

Waterbody Field Report

Homer and Anchor Point Beaches: Mariner Park, Bishop's Beach, and Anchor Point Beach

February 2026



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Abstract

During the summer of 2025, Homer Soil and Water Conservation District (HSWCD) collected samples of nearshore marine water on the southern Kenai Peninsula in Southcentral Alaska to be tested for levels of two types of bacteria: fecal coliform and enterococci. Sampling took place once per week for 16 weeks, from May 29 to September 10, at three beaches: two in Homer—Mariner Park and Bishop's Beach—and the third at Anchor Point beach, totaling 48 sets of samples. In addition, one set of screening samples was collected from the Nick Dudiak Fishing Lagoon in Homer². Along with collecting water quality samples, HSWCD measured in-situ parameters, including water temperature, pH, and turbidity. A sanitary survey of observations and beach conditions was also completed for each monitoring location and sampling event. Microbial source tracking (MST) samples were collected once during the summer at each beach location and analyzed for human, dog, bird, and horse DNA markers.

Throughout the sample period, no excursions³ of Alaska water quality standards (WQS) for bacteria were reported for contact recreation. The most stringent WQS, for consumption of raw aquatic life, was exceeded at Bishop's Beach. MST analysis detected horse DNA markers from waters off Mariner Park. No other DNA source markers were detected. Overall, sampling results indicate that no significant levels of monitored bacteria pose a risk for contact recreation at sampled beaches. This was year 1 of a 2-year sampling effort. Year 2 sampling will begin in May, 2026.



Figure 1. Kitesurfing at Bishop's Beach in Homer, Alaska

¹ Homer Soil and Water Conservation District, project funded by DEC in an ACWA grant using pass-through funds from the EPA.

² See Table B2 in Appendix B for analytical results.

³ "Excursion" shall mean a departure from an indicator range established for monitoring under this part, consistent with any averaging period specified for averaging the results of the monitoring. (40 Code of Federal Regulations 64.1: [eCFR - 40 CFR 64.1](#)).

Basic Waterbody Information

Table 1. Basic Waterbody Information

Beach Name	Anchor Point Beach	Bishop's Beach	Mariner Park Beach	Nick Dudiak Fishing Lagoon
Assessment Unit ID	AK_B_2030107_001	AK_B_2030108_002	AK_B_2030108_005	AK_B_2030108_006
Assessment Unit Name	Bluff Point to Anchor Point	Bishop's Beach	Mariner Park Beach, aka Homer Spit Beach	Nick Dudiak Fishing Lagoon, aka the Fishing Hole
Location description	Located at the end of Anchor Point Rd; adjacent to Halibut Campground	Located at the end of Beluga Pl, NW of Beluga Slough	Located at the base of the Homer Spit, adjacent to Mariner Park Campground	Three miles from the base of the Homer Spit, NW of the Homer Small Boat Harbor
Hydrologic unit code 10	1902030107	1902030108		
Water Type	Marine			
Area sampled	Point sample representing 12.17 miles of coastline	Point sample representing 2.58 miles of coastline	Point sample representing 0.86 miles of coastline	Point sample representing 0.42 miles of coastline
Time of year sampled	May 29 through September 10			

Water Quality Evaluation

Background

On the southern Kenai Peninsula, in Southcentral Alaska, recreation often revolves around beaches—both for locals and visitors. Coastal beaches provide access to marine waters for many kinds of recreation, including swimming, surfing, kitesurfing, fishing, tidepooling, birding, jogging, dog walking, horseback riding, and many other activities that may involve water contact. Recreational beach activities that involve contact with the water risk exposure to pathogens if human or animal fecal waste is present. Although these pathogens are generally not harmful themselves, they indicate the possible presence of disease-causing bacteria, viruses, and protozoans that live in the digestive systems of humans and other warm-blooded animals. Water polluted with fecal material can cause gastrointestinal and respiratory illnesses, skin rashes, and eye, ear, or wound infections.

