

Alaska Department of Environmental Conservation Waterbody Field Report Upper Lynn Canal, Haines, Alaska



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Abstract

Takshanuk Watershed Council (TWC) engaged in marine pathogen monitoring at three Haines recreational beaches between May 20th and September 2nd, 2025, collecting 16 sets of water samples for enterococci and fecal coliform bacteria analysis, and one set for microbial source tracking (MST) samples was analyzed for host species DNA markers. Additionally, for each location and sampling event, in-situ water quality parameter measurements were taken including water temperature, pH and turbidity. Most results were non-detect for enterococci and fecal coliform. No excursions of the Alaska water quality standards (WQS) were reported for contact recreation or harvesting for consumption of raw aquatic life. Bacteria speciation through MST did not detect human, dog, or avian as bacteria sources in the water samples. Results suggest no significant sources of bacterial pollution. The 2025 recreational season marks the first year of the monitoring program, which will continue for a second season in 2026.



Figure 1. Portage Cove in Haines, Alaska

¹ Takshanuk Watershed Council, project funded by DEC in an ACWA grant using pass-through funds from the EPA.

Basic Waterbody Information

Table 1. Basic Waterbody Information

Beach Name	Portage Cove Beach	Tanani Beach	Pyramid Island Beach
Assessment Unit ID	AK_B_1030308_003	AK_B_1030308_004	AK_B_1030315_001
EPA ID	AK374717	AK929943	AK859945
Assessment Unit Name	Portage Cove Beach	Tanani Beach	Chilkat River Beaches
Location description	Beach off Beach Road between the Cruise Ship Dock and Fast Ferry Dock.	Beach off of Lutak Road below Tanani Point pullout.	Beach off Mud Bay Road directly across from Pyramid Island.
Hydrologic unit code 10	1901030308		1901030315
Water Type	Marine Beach		
Area sampled	Point sample representing 1.56 miles of coastline	Point sample representing 0.4 miles of coastline	Point sample representing 2.22 miles of coastline
Time of year sampled	May 20 – September 2, 2025		

Water Quality Evaluation

Background

The mission of the Takshanuk Watershed Council (TWC) is to provide stewardship of the Chilkat, Chilkoot, and Ferebee river systems. Through restoration, education, research, and community involvement we seek to benefit the natural ecology, economy, and quality of life valued by all residents. Our vision for the Council is to promote the appreciation and sustainability of the healthy, natural ecosystems within the area. Through our initiatives, we attain a better understanding of our watershed’s ecology and use this information to foster good stewardship of the streams, rivers, lakes, and lands.

Haines, Alaska is located approximately 90 miles northwest of Alaska’s capital city Juneau, at the far northern end of Lynn Canal. The town of Haines is situated on a narrow isthmus of land between the Chilkoot and Chilkat Rivers. The original Tlingit name for the site is Deishu, which means “the end of the trail”. Here there was an overland portage linking the two valleys, and the start of a trail (now a road) which led up the valley, past several Tlingit villages, including Klukwan, and then over the mountains and into the interior of the continent.

The beaches of Haines offer a variety of water-related recreational activities such as hiking, dog walking, fishing, wildlife viewing, sea kayaking, snorkeling, scuba diving, standup paddle

boarding, swimming, tide pooling, and educational programs. They also provide important subsistence resources such as seaweed, crab, and fish.

Many Haines residents live within a city grid where municipal water and sewer are provided, while others live along coastal roads and rely on cisterns, outhouses, and septic systems. There is a small boat harbor with slips for 114 vessels on the waterfront in Portage Cove on the east side of town. The Haines Borough wastewater treatment plant has an Environmental Protection Agency (EPA) 301(h) permit waiver² to provide primary treatment, and a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of effluent to Portage Cove³. A berth for one large cruise ship is located on a dock in Portage Cove, and a stormwater network collects overland flow from the city grid and discharges onto the Portage Cove Beach. Domestic dogs are common in Haines, and the population of resident marine mammals and seabirds is complemented twice annually by a large influx of stopover migratory marine mammals and waterfowl.

