Alaska Department of Environmental Conservation
Waterbody Field Report
Eagle River: Eagle River, Alaska

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Abstract

In 2020 and 2021, Eagle River was sampled at a single location for fecal coliform and *Escherichia coli (E. coli)* as part of the Anchorage Creeks and Lakes Pathogen Survey.[2] In both years, fecal coliform results exceeded water quality criteria; however, more information was needed. In spring and summer 2024, water samples were collected from four sites along the main stem Eagle River and South Fork Eagle River. Neither assessment unit had exceedances of water quality criteria, though the North Fork sample site showed elevated levels of fecal coliform during the summer sampling events. No quantifiable results for human, dog, or bird genetic markers were detected. After a second year of sampling is complete, these data will be evaluated to determine if Eagle River is meeting water quality criteria for pathogens.

Basic Waterbody Information

Table 1. Basic Waterbody Information

Assessment Unit ID (AUID)	AK_R_2040103_003_004	AK_R_2040103_003_007
Assessment Unit Name	Eagle River	South Fork Eagle River
Location description	Eagle River (Municipality of Anchorage), Alaska	
Hydrologic unit code	190204010306	190204010305
Water Type	River	
Area sampled	Three sites: one on the North Fork and two between the South Fork confluence and the Glenn Highway Bridge	One site approximately one kilometer upstream of the confluence with the main stem.
Time of year sampled	May 2 – September 23, 2024	

Water Quality Evaluation

Background

The Eagle River watershed is located north and east of Anchorage and drains approximately 45 square miles before discharging into Knik Arm. The upper watershed is located within the

[1] Nonpoint Source Pollution, Water Quality, Division of Water, Department of Environmental Conservation
[2] 2022. ADEC. Anchorage Creeks and Lakes Pathogen Survey 2020-2021 Final Report. Juneau, Alaska.

Chugach Mountains and Chugach State Park and is largely undisturbed. Much of lower Eagle River is located within Joint Base Elmendorf-Richardson, limiting public access. Eagle River is not currently listed as impaired for fecal coliform. In 2020 and 2021, Eagle River was sampled for fecal coliform and *E. coli* as part of the Anchorage Creeks and Lakes Pathogen Survey.[3] In both years, fecal coliform results exceeded water quality criteria, with preliminary analysis suggesting that stormwater runoff contributed to the elevated levels. Microbial Source Tracking (MST) analyses, as part of that study, detected no markers for human, bird, or dog sources of pathogens. The objective of this study was to determine whether Eagle River is meeting water quality criteria for fecal coliform and *E. coli.* Water quality criteria for pathogens in freshwater are specified in Alaska's Water Quality Standards 18 AAC 70.020(2) as summarized in Table 2.

Table 2. Water quality criteria for freshwater supply and recreation designated uses 18 AAC 70.020(2)

Designated Use	**Freshwater Criteria**
(A) Water Supply (i) drinking, culinary, and food processing[4]	In a 30-day period, the geometric mean may not exceed 20 fecal coliform colony forming units (cfu)/100 ml, and not more than 10% of the samples may exceed 40 fecal coliform cfu/100 ml.
(B) Water Recreation (i) contact recreation	In a 30-day period, the geometric mean of samples may not exceed 126 *Escherichia coli (E. coli)* cfu/100 ml, and not more than 10% of the samples may exceed a statistical threshold value of 410 *E. coli* cfu/100 ml.

Objective

The objective of this project is to determine if Eagle River is meeting water quality criteria for pathogens by collecting assessment level data at multiple locations during open water months. This report will present results from the 2024 sampling season. DEC's listing methodology for pathogens requires two years of data for assessment in the Integrated Report; a full analysis will be completed after the 2025 field season.

Quality Assurance Review

This project followed DEC's Water Quality Programmatic Quality Assurance Project Plan, the project sampling plan[5], and standard operating procedures for pathogen sample collection and AquaTROLL operation. Field staff were trained in water sample collection methods. Some sample event dates were adjusted slightly from the original date specified in the sampling plan, but all sample events occurred in the same week as originally planned. Data collected equated to 100 % project completeness.

All samples were delivered to DEC's Environmental Health Laboratory well within the 6-hour hold time requirement, and cooler temperatures were 6 degrees Celsius (C) or cooler. All

[3] 2022. ADEC. Anchorage Creeks and Lakes Pathogen Survey 2020-2021 Final Report. Juneau, Alaska.
[4] The applicable use for assessing marine waters is 18 AAC 70.010(b)(14)(A) Water Supply (ii) seafood processing.
[5] QAPP and SAP available from DEC Water Quality Program

quality control field replicate sample pairs were within 60% relative percent difference (RPD) except for three sample pairs. Due to low bacteria counts and the nature of bacteria growth, DEC's Quality Assurance Officer determined that the exceedance of the 60% RPD did not mean the data were invalid.

All AquaTROLL calibration and verification records were stored digitally as well as in a hard copy logbook kept in the instrument case. On 9/11/2024, the AquaTROLL turbidity sensor failed verification and turbidity measurements for that day were rejected. The turbidity sensor was replaced prior to the next sampling event.

Methods

DEC staff collected water samples and took in situ measurements of Eagle River at four locations (Figure 1 and Table 3). Six sample events were completed in spring 2024, six in early summer 2024, and six in late summer 2024 (Table 2). Each set of six sample events occurred within 30 days, as required by DEC's pathogen water quality criteria and listing methodology for pathogens[6] . Water samples were analyzed for fecal coliform bacteria and *E. coli* by the DEC Environmental Health Laboratory in Anchorage, AK. Duplicate samples were collected at one rotating location for each sampling event. At one event per season, water samples were collected, filtered, preserved, and shipped to LuminUltra for Microbial Source Tracking genetic analysis for human, bird, and dog *Bacteroides* DNA markers. Due to budget constraints, on June 14, MST samples were collected at only ER-SF and ER-VFW; this did not coincide with a pathogen sampling event.

