

### CPVEC Data Collection Log

Page/Pages	1	2
Harbor	Wronsell	
Date (mm/dd/yy)	5-3-22	
Weather (C, PC, LR, HR)	LR	
Air Temp C		
Check w/Harbor Master (Y/N)		
Implement Boat Safety (Y/N)		
Samplers		

Clear, Partly Cloudy, Light Rain, Heavy Rain

	Meter Calibration	pH 7.0	pH 4.0	pH 10.0	DO Calibrated at 100% sat
Standard Value		7.13			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Calibrated		N			
Accept if value +/- 0.1 units of 7.0 standard temp corrected.					

Sample ID*	WR01				WR02				WR03				WR04			
Time	9:00				8:50				8:45				9:40			
Latitude	56°28.96'N				56°28.74'N				56°28.22'N				56°28.08'N			
Longitude	132°26.02'W				132°23.88'W				132°23.39'W				132°23.25'W			
Water Depth (ft)	228 ft				201 ft				145 ft				64 ft			
Photographs (No)																
Fecal (Y/N)																
Depth (m)	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Temp C	7.9	7.9	7.9	7.9	8.0	8.0	8.0	8.0	8.5	8.0	8.0	8.0	8.4	8.0	7.9	7.9
pH	8.83	8.79	8.73	8.77	8.42	8.43	8.53	8.57	8.42	8.39	8.47	8.33	8.76	8.69	8.52	8.64
Salinity (ppt)	28.25	28.24	28.27	28.28	28.19	28.21	28.21	28.21	27.77	28.2	28.23	28.24	27.69	28.20	28.31	28.37
D.O. mg/L	11.73	11.93	12.02	12.06	11.85	12.11	12.24	12.31	12.52	12.60	12.58	12.55	12.16	12.37	12.50	12.54
Notes/Comments																

\*Sample ID is combined harbor (JH or SK), Site (01-24), Date (mm/dd).

Add "R" for replicate, add "FB" for field blank, "EB" for equipment blank.

Field Blank @ 0900

### CPVEC Data Collection Log

Meter Calibration      DO Calibrated at 100% sat

Page/Pages	2	2
Harbor	Wrasell	
Date (mm/dd/yy)	5-3-22	
Weather (C, PC, LR, HR)	LR	
Air Temp C		
Check w/Harbor Master (Y/N)		
Implement Boat Safety (Y/N)		
Samplers		

Clear, Partly Cloudy, Light Rain, Heavy Rain

Standard Value Calibrated	pH 7.0	pH 4.0	pH 10.0	Yes	No
Accept if value +/- 0.1 units of 7.0 standard temp corrected.					

Sample ID*	WR05				WR06				WR04X							
Time	9:20				9:15				9:40							
Latitude	56°27.65'N				56°28.27'N				56°28.08'N							
Longitude	132°23.36'W				132°24.40'W				132°23.25'W							
Water Depth (ft)	85 ft				384 ft				64 ft							
Photographs (No)																
Fecal (Y/N)	✓				✓											
Depth (m)	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Temp C	8.2	8.1	8.0	7.9	8.0	8.0	8.0	8.0	8.4	8.0	7.9	7.9				
pH	8.44	8.43	8.45	8.35	8.47	8.46	8.49	8.45	8.62	8.60	8.60	8.57				
Salinity (ppt)	28.38	28.40	28.47	28.52	28.56	28.59	28.60	28.6	27.95	28.16	28.35	28.38				
D.O. mg/L	12.03	12.30	12.45	12.52	12.08	12.18	12.26	12.29	12.69	12.72	12.72	12.71				
Notes/Comments																

\*Sample ID is combined harbor (JH or SK), Site (01-24), Date (mm/dd).  
 Add "R" for replicate, add "FB" for field blank, "EB" for equipment blank.



May 11, 2022

Service Request No:K2204750

Jeff Davis  
Aquatic Restoration and Research Institute  
22290 S. C. Street  
P.O. Box 923  
Talkeetna, AK 99676

**Laboratory Results for: Ambient WQ-Wrangell**

Dear Jeff,

Enclosed are the results of the sample(s) submitted to our laboratory May 04, 2022  
For your reference, these analyses have been assigned our service request number **K2204750**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at [www.alsglobal.com](http://www.alsglobal.com). All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3364. You may also contact me via email at [howard.holmes@alsglobal.com](mailto:howard.holmes@alsglobal.com).

Respectfully submitted,

**ALS Group USA, Corp. dba ALS Environmental**

Howard Holmes  
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626  
PHONE +1 360 577 7222 | FAX +1 360 636 1068  
ALS Group USA, Corp.  
dba ALS Environmental



# Narrative Documents

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)



**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water

**Service Request:** K2204750  
**Date Received:** 05/04/2022

**CASE NARRATIVE**

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier II level requested by the client.

**Sample Receipt:**

Nine ocean water samples were received for analysis at ALS Environmental on 05/04/2022. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

**Metals:**

No significant anomalies were noted with this analysis.

**General Chemistry:**

No significant anomalies were noted with this analysis.

Approved by 

Date 05/11/2022



### SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

<b>CLIENT ID: WR01</b>	<b>Lab ID: K2204750-002</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Ammonia as Nitrogen	0.036		0.003	0.010	mg/L	350.1
Copper, Dissolved	0.19		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.28		0.03	0.20	ug/L	200.8
Copper	0.22		0.02	0.10	ug/L	200.8
Nickel	0.34		0.03	0.20	ug/L	200.8
Zinc	0.21	J	0.20	0.50	ug/L	200.8

<b>CLIENT ID: WR02</b>	<b>Lab ID: K2204750-003</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Ammonia as Nitrogen	0.010	J	0.003	0.010	mg/L	350.1
Copper, Dissolved	0.21		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.32		0.03	0.20	ug/L	200.8
Copper	0.26		0.02	0.10	ug/L	200.8
Nickel	0.37		0.03	0.20	ug/L	200.8
Zinc	0.32	J	0.20	0.50	ug/L	200.8

<b>CLIENT ID: WR03</b>	<b>Lab ID: K2204750-004</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Ammonia as Nitrogen	0.071		0.003	0.010	mg/L	350.1
Copper, Dissolved	0.19		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.34		0.03	0.20	ug/L	200.8
Zinc, Dissolved	0.27	J	0.20	0.50	ug/L	200.8
Copper	0.37		0.02	0.10	ug/L	200.8
Nickel	0.37		0.03	0.20	ug/L	200.8
Zinc	0.57		0.20	0.50	ug/L	200.8

<b>CLIENT ID: WR04</b>	<b>Lab ID: K2204750-005</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Ammonia as Nitrogen	0.010	J	0.003	0.010	mg/L	350.1
Copper, Dissolved	0.20		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.34		0.03	0.20	ug/L	200.8
Zinc, Dissolved	0.35	J	0.20	0.50	ug/L	200.8
Copper	0.33		0.02	0.10	ug/L	200.8
Nickel	0.38		0.03	0.20	ug/L	200.8
Zinc	0.70		0.20	0.50	ug/L	200.8

<b>CLIENT ID: WR05</b>	<b>Lab ID: K2204750-006</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Ammonia as Nitrogen	0.003	J	0.003	0.010	mg/L	350.1
Copper, Dissolved	0.17		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.29		0.03	0.20	ug/L	200.8
Zinc, Dissolved	0.24	J	0.20	0.50	ug/L	200.8



### SAMPLE DETECTION SUMMARY

This form includes only detections above the reporting levels. For a full listing of sample results, continue to the Sample Results section of this Report.