A wide variety of sources can contribute to the presence of pathogens associated with fecal pollution in coastal areas. While some sources may be direct, or “point” sources (e.g., discharge from a wastewater treatment plant), others may be “nonpoint” sources, which are much harder to track (e.g., pet or horse waste on beaches). Birds and other wildlife can also be sources of elevated levels of fecal bacteria.

Given the many ways recreationists contact marine waters adjacent to Homer and Anchor Point beaches, monitoring bacteria levels of these waters is critical in promoting public health. Whether the public makes direct physical contact with marine waters or harvests raw aquatic life for consumption, providing timely public information about bacterial counts enables individuals to make informed choices about their activities at local beaches. Public notifications also enable interested individuals to contact entities such as DEC for additional information.

Before this project, the most recent BEACH-funded effort to sample nearshore marine waters in Homer and Anchor Point occurred from 2009–2011⁴. During that period, Homer nonprofit Cook Inletkeeper (CIK) conducted summer water sampling at three locations. Two of these sampled locations—Mariner Park and Bishop’s Beach—are being monitored by the current project.

Three of the most popular recreational beaches in the Homer and Anchor Point area are Mariner Park, Bishop’s Beach, and Anchor Point beach (Figure 2). These popular beaches are characterized by well-developed recreational infrastructure and are used by thousands of locals and visitors throughout the year, particularly between Memorial Day and Labor Day⁵. Possible bacteria pollution sources include portable toilets at public sites and campgrounds, wastewater treatment discharge, dog walking, horseback riding, and wildlife.



Figure 2. Overview map of Homer-area beach sampling locations.

⁴ 2011 Homer BEACH Final Report https://dec.alaska.gov/media/nc0dbfwf/beach_finalreport.pdf

⁵ See Appendix C for maps of the three sampling sites. Each sample site is also described in greater detail.

Objective

The statewide goal of the DEC Beach Monitoring Program is to “reduce or eliminate illness and disease due to contact with water at recreational-use beaches that are contaminated by human and animal waste (fecal pollution).”⁶

In support of this goal, the Homer BEACH Program was undertaken to help protect the public from potential exposure to pathogens. Two objectives guided the project:

1. Monitor selected public-use marine beaches for fecal indicator organisms (i.e., fecal coliform and enterococci bacteria) during periods of high recreational use.
2. Notify the public when indicator organisms exceed recreational criteria in Alaska Water Quality Standards (WQS)⁷.

Quality Assurance Review

Homer Soil and Water staff adhered to protocols and standard operating procedures described in the Homer Beach Water Quality Assurance Project Plan (QAPP). A total of 16 sampling events were scheduled (including samples collected from the Nick Dudiak Fishing Lagoon), and 16 sets of samples were successfully submitted to the Anchorage Water and Wastewater Utility (AWWU) lab. Due to an error in lab operations, the 6-11-25 fecal coliform samples and 7-22-25 enterococci and fecal coliform samples were not analyzed. The 80% completeness goal outlined in the QAPP was met, with 90.77% overall completeness. Required in-situ parameters were measured for all sites using a Hanna Combo HI98130 and the Hach 2100Q turbidity meter. Calibration/verification was performed according to manufacturers’ instructions; instrument issues were documented on forms filled out weekly during pre- and post-sampling calibration/verification. The Hanna handheld unit, used to measure pH and water temperature, failed post-verification on 8-28, 9-03, and 9-10. Results were within acceptable range for environmental conditions; pH measurements were kept in the final dataset with an “estimated value” flag. The pH reading from Mariner Park on 6-04 was rejected because equipment cap was not removed prior to recording pH. All sample holding times and temperatures were within acceptable ranges. Duplicate samples for enterococci and fecal coliform were collected on a rotating basis at one of the three beaches regularly sampled. Relative percentage difference (RPD) values for duplicate samples were within acceptable limits⁸.

⁶ Homer Beach Monitoring Handbook <https://dec.alaska.gov/media/ptuhqfks/homer-beach-handbook-fy25-fy27-final.pdf>

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

⁸ The completed Data Review Checklist for the 2025 Homer Beach monitoring season is available from DEC upon request.

