

FIELD EQUIPMENT VERIFICATION (PRE/POST A WEEKLY SAMPLING):

Hui O Ka Wai Ola

Session No:	Verifiers (pre-sampling):		Pre Date:	Pre Time:	Verifiers (post-sampling):		Post Date:	Post Time:
WM 131	C. Keyhani, J. Erwin M. St-Louis		12/4/23	10:00 am even equipment 1:45 pm	C. Keyhani, L. Yannell		12/7/23	12:30 pm

QA/QC Check	Inst #	Probe #	Last Cal Date		PRE: Verification Value	POST: Verification Value	Acceptable Range	Comments/ Notes	QA?
Temperature	NIST 2	n/a	NIST Exp. Date	Std Val	NIST 26.2°C	NIST 28.7°C	NIST 28.1°C	NIST 28.1°C	± 0.6 °C of NIST
	3 7	6/28/24			26.2	27.9			Compare to NIST Std value in tap water
	4 8	6/28/24			28.5	27.9			

Salinity		3 months	Std Val	Tap water 0.13	Salin Std 11/27/23 date 34.4 ppt	Tap water 0.13	Salin Std 11/27/23 date 34.4 ppt	± 1 ppt	Tap water - compare pre & post values Salinity Std - compare to value on Salinity Std bottle
	3 7	11/6/23		0.18	34.2	0.18	34.0		
	4 8	11/6/23		0.18	33.9	0.18	33.9		

Dissolved Oxygen		1 year	Std Val	100%	100%	± 5 %	
	3 3	7/17/23		99.6	99.6		
	4 4	7/17/23		100.2	103.4		

pH		3 weeks	Std Val	pH 7.00	pH 10.00	pH 7.00	pH 10.00	± 0.1 pH of pH std value	Compare to Manufacturer pH Std value on bottle
	3 5	12/4/23		7.00	10.02	7.02	10.03		Expiration at 7+10 5/2024
	4 6	11/27/23		6.99	9.95	6.99	10.01		

Turbidity		3 months	Std Val	BLANK <0.1 NTU	LOW 1-10 NTU	BLANK <0.1 NTU	LOW 1-10 NTU	± 0.18 NTU Low 1-10	Compare to Gel LOW 1-10 Std Calibration value
	5	n/a	11/6/23	0.06	6.93	0.07	6.74	29.6-78 Read 2x	Low Std. 6.82
	2	n/a	11/6/23	0.03	6.65	0.05	6.63		Low Std. 6.60

Verification completed 12/6/23
for meter #2

- QA:
 * Are pre- and post within one week?
 * Delay times are ok?
 * Other equipment issues?

NMS Lab

Hui O Kauai Ola - Sample Collection Worksheet

Team	R2RS	Samplers (Last Name, 1st Initial)	Ervin, J. Kronberg, J. Beiser, S.					Meters and Probes ID		
Session	WM 131							HQ2200: SM 3	2100Q: SM 5	
Date	12/05/2023							pH: SM 5	DO: SM 3	Salinity: SM 7

Location Name Sample ID	Fresh water Flowing (Y/N)	Time (of collection)	Temp (°C) variable	Salinity (ppt) 30-35 normal	Dissolved Oxygen		pH 8-8.3 normal	Turbidity (NTU)	People (within 100 ft)		
					(mg/L) 5.2-7.0 normal	(%) 85-105 normal			water	beach	camp
Napili Bay RNS231205	N	8:30	25.5	35.8	6.80	100.5	8.19	2.99 ^{JF}	2.74	2.99	2.94
Pohaku RPO231205	N	9:00	25.0	35.5	6.74	99.2	8.15	14.3	15.5	16.7	0 1 0
Kaanapali Shores RKS231205	Y	9:15	25.8	35.9	6.69	99.8	8.17	2.01	1.85	2.16 ^{JF}	0 2 0
Kahakili Beach Two RKT231205	N	9:50	25.5	35.9 ^{JF} 35.9	6.58	97.8	8.13	3.14	3.95	3.15	2 0 0
Canoe Beach RCB231205	N	10:15	26.8	35.7	6.61	100.3	8.15	9.95	10.5	10.0	2 8 0
Wahikuli RWA231205	N	10:45	26.7	35.9	6.56	99.5	8.18	1.28	1.42	1.17	0 0 0

NOTES AND COMMENTS (trends, equipment problems, errors, concerns).
Use the back of the form if needed.