Alaska's remote waterways present unique logistical challenges that often result in limited available water quality data. Due to the wide range of uses, water quality in recreational waters is a priority concern for TWC, the Haines Borough, and local citizens. Bacteria monitoring was conducted to evaluate potential public health risks indicated by fecal coliform and enterococci bacteria, and to notify the public when levels exceeded state water quality standards for contact recreation and harvesting for consumption of raw aquatic life.

TWC staff assisted the Alaska Department of Environmental Conservation (DEC) in completing an initial Beaches Environmental Assessment and Coast Health (BEACH) survey of Haines recreation beaches⁴, and three locations were identified as priorities to be sampled during the 2025 – 2026 recreational seasons (Figure 2). TWC and DEC co-authored a quality assurance project plan (QAPP)⁵, communication plan, and listserv database, and established a contract with DEC-approved Admiralty Environmental laboratory in Juneau to perform bacteria analyses on collected water samples.

² Document can be found at <https://www.epa.gov/system/files/documents/2024-12/r10-npdes-haines-ak0021385-final-permit-2024.pdf>

³ In some cases, a dilution allowance or mixing zone is permitted within a receiving water. A mixing zone is a limited area or volume of water where initial dilution of a discharge takes place and within which certain WQS may be exceeded. Under the 301(h) program this mixing area is referred to as the zone of initial dilution, or ZID. In accordance with 18 AAC 70.240, DEC authorizes mixing zones in Portage Cove for copper, dissolved oxygen, temperature, total residual chlorine, enterococcus bacteria, fecal coliform bacteria, and whole effluent toxicity contained in the discharge from the Haines Borough Wastewater Treatment Plant.

⁴ More information on the BEACH program can be found at <https://dec.alaska.gov/water/water-quality/beach-program/>

⁵ QAPP, FAQs, Handbook, and other resources are available at <https://dec.alaska.gov/water/water-quality/beach-program/haines/>

Objective

The objectives for this project are to:

- Monitor selected public-use marine beaches for fecal indicator organisms (i.e., fecal coliform and enterococci bacteria) during periods of high recreational use.
- Notify the public when indicator organisms exceed Alaska Water Quality Standards (WQS)⁶.
- Increase public awareness of potential bacteria sources and the health risks associated with high bacteria levels.



Figure 2. Overview map of Haines BEACH sampling locations.

⁶ 18 AAC 70(14)(B)(i) Water Quality Standards amended as of August 9, 2025. Appendix A highlights applicable criteria.



Figure 3. Portage Cove with sample location indicated by a yellow triangle.



Figure 4. Pyramid Island with sample location indicated by a yellow triangle.



Figure 5. Tanani Beach with sample location indicated by yellow triangle.

Quality Assurance Review

TWC field staff adhered to protocols and standard operating procedures (SOPs) as defined by the project QAPP. A total of 16 sampling events were scheduled, and 16 sets of samples were successfully collected and delivered to Admiralty Environmental Laboratory for a completeness total of 100%. One set of samples was collected on 8/19/2025, but did not reach the lab within the acceptable time frame due to changes in the flight schedule. A subsequent set of samples was taken and delivered on time on 8/21/2025 to make up for this. All other holding times and temperatures were within acceptable range and no discrepancies, errors, data qualifiers, or QC flags were reported. Calibration/verification was performed prior to and following each event on the Hach turbidimeter, and pre-sampling calibration was performed on the Hanna handheld unit for each event as per the manufacturer's recommendation. Calibrations logs and verification records were completed for the monitoring program. One rotating duplicate sample for enterococci and fecal coliform was collected for each sampling day, and all results were below or at low magnitude values for bacteria. Relative percentage difference values for duplicate samples were all within acceptable limits.