Methods

Sampling procedures used are described in the Homer Beach Handbook, FY2025-2027⁹. Three beaches were monitored between May 29 and September 10, 2025 (Table 1, Figure 3, Figure 4). Each week, field staff collected two grab samples of marine water from each beach in laboratory-provided sterile 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 system¹⁰. Beach conditions and recreational uses were recorded in a Modified EPA Marine Sanitary Survey at each beach for every sampling event.

Samples were collected in the morning hours to meet flight schedules and analytical method hold-times. Water samples for transport to Anchorage Water and Wastewater Utility were packed into a hard-sided cooler with ice packs to maintain a temperature range between 4.0 and 10.0°C. To meet analytical hold time, samples were driven to Grant Aviation at the Kenai Airport and flown to Anchorage on the next scheduled flight. Samples were picked up in Anchorage by a courier service and delivered to the lab within the requisite 6-hour hold time, allowing 2 hours for laboratory staff to prepare samples for analysis.

Grab samples were also collected on July 22, 2025 from each location and submitted to LuminUltra Technologies Ltd. for microbial source tracking (MST) analysis for human, dog, bird, and horse DNA markers. MST samples were collected, filtered, and preserved using the provided field filtration kits, and shipped to LuminUltra Technologies Ltd. in Maryland within the required hold time.

Results

All sample results were below WQS¹¹ for enterococci, and all but one result were below the WQS for fecal coliform (Table 2, Figure 3, Figure 4). No recreational advisories or public notices of beach bacteria pollution were issued during the recreational season.

Water quality criteria for contact recreation state that in a 30-day period, the geometric mean may not exceed 35 enterococci CFU/100 ml and that not more than 10% of samples may exceed a statistical threshold value of 130 enterococci CFU/100 ml. These thresholds were met (Figure 3, Figure 5).

The most stringent criteria for harvesting for consumption of raw aquatic life state 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. Bishop's Beach fecal coliform results from 8-28 and 9-

⁹ <https://dec.alaska.gov/media/ptuhqfks/homer-beach-handbook-fy25-fy27-final.pdf>

¹⁰ <https://www.wunderground.com/weather/us/ak/homer>

¹¹ Appendix A: 18 AAC 70(14)(B)(i) applicable water quality standards

10 were above 31 CFU/100mL, resulting in an excursion of the criterion that states not more than 10% of the samples may exceed 31 CFU/100 ml (Figure 4, Figure 6).

Table 2. 2025 analytical summary (exceedances in red)¹²

Analyte	Site	Individual Criteria	% of Samples Exceeding Threshold	30-day Geometric Mean Criteria	Maximum 30-day Geometric Mean Result
Enterococci (MPN/100 mL)	Mariner Park	130 MPN/100ml	7%	35 MPN/100ml	13.18
	Bishop's Beach		7%		18.29
	Anchor Point Beach		0%		6.60
Analyte	Site	Individual Criteria	% of Samples Exceeding Individual Criteria	Seasonal Geometric Mean Criteria	Seasonal Geometric Mean Result
Fecal Coliform (CFU/100 mL)	Mariner Park	31 CFU/100ml	7%	14 CFU/100ml	1.97
	Bishop's Beach		14%		2.40
	Anchor Point Beach		0%		3.50

¹² When results were ND (Not Detected), ½ method detection limit used in calculations.

