where most of the trees in the pasture were located). Without fencing along the ditch, animals often would stand in the ditch while urinating or defecating which prompted the inclusion of this BMP in the

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project scope. The current fencing alignment now prohibits livestock from accessing the drain ditch, leaving buffers ranging from 20 to 100 feet on either side of the ditch. To replace the drinking water source and provide shade for pastured animals, we have installed livestock shelters with catchment systems to capture plentiful rainwater from the shelter roofs, routing it through gutters to watering troughs.



Throughout the summer of 2017 a single taro patch was prepared for the Constructed Wetland BMP by tilling, discing, and weeding the patch repeatedly. Alternating furrows and mounds were formed in the wetland basin, and organic compost was added to the tops of the mounds to facilitate plant growth. This taro patch was selected for this BMP because it was already plumbed to receive effluent from a single upstream taro patch. Instead of water draining from the lo'i directly to a drainage ditch or stream channel, these two patches were set up ideally to use the lower patch as a retention basin/biofilter. On August 26, 2017, during a regularly-scheduled



Community Workday, several volunteers helped out-plant several hundred wetland plants within the basin, and the new Constructed Wetland went online immediately, receiving flow from the taro patch above it. Monthly water quality monitoring and chemistry sampling at the Constructed Wetland inlet and outlet locations will produce data to assess the effectiveness of this BMP to reduce nutrient and

turbidity levels as taro lo'i effluent passes through the basin. This monitoring has begun but sufficient data are not yet available to determine results.

As part of the project's education and outreach campaign, an article about the project was published in The Garden Island on August 25, 2017 ([http://thegardenisland.com/news/local/watershed-restoration/article\\_7c6c7916-7a0b-591b-95f1-4c7537bf67c9.html](http://thegardenisland.com/news/local/watershed-restoration/article_7c6c7916-7a0b-591b-95f1-4c7537bf67c9.html)). Also during August, outreach was performed at the Waipa Mango Festival which had attendance exceeding 2,000 people this year. And the project manager was invited to present about stream restoration work at Waipa at the Hawaii Stream Conservation meeting

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at UH-Manoa on August 1, 2017. Here, we were able to share about our experiences in holistic watershed management and stream restoration with resource managers and researchers from around the state. There was significant interest in the ongoing work at Waipa that resulted in the project manager performing site visits during August to He'eia Stream and Kahana Stream on Oahu to meet with and provide advice to groups attempting stream restoration work there. As a follow-up, one person involved with the Kahana Stream project came to Kauai to participate in the September Community Workday and tour the restoration project site.

Work on the Stream Restoration BMP continued during this reporting period with project staff removing invasive vegetation, spreading mulch, and out-planting native vegetation in several small riparian area plots along Waipā Stream. Several staff workdays occurred during the reporting period in the stream project area, during which project staff and interns completed regular maintenance work in addition to out-planting. Also, several groups such as Road Less Traveled, Moondance Adventures, and Adventures Cross Country also helped out with weeding and cleaning in the stream project area during the months of July and August.

The water quality monitoring program for the project is now well-established and weekly water quality monitoring runs are being performed by Waipa staff. Water samples are being collected from several sites on a bi-weekly basis for FIB and approximately monthly for water chemistry. These samples are being transferred from project staff to DOH staff for analyses at DOH lab facilities. We are coordinating with DOH staff on Kauai on a regular basis to facilitate transfer of water samples and sampling supplies. Continuous water quality monitoring at the Waipa Stream Gage and Waipa Estuary gage has been ongoing since March 2017. Equipment used at these gage stations has been working well and is producing 15-minute data for these two locations. Training for the reef survey program continued during this reporting period with the project manager teaching project staff how to use a GPS unit with a waterproof enclosure to locate reef survey transect sites by kayak. DAR staff on Kauai continue to work with Waipa staff in teaching the survey protocol. It has been difficult to get these surveys done as water clarity, wind, and surf conditions can all change quickly. Since surveys are being done from a kayak, it has been tricky to perform the surveys under less-than-ideal conditions. We are continuing to refine the logistics of the reef survey program and are hopeful to generate useful data from the marine environment during the project period.