Methods

Three beaches were monitored between May 20 and September 2, 2025 (Table 1, and Figure 2). Field staff collected two grab samples of marine water from each beach weekly in laboratory-provided containers, plus one rotating duplicate set of samples for enterococci (ASTM D6503-99) and fecal coliform (SM 9222D) analyses. A calibrated Hach turbidimeter was used to measure in-situ turbidity at each site, and a calibrated Hanna handheld multiparameter unit was used to measure water temperature and pH. Air temperature data was recorded from a weather forecast system. Modified EPA Marine Sanitary Surveys were completed at each beach for every sampling event. Grab samples were also collected on August 21, 2025, between 9:00 am to 12:00 pm from each location and submitted to LuminUltra labs for microbial source tracking (MST) analysis for human, canine, and avian DNA markers. Samples were collected in the morning hours to meet flight and analytical methods holding times.

All beach samples were packed into a hard-sided cooler with blue ice packs to maintain a temperature range between 4.0 and 10.0 °C, and hand-delivered to Alaska Seaplanes for transport to Juneau. Samples were picked up by Admiralty Environmental Laboratory staff in Juneau within the requisite 6-hour holding time, allowing two hours for laboratory staff to prepare and perform the analyses. MST samples were collected, filtered, preserved, and shipped to LuminUltra Technologies Ltd. in Maryland within the required hold time.

Results

Most results were non-detect for enterococci and fecal coliform. No excursions of the Alaska water quality standards (WQS) were reported for contact recreation or harvesting for consumption of raw aquatic life (Table 2). Water quality criteria for contact recreation states that in a 30-day period the geometric mean may not exceed 35 enterococci CFU/100 ml, and not more

than 10% of samples may exceed a statistical threshold value of 130 enterococci CFU/100 ml (Figure 7, and Figure 8). The most stringent criteria for harvesting for consumption of raw aquatic life states that the fecal coliform geometric mean of samples may not exceed 14 CFU/100 ml, and not more than 10% of the samples may exceed 31 CFU/100 ml (Figure 6, and Figure 9). No recreational advisories or public notices of beach bacteria pollution were issued during the recreational season.

Table 2. Enterococci and fecal coliform results summary⁷

Analyte	Site	Individual Criteria	% of Samples Exceeding Threshold	30-day Geometric Mean Criteria	Maximum 30-day Geometric Mean Result
Enterococci (MPN/100 mL)	Pyramid Island	130 MPN/100ml	0%	35 MPN/100ml	6.60
	Portage Cove		0%		7.62
	Tanani Point		0%		ND (5.00)
Analyte	Site	Individual Criteria	% of Samples Exceeding Individual Criteria	Seasonal Geometric Mean Criteria	Seasonal Geometric Mean Result
Fecal Coliform (CFU/100 mL)	Pyramid Island	31 CFU/100ml	6.3%	14 CFU/100ml	4.90
	Portage Cove		0%		2.87
	Tanani Point		6.7%		1.75

ND = non detect, used ½ detection limit to calculate geometric mean.

⁷ 18 AAC 70(14)(B)(i) Water Recreation, contact recreation, and 18 AAC 70(14)(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life

