

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, ____2022__ (Due April 15th)
☐ April 1- June 30, ____ (Due July 15th)
☐ July 1 – September 30, ____ (Due October 15th)
☐ October 1 – December 31, ____ (Due January 15th)

Project Title: Hakioawa O and M Plan 2021

Project Start/Completion Date: March 29, 2021, to September 30, 2022

Estimated % of Project Completed: ____63____%

Estimated % of Grant Funds Previously Requested: ____38____%

Quarterly Status Report Number: ____4____

Name, telephone number, and e-mail of person to be contacted for questions regarding this report: _Lyman L. Abbott (808 357-1640 Cell) (808 243-5888 work)
labbott@kirc.hawaii.gov

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
Inspect Irrigation 1.5" main, 1" sub main, ¾" laterals, hose clamps, emitters	March 2022	July 2022
Native Plants (N=4000) 1000 remaining	July 2022	March 2022
Check Dams (N=20)	July 2022	February 2022
Soil Amendments	July 2022	April 2022
Monitoring, Soil Erosion Pin Transects (8)	July 2022	March 2022

Task/Deliverable	Due Date	Date Task Completed/ Deliverable Submitted
Baseline photo points (28) supplemental photographs (5) Drone images (7)	July 2022	July 2022

B. GRTS Load Reductions

Pollutant	Estimated Load Reduction
Nitrogen (lbs/yr)	NA
Phosphorous (lbs/yr)	NA
Sediment (tons/yr)	0%

C. Narrative Progress Report

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 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.)

Due to a large west swell (14-18 feet) and a high surf advisory on Friday January 14, 2022, the second half of the volunteer access was canceled. Therefore, no out-planting took place in January 2022.

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

A previously installed (2003) 2" Drisco® water pipe that brings water from rain catchment storage Tanks 1 and 2 to Tank 3 was leaking and the repair was made in March 2022. See figure 1 below.



Figure 1 Leaking section of 2" Drisco Water pipe and repaired section.

In the fourth quarter (January to March 2022) the following tasks took place in Table 1.

	Task	Comment
1	Native Out-plantings (2000 plants)	One trip in February 2022 and one in March (1000 plants per trip)
2	Inspected PV Pump and PV Panels at Tank 3.	Inspected PV Pump and PV Panels at Tank 3.
3	Pump water from Tanks 1 and 2 to Tank 3	Fixed a leak in the 2" Drisco® pipe
4	Check Dams (9/20)	Completes requirement for check dams (N=20)
5	Repaired K1 road with gravel bags Protect Kaho`olawe Ohana (PKO)	Road damage after the Kona Low storm on December 5 th and 6 th , 2021
6	Re-read 8 soil erosion pin transects	Highly significant difference (p=0.007316) between Means from 2021 to 2022

Table 1 Tasks performed the fourth quarter (January to March 2022)

Education and Outreach

Education and Outreach dates, audience and participant numbers are listed in Table 2.

Number	Date	Audience	# Of participants
1	January 16 2022	Protect Kaho`olawe Ohana (Mo`olono)	5
2	February 11 to 14 2022	Ka Ipu Kukui	10
3	February 14 to 17 2022	Leeward Haleakala Watershed Partnership (3) U.H. Geography and Environmental (3) + Malama Maui Nui (1 G. Scheurger).	7
4	March 11 to 14 2022	U.H. Manoa Geography and Environment	10
5	March 14 to 17 2022	Maui High School	10
6	March 26, 2022	Na Leo Pulama o Maui – Punana Leo O Maui (at Maui Nui Botanical Gardens)	~100
		Total	142

Table 2 Education and Outreach for Fourth Quarter of grant

The first group in the fourth quarter were part of the Protect Kaho`olawe Ohana (PKO) Mo`olono group there on island to prepare for the closing ceremonies of Makahiki. On the K1 Road Paul Higashino (NRS V) discussed with the group the importance of keeping the main roads maintained so we can access the Project Sites on island.

A second cohort of the Ka Ipu Kukui group came out again in February. The Leeward Haleakalā Watershed Restoration Partnership (LHWRP) is a coalition formed in June 2003, by 11 private and public landowners and supporting agencies. The 43,175-acre partnership's goal is to restore dryland forests on Maui Island, on the leeward slopes of

Haleakalā from Makawao through ‘Ulupalakua to Kaupō between 3,500- and 6,500-feet elevation (Figure 3).

In February, three representatives (1 professor, 2 students) from U.H. at Manoa Geography and Environmental Department assisted with the DOH plantings one day. The Executive Director of Malama Maui Nui (G. Scheurger) was also in attendance.