2. Description of any major issues/problems encountered and/or resolved that may affect the CONTRACTOR's ability to complete the project as required (i.e., weather, personnel, equipment, etc.). If there is a change in the project timeline or

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budget, provide an explanation, revised timeline, budget, and completion schedule. (Please note that no-cost extensions must be applied for through the Department, and will only be granted when the CONTRACTOR has demonstrated unforeseeable setbacks.)

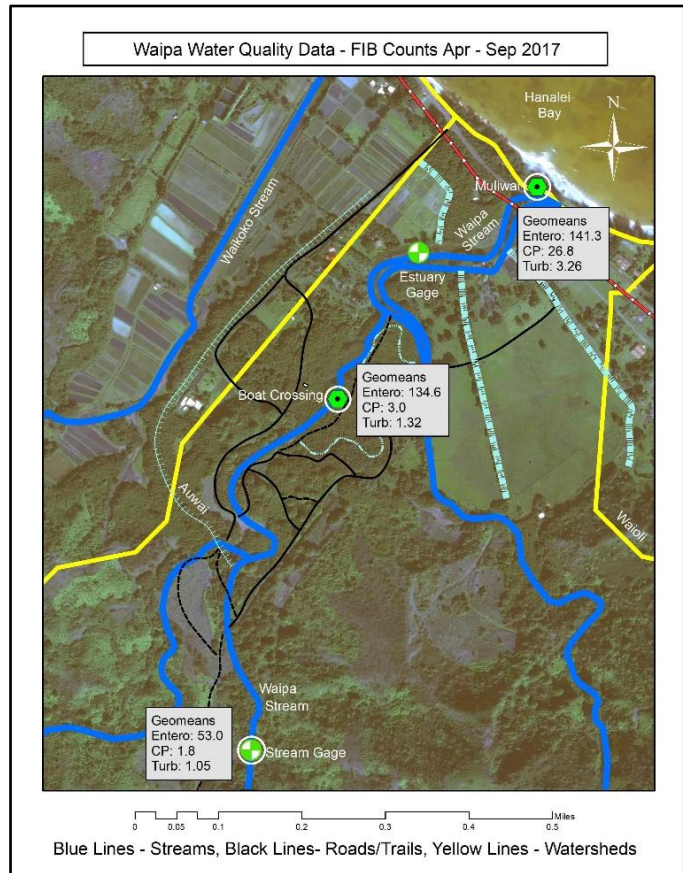
**Although the project NTP is dated 2/22/2016, we did not actually receive the executed contract and NTP until 3/21/2016. This may set the project schedule back by approximately 1 month. Delays in developing the project Monitoring Plan (MP) and Quality Assurance Project Plan (QAPP) have also set back the schedule significantly. While monitoring for the project officially started in April 2017 and we have been coordinating monitoring with DOH staff since then, we have still not received formal approval of the MP or QAPP. We will work with the DOH grant administrator to adjust the project timeline to account for these delays, if necessary.**

3. Description of any significant findings, results, or conclusions. If none, please indicate so.

**Water quality monitoring data has revealed some interesting trends as of the end of this reporting period (9/30/2017). Bi-weekly Fecal Indicator Bacteria (FIB) sampling for both Enterocococcus (ENT) and Clostridium Perfringens (CP) has resulted in a total of 12 samples for 3 sites along Waipa Stream and 1 site in Waioli Stream during the 6-month April – September 2017 monitoring period. While this is considered a small sample size, there are trends apparent in the data including FIB levels generally increasing from mauka to makai. For the 12 sampling days, ENT geometric means jump substantially from the Waipa Stream Gage site (53.0 MPN/100 mL) down to the Waipa Boat Crossing site (134.6 MPN/100 mL), but the CP numbers are pretty low at both sites (1.8 and 3.0 MPN/100 mL, respectively). Since ENT is an indicator of fecal bacteria from several sources and CP is thought to be a better indicator of human sewage, we can deduce that there are non-human sources of fecal bacteria to the stream between these 2 sites.**