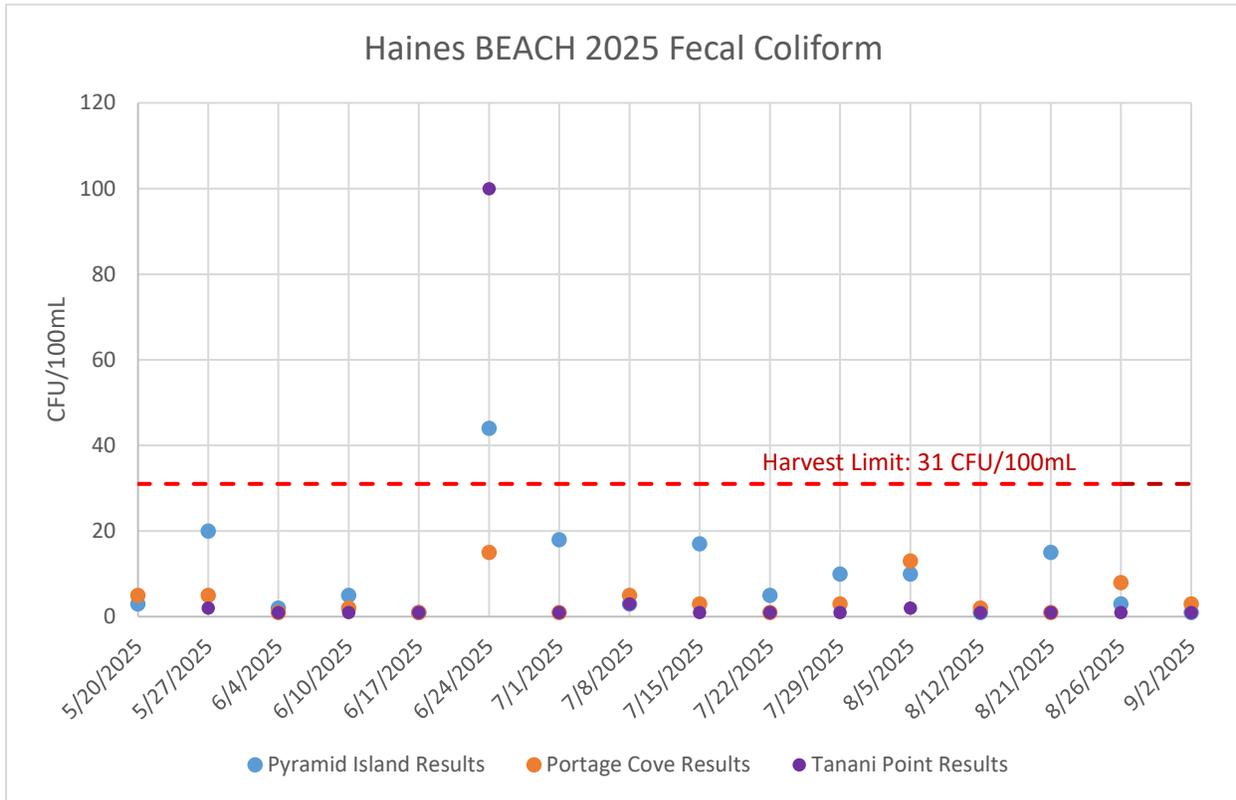


Figure 6. Fecal coliform analytical results, all sites.