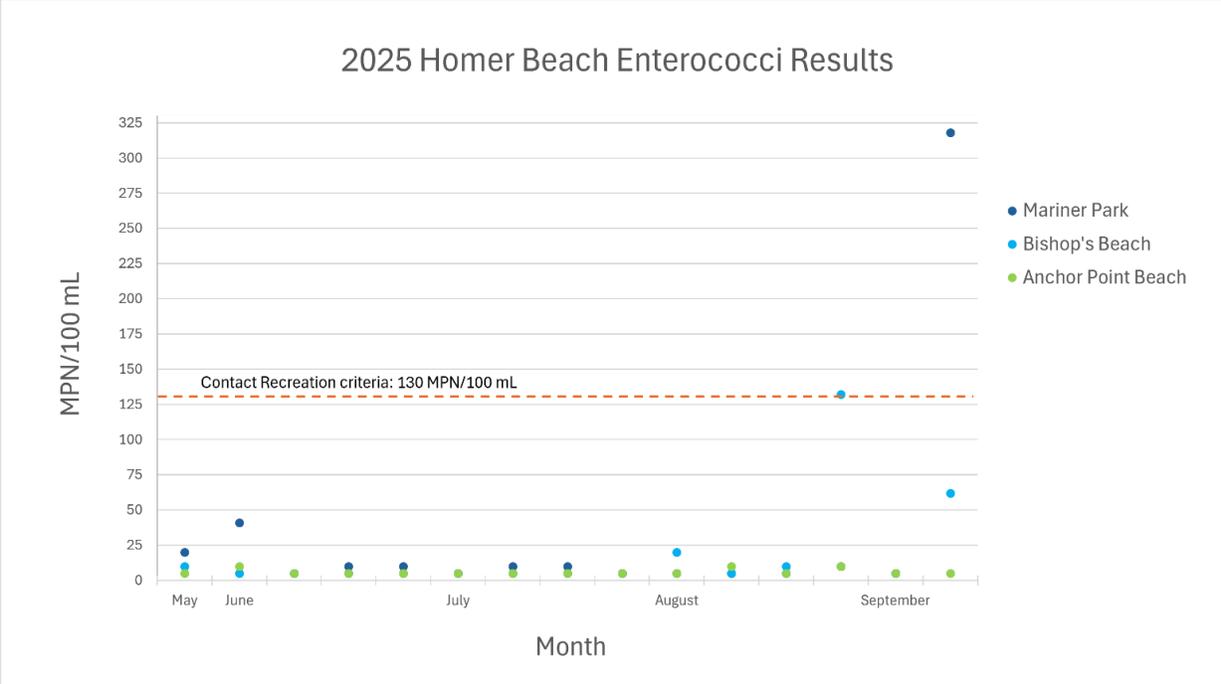


Figure 3. 2025 Enterococci analytical results

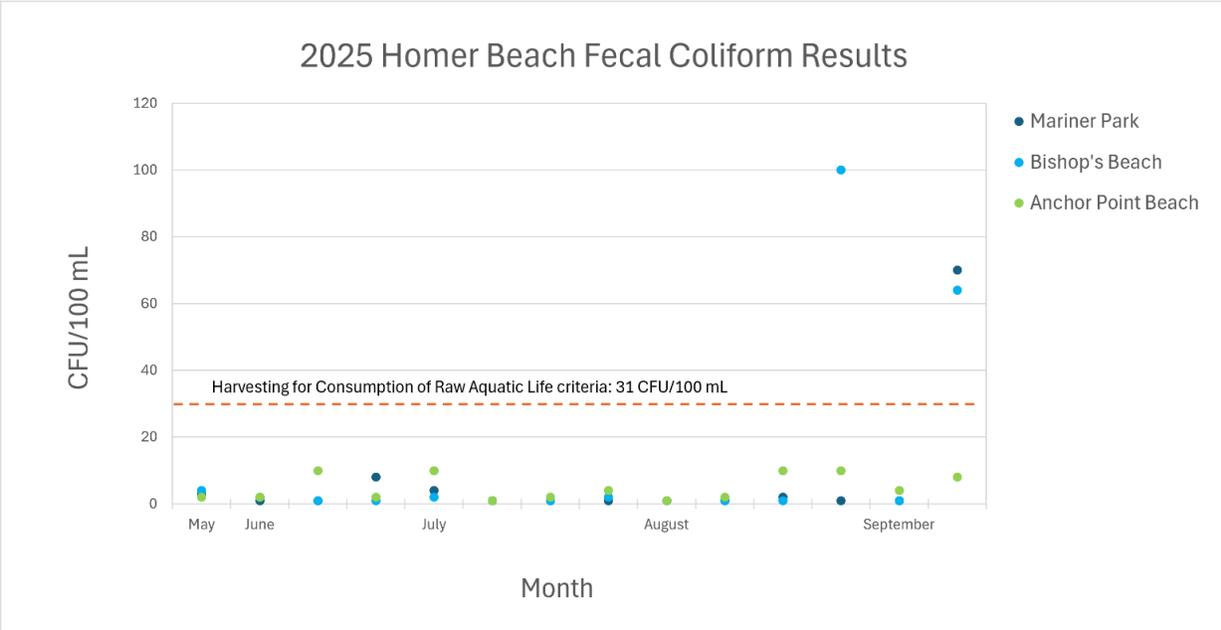


Figure 4. 2025 Fecal coliform analytical results