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Between the Waipa Boat Crossing and Waipa Muliwai sites we don't see much change in the ENT geomeans (134.6 and 141.3 MPN/100 mL, respectively), but there is a sizeable jump in the CP geomeans (3.0 and 26.8 MPN/100 mL, respectively) which suggests some sewage contamination in this short stream reach. After replacing a cesspool along the stream in this reach in March 2016 (through this project), there is only one known cesspool remaining in the stream corridor, so this result is a bit surprising. However, while CP counts were generally low at the Waipa Stream Gage and Waipa Boat Crossing sites which are both located upstream of all wastewater treatment/disposal systems in the watershed, CP counts as high as 13 MPN/100 mL and 23 MPN/100 mL have been measured at the Stream Gage and Boat Crossing sites, respectively, during the monitoring period thus far. This suggests there are sources of CP other than human waste within the watershed.



4. Based on the Scope of Services, a description of tasks expected to be completed in the next reporting period.

During the next reporting period (10/1/17 – 12/31/17), we expect to continue work on ongoing BMPs such as Stream Restoration, Taro Lo'i Management, and the Feral Ungulate Removal Program. Additional animal shelters and water catchment systems for the Livestock Fencing and Watering BMP may be constructed. And additional work for the Upland Erosion Control and Revegetation BMP may be undertaken, weather depending.

One focus area for project work in the next reporting period is expected to be maintenance of the Constructed Wetland BMP which will require occasional hand-weeding for the first six months of operation. At this time, maintenance for the out-planted basin will stop and volunteer vegetation (i.e.

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**weeds) will be allowed to grow in. The BMP will be monitored for an additional six months to determine if the out-plantings of native wetland plants are more effective than the dominant weeds of the area at reducing nutrient concentrations and/or turbidity levels in this type of BMP.**

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Summary of expenditures and in-kind contributions previously requested in comparison with the Contract's project budget and remaining funds. The summary must be actual cumulative amounts for each line item (i.e., personnel services, travel, operating expenses, equipment acquisition, construction materials, other, etc.) current as of this quarterly status report. Please see the example on Page 4 if necessary.

Summary- Grant Funds					
No.	Description	Original Contract Amounts	Contract Amount from Previous Quarterly Invoices	Amount Requested in this Invoice	Remaining Contract Amount
A.	Personnel Services	\$125,651.00	\$15,666.91	\$6,190.38	\$103,793.71
B.	Travel	\$2,370.00	\$471.31	\$980.44	\$918.25
C.	Operating Expenses	\$22,800.00	\$8,638.88	\$6,618.85	\$7,542.27
D.	Equipment	\$4,500.00	\$0.00	\$0.00	\$4,500.00
E.	Professional Services	\$141,920.00	\$133,150.00	\$0.00	\$8,770.00
F.	Materials & Supplies	\$73,300.00	\$27,233.05	\$6,754.22	\$39,312.73
G.	Other Miscellaneous Expenses	\$15,750.00	\$104.17	\$0.00	\$15,645.83
Total:		\$386,291.00	\$185,264.32	\$20,543.89	\$180,482.79

Summary- Matching Funds					
No.	Description	Original Contribution Amounts	Contribution Amount from Previous Quarterly Invoices	Contributions Submitted in this Invoice	Remaining Contribution Amount
A.	Personnel Services	\$47,366.00	\$27,045.37	\$5,008.16	\$15,312.47
B.	Travel	\$0.00	\$0.00	\$0.00	\$0.00
C.	Operating Expenses	\$0.00	\$0.00	\$0.00	\$0.00
D.	Equipment	\$10,825.00	\$10,435.00	\$0.00	\$390.00
E.	Professional Services	\$26,600.00	\$17,717.61	\$0.00	\$8,882.39
F.	Materials & Supplies	\$27,000.00	\$5,226.00	\$3,813.00	\$17,961.00
G.	Other Miscellaneous Expenses	\$0.00	\$0.00	\$0.00	\$0.00
Total:		\$111,791.00	\$60,423.98	\$8,821.16	\$42,545.86

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