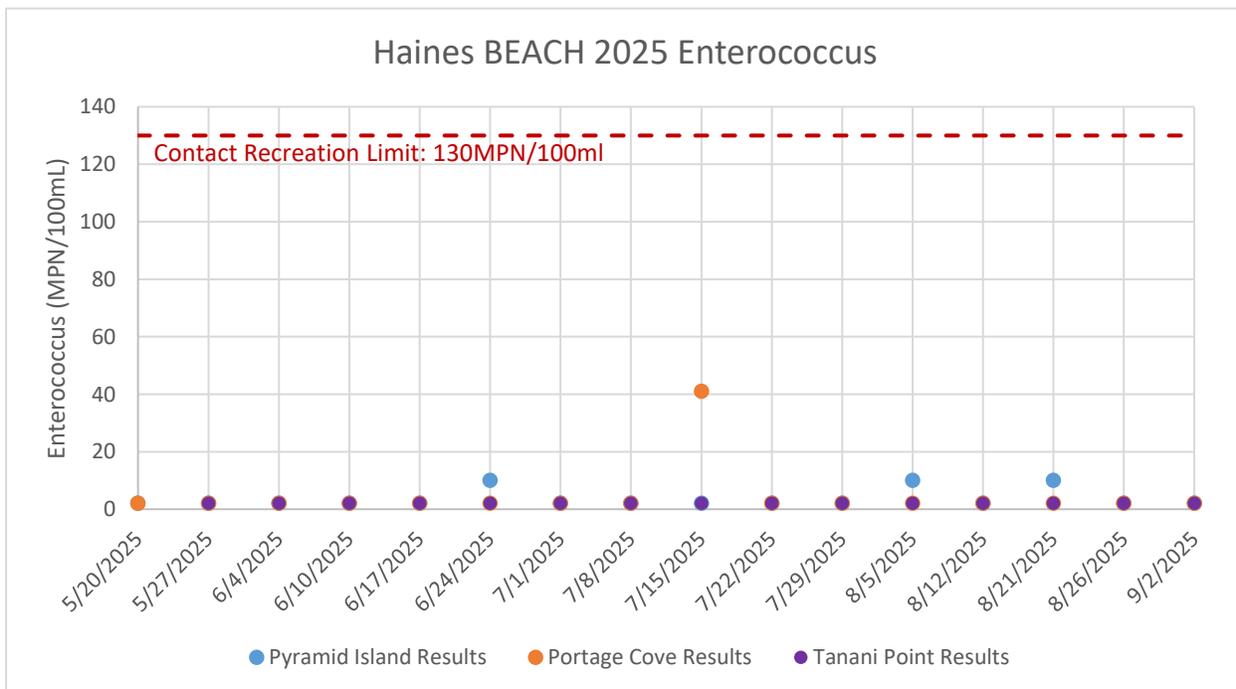


Figure 7. Enterococcus analytical results, all sites.

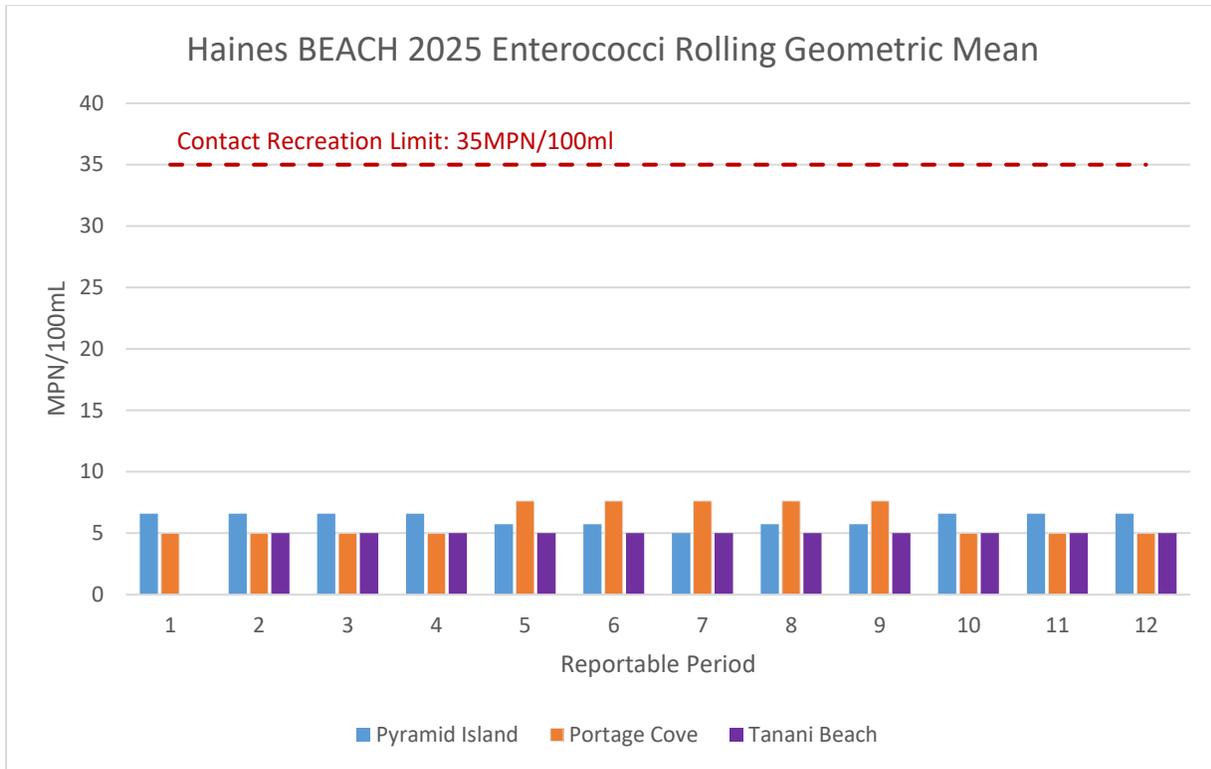


Figure 8. Enterococcus reportable rolling geometric mean, all sites.