<b>CLIENT ID: WR05</b>	<b>Lab ID: K2204750-006</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Copper	0.22		0.02	0.10	ug/L	200.8
Nickel	0.33		0.03	0.20	ug/L	200.8
Zinc	0.39	J	0.20	0.50	ug/L	200.8

<b>CLIENT ID: WR06</b>	<b>Lab ID: K2204750-007</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Copper, Dissolved	0.15		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.28		0.03	0.20	ug/L	200.8
Copper	0.21		0.02	0.10	ug/L	200.8
Nickel	0.33		0.03	0.20	ug/L	200.8
Zinc	0.27	J	0.20	0.50	ug/L	200.8

<b>CLIENT ID: WR04X</b>	<b>Lab ID: K2204750-008</b>
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Analyte	Results	Flag	MDL	MRL	Units	Method
Ammonia as Nitrogen	0.004	J	0.003	0.010	mg/L	350.1
Copper, Dissolved	0.24		0.02	0.10	ug/L	200.8
Nickel, Dissolved	0.34		0.03	0.20	ug/L	200.8
Zinc, Dissolved	0.41	J	0.20	0.50	ug/L	200.8
Copper	0.38		0.02	0.10	ug/L	200.8
Nickel	0.39		0.03	0.20	ug/L	200.8
Zinc	0.70		0.20	0.50	ug/L	200.8



## Sample Receipt Information

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)



**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell

**Service Request:**K2204750

**SAMPLE CROSS-REFERENCE**

<u>SAMPLE #</u>	<u>CLIENT SAMPLE ID</u>	<u>DATE</u>	<u>TIME</u>
K2204750-001	WRFB	5/3/2022	0900
K2204750-002	WR01	5/3/2022	0900
K2204750-003	WR02	5/3/2022	0850
K2204750-004	WR03	5/3/2022	0845
K2204750-005	WR04	5/3/2022	0940
K2204750-006	WR05	5/3/2022	0920
K2204750-007	WR06	5/3/2022	0915
K2204750-008	WR04X	5/3/2022	0940
K2204750-009	Trip Blank	5/3/2022	



### Cooler Receipt and Preservation Form

PM 12

Client ARRI Service Request K22 041750  
 Received: 5/4/22 Opened: 5/4/22 By: A Unloaded: 5/4/22 By: [Signature]

1. Samples were received via? USPS Cooler ~~Fed Ex~~ ~~UPS~~ ~~DHL~~ PDX Courier ~~Hand Delivered~~
2. Samples were received in: (circle) Cooler ~~Box~~ ~~Envelope~~ ~~Other~~ ~~NA~~
3. Were custody seals on coolers? ~~NA~~ Y N If yes, how many and where? \_\_\_\_\_  
 If present, were custody seals intact? Y ~~N~~ If present, were they signed and dated? Y ~~N~~

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID/ <u>NA</u>	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number <u>NA</u>	Filed
<u>11.0</u>	<u>8.5</u>	<u>1K01</u>					✓

4. Was a Temperature Blank present in cooler? ~~NA~~ Y ~~N~~ If yes, note the temperature in the appropriate column above:  
 If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? ~~NA~~ Y N  
 If no, were they received on ice and same day as collected? If not, notate the cooler # below and notify the PM. ~~NA~~ Y N

If applicable, tissue samples were received: Frozen Partially Thawed Thawed

6. Packing material: Inserts Baggies Bubble Wrap Gel Packs Wet Ice Dry Ice Sleeves \_\_\_\_\_
7. Were custody papers properly filled out (ink, signed, etc.)? ~~NA~~ Y ~~N~~
8. Were samples received in good condition (unbroken) ~~NA~~ Y ~~N~~
9. Were all sample labels complete (ie, analysis, preservation, etc.)? ~~NA~~ Y ~~N~~
10. Did all sample labels and tags agree with custody papers? ~~NA~~ Y ~~N~~
11. Were appropriate bottles/containers and volumes received for the tests indicated? ~~NA~~ Y ~~N~~
12. Were the pH-preserved bottles (see SMO GEN SOP) received at the appropriate pH? Indicate in the table below ~~NA~~ Y ~~N~~
13. Were VOA vials received without headspace? Indicate in the table below. ~~NA~~ Y ~~N~~
14. Was C12/Res negative? ~~NA~~ Y ~~N~~
15. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? NA Y ~~N~~ Under filled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: Trip blank not on COC.



## Miscellaneous Forms

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)

### **Inorganic Data Qualifiers**

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

### **Metals Data Qualifiers**

- # The control limit criteria is not applicable.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.  
  - i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

### **Organic Data Qualifiers**

- \* The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.  
*DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.  
  - i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

### **Additional Petroleum Hydrocarbon Specific Qualifiers**

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

**ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso  
State Certifications, Accreditations, and Licenses**

<b>Agency</b>	<b>Web Site</b>	<b>Number</b>
Alaska DEH	<a href="http://dec.alaska.gov/eh/lab/cs/csapproval.htm">http://dec.alaska.gov/eh/lab/cs/csapproval.htm</a>	UST-040
Arizona DHS	<a href="http://www.azdhs.gov/lab/license/env.htm">http://www.azdhs.gov/lab/license/env.htm</a>	AZ0339
Arkansas - DEQ	<a href="http://www.adeq.state.ar.us/techsvs/labcert.htm">http://www.adeq.state.ar.us/techsvs/labcert.htm</a>	88-0637
California DHS (ELAP)	<a href="http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx">http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx</a>	2795
DOD ELAP	<a href="http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm">http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm</a>	L16-58-R4
Florida DOH	<a href="http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm">http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm</a>	E87412
Hawaii DOH	<a href="http://health.hawaii.gov/">http://health.hawaii.gov/</a>	-
ISO 17025	<a href="http://www.pjllabs.com/">http://www.pjllabs.com/</a>	L16-57
Louisiana DEQ	<a href="http://www.deq.louisiana.gov/page/la-lab-accreditation">http://www.deq.louisiana.gov/page/la-lab-accreditation</a>	03016
Maine DHS	<a href="http://www.maine.gov/dhhs/">http://www.maine.gov/dhhs/</a>	WA01276
Minnesota DOH	<a href="http://www.health.state.mn.us/accreditation">http://www.health.state.mn.us/accreditation</a>	053-999-457
Nevada DEP	<a href="http://ndep.nv.gov/bsdw/labservice.htm">http://ndep.nv.gov/bsdw/labservice.htm</a>	WA01276
New Jersey DEP	<a href="http://www.nj.gov/dep/enforcement/oqa.html">http://www.nj.gov/dep/enforcement/oqa.html</a>	WA005
New York - DOH	<a href="https://www.wadsworth.org/regulatory/elap">https://www.wadsworth.org/regulatory/elap</a>	12060
North Carolina DEQ	<a href="https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification">https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification</a>	605
Oklahoma DEQ	<a href="http://www.deq.state.ok.us/CSDnew/labcert.htm">http://www.deq.state.ok.us/CSDnew/labcert.htm</a>	9801
Oregon – DEQ (NELAP)	<a href="http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx">http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx</a>	WA100010
South Carolina DHEC	<a href="http://www.scdhec.gov/environment/EnvironmentalLabCertification/">http://www.scdhec.gov/environment/EnvironmentalLabCertification/</a>	61002
Texas CEQ	<a href="http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html">http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html</a>	T104704427
Washington DOE	<a href="http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html">http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html</a>	C544
Wyoming (EPA Region 8)	<a href="https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water">https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water</a>	-
Kelso Laboratory Website	<a href="http://www.alsglobal.com">www.alsglobal.com</a>	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at [www.ALSGlobal.com](http://www.ALSGlobal.com) or at the accreditation bodies web site.