During each sample event, an In Situ AquaTROLL 500 was used at each site to record in situ measurements for pH, specific conductance, water temperature, dissolved oxygen, and turbidity. Photos were taken at each site during each sampling event.

[6] 2019. ADEC. Listing Methodology for Determining Water Quality Impairment from Pathogens. Juneau, Alaska.

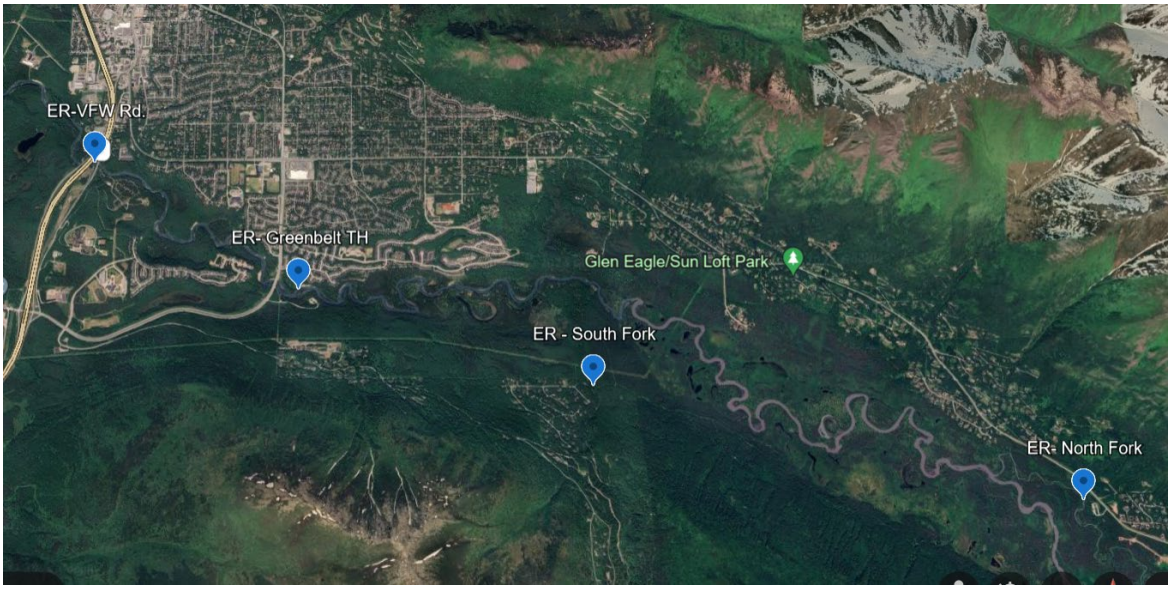

Figure 1. Eagle River pathogen sampling sites. The main stem site farthest upstream is Eagle River at North Fork and the main stem site farthest downstream is Eagle River at VFW Road. Eagle River South Fork is a separate assessment unit and joins into the main stem between the North Fork and Greenbelt sites.

Figure 2. Looking upstream at the North Fork sample site.

Figure 3. Looking upstream at the South Fork sample site.

Figure 4.Looking upstream at the Greenbelt sample site.

Figure 5. Looking upstream at the VFW Road sample site.

Figure 6. Water Quality Program staff use a dipper pole to collect water samples at the Eagle River Greenbelt site.

Table 3. Locations for water quality sampling and in situ monitoring along Eagle River

Site ID	Description	Latitude	Longitude
ER-NF	Eagle River North Fork accessed from North Fork Trailhead	61.27735	-149.38103
ER-SF	Eagle River South Fork downstream of bridge by South Fork (Barbara) Falls Trailhead	61.288092	-149.476331
ER-GB	Eagle River by Eagle River Greenbelt Trailhead	61.297502	-149.535363
ER-VFW	Eagle River under VFW Road	61.310309	-149.57826

Table 4. Summary of sampling seasons for 2024.

Season	Sampling Date Range	Number of Sample Events
Spring 2024	5/2-5/29/2024	6
Early summer 2024	7/9-7/31/2024	6
Late summer 2024	8/27-9/23/2024	6

Results

Results are analyzed and discussed by assessment unit (AUID). Three sites (ER-NF, ER-GB, and ER-VFW) were sampled on the main stem of Eagle River (AUID AK_R_2040103_003_004) and one site (ER-SF) was sampled on South Fork Eagle River (AUID AK_R_2040103_003_007). Water quality criteria for pathogens include both a geometric mean (geomean) criterion and a specific threshold criterion which not more than ten percent of samples may exceed. Thirty-day geomeans were calculated for periods in which at least five samples were collected, for a total of nine geomeans for each assessment unit. For each non-detect result, a value of half the detection level was used in the geomean calculations. All pathogen results are listed in Appendix A. AUID geomeans are listed in Appendix B, and individual site geomeans are listed in Appendix C. South Fork Eagle River typically had lower fecal coliform and *E. coli* levels than the main stem of Eagle River (Figure 7), though on 9/17, South Fork had the highest levels of *E. coli* and fecal coliform of the four sample sites (Figure 10).

Eagle River Main Stem

On the main stem of Eagle River, fecal coliform results ranged from non-detected to 85 cfu/100 ml (ER-NF, 7/29/2024; Figures 8, 9, and 10). *E. coli* results ranged from non-detected to 127.4 MPN/100ml (ER-NF, 5/29/2024; Figures 8, 9, and 10). Of the calculated 30-day geometric means for fecal coliform on the main stem, there were none that exceeded the 20cfu/100 ml criterion (Table 5). Of the calculated *E. coli* geomeans, none exceeded the 126 MPN/100 ml geomean criterion (Table 7). There were two fecal coliform samples along the main stem that exceeded 40 cfu/100ml; however, they represented only 3.7% of the main stem samples and

were not enough to constitute an exceedance of the 10% criterion (Table 6). No *E. coli* samples from the main stem exceeded the not to exceed criterion of 410 MPN/ 100ml (Table 8).