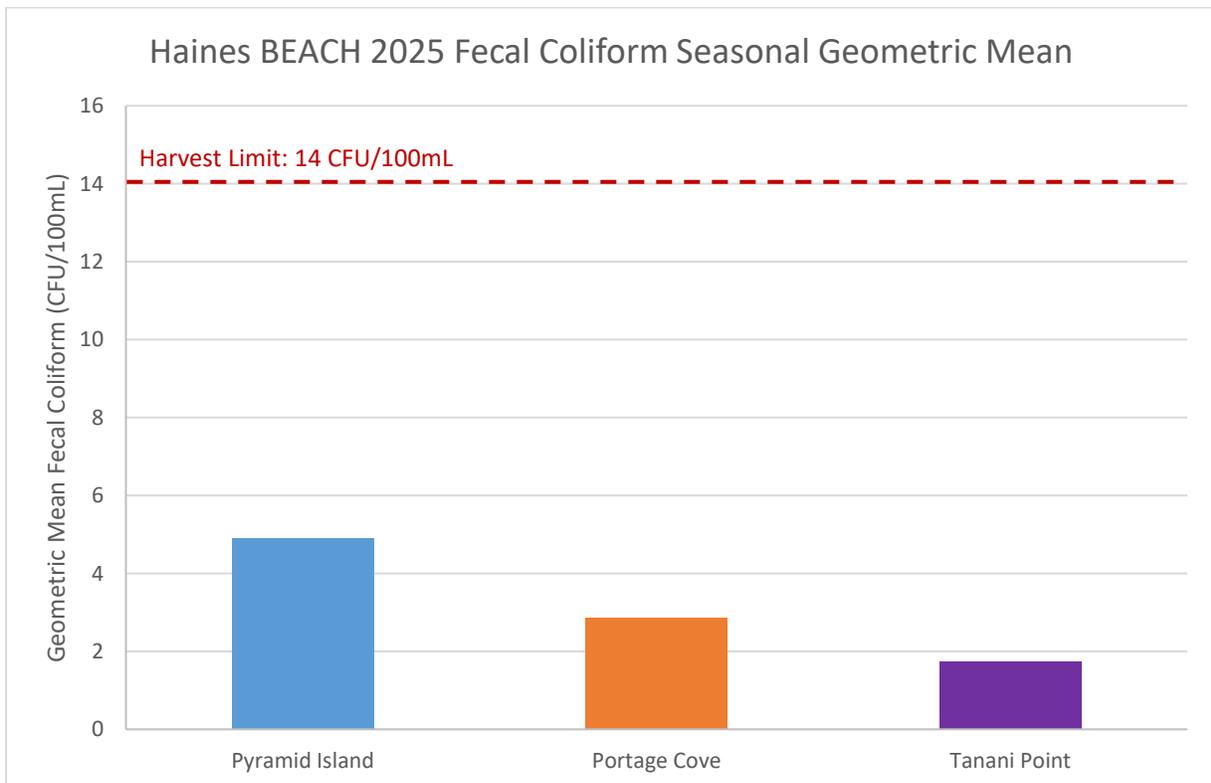


Figure 9. Fecal coliform seasonal geometric mean, all sites.

In-situ parameters performed as expected with typical seasonal and geographical variance (Table 3). However, pH readings taken at Portage Cove on 6/17/2025 and Tanani Beach on 6/10/2025 were removed due to instrument malfunction. The Hanna handheld unit was recalibrated and used for subsequent samples.

Table 3. In-situ measurement summary.