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/analyte is offered by that state.

## Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

ALS Group USA, Corp.  
dba ALS Environmental

Analyst Summary report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell/

**Service Request:** K2204750

**Sample Name:** WRFB  
**Lab Code:** K2204750-001  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLADEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**Sample Name:** WR01  
**Lab Code:** K2204750-002  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLADEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**Sample Name:** WR02  
**Lab Code:** K2204750-003  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLADEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**Sample Name:** WR03  
**Lab Code:** K2204750-004  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLADEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS



ALS Group USA, Corp.  
dba ALS Environmental

Analyst Summary report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell/

**Service Request:** K2204750

**Sample Name:** WR04  
**Lab Code:** K2204750-005  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLAHEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**Sample Name:** WR05  
**Lab Code:** K2204750-006  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLAHEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**Sample Name:** WR06  
**Lab Code:** K2204750-007  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLAHEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**Sample Name:** WR04X  
**Lab Code:** K2204750-008  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8  
350.1

**Extracted/Digested By**  
SSOLAHEY  
ESCHLOSS

**Analyzed By**  
EMCALLISTER  
ESCHLOSS

**ALS Group USA, Corp.**  
dba ALS Environmental

Analyst Summary report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell/

**Service Request:** K2204750

**Sample Name:** Trip Blank  
**Lab Code:** K2204750-009  
**Sample Matrix:** Ocean Water

**Date Collected:** 05/3/22  
**Date Received:** 05/4/22

**Analysis Method**  
200.8

**Extracted/Digested By**  
SSOLADEY

**Analyzed By**  
EMCALLISTER



# Sample Results

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)



# Metals

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WRFB  
**Lab Code:** K2204750-001

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:00  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	ND U	ug/L	0.10	0.02	1	05/11/22 11:22	05/09/22	
Nickel	200.8	ND U	ug/L	0.20	0.03	1	05/11/22 11:22	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 11:22	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WRFB  
**Lab Code:** K2204750-001

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:00  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	ND U	ug/L	0.10	0.02	1	05/11/22 11:06	05/09/22	
Nickel	200.8	ND U	ug/L	0.20	0.03	1	05/11/22 11:06	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 11:06	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR01  
**Lab Code:** K2204750-002

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:00  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	<b>0.19</b>	ug/L	0.10	0.02	1	05/11/22 11:24	05/09/22	
Nickel	200.8	<b>0.28</b>	ug/L	0.20	0.03	1	05/11/22 11:24	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 11:24	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR01  
**Lab Code:** K2204750-002

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:00  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.22	ug/L	0.10	0.02	1	05/11/22 11:08	05/09/22	
Nickel	200.8	0.34	ug/L	0.20	0.03	1	05/11/22 11:08	05/09/22	
Zinc	200.8	0.21 J	ug/L	0.50	0.20	1	05/11/22 11:08	05/09/22	



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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR02  
**Lab Code:** K2204750-003

**Service Request:** K2204750  
**Date Collected:** 05/03/22 08:50  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.21	ug/L	0.10	0.02	1	05/11/22 11:25	05/09/22	
Nickel	200.8	0.32	ug/L	0.20	0.03	1	05/11/22 11:25	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 11:25	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR02  
**Lab Code:** K2204750-003

**Service Request:** K2204750  
**Date Collected:** 05/03/22 08:50  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.26	ug/L	0.10	0.02	1	05/11/22 11:09	05/09/22	
Nickel	200.8	0.37	ug/L	0.20	0.03	1	05/11/22 11:09	05/09/22	
Zinc	200.8	0.32 J	ug/L	0.50	0.20	1	05/11/22 11:09	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR03  
**Lab Code:** K2204750-004

**Service Request:** K2204750  
**Date Collected:** 05/03/22 08:45  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.19	ug/L	0.10	0.02	1	05/11/22 11:26	05/09/22	
Nickel	200.8	0.34	ug/L	0.20	0.03	1	05/11/22 11:26	05/09/22	
Zinc	200.8	0.27 J	ug/L	0.50	0.20	1	05/11/22 11:26	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR03  
**Lab Code:** K2204750-004

**Service Request:** K2204750  
**Date Collected:** 05/03/22 08:45  
**Date Received:** 05/04/22 12:45

**Basis:** NA

**Total Metals**

<b>Analyte Name</b>	<b>Analysis Method</b>	<b>Result</b>	<b>Units</b>	<b>MRL</b>	<b>MDL</b>	<b>Dil.</b>	<b>Date Analyzed</b>	<b>Date Extracted</b>	<b>Q</b>
Copper	200.8	<b>0.37</b>	ug/L	0.10	0.02	1	05/11/22 11:11	05/09/22	
Nickel	200.8	<b>0.37</b>	ug/L	0.20	0.03	1	05/11/22 11:11	05/09/22	
Zinc	200.8	<b>0.57</b>	ug/L	0.50	0.20	1	05/11/22 11:11	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR04  
**Lab Code:** K2204750-005

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:40  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.20	ug/L	0.10	0.02	1	05/11/22 11:28	05/09/22	
Nickel	200.8	0.34	ug/L	0.20	0.03	1	05/11/22 11:28	05/09/22	
Zinc	200.8	0.35 J	ug/L	0.50	0.20	1	05/11/22 11:28	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR04  
**Lab Code:** K2204750-005

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:40  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.33	ug/L	0.10	0.02	1	05/11/22 11:15	05/09/22	
Nickel	200.8	0.38	ug/L	0.20	0.03	1	05/11/22 11:15	05/09/22	
Zinc	200.8	0.70	ug/L	0.50	0.20	1	05/11/22 11:15	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR05  
**Lab Code:** K2204750-006

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:20  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.17	ug/L	0.10	0.02	1	05/11/22 11:32	05/09/22	
Nickel	200.8	0.29	ug/L	0.20	0.03	1	05/11/22 11:32	05/09/22	
Zinc	200.8	0.24 J	ug/L	0.50	0.20	1	05/11/22 11:32	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR05  
**Lab Code:** K2204750-006

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:20  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.22	ug/L	0.10	0.02	1	05/11/22 11:16	05/09/22	
Nickel	200.8	0.33	ug/L	0.20	0.03	1	05/11/22 11:16	05/09/22	
Zinc	200.8	0.39 J	ug/L	0.50	0.20	1	05/11/22 11:16	05/09/22	