The U.H. Manoa Geography and Environmental Department came out again in March with a class of 9 students and the same professor. A group of 10 from Maui High School also came out in March.

Finally, several KIRC staff attended an annual Ho‘omau Benefit held at Maui Nui Botanical Gardens on March 26, 2022. This supports the Hawaiian Immersion Education on Maui through Na Leo Pulama O Maui and specifically the Wailuku Hawaiian immersion preschool program. At least 100 people were spoken to at our KIRC booth. The NPS Brochures were available to take (Figure 3).



Figure 3. Ho‘omau event at Maui Nui Botanical Gardens

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

	Task	Comment
1	Out-plant 1000 more native plants with Soil Amendments	Last 1000 native plants remaining to achieve grant deliverable (5000 total)
2	Inspect irrigation lines for blowouts	Replace emitters, hose clamps
3	Non native plant control	Koa haole, Sour Bush, Crown flower
4	Chipping	Kiawe chips
5	Site visit with DOH personnel	Scott Miyashiro April 8 to 11, 2022

Table 4. Tasks to be performed next quarter (April May June 2022)

Native Out-planting

2000 native plants were put into irrigated planting corridors number 4 and 5 and (Figure 5) in the 4th Quarter.

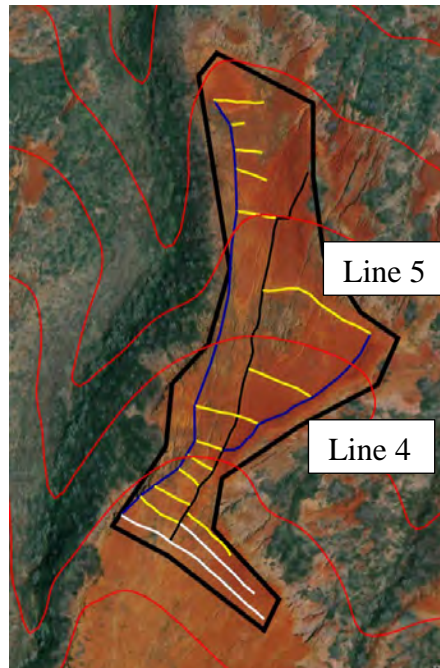


Figure 5. Map of Project Site with irrigation lines 4 and 5

This leaves 1000 remaining in the 5th quarter (April May June 2022).

Wattle Repair

A wattle on irrigation line # 6 had a blowout probably due to the Kona Low of December 6, 2021. It was repaired with a check dam (orange gravel bags) just up-stream in front of the damaged portion of the wattle (Figure 6a,b).



Figure 6a,b Damaged wattle on irrigation Line #6 and repair with a check dam (orange gravel bags)

Soil Erosion Pin Transects

Soil Erosion Pin Transects were re-read on March 16, 2022. It was decided to re-read them again earlier than scheduled to include the results in the NPS Brochure. Table 5 lists the data sets from 2021 to 2022,

Year	Non-Restored Transects			Restored Transects	
	Transect	Mean (mm)		Transect	Mean (mm)
2021	1	294.9		2	212.5
	3	244.8		4	252.0
	5	288.4		6	248.4
	7	271.2		8	259.1
	Mean	274.8		Mean	243.0
	SD	22.4		SD	20.8
	SE	11.2		SE	10.4
2022	1	294.7		2	212.1
	3	243.3		4	250.9
	5	287.8		6	247.6
	7	259.6		8	257.5
	Mean	271.4		Mean	242.0
	SD	24.1		SD	20.4
	SE	135.7		SE	121.0
Difference between Means 2021-2022					
		3.5			1.0

Table 5. Soil Erosion Pin Transect data sets from 2021 and 2022

There were 289 days between the two readings (6/1/2021 to 3/16/2022). There was a 3.5mm and 1.0mm difference between the means for the non-restored (Control) and restored (Treatment) transects from 2021 to 2022, respectively.

Also, there was a highly significant difference ($P = 0.007316$) using the transect means (Table 6) with a paired t-test (1 tail) for differences in the 2021 and 2022 non-restored and restored readings.