2nd reading of low std turbidity
Field pre-sample = 6.79
RNS large shorebreak 3-4 ft swell. sunny, light breeze
RPO - smell of sewage, breezy, murky. 3-4 ft swell. high tide
Shore break. 4m turbidity taken: 16.7
RKS - Freshwater flow from stream. 4th turb: 2.16
large swell. shore break.
RKT - calm conditions. sunny, high tide. 2 fishermen in water
RCB - calm. sunny. nearshore murky. clear 20 ft offshore
RWA - swell less than 1ft. calm. sea turtle next to sample site. turbid nearshore. clear 10ft out.

TURBIDITY VERIFICATION & PROBE TEMPERATURES

	Blank (must be <0.10)	Low (+/- 0.18)	Med (+/- 1.80)	High (+/- 18)
Turbidity Standard	0.06	6.82	60.8	607
Field - Pre-sample	0.06	7.20 ^{JF}	60.5	606
Lab - Post sample	0.06	6.79	60.9	606
Probes (+/- 0.2 °C)	Salinity	D.O.	pH	Notes
Verify Probe Temps	25.5	25.0	25.0	25.4 ^{JF}

CHAIN OF CUSTODY INFORMATION

	# of samples	Relinquished to	Contact
Nutrients	6	NMS	Christiane

Signature (Team Lead):

Printed Name:

Christien Keyhani Christiane Keyhani

Sites with potential for freshwater flow: Pohaku, Ka'anapali Shores, Canoe Beach

Last updated December 2023

Team	R2RS Tues	Samplers (Last Name, 1st Initial)	Erwin, J. Kranberg, J.			
Session	WM 131		Beiser, S.			
Date	12/05/2023					

Sample ID	Location Name	Sample taken?	Duplicate sample?	Time	Volume	Protocol Notes	Comments
Nutrients							
RNS231205-N-1	Napili Bay	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8:30	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RPO231205-N-1	Pohaku	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:00	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RKS231205-N-1	Kaanapali Shores	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:15	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RKT231205-N-1	Kahekili Beach Two	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:50	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RCB231205-N-1	Canoe Beach	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10:15	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RWA231205-N-1	Wahikuli	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10:45	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	

Sediments					500 ml		
		<input type="checkbox"/>	<input type="checkbox"/>				
		<input type="checkbox"/>	<input type="checkbox"/>				
		<input type="checkbox"/>	<input type="checkbox"/>				
		<input type="checkbox"/>	<input type="checkbox"/>				

Signature (Team Lead):

Christine Keyhani

Printed Name:

Christiane Keyhani

Hilo O Keiki - Ola - Sample Collection Datasheet

Team	Polanui	Samplers (Last Name, 1st Initial)	E. JOHNSON	M. GUND	Meters and Probes ID		
Session	WM 131		K. GUND			HQ2200: SM 3	2100Q: SM 5
Date	12/06/2023					pH: SM 5	DO: SM 3

Location Name Sample ID	Freshwater Flowing (Y/N)	Time (of collection)	Temp (°C) variable	Salinity (ppt) 30-35 normal	Dissolved Oxygen		pH 8-8.3 normal	Turbidity (NTU)	People (within 100 ft)		
					(mg/L) 5.2-7.0 normal	(%) 85-105 normal			water	beach	camp
Camp Olowalu OCO231206	N	9:09	25.4	35.8	6.47	95.8	8.08	3.48	3.21	3.52	∅
Mile Marker 14 OMM231206	N	9:37	25.4	35.8	6.39	94.7	8.03	4.0	4.13	4.19	∅
Ukumehame OUB231206	N	9:55	24.8	35.9	6.71	98.7	8.09 ^{KG} 8.09 ^{KG}	13.3 ^{KG}	12.4	13.1	12.7
Papalaua Pali OPP231206	N/A	10:12 ^{KG} 10:12	25.3	35.9	6.82	101.0	8.14	11.0	10.6	10.6	∅
									2	2	∅

NOTES AND COMMENTS (trends, equipment problems, errors, concerns).
Use the back of the form if needed.