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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR06  
**Lab Code:** K2204750-007

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:15  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.15	ug/L	0.10	0.02	1	05/11/22 11:33	05/09/22	
Nickel	200.8	0.28	ug/L	0.20	0.03	1	05/11/22 11:33	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 11:33	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR06  
**Lab Code:** K2204750-007

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:15  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.21	ug/L	0.10	0.02	1	05/11/22 11:18	05/09/22	
Nickel	200.8	0.33	ug/L	0.20	0.03	1	05/11/22 11:18	05/09/22	
Zinc	200.8	0.27 J	ug/L	0.50	0.20	1	05/11/22 11:18	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR04X  
**Lab Code:** K2204750-008

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:40  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	0.24	ug/L	0.10	0.02	1	05/11/22 11:35	05/09/22	
Nickel	200.8	0.34	ug/L	0.20	0.03	1	05/11/22 11:35	05/09/22	
Zinc	200.8	0.41 J	ug/L	0.50	0.20	1	05/11/22 11:35	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR04X  
**Lab Code:** K2204750-008

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:40  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	<b>0.38</b>	ug/L	0.10	0.02	1	05/11/22 11:19	05/09/22	
Nickel	200.8	<b>0.39</b>	ug/L	0.20	0.03	1	05/11/22 11:19	05/09/22	
Zinc	200.8	<b>0.70</b>	ug/L	0.50	0.20	1	05/11/22 11:19	05/09/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** Trip Blank  
**Lab Code:** K2204750-009

**Service Request:** K2204750  
**Date Collected:** 05/03/22  
**Date Received:** 05/04/22 12:45

**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	ND U	ug/L	0.10	0.02	1	05/11/22 11:21	05/09/22	
Nickel	200.8	ND U	ug/L	0.20	0.03	1	05/11/22 11:21	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 11:21	05/09/22	



## General Chemistry

**ALS Environmental—Kelso Laboratory**  
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Phone (360) 577-7222 Fax (360) 425-9096  
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ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WRFB  
**Lab Code:** K2204750-001

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:00  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	ND U	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

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dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR01  
**Lab Code:** K2204750-002

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:00  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	<b>0.036</b>	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	



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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR02  
**Lab Code:** K2204750-003

**Service Request:** K2204750  
**Date Collected:** 05/03/22 08:50  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	<b>0.010 J</b>	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR03  
**Lab Code:** K2204750-004

**Service Request:** K2204750  
**Date Collected:** 05/03/22 08:45  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	<b>0.071</b>	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

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dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR04  
**Lab Code:** K2204750-005

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:40  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	<b>0.010 J</b>	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR05  
**Lab Code:** K2204750-006

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:20  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	<b>0.003 J</b>	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

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Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR06  
**Lab Code:** K2204750-007

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:15  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	ND U	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** WR04X  
**Lab Code:** K2204750-008

**Service Request:** K2204750  
**Date Collected:** 05/03/22 09:40  
**Date Received:** 05/04/22 12:45  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	<b>0.004 J</b>	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	



# QC Summary Forms

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)



# Metals

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)



ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** Method Blank  
**Lab Code:** KQ2207138-01

**Service Request:** K2204750  
**Date Collected:** NA  
**Date Received:** NA  
**Basis:** NA

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	200.8	ND U	ug/L	0.10	0.02	1	05/11/22 10:58	05/09/22	
Nickel	200.8	ND U	ug/L	0.20	0.03	1	05/11/22 10:58	05/09/22	
Zinc	200.8	ND U	ug/L	0.50	0.20	1	05/11/22 10:58	05/09/22	

ALS Group USA, Corp.  
dba ALS Environmental

QA/QC Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water

**Service Request:** K2204750  
**Date Analyzed:** 05/11/22

**Duplicate Lab Control Sample Summary**  
**Total Metals**

**Units:**ug/L  
**Basis:**NA

**Lab Control Sample**  
KQ2207138-02

**Duplicate Lab Control Sample**  
KQ2207138-03

<b>Analyte Name</b>	<b>Analytical Method</b>	<b>Result</b>	<b>Spike Amount</b>	<b>% Rec</b>	<b>Result</b>	<b>Spike Amount</b>	<b>% Rec</b>	<b>% Rec Limits</b>	<b>RPD</b>	<b>RPD Limit</b>
Copper	200.8	1.92	2.00	96	1.92	2.00	96	63-128	<1	20
Nickel	200.8	1.95	2.00	97	1.96	2.00	98	88-112	<1	20
Zinc	200.8	1.99	2.00	99	1.98	2.00	99	79-133	<1	20



## General Chemistry

**ALS Environmental—Kelso Laboratory**  
1317 South 13th Avenue, Kelso, WA 98626  
Phone (360) 577-7222 Fax (360) 425-9096  
[www.alsglobal.com](http://www.alsglobal.com)

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** Method Blank  
**Lab Code:** K2204750-MB1

**Service Request:** K2204750  
**Date Collected:** NA  
**Date Received:** NA  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	ND U	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

ALS Group USA, Corp.  
dba ALS Environmental

Analytical Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water  
**Sample Name:** Method Blank  
**Lab Code:** K2204750-MB2

**Service Request:** K2204750  
**Date Collected:** NA  
**Date Received:** NA  
**Basis:** NA

General Chemistry Parameters

<u>Analyte Name</u>	<u>Analysis Method</u>	<u>Result</u>	<u>Units</u>	<u>MRL</u>	<u>MDL</u>	<u>Dil.</u>	<u>Date Analyzed</u>	<u>Date Extracted</u>	<u>Q</u>
Ammonia as Nitrogen	350.1	ND U	mg/L	0.010	0.003	1	05/10/22 13:02	05/10/22	

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water

**Service Request:** K2204750  
**Date Collected:** 05/03/22  
**Date Received:** 05/04/22  
**Date Analyzed:** 05/10/22  
**Date Extracted:** 05/10/22

**Duplicate Matrix Spike Summary**  
**Ammonia as Nitrogen**

**Sample Name:** WR05  
**Lab Code:** K2204750-006  
**Analysis Method:** 350.1  
**Prep Method:** Method

**Units:** mg/L  
**Basis:** NA

Analyte Name	Sample Result	Result	Matrix Spike K2204750-006MS		Duplicate Matrix Spike K2204750-006DMS		% Rec Limits	RPD	RPD Limit	
			Spike Amount	% Rec	Result	Spike Amount				% Rec
Ammonia as Nitrogen	0.003 J	0.210	0.200	103	0.212	0.200	104	90-110	1	20

Results flagged with an asterisk (\*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client: Aquatic Restoration and Research Institute (ARRI)
Project: Ambient WQ-Wrangell
Sample Matrix: Ocean Water

Service Request: K2204750
Date Collected: 05/03/22
Date Received: 05/04/22
Date Analyzed: 05/10/22

Replicate Sample Summary
General Chemistry Parameters

Sample Name: WR05
Lab Code: K2204750-006

Units: mg/L
Basis: NA

Table with 9 columns: Analyte Name, Analysis Method, MRL, MDL, Sample Result, Duplicate Sample K2204750-006DUP Result, Average, RPD, RPD Limit. Row 1: Ammonia as Nitrogen, 350.1, 0.010, 0.003, 0.003 J, 0.006 J, 0.00450, 62 #, 20