Transect Means							
Transect	Non Rest	Non Rest	Diff NR	Transect	Rest	Rest	Diff R
	2021	2022			2021	2022	
1	272.0	271.5	-0.5	2	210.5	213.5	3.0
	274.0	275.0	1.0		192.5	192.5	0.0
	270.5	272.0	1.5		184.5	184.0	-0.5
	273.0	272.0	-1.0		207.5	203.0	-4.5
	281.0	280.0	-1.0		209.5	212.5	3.0
	299.5	298.5	-1.0		208.5	205.5	-3.0
	320.0	319.0	-1.0		216.5	217.5	1.0
	323.0	323.5	0.5		232.0	230.0	-2.0
	341.5	341.0	-0.5		251.0	250.5	-0.5
3	242.0	240.5	-1.5	4	245.0	245.0	0.0
	235.0	235.5	0.5		225.0	228.5	3.5
	235.0	233.0	-2.0		227.5	227.5	0.0
	224.0	226.0	2.0		226.0	222.5	-3.5
	220.5	216.0	-4.5		243.0	241.0	-2.0
	230.5	230.0	-0.5		256.0	256.0	0.0
	254.5	253.5	-1.0		278.5	278.0	-0.5
	269.5	266.5	-3.0		282.0	280.0	-2.0
	292.0	289.5	-2.5		285.0	279.5	-5.5
5	273.5	271.0	-2.5	6	297.0	296.0	-1.0
	288.0	285.5	-2.5		287.5	285.0	-2.5
	258.5	259.5	1.0		250.5	250.0	-0.5
	259.0	261.5	2.5		201.0	205.0	4.0
	289.5	290.0	0.5		215.0	213.0	-2.0
	280.0	280.0	0.0		228.0	229.0	1.0
	307.0	306.0	-1.0		255.0	252.5	-2.5
	315.5	312.0	-3.5		254.0	252.0	-2.0
	325.0	324.5	-0.5		248.0	246.0	-2.0
7	252.5	241.5	-11.0	8	285.0	285.0	0.0
	254.0	243.5	-10.5		237.0	236.5	-0.5
	251.5	222.5	-29.0		185.0	181.0	-4.0
	236.0	225.0	-11.0		184.5	183.0	-1.5
	232.0	226.0	-6.0		217.0	216.0	-1.0
	268.0	254.5	-13.5		267.0	262.0	-5.0
	294.0	283.0	-11.0		302.0	302.0	0.0
	317.5	315.0	-2.5		325.0	322.0	-3.0
	335.0	325.0	-10.0		329.0	330.0	1.0
n=	36	36			36	36	
Mean	274.8	271.4	-3.5		243.0	242.0	-1.0
SD	33.3	34.6			38.7	38.4	
SE	5.5	5.8			6.5	6.4	
						p =	0.007316

Table 6. Data set and means from Non-restored and Restored transects from 2021 to 2022

Figure 7 illustrates the highly significant ($p=0.007316$) difference between the means for the Control (non-restored) and Treatment (restored) areas in the Project Site from 2021 to 2022.

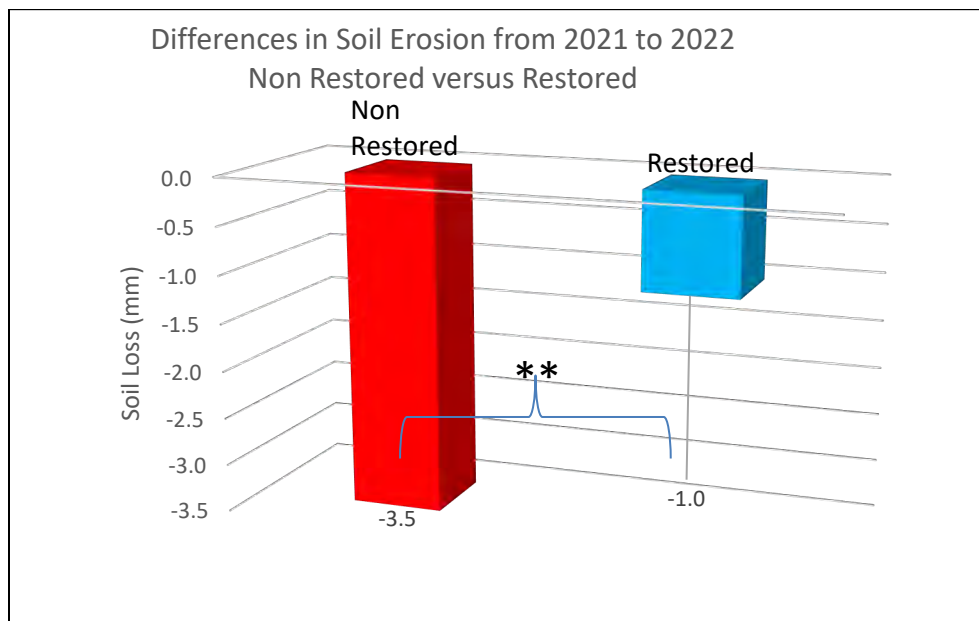


Figure 7 Difference in Control (non-restored) and Treatment (restored) for soil erosion from 2021 to 2022

** = highly significant $P \leq 0.01$

The amount of reduced soil load from 2018 - 2019 and 2021 - 2022 will be calculated and presented in the Draft Final Report.