No genetic markers were detected at any of the main stem sites for any of the sample events (Table 9).

During the sample season, water temperature on main stem Eagle River averaged 6.2°C. Dissolved oxygen averaged 12.3 mg/L and the average pH was 7.86. The average specific conductance was 227.3 µS/cm and the average of total dissolved solids was 0.15 ppt (Table 10).

South Fork Eagle River

On the South Fork Eagle River, fecal coliform results ranged from non-detected to 53 cfu/100ml, and *E. coli* results ranged from non-detected to 85.5 MPN/100 ml (Figures 8, 9, and 10). Of the calculated fecal coliform geomeans, none exceeded the 20 cfu/100 ml criterion, and none of the calculated *E. coli* geomeans exceeded the 126 MPN/100 ml criterion (Tables 5 and 7). One fecal coliform sample exceeded 40 cfu/100 ml; this sample represented only 5.6% of the South Fork samples and was not enough to constitute an exceedance of the 10% criterion (Table 6). No *E. coli* samples from South Fork Eagle River exceeded the not to exceed criterion of 410 MPN/100 ml (Table 8).

In the late summer MST sampling at South Fork, canine genetic markers were detected, but not quantified, suggesting very low target abundance (Table 9). No other genetic markers were detected at South Fork during the 2024 season.

For South Fork Eagle River, water temperature averaged 6.6°C. Dissolved oxygen averaged 12.6 mg/L and the average pH was 8.0. The average specific conductance was 208.4 µS/cm and the average of total dissolved solids was 0.14 ppt (Table 10).

Table 5. Summary of geomean exceedances for fecal coliform on both assessment units of Eagle River. For each non-detect result, a value of half the detection limit was used in the geomean calculation.

Evaluated area	**Number of calculated 30-day geometric means**	**Exceed 20 cfu/100 ml**	
		Number	*Percent*
Eagle River Main Stem	9	0	0%
South Fork Eagle River	9	0	0%

Table 6. Summary of not-to-exceed exceedances for fecal coliform on both assessment units of Eagle River.

Evaluated area	**Number of observations**	**Exceed 40 cfu/100 ml**		
		Number	Percent	More than 10% of samples
Eagle River Main Stem	54	2	3.7%	no
South Fork Eagle River	18	1	5.6%	no

Table 7. Summary of geomean exceedances for E. coli *on both assessment units of Eagle River. For each non-detect result, a value of half the detection limit was used in the geomean calculation.*

Evaluated area	**Number of calculated geometric means**	**Exceed 126 MPN*/100 ml**	
		Number	Percent
Eagle River Main Stem	9	0	0%
South Fork Eagle River	9	0	0%

*MPN= most probable number (equal to cfu but reported as MPN per lab method)

Table 8. Summary of not-to-exceed exceedances for E. coli on both assessment units of Eagle River.

Evaluated site	**Number of observations**	**Exceed 410 MPN/100 ml**	
		Number	Percent
Eagle River Main Stem	54	0	0%
South Fork Eagle River	18	0	0%

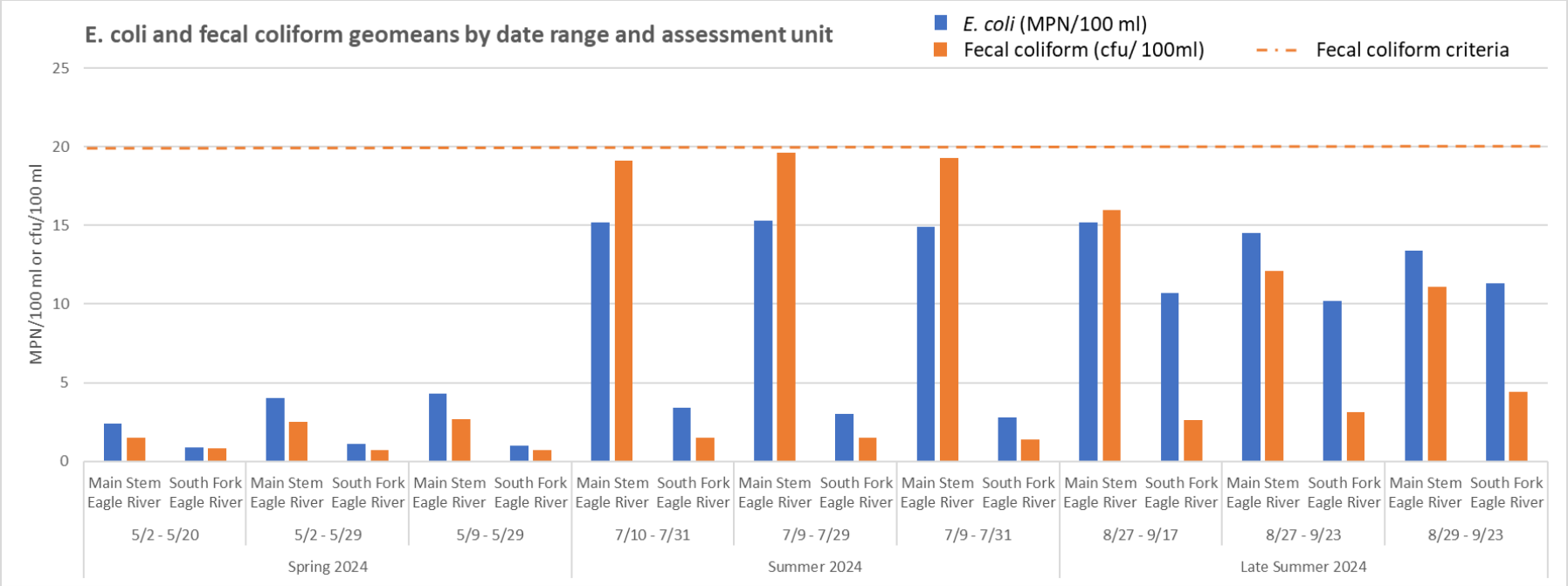

Figure 7. E. coli and fecal coliform 30-day geomeans by date range and assessment unit for 2024. Geomeans were calculated for 30-day periods in which there were at least five sampling events. Within each sampling season (spring, summer, and late summer), there were three geomeans calculated, two of which were calculated using results from five sample events and one calculated using results from six sample events. Results from three sites (ER-NF, ER-GB, and ER-VFW) were used in calculating the geomeans for the main stem; geomeans for South Fork Eagle River were calculated using results from ER-SF. The dashed line indicates the water quality geomean criterion for fecal coliform (20 cfu/ 100 ml). The geomean criterion for E. coli (126 MPN/100 ml) is not shown as all E. coli geomeans were well below this threshold.