Results flagged with an asterisk (\*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp.  
dba ALS Environmental

QA/QC Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water

**Service Request:** K2204750  
**Date Analyzed:** 05/10/22  
**Date Extracted:** 05/10/22

**Lab Control Sample Summary**  
**Ammonia as Nitrogen**

**Analysis Method:** 350.1  
**Prep Method:** Method

**Units:** mg/L  
**Basis:** NA  
**Analysis Lot:** 763618

<b>Sample Name</b>	<b>Lab Code</b>	<b>Result</b>	<b>Spike Amount</b>	<b>% Rec</b>	<b>% Rec Limits</b>
Lab Control Sample	K2204750-LCS1	0.299	0.300	100	90-110



ALS Group USA, Corp.  
dba ALS Environmental

QA/QC Report

**Client:** Aquatic Restoration and Research Institute (ARRI)  
**Project:** Ambient WQ-Wrangell  
**Sample Matrix:** Ocean Water

**Service Request:** K2204750  
**Date Analyzed:** 05/10/22  
**Date Extracted:** 05/10/22

**Lab Control Sample Summary**  
**Ammonia as Nitrogen**

**Analysis Method:** 350.1  
**Prep Method:** Method

**Units:** mg/L  
**Basis:** NA  
**Analysis Lot:** 763618

<b>Sample Name</b>	<b>Lab Code</b>	<b>Result</b>	<b>Spike Amount</b>	<b>% Rec</b>	<b>% Rec Limits</b>
Lab Control Sample	K2204750-LCS2	0.293	0.300	98	90-110



**Admiralty**  
ENVIRONMENTAL

641 W. Willoughby Ave., Suite 301 Juneau, AK 99801 (907) 463-4415

---

Jeff Davis  
PO Box 923  
Talkeetna, AK 99676

May 12, 2022

**Aquatic Restoration & Research Institute – WRANGELL**

Date of Collection: May 3, 2022  
Sampling Location: Wrangell, Alaska

**Summary**

Six samples from the Aquatic Restoration & Research Institute were received at Admiralty Environmental, Juneau, AK on May 3, 2022.

The samples were analyzed for fecal coliform and enterococci bacteria. All laboratory acceptance criteria were met for all samples.

A complete report of the final lab results is enclosed. The official laboratory report follows this letter, and includes the analytical results, case narrative, chain of custody form, and cooler receipt form.

Kind Regards,

Diana Cote  
Admiralty Environmental



## Aquatic Restoration and Research Institute

Wrangell

May 3, 2022

Wrangell, AK

## Analytical Report

Admiralty Environmental EPA ID AK 00976

AE 28832

Sample Location	Date & Time Sampled	Fecal Coliform (FC/100mL)	Enterococci (MPN/100mL)
WR 03	5/3/2022; 08:45	2	< 10
WR 02	5/3/2022; 08:50	2	< 10
WR 01	5/3/2022; 09:00	7	< 10
WR 06	5/3/2022; 09:15	< 2	< 10
WR 05	5/3/2022; 09:20	< 2	< 10
WR 04	5/3/2022; 09:40	2	< 10

### Quality Control:

Analysis	MB	LCS	LCS Duplicate	RPD	Date/Time Commenced	Holding Time Met
FC	<2.0	---	---	---	5/3/2022; 16:30	Yes
Enterococci	---	---	---	---	5/3/2022; 16:10	Yes

### Analysis Description:

Analysis	Method	MDL	PQL	Unit
FC	SM 9222D	1.0	2.0	FC/100ml
Enterococci	ASTM D6503-99	1.0	10	MPN/100mg/L

### Case Narrative:

All sample analysis QA/QC parameters were met for this event.

### Key:

FC	Fecal Coliform
Enterococci	Enterococci
LCS	Laboratory Control Standard
MB	Method Blank
MDL	Method Detection Limit
mg/L	Milligrams Per Liter
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference

David Wetzel  
 CTO, Admiralty Environmental  
 dwetzel@admiraltyenv.com



**Admiralty Environmental**  
 641 W. Willoughby Ave, Suite 301  
 Juneau, AK 99801  
 (907) 463-4415

CHAIN OF CUSTODY/TRANSMITTAL RECORD  
 PAGE 1 of 1

<b>PROJECT NAME:</b>					<b>Aquatic Restoration and Research Institute Project: Wrangell</b>										AE 28832																								
<b>REPORT TO:</b> Jeff Davis arri@arrialaska.org			<b>PHONE#:</b>		<table border="1" style="width:100%; height: 100%; border-collapse: collapse;"> <tr> <td style="writing-mode: vertical-rl; transform: rotate(180deg);"># OF BOTTLES</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Fecal Coliform</td> <td style="writing-mode: vertical-rl; transform: rotate(180deg);">Enterococci MPN</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>														# OF BOTTLES	Fecal Coliform	Enterococci MPN																		
# OF BOTTLES	Fecal Coliform	Enterococci MPN																																					
<b>ADDRESS:</b> PO Box 923 Talkeetna, AK 99676			<b>SAMPLED BY:</b>																																				
<b>COMMENTS:</b>																																							
														<b>FIELD RESULTS</b>																									
<b>DATE</b>	<b>TIME</b>	<b>SITE DESCRIPTION /IDENTIFIER</b>			<b>MATRIX</b>																																		
5/3/2022	8:45	WRO3			H <sub>2</sub> O	1	1	1																															
5/3/2022	8:50	WRO2			H <sub>2</sub> O	1	1	1																															
5/3/22	9:00	WRO1			H <sub>2</sub> O	1	1	1																															
5/3/22	9:15	WRO6			H <sub>2</sub> O	1	1	1																															
5/3/22	9:20	WRO5			H <sub>2</sub> O	1	1	1																															
5/3/22	9:40	WRO4			H <sub>2</sub> O	1	1	1																															
<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>		<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>		Section to Be Completed by Receiving Laboratory  Temp °C: 5.75 _____ Thermo ID#: Lab#7 _____ Condition of Custody Seals: - _____ Initialed By: RC _____ Shipped Via: AKSP _____																															
Signature		Signature		Signature		Signature																																	
Printed Name		Printed Name		Printed Name		Printed Name																																	
Date		Date		Date		Date																																	
Time		Time		Time		Time																																	



# Admiralty Environmental Cooler Receipt Form

Lab: **Admiralty Environmental, LLC**  
Client: **Aquatic Restoration and Research Institute**

AE# AE 28832

Date Opened: **5/3/2022** Opened by: **R. Crocker**

## A. External Cooler Conditions

### • Local Sampling Event

1. Project ID: **Wrangell**

2. COC Attached? **yes** Properly Completed? **yes** Signed by AE employee? **yes**

Small Temp. Blank **5.75** (temp in Celsius)  
Large Temp. Blank: **n/a** (temp in Celsius)

### • Air-Transported Sampling Event

1. Project ID: **n/a**

2. COC Attached? **n/a** Properly Completed? **n/a** Signed by AE employee? **n/a**

3. Airbill attached? **n/a** Airbill #: **n/a**

4. Custody Seals? **n/a**

5. Seals intact? **n/a**

Temp. Blank: **n/a** (temp in Celsius)