Check Dams

Nine (9) more check dams were constructed this quarter finishing the 20 required as deliverables. A map of all 20 check dams will be included in the Final Report. Figure 8 shows a check dam full of sediment from the Kona Low event in December 2021.



Figure 8 Check dam created in November 2021 with captured silt from the December 5th and 6th 2021 Kona Low.

Nine more check dams were constructed in February 2022 in the same gulch system (Figure 9).



Figure 9 One of nine check dams in Project site constructed in February 2022

The complete map of all 20 check dams will be presented in the draft Final Report.

Baseline Photo points/Supplemental Photos/Drone Images

All scheduled to be re-taken in July 2022.

Personnel Services (Staff/Volunteer Hours)

Staff hours for the fourth quarter (January to March 2022) are summarized in Table 7 in semi-monthly increments.

	Year	Period (4th Quarter) January 1 to March 31 2022	Lyman	Jamie	Paul	Carmela	Maggie	Meghan
20	2022	January 1 to 15 2022	0	0				80
21	"	January 16 to 31 2022	0	14				88
22	"	February 1 to 15 2022	12	8				88
23	"	February 16 to 28 2022	12	14				72
24	"	March 1 to 15 2022	12	8				88
25	"	March 16 to 31 2022	12	10				96
		Total	48	54	0	0	0	512
		Percent Complete	80.8%	48.1%	100.0%	20.0%	0.0%	50.0%

Table 7 Staff Hours from January 1 to March 31, 2022

KIRC Staff (Lyman and Jamie) contributed 102 hours towards the Matching funds of the grant in the 4th quarter. Meghan Dunn (KIRS II) contributed 512 hours to the Grant funds.

Volunteer Hours

Twenty-two (22) volunteers worked 64 hours in the Project Site for the fourth quarter (January to March 2022). The PKO (Mo'olono) trip did not incur an 'Ohua run nor Base Camp charges for January 2022. The volunteer activities included repairing K1 road with gravel bags, out planting 2000 native plants with soil amendments, constructing nine (9) more check dams and repairing damages to a wattle caused by the Kona Low of December 6, 2021. The summary of volunteer hours for this quarter are presented below in Table 8.

Quarter	Trip #	Date	Group Name	N Vol =	Hours/Vol	Total Hours	Area	Work
4th	8	January 15 2022	PKO Mo'olono	5	1	5	K1 Road	Gravel bags into K1 road
"	9a	February 11 to 14 2022	Ka Ipu Kukui	10	4	40	DOH 5	Road work K1/planting 500 plants
"	9b	February 14 to 17 2022	Leeward Haleakala Watershed Partnership	3	3	9	DOH 5	Outplanting 500 plants/ 9 check dams
"	9b	"	UH Geo and Env	3	3	9	DOH 5	500 plants
			Malama Maui Nui (Gabi S.)	1	1	1	DOH 5	500 plants road work
			Sum	22	12	64		2000 plants

Table 8. Volunteer hours for the 4th quarter

This completes the 400-hour requirement of Volunteer hours for the grant. Table 9 lists the volunteers that came out in the 4th quarter.

Trip #	Number	Date	Group name	Volunteer name
8 ¹	1	January 16 2022	PKO (Mo'olono)	Momi Wheeler
	2	"	"	Kaipo Baker
	3	"	"	Isaac Ikaika Nahuewai
	4	"	"	Kaliko Baker
	5	"	"	Keli'i Beyer
9a	6	February 11 to 14 2022	Ka Ipu Kukui	Charity Hartman
	7	"	"	Jason Toba
	8	"	"	Jared Agtunong
	9	"	"	Dennis Ducatt
	10	"	"	Julie Hew
	11	"	"	Sarah Hew
	12	"	"	Joe Imhoff
	13	"	"	Charen Kepler
	14	"	"	Tambara Garrick
	15	"	"	Lori Teragawachi
9b	16	February 14 to 17 2022	Leeward Haleakala Watershed Partnership	Chawn Villalon
	17	"	"	Iban Garvin
	18	"	"	Kingsley Uaiwa

Trip #	Number	Date	Group name	Volunteer name
	19	“	U.H. at Manoa Geography and Environmental	David Beilman
	20	“	“	William Cuyler Bleecker
	21	“	“	Charlotte Hipkiss
	22	“	Individual (Malama Maui Nui)	Gabriel Schuerger

Table 9. 22 volunteer names for the 4th Quarter

¹ No Travel (‘Ohua) or Operating Expenses (Base Camp) for PKO (Mo‘olono) group.