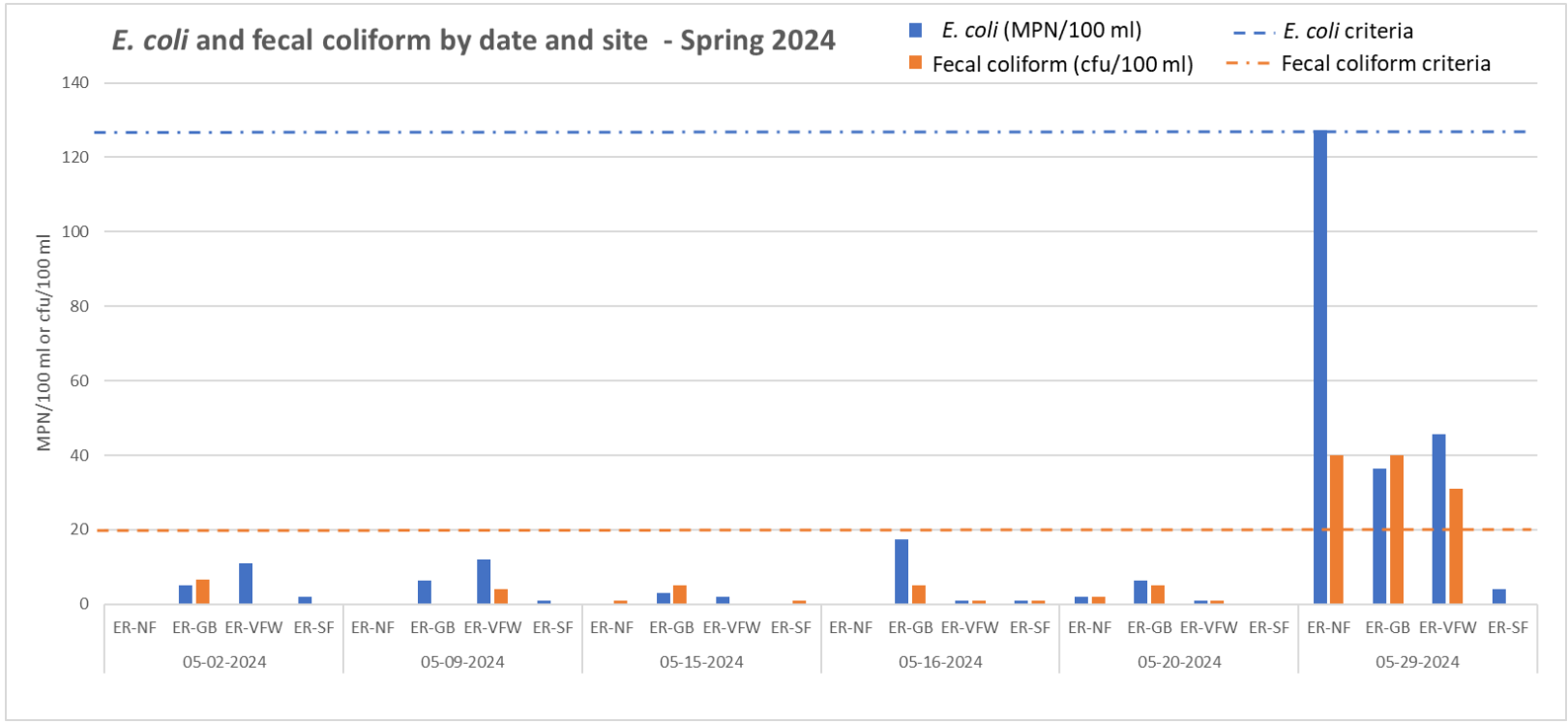

Figure 8. Spring 2024 E. coli *and fecal coliform results by date and site. Dashed lines indicate water quality criteria for* E. coli *geomean (126 MPN/100 ml) and fecal coliform geomean (20 cfu/ 100 ml).*

