

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



| Session No: | Verifiers (pre-sampling): | Pre Date: | Pre Time: | Verifiers (post-sampling): | Post Date: | Post Time: |
|-------------|---------------------------|------------|-----------|----------------------------|------------|------------|
| 115 | L. Yannel, J. Erwin | 12/20/2022 | | | | |

| QA/QC Check | Inst # | Probe # | Last Cal Date | | PRE: Verification Value | | POST: Verification Value | | Acceptable Range | Comments/ Notes | QA? |
|------------------|--------|---------|----------------|---------|-------------------------|-----------|--------------------------|-----------|--------------------------|--|-----|
| Temperature | NIST | n/a | NIST Exp. Date | Std Val | NIST | NIST | NIST | NIST | ± 0.6 °C of NIST | Compare to NIST Std value in tap water | |
| | 4 | 3 | 8/17/23 | | 26.1 °C | 26.1 °C | 31.2 | 31.2 | | | |
| | 4 | 4 | 8/17/23 | | | 25.9 | | — | | NIST Exp Aug 2023 | |
| Salinity | | | 3 months | Std Val | Tap water | Salin Std | Tap water | Salin Std | ± 1 ppt | Tap water - compare pre & post values Salinity Std - compare to value on Salinity Std bottle | |
| | 3 | 3 | 11/28/22 | | 0.23 | 34.0 | 0.14 | 33.9 | | Salinity was high in the field all week...? | |
| | 4 | 4 | 11/28/22 | | 0.23 | 33.6 | — | — | | | |
| Dissolved Oxygen | | | 1 year | Std Val | 100% | | 100% | | ± 5 % | | |
| | 3 | 1 | 8/15/22 | | 98.6 | | 98.9 | | | | |
| | 4 | 4 | 2/7/22 | | 102.9 | | — | | | | |
| 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 | 7 | 12/20/22 | | 7.02 | 9.99 | 7.03 | 10.01 | | pH 7.00 > EXP March 2023 | |
| | 4 | 6 | 12/20/22 | | 7.01 | 9.99 | — | — | | | |
| Turbidity | | | 3 months | Std Val | BLANK <0.1 | LOW 1-10 | BLANK <0.1 | LOW 1-10 | ± 0.18 NTU Low 1-10 | Compare to Gel LOW 1-10 Std Calibration value | |
| | 1 | n/a | 10/17/22 | | 0.06 | 5.72 NTU | 0.07 | 5.55 | LOW 5.72 | Low read low and sometimes out of range all week | |
| | 4 | n/a | 11/4/22 | | 0.06 | 6.42 | — | — | LOW 6.43 | Next calibration due 1/17/23 for turbidimeter #1 | |

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

O LP Lab

| | | | | | | |
|---------|------------|---|--------------------------------------|----------------------|----------|-------------|
| Team | Polanui | Samplers (Last Name, 1st Initial) | HARRIS, K GLIND, K GONZALEZ, T | Meters and Probes ID | | |
| Session | 115 | | | HQ2200: 3 | 2100Q: 1 | |
| Date | 12/21/2022 | | | pH: 7 | DO: 1 | Salinity: 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) | (%) 85-105 normal | | | | | water | beach | camp |
| 505 Front St PFF221221 | Y | 8:15 | 24.4 | 35.6 | 6.36 | 93.4 | 8.15 | 4.04 | 4.34 | 4.26 | 1 | 2 | Ø |
| Lindsey Hale PLH221221 | N | 8:40 | 24.6 | 35.9 | 6.31 | 93.1 | 8.15 | 6.69 | 6.03 | 6.26 | Ø | 1 | Ø |
| Lahaina Town PLT221221 | N | 9:02 | 24.7 | 35.9 | 6.33 | 93.6 | 8:15 | 5.23 | 4.66 | 5.03 | 8 | 5 | Ø |
| Camp Olowalu OCO221221 | N | 9:34 | 25.3 | 35.6 | 6.38 | 95.0 | 8:14 | 16.9 | 14.7 | 17.6 | Ø | Ø | ? |
| Papalaua Pali OPP221221 | N | 9:54 | 24.3 | 34.6 34.6 KUH | 6.73 | 98.9 | 8.14 | 34.9 | 33.4 | 33.3 | 2 | 2 | Ø |