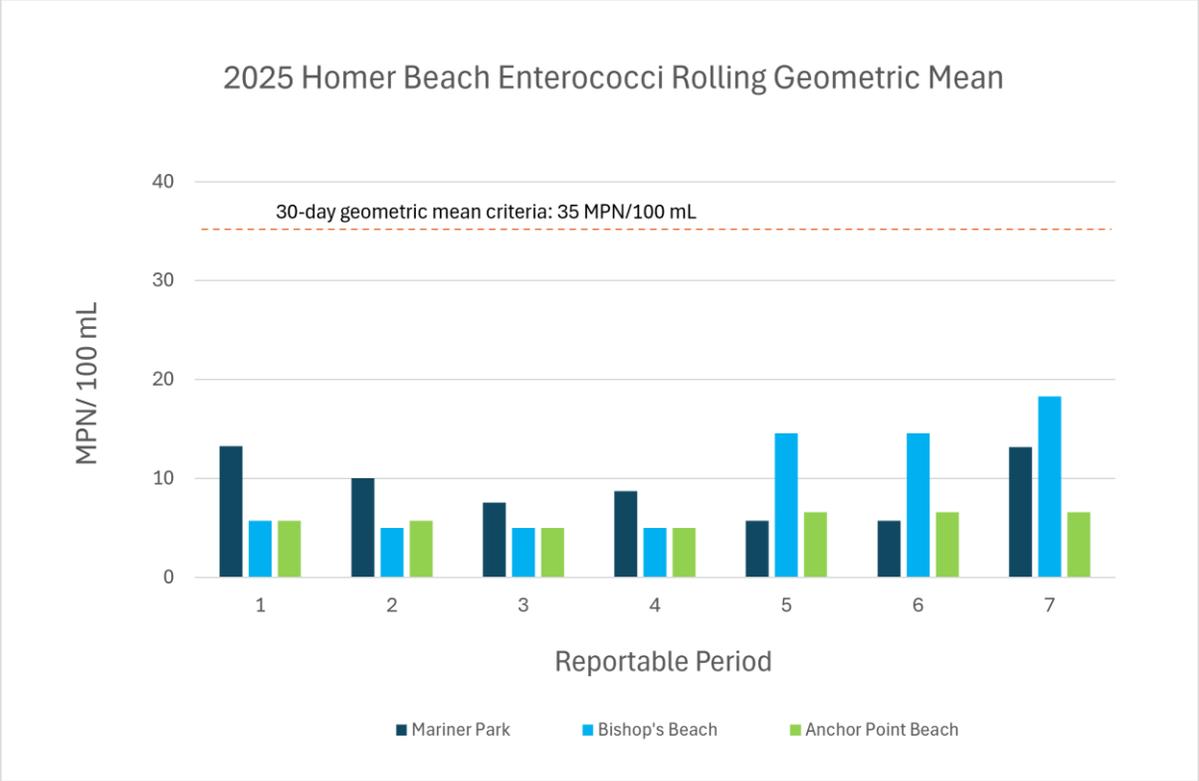


Figure 5. 2025 Enterococci rolling geometric mean. See Appendix B for calculated date ranges