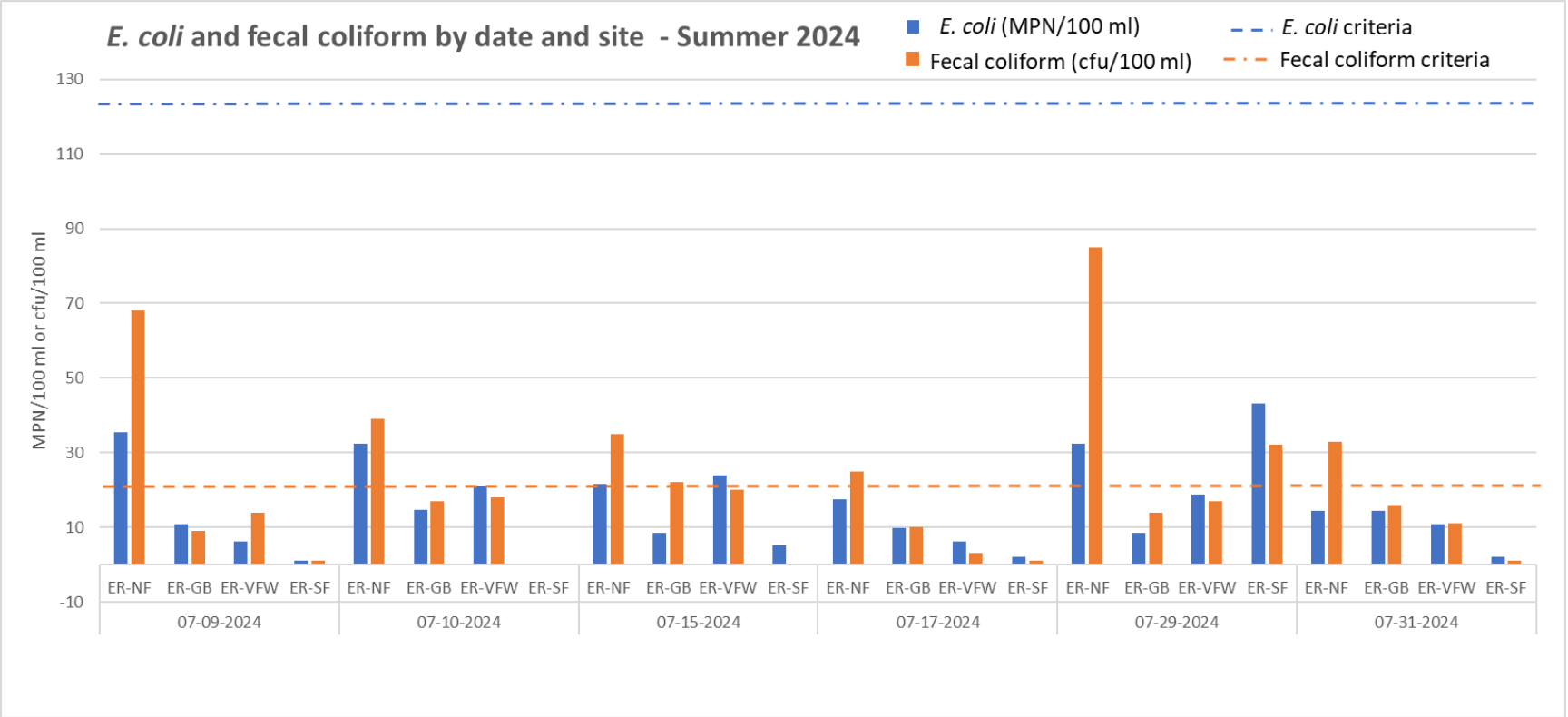

Figure 9. Summer 2024 E. coli *and fecal coliform results by date and site. Dashed lines indicate water quality criteria for* E. coli *geomean (126 MPN/100 ml) and fecal coliform geomean (20 cfu/ 100 ml).*

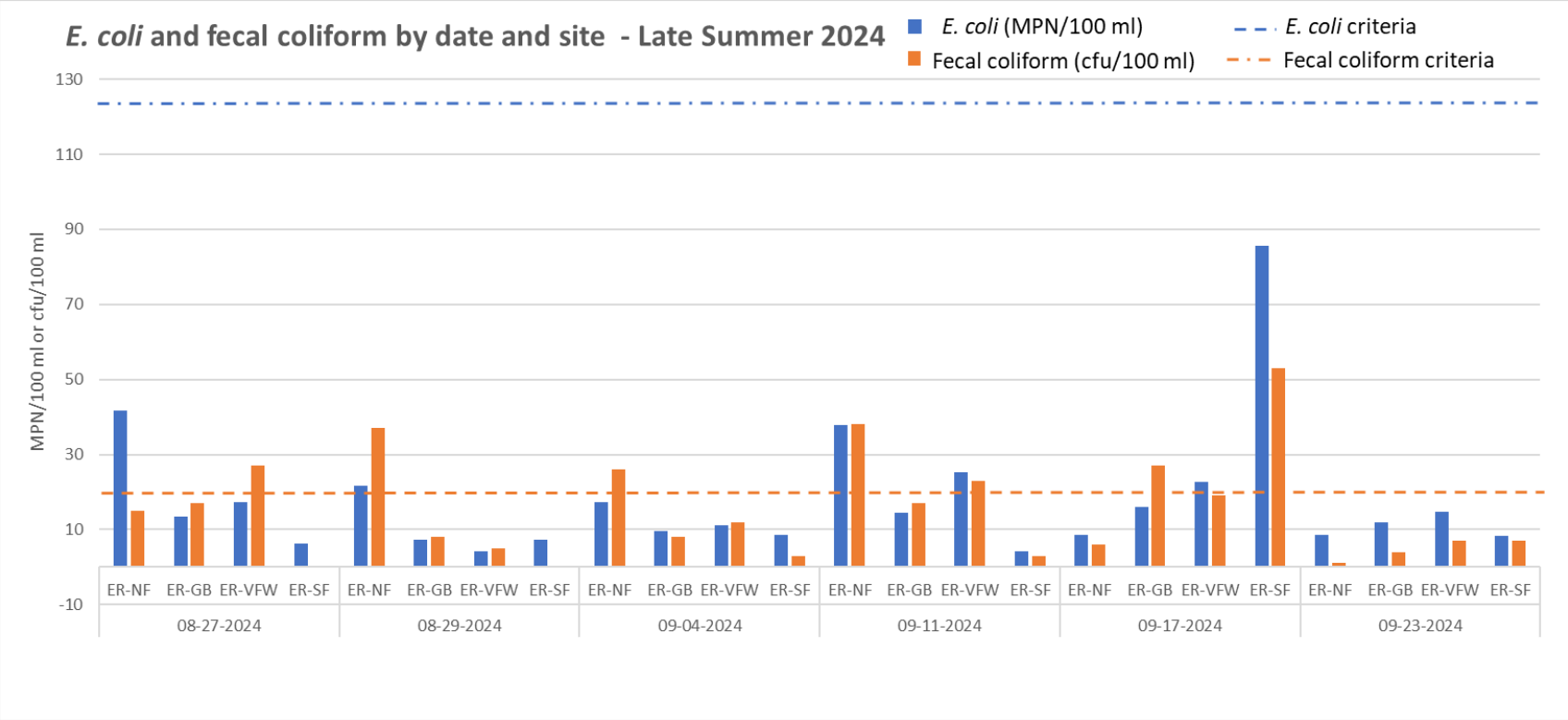

Figure 10. Late Summer 2024 E. coli *and fecal coliform results by date and site. Dashed lines indicate water quality criteria for* E. coli *geomean (126 MPN/100 ml) and fecal coliform geomean (20 cfu/ 100 ml).*