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

PFF - SECOND READING OF "LOW" = 5.66
PLH - STREAMFLOW OUTLET COMPLETELY EXPOSED
PLH - 4th turbidity 5.57
PLT - 6 kayakers, 1 SUP in ocean near sample site. LOTS OF LEAVES IN NEAR SHORE WATER
DEAD PUFFER FISH OUTSIDE 100FT AREA
OCO - FULL PARKING ON BEACH. CAR CAMPING IN AT LEAST ONE.
OCO - 4th turbidity 20.2
OPP - HEAVY DEBRIS in water and samples.
Filtered our larger pieces before testing.

Sites with potential for freshwater flow: 505 Front St.

Post-Sample Turbidity LOW: 1st read = 5.52
2nd read = 5.56
3rd read = 5.54

TURBIDITY VERIFICATION

| | Blank (must be <0.10) | Low (+/- 0.18) | Med (+/- 1.80) | High (+/- 18) |
|---------------|--------------------------|-------------------|-------------------|------------------|
| Standard | 0.06 | 5.72 | 57.6 | 614 |
| Pre-sampling | 0.06 | 5.58 | 57.9 | 612 |
| Post-sampling | 0.05 | 5.56 | 57.0 | 607 |

CHAIN OF CUSTODY INFORMATION

| | # of samples | Relinquished to | Contact |
|-----------|--------------|-----------------|-------------|
| Sediment | - | - | - |
| Nutrients | 5 | OLP | Liz Yarnell |
| Bacteria | - | - | - |

Signature (Team Lead):

Liz Yarnell

Printed Name:

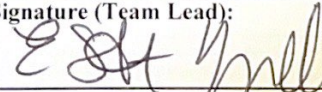
Liz Yarnell

* Big rain/flooding 12/18 - 12/19

| | | | |
|---------|------------|---|--|
| Team | Polanui | Samplers (Last Name, 1st Initial) | Harris, K. Gund, K. Gonzalez, T. |
| Session | 115 | | |
| Date | 12/21/2022 | | |

| Sample ID | Location Name | Sample taken? | Duplicate sample? | Time | Volume | Protocol Notes | Comments |
|---------------|---------------|-------------------------------------|--------------------------|------|--------|---|----------|
| Nutrients | | | | | | | |
| PFF221221-N-1 | 505 Front St | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8:15 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| PLH221221-N-1 | Lindsey Hale | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8:40 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| PLT221221-N-1 | Lahaina Town | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9:02 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| OCO221221-N-1 | Camp Olowalu | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9:34 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| OPP221221-N-1 | Papalaua Pali | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9:54 | 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: |
|  | Liz Yannell |

| | | | | | |
|---------|----------|---|----------------------|----------|-------------|
| Team | R2RN | Samplers (Last Name, 1st Initial) Hutchings, L. Hurley, C. Yannell, L. Sharpe, M. | Meters and Probes ID | | |
| Session | 115 | | HQ2200: 3 | 2100Q: 1 | |
| Date | 12/22/22 | | pH: 7 | DO: 1 | Salinity: 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) | (%) 85-105 normal | | | | | water | beach | camp |
| Honolua Bay RHL221222 | N | 8:00 | 22.3 | 35.2 | 6.54 | 92.4 | 8.12 | 38.5 | 40.4 | 42.6 | 1 | 1 | 0 |
| Oneloa Bay RON221222 | N | 8:50 | 24.9 | 36.3 | 6.71 | 99.7 | 8.17 | 1.05 | 1.04 | 1.07 | 0 | 6 | 0 |
| Kapalua Bay RFS221222 | N | 9:50 8:50 | 24.8 | 35.8 | 6.85 | 100.6 | 8.15 | 3.73 | 4.05 | 3.60 4.38 | 8 | 40 | 0 |
| Ka'opala Bay RKO221222 | N | 10:10 | 24.4 | 35.2 | 6.72 | 98.3 | 8.09 | 15.5 | 16.7 | 15.5 | 0 | 2 | 0 |
| Kahana Village RKV221222 | N | 10:45 | 25.3 | 36.1 | 6.98 | 104.1 | 8.22 | 3.32 | 3.79 | 4.67 3.46 | 0 | 2 | 0 |