Analyte	Site	Mean	Median	Range
Air Temperature (°C)	Pyramid Island	14.3	14.5	9.7 – 18.3
	Portage Cove	14.4	13.7	11.7- 20.4
	Tanani Point	13.9	13.9	10.2 – 17.8
Water Temperature (°C)	Pyramid Island	12.8	12.7	9.7 – 16.2
	Portage Cove	12.5	12.4	10.0 – 16.7
	Tanani Point	11.9	12.0	9.3 – 13.9
pH	Pyramid Island	7.9	8.2	6.22 - 8.6
	Portage Cove	8.0	8.0	5.9 - 8.5
	Tanani Point	7.9	7.9	6.35- 8.4
Turbidity (NTU)	Pyramid Island	67.9	55.4	17.4 – 199.5
	Portage Cove	4.4	3.3	1.4 – 10.2
	Tanani Point	6.4	5.4	1.0– 17.9

MST analysis did not detect human, canine, or avian genetic markers at any of the monitored locations (Table 4).

Table 4. MST analytical results.

Site	Bacteroidetes	Results*
Pyramid Island	Human	ND
	Canine	ND
	Avian	ND
Portage Cove	Human	ND
	Canine	ND
	Avian	ND
Tanani Point	Human	ND
	Canine	ND
	Avian	ND

*ND = Not Detected

Outreach

TWC and DEC developed a communication plan and prepared a radio campaign that provided general Beach Program information throughout May and June 2025. The Alaska Beach Program website has a Haines Beach webpage highlighting an interactive map and data table with the most current beach sampling results, Frequently Asked Questions (FAQs), and supporting project documents. During the water sampling season, DEC shared beach sampling results through a stakeholder email listserv and updated DEC website results table and interactive map as soon as analytical data was received. Facebook posts and advisory beach signage were prepared in case of contact recreational criteria excursions; however, no advisories were necessary during the 2025 recreational season. TWC shared Beach Program information via social media and flyers posted around town prior to the monitoring season and following the recreational season to share the monitoring program results summary, potential bacteria sources, and next steps.

Conclusion

TWC successfully implemented the first of two years of marine pathogen monitoring at 3 Haines recreational beaches. Results indicated that contact recreational activities and harvesting of raw aquatic life for consumption were not negatively affected by bacteria loads. Bacteria speciation through MST analysis did not detect human, canine, or avian as bacteria sources in the water samples.

Recommended Next Steps

Sampling efforts were very successful, so it is recommended that project staff replicate the 2025 beach monitoring program in the summer of 2026 without changes. TWC will also continue to provide updates and information to the community of Haines and will present results locally after the end of 2026 sampling.

Appendix A – 18 AAC 70(14) Water Quality Standards amended as of August 9, 2025

Designated Use Class	Use Subclass	Criteria
(A) Water Supply	(i) aquaculture	For products normally cooked, the geometric mean of samples taken in a 30- day period may not exceed 200 fecal coliform/100 mL, and not more than 10% of the samples may exceed 400 fecal coliform/100 mL. For products not normally cooked, the geometric mean of samples taken in a 30-day period may not exceed 20 fecal coliform/100 mL, and not more than 10% of the samples may exceed 40 fecal coliform/100 mL.
	(ii) seafood processing	In a 30-day period, the geometric mean of samples may not exceed 20 fecal coliform/100 mL, and not more than 10% of the samples may exceed 40 fecal coliform/100 mL.
	(iii) industrial	Where worker contact is present, the geometric mean of samples taken in a 30-day period may not exceed 200 fecal coliform/100 mL, and not more than 10% of the samples may exceed 400 fecal coliform/100 mL.
(B) Water Recreation	(i) contact recreation	In a 30-day period, the geometric mean of samples may not exceed 35 enterococci CFU/100 mL, and not more than 10% of the samples may exceed a statistical threshold value of 130 enterococci CFU/100 mL.
	(ii) secondary recreation	In a 30-day period, the geometric mean of samples may not exceed 200 fecal coliform/100 mL, and not more than 10% of the samples may exceed 400 fecal coliform/100 mL.
(D) Harvesting for consumption of raw mollusks or other raw aquatic life		<p>The geometric mean of samples may not exceed 14 fecal coliform CFU/100 mL; and not more than 10% of the samples may exceed;</p> <ul style="list-style-type: none"> - 43 MPN per 100 ml for a five-tube decimal dilution test; - 49 MPN per 100 ml for a three-tube decimal dilution test; - 28 MPN per 100 ml for a twelve-tube single dilution test; - 31 fecal coliform CFU/100 mL⁸ for a membrane filtration test