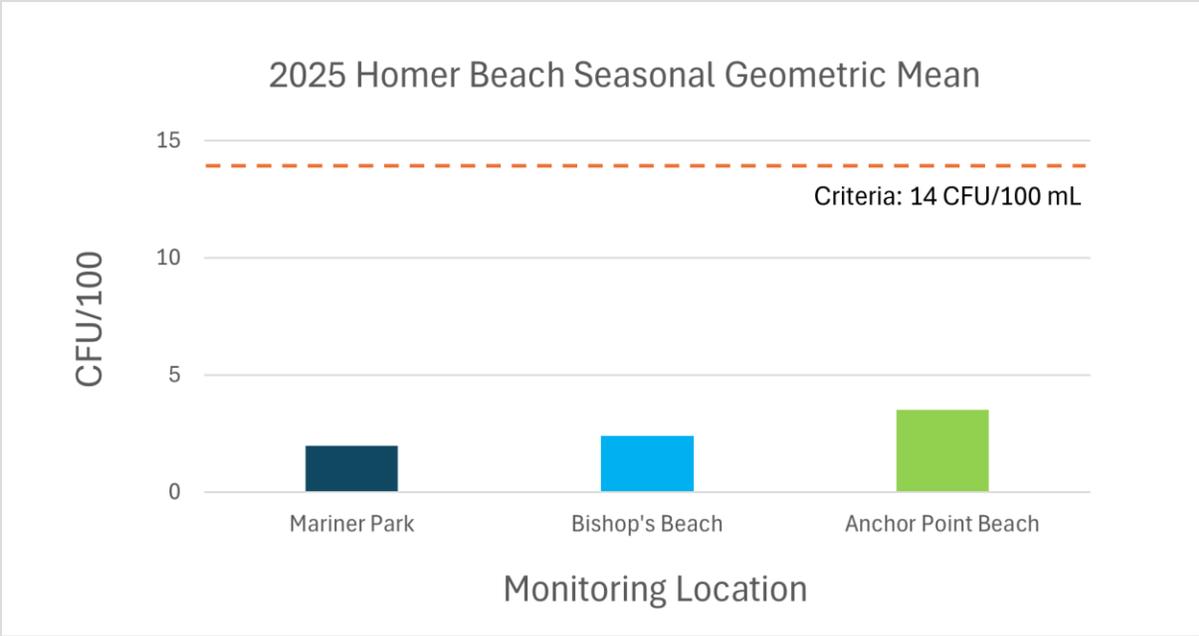


Figure 6. 2025 Fecal coliform seasonal geometric mean

In situ Data

Along with collecting water quality samples, HSWCD measured in-situ parameters, including water temperature, pH, and turbidity. Air temperature was recorded from a third-party weather forecast system. Environmental parameters were within expected ranges for seasonal conditions. Air and water temperatures varied throughout the season as anticipated; pH values were within a typical range for marine water, between 6.84 and 8.24. Turbidity was generally low throughout the season but fluctuated in correlation with high wave activity.

Table 3. 2025 In situ measurement summary

Analyte	Site	Mean	Median	Range
Air Temperature (°C) ¹³	Mariner Park	12.11	12.70	6.00—17.20
	Bishop's Beach	13.07	12.90	8.20—19.10
	Anchor Point	12.66	12.77	8.33—17.70
Water Temperature (°C)	Mariner Park	11.97	12.30	9.30—13.90
	Bishop's Beach	11.91	12.30	8.70—13.60
	Anchor Point	11.76	12.20	8.30—13.90
pH	Mariner Park	7.78	7.83	7.23—8.02
	Bishop's Beach	7.84	7.95	6.84—8.21
	Anchor Point	7.86	7.97	6.91—8.24
Turbidity (NTU)	Mariner Park	7.27	4.38	1.23—23.10
	Bishop's Beach	6.43	2.55	1.09—15.75
	Anchor Point	21.91	13.45	3.59—100.00

¹³ Air temperature recorded from <https://www.wunderground.com/weather/us/ak/homer>

MST Data

MST samples collected on 7-22-2025 revealed no detectable human, bird, or dog DNA markers at the three regularly monitored beaches. However, quantifiable results for horse DNA markers were detected from waters off Mariner Park (Table 4).