COMMENTS:

## B. Sample Conditions

Number of Samples Received: **6** Packing type: **cooler**

Number of Bottles Received: **6**

1. Samples in proper bags? **yes**

2. Bottles intact? **yes**

3. Sufficient sample volume? **yes**

4. Labels agree with COC? **yes**

5. Samples delivered within holding time? **yes**

6. Sample preservation checked? **n/a**

Problems encountered: **no**

Was the project manager called? **no**

COMMENTS:

Signature: 

Date and time: 5/3/22; 1543



**Admiralty**  
ENVIRONMENTAL

641 W. Willoughby Ave., Suite 301 Juneau, AK 99801 (907) 463-4415

---

Jeff Davis  
PO Box 923  
Talkeetna, AK 99676

May 20, 2022

**Aquatic Restoration & Research Institute – Wrangell**

Date of Collection: May 11, 2022  
Sampling Location: Wrangel, Alaska

**Summary**

Six samples from the Aquatic Restoration & Research Institute were received at Admiralty Environmental, Juneau, AK on May 11, 2022.

The samples were analyzed for fecal coliform and enterococci bacteria. All laboratory acceptance criteria were met for all samples.

A complete report of the final lab results is enclosed. The official laboratory report follows this letter, and includes the analytical results, case narrative, chain of custody form, and cooler receipt form.

Kind Regards,

Diana Cote  
Admiralty Environmental



## Aquatic Restoration and Research Institute

Wrangell

May 11, 2022

Wrangell, AK

## Analytical Report

Admiralty Environmental EPA ID AK 00976

AE 28884

Sample Location	Date & Time Sampled	Fecal Coliform (FC/100mL)	Enterococci (MPN/100mL)
WRG 01	5/11/2022; 08:45	< 2.0	< 10
WRG 02	5/11/2022; 08:41	< 2.0	< 10
WRG 03	5/11/2022; 08:35	< 2.0	< 10
WRG 04	5/11/2022; 09:05	< 2.0	2.0
WRG 05	5/11/2022; 09:00	< 2.0	< 10
WRG 06	5/11/2022; 08:52	< 2.0	< 10

### Quality Control:

Analysis	MB	LCS	LCS Duplicate	RPD	Date/Time Commenced	Holding Time Met
FC	<2.0	---	---	---	5/11/2022; 15:30	Yes
Enterococci	---	---	---	---	5/11/2022; 15:29	Yes

### Analysis Description:

Analysis	Method	MDL	PQL	Unit
FC	SM 9222D	1.0	2.0	FC/100ml
Enterococci	ASTM D6503-99	1.0	10	MPN/100mg/L

### Case Narrative:

All sample analysis QA/QC parameters were met for this event.

### Key:

FC	Fecal Coliform
Enterococci	Enterococci
LCS	Laboratory Control Standard
MB	Method Blank
MDL	Method Detection Limit
mg/L	Milligrams Per Liter
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference

David Wetzel  
 CTO, Admiralty Environmental  
 dwetzel@admiraltyenv.com



**Admiralty Environmental**  
 641 W. Willoughby Ave, Suite 301  
 Juneau, AK 99801  
 (907) 463-4415

CHAIN OF CUSTODY/TRANSMITTAL RECORD  
 PAGE 1 of 1

PROJECT NAME: <b>Aquatic Restoration and Research Institute</b>					Project: <b>Wrangell</b>					AE 28884								
REPORT TO: Jeff Davis arri@arrialaska.org			PHONE#:		# OF BOTTLES	Fecal Coliform	Enterococci MPN											
ADDRESS: PO Box 923 Talkeetna, AK 99676			SAMPLED BY: <b>JOHN A. YEAGER</b> WRANGELL, AK															
COMMENTS:																		
FIELD RESULTS																		
DATE	TIME	SITE DESCRIPTION /IDENTIFIER			MATRIX									pH	Temp	D.O.		
5/11/22	0845	WRG 01			H <sub>2</sub> O	1	1	1										
	0841	WRG 02			H <sub>2</sub> O	1	1	1										
	0835	WRG 03			H <sub>2</sub> O	1	1	1										
	0905	WRG 04			H <sub>2</sub> O	1	1	1										
	0900	WRG 05			H <sub>2</sub> O	1	1	1										
	0852	WRG 06			H <sub>2</sub> O	1	1	1										
RELINQUISHED BY:		RECEIVED BY:			RELINQUISHED BY:		RECEIVED BY:			Section 15-BB Completed by Receiving Laboratory								
Signature		Signature			Signature		Signature											
Printed Name		Printed Name			Printed Name		Printed Name											
Date		Date			Date		Date											
Time		Time			Time		Time											
Temp °C:		Thermo ID#:			Condition of Custody Seals		Initialed By:			Shipped Via:								
		5.69			Lab # 7		✓			Dew								





# Admiralty Environmental Cooler Receipt Form

Lab: Admiralty Environmental, LLC  
Client: ARRI

AE# AE 28884

Date Opened: 5/11/2022 Opened by: D. Wetzel

## A. External Cooler Conditions

### • Local Sampling Event

1. Project ID: n/a

2. COC Attached? n/a Properly Completed? n/a Signed by AE employee? n/a

Small Temp. Blank: n/a (temp in Celsius)  
Large Temp. Blank: n/a (temp in Celsius)

### • Air-Transported Sampling Event

1. Project ID: Wrangell

2. COC Attached? yes Properly Completed? yes Signed by AE employee? yes

3. Airbill attached? yes Airbill #: 027-7498-9972

4. Custody Seals? yes

5. Seals intact? yes

Temp. Blank: 5.69 (temp in Celsius)

COMMENTS:

## B. Sample Conditions

Number of Samples Received: 6 Packing type: cooler

Number of Bottles Received: 6

1. Samples in proper bags? yes

2. Bottles intact? yes

3. Sufficient sample volume? yes

4. Labels agree with COC? yes

5. Samples delivered within holding time? yes

6. Sample preservation checked? n/a

Problems encountered: no

Was the project manager called? no

COMMENTS:

Signature: 

Date and time: 5/11/22 1455



**Admiralty**  
ENVIRONMENTAL

641 W. Willoughby Ave., Suite 301 Juneau, AK 99801 (907) 463-4415

---

Jeff Davis  
PO Box 923  
Talkeetna, AK 99676

May 31, 2022

**Aquatic Restoration & Research Institute – Wrangell**

Date of Collection: May 19, 2022  
Sampling Location: Wrangell, Alaska

**Summary**

Six samples from the Aquatic Restoration & Research Institute were received at Admiralty Environmental, Juneau, AK on May 19, 2022.

The samples were analyzed for fecal coliform and enterococci bacteria. All laboratory acceptance criteria were met for all samples.

A complete report of the final lab results is enclosed. The official laboratory report follows this letter, and includes the analytical results, case narrative, chain of custody form, and cooler receipt form.