Table 9. Summary of 2024 MST results. On 6/14/2024, MST samples were only collected at ER-VFW and ER-SF. ND stands for "Not Detected", and DNQ stands for "Detected, Not Quantifiable".

Date	Marker	Site			
		ER-NF	ER-GB	ER-VFW	ER-SF
6/14/2024	Canine_Bac_Can			ND	ND
	Human_HF183			ND	ND
	Avian_GFD			ND	ND
7/31/2024	Canine_Bac_Can	ND	ND	ND	ND
	Human_HF183	ND	ND	ND	ND
	Avian_GFD	ND	ND	ND	ND
9/17/2024	Canine_Bac_Can	ND	ND	ND	DNQ
	Human_HF183	ND	ND	ND	ND
	Avian_GFD	ND	ND	ND	ND

Figure 11. Moose droppings near the main stem of Eagle River, 4/25/2024.

Table 10. Summary of 2024 in situ field measurements for each site. There were 18 monitoring events for which in situ data were collected at all sites. On 6/14/2024, in situ data were collected to support MST samples at ER-VFW and ER-SF, bringing the total number of monitoring events for those sites to 19.

	Site	Parameter	Mean	Median	Range
Eagle River Main Stem	ER-NF (n=18)	Temperature (°C)	6.07	6.36	3.20-8.69
		Dissolved oxygen (mg/ L)	11.73	11.42	10.52-12.98
		pH	7.75	7.74	7.51-7.95
		Turbidity (NTU)*	10.78	1.85	0.00-120.24
		Specific conductance (µg/L)	305.82	299.04	176.85-372.42
		Total dissolved solids (ppt)	0.20	0.19	0.12-0.24
	ER-GB (n=18)	Temperature (°C)	6.11	6.17	4.74-7.61
		Dissolved oxygen (mg/ L)	12.50	12.43	12.16-12.91
		pH	7.88	7.87	7.66-8.11
		Turbidity (NTU)*	76.74	34.15	6.63-310.71
		Specific conductance (µg/L)	186.92	154.42	119.87-272.11
		Total dissolved solids (ppt)	0.12	0.10	0.08-0.18
	ER-VFW (n=19)	Temperature (°C)	6.44	6.45	4.91-8.40
		Dissolved oxygen (mg/ L)	12.57	12.58	12.03-13.02
		pH	7.95	7.99	7.72-8.19
		Turbidity (NTU)*	69.10	38.50	4.99-258.38
		Specific conductance (µg/L)	189.10	159.20	121.10-277.39
		Total dissolved solids (ppt)	0.12	0.10	0.08-0.18
South Fork Eagle River	ER-SF (n=19)	Temperature (°C)	6.61	7.95	2.48-10.13
		Dissolved oxygen (mg/ L)	12.55	12.17	11.38-14.07
		pH	8.03	8.03	7.93-8.24
		Turbidity (NTU)*	9.52	5.60	1.52-46.17
		Specific conductance (µS/L)	208.38	209.08	191.08-229.26
		Total dissolved solids (ppt)	0.14	0.14	0.12-0.15

**On 9/11/2024, the AquaTROLL turbidity sensor failed post verification and turbidity readings for that day were discarded. The mean, median, and ranges for turbidity were based on 17 readings for ER-NF and ER-GB and 18 readings for ER-VFW and ER-SF.*

Conclusion

The main stem of Eagle River and South Fork Eagle River had no exceedances of water quality criteria during the 2024 pathogen sampling. For both South Fork and the main stem, 30-day geomeans calculated for *E. coli* were well below the 126 MPN/100 ml criterion and 0% of the samples exceeded 410 MPN/100 ml. Though none of the geomeans calculated for fecal coliform exceeded the 20 cfu/100 ml criterion for either site, geomeans on the main stem came close to exceeding during the summer sampling season (Figure 7). Of the main stem sample sites, in the spring, ER-NF had lower levels of *E. coli* and fecal coliform than ER-GB and ER-VFW. In the summer, ER-NF had higher levels of *E. coli* and fecal coliform than ER-GB and ER-VFW. Geomeans from ER-NF on their own would exceed water quality criteria (Fig 10); this site is a

shallow offshoot of the main stem but does appear to contribute pathogens to the main stem. Only 3.7% of samples on the main stem were above 40 cfu/100ml and only 5.6% of samples on the South Fork were above 40 cfu/100 ml. South Fork Eagle River typically had lower fecal coliform and *E. coli* levels than the main stem of Eagle River (Figure 7), though on 9/17, South Fork had the highest levels of *E. coli* and fecal coliform of the four sample sites (Figure 10).

Eagle River is a popular area for recreation and habitat for Alaskan wildlife (Fig. 11). No genetic markers for bird, canine, or human were quantified at any of the sampling sites, though there was a detection of canine genetic markers at a level too low to be quantified at South Fork.

A second year of sampling will take place in 2025, after which both years of data will be analyzed and compared to water quality criteria. Additional MST sampling is recommended to help inform best management practices recommendations.