Table 4. 2025 MST analytical results

Site	Bacteroidetes	*Result
Mariner Park	Human	ND
	Bird	ND
	Dog	ND
	Horse	2.79E+03
Bishop's Beach	Human	ND
	Bird	ND
	Dog	ND
	Horse	ND
Anchor Point Beach	Human	ND
	Bird	ND
	Dog	ND
	Horse	ND

*ND = Not Detected

Outreach

HSWCD and DEC developed a communication plan and prepared a radio campaign with general Beach Program information that aired across the Kenai Peninsula throughout June and September 2025. Preliminary sampling results were received within 36 hours of collection and were posted on DEC's Alaska Beach Program website under the Homer tab, along with an interactive map. DEC also emailed weekly updates to the Alaska Beach Program listserv. The public can sign up for weekly email notifications on the Homer Beach webpage; there, they can also find Frequently Asked Questions (FAQs) and supporting project documents. Facebook posts and advisory signage were prepared in case of excursions of contact recreational criteria; however, no advisories were necessary during the 2025 recreational season. HSWCD posted Beach Program information on social media following the recreational season to share a summary of monitoring results, sampling methods, potential bacteria sources, and next steps.

Conclusion

HSWCD staff successfully implemented the first year of a 2-year program for marine pathogen monitoring at three Homer-area recreational beaches. Results indicated that bacteria concentrations at all sampled locations were generally low during the 2025 sampling season. Contact recreational activities were not negatively affected by bacteria loads; however, at Bishop's Beach, there was an excursion of the most stringent criterion for harvesting for consumption of raw aquatic life. There were no detectable DNA markers for human, bird, or dog

at the three monitored sites, however a quantifiable detection of horse DNA occurred at Mariner Park.

Recommended Next Steps

HSWCD will continue a second year of water quality monitoring during the 2026 recreational season.



Figure 7. Kachemak Bay in Homer, Alaska.

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

Water Quality Standards for Designated Uses	
POLLUTANT & WATER USE	CRITERIA
(14) BACTERIA, FOR MARINE WATER USES, (see note 1)	
(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.
(A) Water Supply (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.
(A) Water Supply (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 (STV) of 130 enterococci CFU/100 ml.
(B) Water Recreation (ii) secondary recreation	In a 30-day period, the geometric mean of samples may not exceed 200 fecal coliform/100ml, and not more than 10% of the samples may exceed 400 fecal coliform/100ml.
(C) Growth and Propagation of Fish, Shellfish, Other Aquatic Life, and Wildlife	Not applicable.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	The geometric mean of samples may not exceed 14 fecal coliform/100 ml; and not more than 10% of the samples may exceed; <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 CFU per 100 ml for a membrane filtration test (see note 14).

Appendix B. 2025 Homer Area Beaches Bacteria Results

Table B1. 2025 analytical results

Date	Homer MARINER PARK		Homer Bishop's Beach		Anchor Point beach	
	Enterococci (mpn/100mL)	Fecal coliform (cfu/100mL)	Enterococci (mpn/100mL)	Fecal coliform (cfu/100mL)	Enterococci (mpn/100mL)	Fecal coliform (cfu/100mL)
5-29-25	20	3	10	4	ND	2
6-04-25	41	ND	ND	2	10	2
6-11-25	ND	No results	ND	No results	ND	No results
6-18-25	10	ND	ND	ND	ND	10
6-26-25	10	8	ND	ND	ND	2
7-02-25	ND	4	ND	2	ND	10
7-09-25	10	ND	ND	ND	ND	ND
7-16-25	10	ND	ND	ND	ND	2
7-22-25	No results	No results	No results	No results	No results	No results
7-30-25	ND	ND	ND	2	ND	4
8-06-25	ND	ND	20	ND	ND	ND
8-13-25	ND	ND	ND	ND	10	2
8-20-25	ND	2	10	ND	ND	10
8-28-25	10	ND	132	100	10	10
9-03-25	ND	4	ND	ND	ND	4
9-10-25	318	70	62	64	ND	8

Table B2. Nick Dudiak Fishing Lagoon screening sample results

Date	Homer Nick Dudiak Fishing Lagoon	
	Enterococci (mpn/100mL)	Fecal coliform (cfu/100mL)
8-06-25	41	12