Kind Regards,

Diana Cote  
Admiralty Environmental



## Aquatic Restoration and Research Institute

Wrangell  
 May 19, 2022  
 Wrangell, AK

## Analytical Report

Admiralty Environmental EPA ID AK 00976  
 AE 29005

Sample Location	Date & Time Sampled	Fecal Coliform (FC/100mL)	Enterococci (MPN/100mL)
WRG 03	5/19/2022; 08:15	< 2.0	< 10
WRG 02	5/19/2022; 08:25	< 2.0	< 10
WRG 01	5/19/2022; 08:30	< 2.0	< 10
WRG 06	5/19/2022; 08:36	< 2.0	< 10
WRG 05	5/19/2022; 08:45	3	< 10
WRG 04	5/19/2022; 08:55	2	< 10

### Quality Control:

Analysis	MB	LCS	LCS Duplicate	RPD	Date/Time Commenced	Holding Time Met
FC	<2.0	---	---	---	5/19/2022; 15:44	Yes
Enterococci	---	---	---	---	5/19/2022; 15:35	Yes

### Analysis Description:

Analysis	Method	MDL	PQL	Unit
FC	SM 9222D	1.0	2.0	FC/100ml
Enterococci	ASTM D6503-99	1.0	10	MPN/100mg/L

### Case Narrative:

All sample analysis QA/QC parameters were met for this event.

### Key:

FC	Fecal Coliform
Enterococci	Enterococci
LCS	Laboratory Control Standard
MB	Method Blank
MDL	Method Detection Limit
mg/L	Milligrams Per Liter
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference

David Wetzel  
 CTO, Admiralty Environmental  
 dwetzel@admiraltyenv.com



**Admiralty Environmental**  
 641 W. Willoughby Ave, Suite 301  
 Juneau, AK 99801  
 (907) 463-4415

CHAIN OF CUSTODY/TRANSMITTAL RECORD  
 PAGE 1 of 1

<b>PROJECT NAME:</b> <b>Aquatic Restoration and Research Institute</b>				<b>Project: Wrangell</b>				<b>AE 29005</b>									
<b>REPORT TO:</b> Jeff Davis arri@arrialaska.org		<b>PHONE#:</b>		# OF BOTTLES Fecal Coliform Enterococci MPN													
<b>ADDRESS:</b> PO Box 923 Talkeetna, AK 99676		<b>SAMPLED BY:</b> John A. Yeager 907-470-4001															
<b>COMMENTS:</b>																	
												<b>FIELD RESULTS</b>					
<b>DATE</b>	<b>TIME</b>	<b>SITE DESCRIPTION /IDENTIFIER</b>	<b>MATRIX</b>									<b>pH</b>	<b>Temp</b>	<b>D.O.</b>			
5/19/22	0815	WRG 03	H <sub>2</sub> O	1	1	1											
	0825	WRG 02	H <sub>2</sub> O	1	1	1											
	0830	WRG 01	H <sub>2</sub> O	1	1	1											
	0836	WRG 06	H <sub>2</sub> O	1	1	1											
	0845	WRG 05	H <sub>2</sub> O	1	1	1											
	0855	WRG 04	H <sub>2</sub> O	1	1	1											
<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>		<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>		<b>Section A/B/C Completed by Receiving Laboratory</b>									
Signature		Signature		Signature		Signature											
Printed Name		Printed Name		Printed Name		Printed Name											
Date		Date		Date		Date											
Time		Time		Time		Time											
John A. Yeager		David Wetzel						Temp °C: 5.39 _____ Thermo ID#: Lab # 7 _____ Condition of Custody Seals: <input checked="" type="checkbox"/> _____ Initialed By: JW _____ Shipped Via: _____									



# Admiralty Environmental Cooler Receipt Form

Lab: Admiralty Environmental, LLC  
Client: ARRI

AE# AE 29005

Date Opened: 5/19/2022 Opened by: D. Wetzel

## A. External Cooler Conditions

### • Local Sampling Event

1. Project ID: n/a

2. COC Attached? n/a      Properly Completed? n/a      Signed by AE employee? n/a

Small Temp. Blank: n/a      (temp in Celsius)

Large Temp. Blank: n/a      (temp in Celsius)

### • Air-Transported Sampling Event

1. Project ID: Wrangell

2. COC Attached? yes      Properly Completed? yes      Signed by AE employee? yes

3. Airbill attached? yes      Airbill #: 027 WRG 7499 0510

4. Custody Seals? yes

5. Seals intact? yes

Temp. Blank: 5.39      (temp in Celsius)

COMMENTS:

## B. Sample Conditions

Number of Samples Received: 6      Packing type: cooler

Number of Bottles Received: 6

1. Samples in proper bags? yes

2. Bottles intact? yes

3. Sufficient sample volume? yes

4. Labels agree with COC? yes

5. Samples delivered within holding time? yes

6. Sample preservation checked? n/a

Problems encountered: no

Was the project manager called? no

COMMENTS:

Signature: \_\_\_\_\_

Date and time: \_\_\_\_\_

5/19/22 1429



**Admiralty**  
ENVIRONMENTAL

641 W. Willoughby Ave., Suite 301 Juneau, AK 99801 (907) 463-4415

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Jeff Davis  
PO Box 923  
Talkeetna, AK 99676

June 6, 2022

**Aquatic Restoration & Research Institute – Wrangell**

Date of Collection: May 25, 2022  
Sampling Location: Wrangell, Alaska

**Summary**

Six samples from the Aquatic Restoration & Research Institute were received at Admiralty Environmental, Juneau, AK on May 25, 2022.

The samples were analyzed for fecal coliform and enterococci bacteria. All laboratory acceptance criteria were met for all samples.

A complete report of the final lab results is enclosed. The official laboratory report follows this letter, and includes the analytical results, case narrative, chain of custody form, and cooler receipt form.

Kind Regards,

Diana Cote  
Admiralty Environmental



## Aquatic Restoration and Research Institute

Wrangell  
 May 25, 2022  
 Wrangell, AK

## Analytical Report

Admiralty Environmental EPA ID AK 00976  
 AE 29123

Sample Location	Date & Time Sampled	Fecal Coliform (FC/100mL)	Enterococci (MPN/100mL)
WRG 03	5/25/2022; 08:08	<2.0	<10
WRG 02	5/25/2022; 08:15	5.0	<10
WRG 01	5/25/2022; 08:20	3.0	<10
WRG 06	5/25/2022; 08:25	<2.0	<10
WRG 05	5/25/2022; 08:32	<2.0	<10
WRG 04	5/25/2022; 08:38	<2.0	<10

### Quality Control:

Analysis	MB	LCS	LCS Duplicate	RPD	Date/Time Commenced	Holding Time Met
FC	<2.0	---	---	---	5/25/2022; 16:00	Yes
Enteroc	---	---	---	---	5/25/2022; 15:58	Yes

### Analysis Description:

Analysis	Method	MDL	PQL	Unit
FC	SM 9222D	1.0	2.0	FC/100ml
Enteroc	ASTM D6503-99	1.0	10	MPN/100mg/L

### Case Narrative:

All sample analysis QA/QC parameters were met for this event.