ALL DAY -
SUNNY, LIGHT WINDS, ~~NO TIDE~~, DRIFTING CLOUDS*

OCO - CLEARING OUT KIAWE FOREST; BIG DRAINAGE DITCH (SEE PHOTOS)
4th turbidity = 3.52

OMM - LAPPING WAVES, NO SHORE BREAK
KAYAK OPERATION SET UP - ~~ONE~~ GROUP IS BEYOND 100' IN WATER

OUB - SMALL SURF, LIGHT (~1') SHORE BREAK
INCREASING CLOUD COVER
4TH TURBIDITY READ 13.3

OPP - CAR ON BEACH w/ 2 PEOPLE
SHORE BREAK ~1-2'

TURBIDITY VERIFICATION & PROBE TEMPERATURES

	Blank (must be <0.10)	Low (+/- 0.18)	Med (+/- 1.80)	High (+/- 18)
Turbidity Standard	0.06	6.82	60.8	607
Field - Pre-sample	0.06	6.78	60.9	606
Lab - Post sample	0.07	6.89	60.5	604
Probes (+/- 0.2 °C)	Salinity	D.O.	pH	Notes
Verify Probe Temps	25.4	25.1	25.2	

CHAIN OF CUSTODY INFORMATION

	# of samples	Relinquished to	Contact
Nutrients	4	NMS	EMILY JOHNSON

Signature (Team Lead):

Emily Johnson

Printed Name:

EMILY JOHNSON

Sites with potential for freshwater flow: Ukumehame

Hawaii Kai Ola - Sample Collection Datasheet

Team	Polanui
Session	WM 131
Date	12/06/2023

Samplers
(Last Name,
1st Initial)

E. JOHNSON
K. GUND

M. GUND

Sample ID	Location Name	Sample taken?	Duplicate sample?	Time	Volume	Protocol Notes	Comments
Nutrients							
OCO231206-N-1	Camp Olowalu	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:09	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
OMM231206-N-1	Mile Marker 14	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:37	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
OUN231206-N-1	Ukumehame	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:55	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
OPP231206-N-1	Papalaua Pali	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10:12	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	

Sediments

	<input type="checkbox"/>	<input type="checkbox"/>		500 ml		
	<input type="checkbox"/>	<input type="checkbox"/>		500 ml		
	<input type="checkbox"/>	<input type="checkbox"/>		500 ml		
	<input type="checkbox"/>	<input type="checkbox"/>		500 ml		

Signature (Team Lead):

Printed Name:

EMILY JOHNSON

Hawaiian Islands Sample Collection Worksheet

Team	LFR - Lahaina Fire Response	Samplers (Last Name, 1st Initial)	C. Keyhani, L. Yannell, L. Berg					Meters and Probes ID			
Session	WM 131							HQ2200: SM 4		2100Q: SM 2	
Date	12/06/2023							pH: SM 6	DO: SM 4	Salinity: SM 8	

