Department of Environmental Conservation

Water Quality Standards, Assessment, and Restoration Program

Frequently Asked Questions

Ketchikan Beach Monitoring Program

What is the Alaska Beach Program?

The Beaches Environmental Assessment and Coastal Health (BEACH) Act was passed by the U.S. Congress in 2002 in response to increased occurrences of water-borne illnesses. The U.S. Environmental Protection Agency (EPA) administers grant funds to states, tribes and territories under the Act to establish monitoring and public notification programs. The BEACH program has established national marine water quality monitoring and reporting standards for fecal waste contamination and notifies the public when levels exceed state standards.

Why monitor Ketchikan beaches?

The Alaska Beach Program includes Ketchikan to evaluate potential health risks by fecal coliform and enterococci bacteria, and to notify the public when levels exceeded state recreation standards. Marine water samples are collected along the Ketchikan coastline to monitor fecal waste contamination during the recreation season. Coastal marine water was monitored in 2017 from July through September, in 2018 from May through September, and in 2019 from May through September. The 2020 recreation season program is planned for weekly sampling from mid-May through mid-September.

What areas are being monitored?

In 2017, water samples were collected at nine coastal beach areas in Ketchikan including: Knudson Cove, Beacon Hill, South Point Higgins, Shull, Sunset, South Refuge Cove State Recreation Site, Thomas Basin, Seaport, Rotary Pool.

In 2018, two additional coastal areas were recommended by the Our Way of Life Committee of Ketchikan. These areas are situated in Mountain Point and Herring Cove. The Mountain Point area had 2 separate beaches monitored: Surprise Beach and Cultural Foods. Also, the Rotary Park area was divided into two monitoring locations: Rotary Pool and Rotary Beach.

In 2019, water samples were collected at 12 coastal beach areas in Ketchikan including: Knudson Cove, South Point Higgins, Shull, Sunset, South Refuge Cove State Recreation Site, Thomas Basin, Seaport, Rotary Beach, Rotary Pool, Mountain Point Surprise Beach, Mountain Point Cultural Foods, Herring Cove. The same monitoring locations are planned for 2020.

Why were these locations chosen for monitoring?

Monitoring site selection was based on information collected from the Alaska Beach Survey. The survey assessed the types of recreational activities and the level of use during the recreational season for beaches around Ketchikan. Since the survey was conducted and sampling began, two additional locations, Mountain

Point Coast area and Herring Cove have been identified as having high recreational use (e.g., recreational diving, marine foods harvesting).

What are the potential sources of bacteria?

Potential bacteria sources present along the Ketchikan coast include: boats in harbor and launch areas, small cruise ships, private watercraft and ferries, individual septic tanks, private and/or public sewer treatment system outfall(s), public treatment system emergency bypasses, sewer line breaks, pet feces, and wildlife.

Is there evidence that cruise ships are a source of bacterial contamination?

There is no evidence of large cruise ships being a source of bacterial contamination. Large cruise ships must operate with wastewater treatment technology designed to filter and disinfect wastewater. The general permit requires them to meet the most stringent, raw shellfish water quality criteria, at the point of discharge. There is no mixing zone for bacteria for large cruise ships and no spills of sewage have been reported near Ketchikan by cruise ships.

Small cruise ships and ferries must have working wastewater treatment equipment and must minimize discharges near shore. They do not have permit limits but they have relatively low volumes of wastewater discharges.

How are local sewage outfall sources being regulated?