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

Pre-sampling turbidity LOW: 1st read = 5.42
2nd read = 5.47
3rd read = 5.49
4th read = 5.50

RHL - organic ~~debris~~ debris
in water, brown water

RON - high tide with 2-3' shorebreak
• water looked clear
2nd salinity reading 36.3 - same

RFS: Turb 4th read 3.60, crowded beach,
unusual waves

RKO - storm debris in ocean, waves
more than normal

* Big rain/flooding 12/18-12/19

Sites with potential for freshwater flow: Honolua Bay, Kahana Village

TURBIDITY VERIFICATION

| | Blank (must be <0.10) | Low (+/- 0.18) | Med (+/- 1.80) | High (+/- 18) |
|---------------|--------------------------|-------------------|-------------------|------------------|
| Standard | 0.05 | 5.72 | 57.6 | 614 |
| Pre-sampling | 0.07 | 5.50 | 56.6 | 609 |
| Post-sampling | 0.07 | 5.54 | 57.0 | 609 |

CHAIN OF CUSTODY INFORMATION

| | # of samples | Relinquished to | Contact |
|-----------|--------------|-----------------|-------------|
| Sediment | - | - | - |
| Nutrients | 5 | OLP | Liz Yannell |
| Bacteria | - | - | - |

Signature (Team Lead):

Printed Name:

Liz Yannell

Liz Yannell

RKV: 4th Turb reading 3.46 site normal
Post-sampling turbidity LOW = 1st read 5.54; 2nd: 5.52; 3rd = 5.51; Turbidity meter #1 last calibrated on 10/17/22

| | | |
|---------|----------|--|
| Team | R2RN | Samplers (Last Name, 1st Initial) <i>Hutchings, L. Sharpe, M. Hurley, C. Yannel, L.</i> |
| Session | 115 | |
| Date | 12/22/22 | |

| Sample ID | Location Name | Sample taken? | Duplicate sample? | Time | Volume | Protocol Notes | Comments |
|---------------|----------------|-------------------------------------|--------------------------|-------|--------|---|----------|
| Nutrients | | | | | | | |
| RHL221222-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 | |
| RON221222-N-1 | Oneloa Bay | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8:50 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RFS221222-N-1 | Kapalua Bay | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9:50 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RKO221222-N-1 | Ka'opala Bay | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 10:10 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RKV221222-N-1 | Kahana Village | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 10:45 | 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): <i>Liz Yannel</i> | Printed Name: Liz Yannel |
|---|-----------------------------|