Location Name Sample ID	Fresh water Flowing (Y/N)	Time (of collection)	Temp (°C) variable	Salinity (ppt) 30-35 normal	Dissolved Oxygen		pH 8-8.3 normal	Turbidity (NTU)	People (within 100 ft)		
					(mg/L) 5.2-7.0 normal	(%) 85-105 normal			water	beach	camp
Mala Tavern LMT231206	N	7:32a	25.4	35.4	6.50	96.0	8.00	1.20 ^{0.05}	0.45	1.29	1.21
Mala Ramp LMR231206	XN	8:01a	25.6	33.6	6.57	96.2	8.08	4.95	4.75	5.80 ^{4.15}	0
Papalaua St LPS231206	N	8:30a	25.1	35.7	6.74	99.0	8.02	2.91	2.73	3.50	0
Lahaina Harbor LLH231206	N	8:59	26.3	35.8	6.31	94.8	8.08	0.94 ^{1.18}	0.96	0.90	0
505 Front St PFF231206	N	9:32	26.5	36.0	6.70	101.1	8.11	2.20	2.36	2.39	0
Lindsey Hale PLH231206	N	10:09	26.9	35.8	6.57	100.0	8.07	7.75 ^{7.34}	7.57	8.14 ^{7.58}	0
Lahaina Town PLT231206	N	10:36	27.3	35.5	6.38	91.7	8.07	18.2 ^{18.6}	18.0	18.9	0

NOTES AND COMMENTS (trends, equipment problems, errors, concerns).
Use the back of the form if needed.

LMT - 3rd reading D.O. no change; low tide
4th turbidity = 1.20
LMR - minimal flow with seawater
flowing into the channel; water has
visible ash and slightly brown over-
all; 4th turbidity = 4.10
LPS - sunny, no wind, 4th turbidity = 4.10
LLH - boat parked at sample site, a lot less
visible oil. clarity is high, lot less
particulates. Sampled between the boat
and the harbor wall. 4th turbidity = 0.94.

Sites with potential for freshwater flow: Mala Tavern, Mala Ramp, Papalaua St., 505 Front St

PLH - 4th turbidity 7.75 5th 7.58 No swell, sunny, no wind, ~~overcast~~ clearer than usual

	Blank (must be <0.10)	Low (+/- 0.18)	Med (+/- 1.80)	High (+/- 18)
Turbidity Standard	0.04	6.60	58.3	592
Field - Pre-Sample	0.07	6.64	58.1	593
Lab - Post Sample	0.05	6.63	58.5	592
Probes (+/- 0.2 °C)	Salinity	D.O.	pH	Spare 0.05 Field 0.06 Lab
Verify Probe Temps	25.4	25.1	25.2	
CHAIN OF CUSTODY	# of Samples	Relinquish to	Contact	
Nutrients	7	NMS	Christiane	

Signature (Team Lead): Christiane Keyhani Print: Christiane Keyhani

PFF (NO) no swell, sunny, no wind, ^(clear), parking garage was ^(drained)
(505) but now flooded drawn

PET - no swell, sunny, no wind, ~~found clear~~ ^{ly}
4th Turbidity sample. = 18.6.

All sites - rained last ~~night~~ ^{week}; used spare turbidity for all samples

Spare Pre-verification = 0.05 NTU
lab-verification = 0.06 NTU

SPZ 2.82 0.0 0.0

Team	LFR-Lahaina Fire Response	Samplers (Last Name, 1st Initial)	C. Keyhani, L. Yannell, L. Berg				
Session	WM 131						
Date	12/06/2023						

Sample ID	Location Name	Sample taken?	Duplicate sample?	Time	Volume	Protocol Notes	Comments
Nutrients							
LMT231206-N-1	Mala Tavern	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7:32	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
LMR231206-N-1	Mala Ramp	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8:01	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
LPS231206-N-1	Papalaua St.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8:30	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
LLH231206-N-1	Lahaina Harbor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8:59	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
PFF231206-N-1	505 Front St	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:32	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
PLH231206-N-1	Lindsey Hale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10:09	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
PLT231206-N-1	Lahaina Town	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10:36	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	

Sediments							
		<input type="checkbox"/>	<input type="checkbox"/>			500 ml	
		<input type="checkbox"/>	<input type="checkbox"/>			500 ml	
		<input type="checkbox"/>	<input type="checkbox"/>			500 ml	