Appendix A. Fecal coliform and *E. coli* data for Eagle River

Table A.1. Sample results for fecal coliform and E. coli for Eagle River sites. Field replicates are indicated in parentheses and were used only for quality control. Blank cells indicate non-detect results. Results in bold exceed the threshold criterion of 40 cfu/100 ml for fecal coliform. No results exceeded the threshold criterion of 410 MPN/100ml for E. coli.

Sampling Site	Date	Fecal coliform (cfu/100 ml)	*E. coli* (MPN/100 ml)
ER-NF	05-02-2024		
ER-SF	05-02-2024		2
ER-GB	05-02-2024	6.7	5.2
ER-VFW	05-02-2024		10.9
ER-VFW (replicate)	*05-02-2024*		9.7
ER-NF	05-09-2024		
ER-SF	05-09-2024		1
ER-GB	05-09-2024		6.3
ER-GB (replicate)	*05-09-2024*		4.1
ER-VFW	05-09-2024	4	12.1
ER-NF	05-15-2024	1	
ER-SF	05-15-2024	1	
ER-SF(replicate)	*05-15-2024*	2	2
ER-GB	05-15-2024	5	3.1
ER-VFW	05-15-2024		2
ER-NF	05-16-2024		
ER-NF (replicate)	*05-16-2024*		
ER-SF	05-16-2024	1	1
ER-GB	05-16-2024	5	17.5
ER-VFW	05-16-2024	1	1
ER-NF	05-20-2024	2	2
ER-SF	05-20-2024		
ER-GB	05-20-2024	5	6.3
ER-VFW	05-20-2024	1	1
ER-VFW (replicate)	*05-20-2024*		2
ER-NF	05-29-2024	40	127.4
ER-SF	05-29-2024		4.1
ER-GB	05-29-2024	40	36.4
ER-GB (replicate)	05-29-2024	23	47.1
ER-VFW	05-29-2024	31	45.7
ER-NF	07-09-2024	**68**	35.5
ER-SF	07-09-2024	1	1
ER-SF (replicate)	07-09-2024	3	1
ER-GB	07-09-2024	9	10.9
ER-VFW	07-09-2024	14	6.3

Sampling Site	Date	Fecal coliform (cfu/100 ml)	*E. coli* (MPN/100 ml)
ER-NF	07-10-2024	39	32.3
ER-NF (replicate)	07-10-2024	**44**	32.3
ER-SF	07-10-2024		
ER-GB	07-10-2024	17	14.6
ER-VFW	07-10-2024	18	21.1
ER-NF	07-15-2024	35	21.6
ER-SF	07-15-2024		5.2
ER-GB	07-15-2024	22	8.6
ER-VFW	07-15-2024	20	23.8
ER-VFW (replicate)	07-15-2024	14	11.8
ER-NF	07-17-2024	25	17.5
ER-SF	07-17-2024	1	2
ER-GB	07-17-2024	10	9.8
ER-GB (replicate)	07-17-2024	15	17.3
ER-VFW	07-17-2024	3	6.3
ER-NF	07-29-2024	**85**	32.3
ER-SF	07-29-2024	32	43.2
ER-SF (replicate)	07-29-2024	27	35
ER-GB	07-29-2024	14	8.6
ER-VFW	07-29-2024	17	18.7
ER-NF	07-31-2024	33	14.5
ER-NF (replicate)	07-31-2024	25	15.8
ER-SF	07-31-2024	1	2
ER-GB	07-31-2024	16	14.5
ER-VFW	07-31-2024	11	10.8
ER-NF	08-27-2024	15	41.7
ER-SF	08-27-2024		6.3
ER-GB	08-27-2024	17	13.5
ER-VFW	08-27-2024	27	17.3
ER-VFW (replicate)	08-27-2024	16	18.7
ER-NF	08-29-2024	37	21.6
ER-SF	08-29-2024		7.4
ER-GB	08-29-2024	8	7.4
ER-GB (replicate)	08-29-2024	4	10.8
ER-VFW	08-29-2024	5	4.1
ER-NF	09-04-2024	26	17.3
ER-SF	09-04-2024	3	8.6
ER-SF (replicate)	09-04-2024	3	5.2
ER-GB	09-04-2024	8	9.7
ER-VFW	09-04-2024	12	11
ER-NF	09-11-2024	38	37.9

Sampling Site	**Date**	**Fecal coliform (cfu/100 ml)**	***E. coli* (MPN/100 ml*)***
ER-NF (replicate)	09-11-2024	32	38.4
ER-SF	09-11-2024	3	4.1
ER-GB	09-11-2024	17	14.5
ER-VFW	09-11-2024	23	25.3
ER-NF	09-17-2024	6	8.5
ER-SF	09-17-2024	**53**	85.5
ER-GB	09-17-2024	27	16.1
ER-VFW	09-17-2024	19	22.8
ER-VFW (replicate)	09-17-2024	21	19.5
ER-NF	09-23-2024	1	8.5
ER-SF	09-23-2024	7	8.2
ER-GB	09-23-2024	4	12
ER-GB (replicate)	09-23-2024	6	8.5
ER-VFW	09-23-2024	7	14.8

Appendix B. Geometric Means by Assessment Unit

Table B.1. Rolling geometric means calculated from fecal coliform and E. coli results from the three sample sites along ***Eagle River main stem (Assessment Unit ID: AK_R_2040103_003_004; ER-NF, ER-GB, and ER-VFW)****. Range is the number of sample events used in calculating the geomean. Geomeans were not calculated for ranges fewer than 5 sample events. For each non-detect result, a value of half the detection limit was used in the geomean calculation. No geomeans exceeded the 20 cfu/100 ml geomean criterion for fecal coliform and no geomeans exceeded the 126 MPN/100 ml geomean criterion for E. coli.*