Travel

Two ‘Ohua round trips were tallied in the fourth quarter (February and March 2022) for a total of \$2,000.

Operating Expenses

Base Camp expenses (“Dawson” Contractor Invoices) were incurred for two trips (February and March 2022) during the fourth quarter for \$2,000.

D. Equipment and F. Construction Materials

D. Equipment (Native Nursery, LLC) and F. Construction Materials (ISI) purchases in the 4th quarter is as follows (Table 10).

Qtr	Number	Date	Vendor	Description	Sub Total	Tax rate	Tax	Total	PCARD	Invoice #
4	1	3/10/2022	¹ ISI 1	Hose clamps inserts emitters	\$ 292.10	4.166%	\$ 12.17	\$ 304.27	961 267	970505
4	2	2/9/2022	Native Nursery, LLC (1000 plants)	Native Plants (N=1000)	\$2,850.00	4.166%	\$118.73	\$2,968.73	766 026	5659
4	3	3/10/2022	¹ ISI 2	Ford 2" PVC Brass Female ADP No Lead	\$ 168.57	4.166%	\$ 7.02	\$ 175.59	766 038	970506
4	4	3/9/2022	Native Nursery (1000 plants)	Native Plants (N=1000)	\$ 285.00	4.166%	\$118.73	\$2,968.73	766 037	5719
				Sub Total	\$3,595.67		\$256.65	\$6,417.32		

Table 10. Summary of D. Equipment and F. Construction Materials purchased in the 4th Quarter

¹F. Construction Materials

The unit cost for native plants was listed as \$2.88 in the original grant budget. However, Native Nursery LLC continues to invoice the plants to the KIRC at a unit rate of \$2.85.

The Irrigation Systems Inc., Hawaii Water Solutions (ISI) purchases (see “ISI 1” and “ISI 2”) of hose clamps, inserts and emitters (\$304.27) as well as the brass Ford® Coupling (\$175.59) for 2” Drisco® water pipe repair were both unplanned purchases. Our previous stock pile of irrigation supplies was incinerated in a February 2020 fire on Kaho‘olawe.

These two purchases will come out of the Burlap budget line item under F. Construction Materials. Approved by DOH, CWB on March 9, 2021, by email.

The Grant Funds and Matching Funds (In-Kind) for the 4th quarter are listed below.

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 (KIRS II)	\$52,169.94	\$ 13,243.14	\$12,841.83	\$26,084.97	
B.	Travel	\$10,000.00	\$ 7,000.00	\$2,000.00	\$1,000.00	
C.	Operating Expenses	\$10,000.00	\$ 7,000.00	\$2,000.00	\$1,000.00	
D.	Equipment (Native Plants)	\$15,884.00	\$ 7,213.64	\$5,700.00	\$2,970.36	
E.	Professional Services (N/A)	\$ -	\$ -	\$ -	\$ -	
F.	Construction Materials and Supplies (ISI 1 and ISI 2)	\$3,331.45	\$ 218.28	\$460.67	\$2,652.50	
G.	Other Miscellaneous Expenses (Tax)	\$800.52	\$ 260.12	\$256.65	\$283.74	
Total:		\$92,185.91	\$ 34,935.18	\$ 23,259.16	\$33,991.57	
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 (Vol and all other KIRC Personnel)	\$30,042.14	\$ 14,834.60	\$6,183.90	\$9,023.64	
B.	Travel	\$ -	\$ -	\$ -	\$ -	
C.	Operating Expenses	\$ -	\$ -	\$ -	\$ -	
D.	Equipment	\$ -	\$ -	\$ -	\$ -	
E.	Professional Services	\$ -	\$ -	\$ -	\$ -	
F.	Construction Materials and Supplies	\$ -	\$ -	\$ -	\$ -	
G.	Other Miscellaneous Expenses (GE Tax)	\$ -	\$ -	\$ -	\$ -	
Total:		\$30,042.14	\$14,834.60	\$6,183.90	\$9,023.64	
		Total	\$122,228.05			

End of Fourth Quarter Status Report