### Key:

FC	Fecal Coliform
Enteroc	Enterococci
LCS	Laboratory Control Standard
MB	Method Blank
MDL	Method Detection Limit
mg/L	Milligrams Per Liter
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference

David Wetzel  
 CTO, Admiralty Environmental  
 dwetzel@admiraltyenv.com







# Admiralty Environmental Cooler Receipt Form

Lab: Admiralty Environmental, LLC  
Client: ARRI

AE# AE 29123

Date Opened: 5/25/2022 Opened by: A. Torrance

## A. External Cooler Conditions

### • Local Sampling Event

1. Project ID: n/a

2. COC Attached? n/a Properly Completed? n/a Signed by AE employee? n/a

Small Temp. Blank: n/a (temp in Celsius)  
Large Temp. Blank: n/a (temp in Celsius)

### • Air-Transported Sampling Event

1. Project ID: Wrangell

2. COC Attached? yes Properly Completed? yes Signed by AE employee? yes

3. Airbill attached? no Airbill #: n/a

4. Custody Seals? yes

5. Seals intact? yes

Temp. Blank: 4.20 (temp in Celsius)

COMMENTS:

## B. Sample Conditions

Number of Samples Received: 6 Packing type: cooler  
Number of Bottles Received: 6

1. Samples in proper bags? yes

2. Bottles intact? yes

3. Sufficient sample volume? yes

4. Labels agree with COC? yes

5. Samples delivered within holding time? yes

6. Sample preservation checked? n/a

Problems encountered: no

Was the project manager called? no

COMMENTS:

Signature: 

Date and time: 5/25/22; 1445



**Admiralty**  
ENVIRONMENTAL

641 W. Willoughby Ave., Suite 301 Juneau, AK 99801 (907) 463-4415

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Jeff Davis  
PO Box 923  
Talkeetna, AK 99676

June 13, 2022

**Aquatic Restoration & Research Institute – Wrangell**

Date of Collection: June 1, 2022  
Sampling Location: Wrangell, Alaska

**Summary**

Six samples from the Aquatic Restoration & Research Institute were received at Admiralty Environmental, Juneau, AK on June 1, 2022.

The samples were analyzed for fecal coliform and enterococci bacteria. All laboratory acceptance criteria were met for all samples.

A complete report of the final lab results is enclosed. The official laboratory report follows this letter, and includes the analytical results, case narrative, chain of custody form, and cooler receipt form.

Kind Regards,

Diana Cote  
Admiralty Environmental



## Aquatic Restoration and Research Institute

Wrangell  
 June 1, 2022  
 Wrangell, AK

## Analytical Report

Admiralty Environmental EPA ID AK 00976  
 AE 29201

Sample Location	Date & Time Sampled	Fecal Coliform (FC/100mL)	Enterococci (MPN/100mL)
WRG 03	6/1/2022; 08:33	2.0	<10
WRG 02	6/1/2022; 08:40	<2.0	<10
WRG 01	6/1/2022; 08:43	13	<10
WRG 06	6/1/2022; 08:49	<2.0	<10
WRG 05	6/1/2022; 08:54	2.0	<10
WRG 04	6/1/2022; 08:58	<2.0	<10

### Quality Control:

Analysis	MB	LCS	LCS Duplicate	RPD	Date/Time Commenced	Holding Time Met
FC	<2.0	---	---	---	6/1/2022; 16:00	Yes
Enterococci	---	---	---	---	6/1/2022; 15:20	Yes

### Analysis Description:

Analysis	Method	MDL	PQL	Unit
FC	SM 9222D	1.0	2.0	FC/100ml
Enterococci	ASTM D6503-99	1.0	10	MPN/100mg/L

### Case Narrative:

All sample analysis QA/QC parameters were met for this event.

### Key:

FC	Fecal Coliform
Enterococci	Enterococci
LCS	Laboratory Control Standard
MB	Method Blank
MDL	Method Detection Limit
mg/L	Milligrams Per Liter
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference

David Wetzel  
 CTO, Admiralty Environmental  
 dwetzel@admiraltyenv.com



**Admiralty Environmental**  
 641 W. Willoughby Ave, Suite 301  
 Juneau, AK 99801  
 (907) 463-4415

CHAIN OF CUSTODY/TRANSMITTAL RECORD  
 PAGE 1 of 1

<b>PROJECT NAME:</b> <b>Aquatic Restoration and Research Institute</b>				<b>Project: Wrangell</b>				AE 29201											
<b>REPORT TO:</b> Jeff Davis arri@arrialaska.org		<b>PHONE#:</b>		# OF BOTTLES		Fecal Coliform						Enterococci MPN							
<b>ADDRESS:</b> PO Box 923 Talkeetna, AK 99676		<b>SAMPLED BY:</b> John A. Yeager 907-470-4001																	
<b>COMMENTS:</b>																			
<b>DATE</b>	<b>TIME</b>	<b>SITE DESCRIPTION /IDENTIFIER</b>	<b>MATRIX</b>											<b>FIELD RESULTS</b>					
														pH	Temp	D.O.			
6/1/22	0833	WRG 03	H <sub>2</sub> O	1	1	1													
	0840	WRG 02	H <sub>2</sub> O	1	1	1													
	0843	WRG 01	H <sub>2</sub> O	1	1	1													
	0849	WRG 06	H <sub>2</sub> O	1	1	1													
	0854	WRG 05	H <sub>2</sub> O	1	1	1													
	0858	WRG 04	H <sub>2</sub> O	1	1	1													
<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>		<b>RELINQUISHED BY:</b>		<b>RECEIVED BY:</b>		Section 0803 completed by Receiving Laboratory Temp °C: 7.17 Thermo ID#: WA6#7 Condition of Custody Seals: <input checked="" type="checkbox"/> Initialed By: <i>HAH</i> Shipped Via: <i>AK AIR</i>											
Signature		Signature		Signature		Signature													
Printed Name		Printed Name		Printed Name		Printed Name													
Date		Date		Date		Date													
Time		Time		Time		Time													
<i>[Signature]</i>		<i>[Signature]</i>																	
John A. Yeager		[Signature]																	
6-1-22		6/1/22																	
0930		1455																	



# Admiralty Environmental Cooler Receipt Form

Lab: Admiralty Environmental, LLC  
Client: ARRI

AE# AE 29201

Date Opened: 6/1/2022 Opened by: H.O'Neil

## A. External Cooler Conditions

### • Local Sampling Event

1. Project ID: n/a

2. COC Attached? n/a      Properly Completed? n/a      Signed by AE employee? n/a

Small Temp. Blank: n/a      (temp in Celsius)

Large Temp. Blank: n/a      (temp in Celsius)

### • Air-Transported Sampling Event

1. Project ID: Wrangell

2. COC Attached? yes      Properly Completed? yes      Signed by AE employee? yes

3. Airbill attached? no      Airbill #: no

4. Custody Seals? yes

5. Seals intact? yes

Temp. Blank: 7.17      (temp in Celsius)

COMMENTS:

## B. Sample Conditions

Number of Samples Received: 6      Packing type: cooler

Number of Bottles Received: 6

1. Samples in proper bags? yes

2. Bottles intact? yes

3. Sufficient sample volume? yes

4. Labels agree with COC? yes

5. Samples delivered within holding time? yes

6. Sample preservation checked? n/a

Problems encountered: no

Was the project manager called? no

COMMENTS:

Signature: \_\_\_\_\_

Date and time: \_\_\_\_\_

6/1/22; 1455