| | | | | | |
|---------|------------|--|----------------------|----------|-------------|
| Team | R2RS | Samplers (Last Name, 1st Initial) Floyd, M Bieser, S YANNELL, L | Meters and Probes ID | | |
| Session | 115 | | HQ2200: 3 | 2100Q: 1 | |
| Date | 12/23/2022 | | pH: 7 | DO: 1 | Salinity: 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) | (%) 85-105 normal | | | | | water | beach | camp |
| Napili Bay RNS221223 | Y N | 8:18 | 24.5 | 36.4 | 6.72 | 99.3 | 8.16 | 1.02 | 0.98 | 1.01 | 2 | 8 | 0 |
| Pohaku RPO221223 | N | 8:44 | 24.5 | 35.5 | 6.73 | 98.7 | 8.14 | 5.99 5.03 MF | 6.32 | 6.03 | 0 | 2 | 0 |
| Kaanapali Shores RKS221223 | Y | 9:07 | 24.8 | 36.2 | 6.74 | 99.7 | 8.17 | 2.03 | 1.89 | 2.01 | 7 | 10 | 0 |
| Kahekili Beach Two RKT221223 | N | 9:45 | 25.0 | 36.0 | 6.62 | 98.3 | 8.18 | 3.01 | 3.20 | 3.11 | 0 | 4 | 0 |
| Canoe Beach RCB221223 | N | 10:05 | 25.0 | 35.7 | 6.70 | 99.2 | 8.20 | 3.20 2.80 MF | 2.94 | 3.16 3.16 MF | 0 | 0 | 0 |
| Wahikuli RWA221223 | N | 10:34 | 25.1 | 35.5 | 6.69 | 99.1 | 8.21 | 0.81 | 0.72 | 0.71 | 0 | 0 | 0 |

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

RNS - mostly cloudy; 2-3' shorebreak
RPO - 4th turbidity reading
~2' shorebreak
RKS - fresh water narrows by bridge due to sand
back up, ~2-3' wide going into ocean.
vert steady flow. 1' swells
RKT - lots of beach erosion; tree roots exposed
on the beach
RCB - shorebreak ~3' and looks brown + murky
- 4th & 5th turbidity readings
Sites with potential for freshwater flow: Kaanapali Shores, Canoe Beach

| TURBIDITY VERIFICATION | | | | |
|------------------------|--------------------------|-------------------|-------------------|------------------|
| | Blank (must be <0.10) | Low (+/- 0.18) | Med (+/- 1.80) | High (+/- 18) |
| Standard | 0.07 | 5.72 | 57.6 | 614 |
| Pre-sampling | 0.06 | 5.58 | 56.7 | 611 |
| Post-sampling | 0.07 | 5.55 | 57.4 | 610 |

| CHAIN OF CUSTODY INFORMATION | | | |
|------------------------------|--------------|-----------------|-------------|
| | # of samples | Relinquished to | Contact |
| Sediment | - | - | - |
| Nutrients | 6 | OLP | Liz Yannell |
| Bacteria | - | - | - |

Signature (Team Lead): *Liz Yannell* Printed Name: Liz Yannell

RWA: high tide; lots of beach erosion and sand
piling up onto steps (covered in sand)

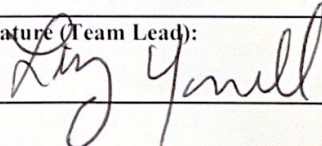
Big rain/flooding 12/18-12/19

11/1/2018 10:00 AM Sample Collection Datasheet

| | | | |
|---------|----------|---|--|
| Team | R2RS | Samplers (Last Name, 1st Initial) | Floyd, M. Bieser, S. Yannell, L. |
| Session | 115 | | |
| Date | 12/23/22 | | |

| Sample ID | Location Name | Sample taken? | Storm sample? | Time | Volume | Protocol Notes | Comments |
|---------------|--------------------|-------------------------------------|--------------------------|-------|--------|---|----------|
| Nutrients | | | | | | | |
| RNS221223-N-1 | Napili Bay | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8:18 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RPO221223-N-1 | Pohaku | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 8:44 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RKS221223-N-1 | Kaanapali Sh | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9:07 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RKT221223-N-1 | Kahekili Beach Two | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 9:45 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RCB221223-N-1 | Canoe Beach | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 10:05 | 125 ml | Washed, rinsed syringes; acid washed bottles; 0.2 um disposable filters | |
| RWA221223-N-1 | Wahikuli | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 10:34 | 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: |
|  | Liz Yannell |