Signature: Christiane Keyhani Print: Christiane Keyhani

Hi'ialaka Ola - Sample Collection Datasheet

Team	R2RN	Samplers (Last Name, 1st Initial)	C. Hurley, L. Hutchings, D. Pestrak, C. Keyhani					Meters and Probes ID		
Session	WM 131							HQ2200: SM 3		2100Q: SM 5
Date	12/07/2023							pH: SM 5	DO: SM 3	Salinity: SM 7

Location Name Sample ID	Freshwater Flowing (Y/N)	Time (of collection)	Temp (°C) variable	Salinity (ppt) 30-35 normal	Dissolved Oxygen		pH 8-8.3 normal	Turbidity (NTU)	People (within 100 ft)		
					(mg/L) 5.2-7.0 normal	(%) 85-105 normal			water	beach	camp
Honolua Bay RHL231207	N	8:00	23.8	35.0	6.60	94.9	8.13	25.4	23.8	24.2	2
Oneloa Bay RON231207	N	8:40	25.9	36	6.75	101.6	8.13	0.62	0.59	0.61	-
Kapalua Bay RFS231207	N	9:12	25.8	35.5	6.75	101.0	8.11	2.18	2.16	3.63	-
Ka'opala Bay RKO231207	N	9:35	25.0	35.5	6.64	98.2	11.9	12.0	11.3	0	1
Kahana Village RKV231207	Y	9:58	25.9	36.1	6.78	101.7	8.18	10.8	11.5	13.0	4

from Construction

NOTES AND COMMENTS (trends, equipment problems, errors, concerns).
Use the back of the form if needed.

All sites: Rained last week

RHL - Calm water in bay, large surf offshore at the surf spot (4-5ft), low wind, shaded from sun, murky, 4th turbidity = 25.8

RON - Sunny, no wind, shore break, head high waves, 50 yards offshore, clear water Turbidity 4th reading 0.61

RFS - Sunny, no wind, no surf, but choppy water medium clarity. 4th Turbidity reading 2.02

RKO - Sunny, no wind, shore break, murky/cloudy water. Put turbidity in wrong box - crossed off. Ltl.

RKV - Sunny, no wind, shore break 1-2 ft, slightly murky, 4th Turbidity 10.4

TURBIDITY VERIFICATION & PROBE TEMPERATURES

	Blank (must be <0.10)	Low (+/- 0.18)	Med (+/- 1.80)	High (+/- 18)
Turbidity Standard	0.06	6.82	60.8	607
Field - Pre-sample	0.06	6.89	60.7	607
Lab - Post sample	0.07	6.74	61.0	606
Probes (+/- 0.2 °C)	Salinity	DO	pH	Notes
Verify Probe Temps	23.8	23.6	23.6	

CHAIN OF CUSTODY INFORMATION

	# of samples	Relinquished to	Contact
Nutrients	5	NMS	Christiane

Signature (Team Lead):

Printed Name:

Christiane Keyhani Christiane Keyhani

Sites with potential for freshwater flow: All

Last updated December 2023

Team	R2RN	Samplers (Last Name, 1st Initial)	C. Hurley, L. Hutchings			
Session	WM 131		D. Pestrak C. Keyhani			
Date	12/07/2023					

Sample ID	Location Name	Sample taken?	Duplicate sample?	Time	Volume	Protocol Notes	Comments
Nutrients							
RHL231207-N-1	Honolua Bay	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8:00	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RON231207-N-1	Oneloa Bay	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8:40	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RFS231207-N-1	Kapalua Bay	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:12	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RKO231207-N-1	Ka'opala Bay	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:35	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	
RKV231207-N-1	Kahana Village	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9:58	125 ml	Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters	

Sediments						
		<input type="checkbox"/>	<input type="checkbox"/>		500 ml	
		<input type="checkbox"/>	<input type="checkbox"/>		500 ml	
		<input type="checkbox"/>	<input type="checkbox"/>		500 ml	
		<input type="checkbox"/>	<input type="checkbox"/>		500 ml	

Signature (Team Lead):

Printed Name:

Christiane Keyhani Christiane Keyhani