Season	Dates	# Range	Number of samples	Fecal coliform geomean (cfu/100 ml)	*E. coli* geomean (MPN/100 ml)
Spring 2024	5/2 – 5/20/2024	5	15	1.5	2.4
	5/9 – 5/29/2024	5	15	2.7	4.3
	5/2 – 5/29/2024	6	18	2.5	4.0
Summer 2024	7/9 – 7/29/2024	5	15	19.6	15.3
	7/10 – 7/31/2024	5	15	19.1	15.2
	7/9 – 7/31/2024	6	18	19.3	14.9
Late Summer 2024	8/27 – 9/17/2024	5	15	16.0	15.2
	8/29 – 9/23/2024	5	15	11.1	13.4
	8/27 – 9/23/2024	6	18	12.1	14.5

Table B.2. Rolling geometric means calculated from fecal coliform and E. coli *results from one site along* ***South Fork Eagle River (Assessment Unit ID: AK_R_2040103_003_007; ER-SF)*** *. Range is the number of sample events used in calculating the geomean. Geomeans were not calculated for ranges fewer than 5 sample events. No geomeans exceeded the 20 cfu/100 ml geomean criterion for fecal coliform and no geomeans exceeded the 126 MPN/100 ml geomean criterion for* E. coli*.*

Season	Dates	# Range	Number of samples	Fecal coliform geomean (cfu/100 ml)	*E. coli* geomean (MPN/100 ml)
Spring 2024	5/2 – 5/20/2024	5	5	0.8	0.9
	5/9 – 5/29/2024	5	5	0.7	1.0
	5/2 – 5/29/2024	6	6	0.7	1.1
Summer 2024	7/9 – 7/29/2024	5	5	1.5	3.0
	7/10 – 7/31/2024	5	5	1.5	3.4
	7/9 – 7/31/2024	6	6	1.4	2.8
Late Summer 2024	8/27 – 9/17/2024	5	5	2.6	10.7
	8/29 – 9/23/2024	5	5	4.4	11.3
	8/27 – 9/23/2024	6	6	3.1	10.2

Appendix C. Geometric Means by Sample Site

Table C.1. Rolling geometric means (geomeans) calculated from fecal coliform results for individual sample sites on Eagle River. Range is the number of sample events used in calculating the geomean. Geomeans were not calculated for ranges fewer than 5 sample events. Individual site assessments are important for identifying opportunities for best management practices (BMPs).

Season	Dates	# Range	Number of samples	Fecal coliform geomean (cfu/100 ml)			
				ER-NF	ER-GB	ER-VFW	ER-SF
Spring 2024	5/2 – 5/20/2024	5	5	0.9	3.3	1.2	0.8
	5/9 – 5/29/2024	5	5	1.8	4.8	2.3	0.7
	5/2 – 5/29/2024	6	6	1.7	5.1	2.0	0.7
Summer 2024	7/9 – 7/29/2024	5	5	43.6	13.6	12.1	1.5
	7/10 – 7/31/2024	5	5	39.5	15.3	11.5	1.5
	7/9 – 7/31/2024	6	6	43.2	14.0	11.9	1.4
Late Summer 2024	8/27 – 9/17/2024	5	5	20.1	13.8	14.8	2.6
	8/29 – 9/23/2024	5	5	11.7	10.3	11.3	4.4
	8/27 – 9/23/2024	6	6	12.2	11.2	13.1	3.1

Table C.2. Rolling geometric means calculated from E. coli *results for individual sample sites on Eagle River. Range is the number of sample events used in calculating the geomean. Geomeans were not calculated for ranges fewer than 5 sample events. Individual site assessments are important for identifying opportunities for best management practices (BMPs).*

Season	Dates	# Range	Number of samples	*E. coli* geomean (MPN/100 ml)			
				ER-NF	ER-GB	ER-VFW	ER-SF
Spring 2024	5/2 – 5/20/2024	5	5	0.7	6.5	3.1	0.9
	5/9 – 5/29/2024	5	5	2.0	9.5	4.1	1.0
	5/2 – 5/29/2024	6	6	1.6	8.6	4.8	1.1
Summer 2024	7/9 – 7/29/2024	5	5	26.9	10.3	13.0	3.0
	7/10 – 7/31/2024	5	5	22.5	10.9	14.5	3.4
	7/9 – 7/31/2024	6	6	24.2	10.9	12.6	2.8
Late Summer 2024	8/27 – 9/17/2024	5	5	21.9	11.8	13.5	10.7
	8/29 – 9/23/2024	5	5	15.9	11.5	13.1	11.3
	8/27 – 9/23/2024	6	6	18.7	11.8	13.7	10.2

Appendix D. Additional Project Photos

Figures D.1 (left) and D.2 (right). Eagle River North Fork facing upstream and downstream on the first sampling event of 2024.

Figures D.3 (left) and D.4 (right). Eagle River North Fork facing upstream and downstream on the first summer sampling event of 2024.

Figures D.5 (left) and D.6 (right). Eagle River North Fork facing upstream and downstream on the last sampling event of 2024.

Figures D.7 (left) and D.8 (right). Eagle River South Fork facing upstream and downstream on the first sampling event of 2024.

Figures D.9 (left) and D.10 (right). Eagle River South Fork facing upstream and downstream on the first summer sampling event of 2024.

Figures D.11 (left) and D.12 (right). Eagle River South Fork facing upstream and downstream on the last sampling event of 2024.

Figures D.13 (left) and D.14 (right). Eagle River Greenbelt facing upstream and downstream on the first sampling event of 2024.

Figures D.15 (left) and D.16 (right). Eagle River Greenbelt facing upstream and downstream on the first summer sampling event of 2024.

Figures D.17 (left) and D.18 (right). Eagle River Greenbelt facing upstream and downstream on the last sampling event of 2024.

Figures D.19 (left) and D.20 (right). Eagle River at VFW Road facing upstream and downstream on the first summer sampling event of 2024.

Figures D.21 (left) and D.22 (right). Eagle River at VFW Road facing upstream and downstream on the first summer sampling event of 2024.

Figures D.23 (left) and D.24 (right). Eagle River at VFW Road facing upstream and downstream on the last sampling event of 2024.