⁸ When fecal coliform is monitored in waters designated as state approved shellfish harvesting and growing waters, these waters are also subject to 18 AAC 34.010(19).

Appendix B - 2025 Haines Beaches Bacteria Data Results

Table B1. *Enterococcus* analytical results, all sites.

Sample Date	Pyramid Island ⁹	Portage Cove	Tanani Point
05-20-2025	10	ND	Not sampled
05-27-2025	ND	ND	ND
06-04-2025	ND	ND	ND
06-10-2025	10	ND	ND
06-17-2025	ND	ND	ND
06-24-2025	10	ND	ND
07-01-2025	ND	ND	ND
07-08-2025	ND	ND	ND
07-15-2025	ND	41	ND
07-22-2025	ND	ND	ND
07-29-2025	ND	ND	ND
08-05-2025	10	ND	ND
08-12-2025	ND	ND	ND
08-21-2025	10	ND	ND
08-26-2025	ND	ND	ND
09-02-2025	ND	ND	ND

⁹ Non-detect (ND) is reported by the analytical laboratory as <10 MPN/100ml.

Table B2. Fecal coliform analytical results, all sites.

Sample Date	Pyramid Island ¹⁰	Portage Cove	Tanani Point
05-20-2025	ND	5	Not sampled
05-27-2025	20	5	2
06-04-2025	2	ND	ND
06-10-2025	5	2	ND
06-17-2025	ND	ND	ND
06-24-2025	44	15	48
07-01-2025	18	ND	2
07-08-2025	8	5	3
07-15-2025	17	3	ND
07-22-2025	5	ND	ND
07-29-2025	2	3	ND
08-05-2025	10	13	2
08-12-2025	ND	2	2
08-21-2025	17	ND	ND
08-26-2025	3	8	2
09-02-2025	ND	3	ND

¹⁰ Non-detect (ND) is reported by the analytical laboratory as <2.0 CFU/100ml.

Table B3. Fecal coliform seasonal geometric mean, all sites.

Site	5/20/2025 to 9/2/2025
Pyramid Island	4.90 ¹¹
Portage Cove	2.87
Tanani Point	1.75

Table B4. Enterococci 30-day rolling geometric mean, all sites.

Period	Date Range	Portage Cove	Pyramid Island	Tanani Beach
1	06-17-2025 to 05-18-2025	5.00 ¹²	6.60	N/A
2	06-24-2025 to 05-25-2025	5.00	6.60	5.00
3	07-01-2025 to 06-01-2025	5.00	6.60	5.00
4	07-08-2025 to 06-08-2025	5.00	6.60	5.00
5	07-15-2025 to 06-15-2025	7.62	5.74	5.00
6	07-22-2025 to 06-22-2025	7.62	5.74	5.00
7	07-29-2025 to 06-29-2025	7.62	5.00	5.00
8	08-05-2025 to 07-06-2025	7.62	5.74	5.00
9	08-12-2025 to 07-13-2025	7.62	5.74	5.00
10	08-21-2025 to 07-22-2025	5.00	6.60	5.00
11	08-26-2025 to 07-27-2025	5.00	6.60	5.00
12	09-02-2025 to 08-03-2025	5.00	6.60	5.00

¹¹ When a sample result was non-detect, ½ the Practical Quantitation Limit of fecal coliform (2.0 CFU/100ml) was used to calculate the seasonal geometric mean.

¹² When a sample result was non-detect, ½ the Practical Quantitation Limit of enterococci (10 MPN/100ml) was used to calculate the rolling geometric mean.