Table B3. 2025 Enterococci 30-day rolling geometric mean

Date Range	Period	Mariner Park	Bishop's Beach	Anchor Point Beach
06-26-2025 to 05-27-2025	1	13.26	5.74	5.74
07-02-2025 to 06-02-2025	2	10.05	5.00	5.74
07-09-2025 to 06-09-2025	3	7.58	5.00	5.00
07-16-2025 to 06-16-2025	4	8.71	5.00	5.00
08-28-2025 to 07-29-2025	5	5.74	14.59	6.60
09-03-2025 to 08-04-2025	6	5.74	14.59	6.60
09-10-2025 to 08-11-2025	7	13.18	18.29	6.60

Table B4. 2025 Fecal coliform seasonal geometric mean

2025 Season Dates	Mariner Park	Bishop's Beach	Anchor Point Beach
5-29-2025 to 9-10-2025	1.97	2.40	3.50

Appendix C. Monitoring Sites and Select Field Photos

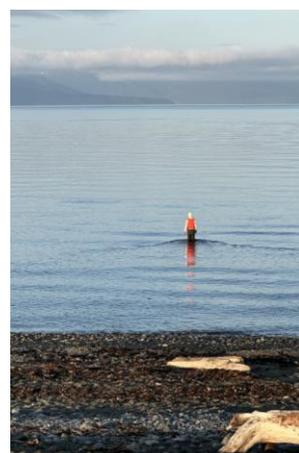
Mariner Park

Mariner Park beach, at the base of the Homer Spit, is adjacent to City of Homer's Mariner Park Campground, which offers 34 campsites open from April 1 to October 31. The park also includes a tent area, day use parking, and a gazebo. The park has no potable water, and basic sanitation is provided via chemical toilets and hand wash stations. The approximate sampling area is marked by the red star.



Bishop's Beach

Bishop's Beach is a City of Homer park facility, but camping is prohibited. In addition to parking, recreation infrastructure adjacent to the beach includes a covered picnic pavilion with fire pit, BBQ grill, and picnic tables, as well as chemical toilets. Beluga Slough Trail connects Bishop's Beach to the Alaska Maritime National Wildlife Refuge Visitor Center, located upslope on the Sterling Highway. The city's Water and Wastewater Treatment Plant (WWTP) is located about ¼-mile due east of the Refuge Visitor Center. A 2000-foot pipe discharges treated water from the treatment plant into Kachemak Bay offshore of Bishop's Beach. The approximate sampling area is marked by the red star. Samples were collected beyond the wastewater mixing zone.



Anchor Point Beach

Anchor Point Beach is part of the Anchor River State Recreation Area managed by the Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation (“Alaska State Parks”). As with other sampled beaches, easy recreational access is provided by a maintained parking area, shown in the photo below. This parking area is shared with a “tractor boat launch” service—Anchor Point Boat Launch—which has a permit from Alaska State Parks to use tractors on the beach. As shown on the aerial photo below, a State Park campground—Halibut Campground—is located a few hundred feet south of the Anchor Point beach parking area. The campground offers 30 campsites, and a trail from the campground provides easy foot access onto the beach. Each campsite has a picnic table and fire ring, and all are served by ADA restrooms and a potable water source. The approximate sampling area is marked by the red star.



Nick Dudiak Fishing Lagoon

Nick Dudiak Fishing Lagoon (commonly called the Homer Fishing Hole) was sampled once during the summer season, on Wednesday, August 6, 2025. The Fishing Hole is stocked by the Alaska Department of Fish and Game with silver and king salmon and is located on Homer Spit Road. On the southeast end of the lagoon is City of Homer's Fishing Hole Campground offering 80 campsites. Next to the campground is Pier 1 Theater and Kachemak Bay Water Trail launch site and pavilion. On the northwest end of the lagoon is Heritage RV Park, with over 100 RV sites and a common building housing an office, bathrooms, a coffee bar, window seating and a rooftop deck. Parking for the Fishing Hole runs along the lagoon between the RV park and the city's campground. A City of Homer public restroom is located at the southwest corner of the lagoon and serves visitors—mostly anglers and walkers and bicyclists using the Homer Bike Trail, which runs along Homer Spit Road. The restroom also serves Pier 1 Theater and the Water Trail launch site. The approximate sampling area is marked by the red star.