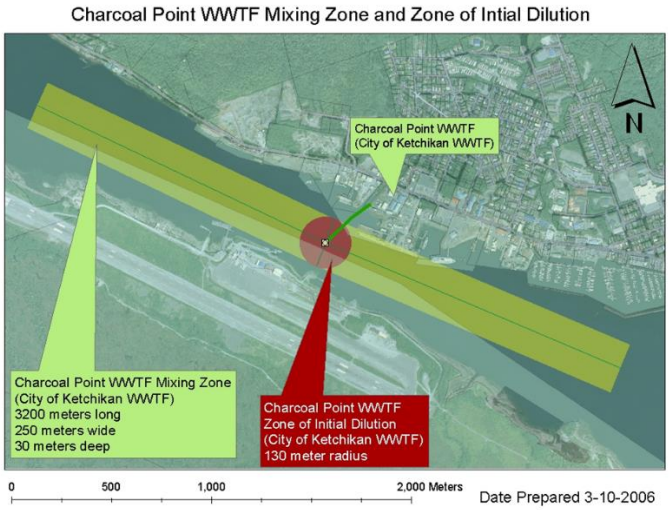
There are various local sewage outfall sources to Tongass Narrows from single family homes, common collector developments, and separate City and Borough wastewater treatment plants. The City wastewater treatment plant has primary treatment and is regulated through an EPA-administered Clean Water Act National Pollutant Discharge Elimination System (NPDES) permit. The Borough wastewater treatment plant (secondary treatment) and approximately eight common collectors are regulated through DEC-administered Alaska Pollutant Discharge Elimination System (APDES) permits. Several common collector and single family homes with sewage outfalls to Tongass Narrows do exist that do not have a wastewater discharge permit; however, many (but not all) have at least gone through engineering plan review. DEC is evaluating these systems to determine best approaches to control the discharges, which may include plan review and/or wastewater discharge permits in the future.

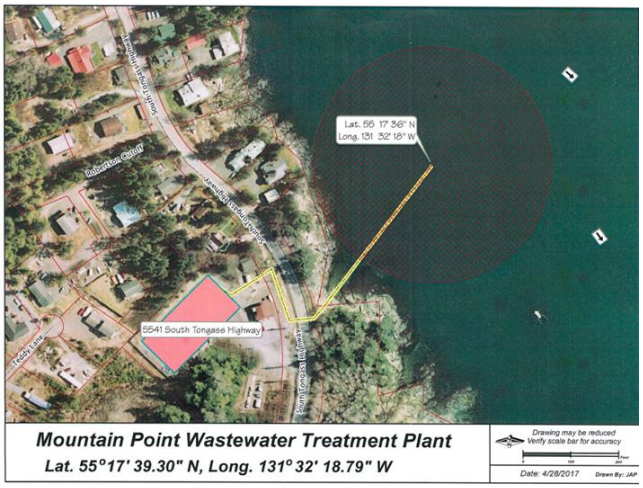
City of Ketchikan - Charcoal Point Wastewater Treatment Facility				
Treatment Type	**Maximum Daily Discharge (gallons/day)**	**Permitted Effluent Levels of Fecal Coliform (cfu/100 ml)**	**Alaska Marine Water Quality Standards for Fecal Coliform (cfu/100 ml) [1]**	**Mixing Zone Size (meters)**
Primary	7.2 million (365 days)	7-day average 1.25 million 30-day average 1 million Daily maximum 1.5 million	Secondary recreation avg. 200 Raw shellfish consumption avg. 14 Secondary recreation max 400 Raw shellfish consumption max 31	3200 long 250 wide rectangle 30 depth
Ketchikan Gateway Borough - Mountain Point Wastewater Treatment Plant				
Secondary	700,000 (365 days)	30-day average 200 Daily maximum 800	Same as above	100 radius circle
Cruise Ships				
Tertiary **Advanced Wastewater Treatment Systems**	303,800 gallon/day max 174,400 gallon/day median May-September (161 days) only[2]	30-day average 14 Daily maximum 40	Raw shellfish consumption avg. 14 Raw shellfish consumption max 40 Most stringent criteria (consumption) used, not recreation	No mixing zone Must meet permit limit at point of discharge

1

18 AAC 70 Alaska Water Quality Standards (amended as of April 6, 2018) - (14) Fecal Coliform, For Marine Water Uses	
(B) Water Recreation (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 (most stringent)	The geometric mean of samples may not exceed 14 fecal coliform/100 ml; and not more than 10% of the samples may exceed; 31 CFU per 100 ml for a membrane filtration test.

2 14 of 26 vessels are authorized to discharge in port. The largest vessel in 2019 does not discharge in port, and uses a treatment system with a manufacturer capacity of ~413,700 gal/day. The largest vessel authorized to discharge in Ketchikan in 2019 has a treatment system of ~380,400 gal/day.





What did the bacteria results say?

During the 3-year study, 11 of 13 monitoring sites failed to meet one or both of the fecal coliform criteria protecting the harvesting use for two or more years. Eleven of 13 failed to meet the 10% of samples criterion for fecal coliform bacteria for two or more years. Nine of 13 monitoring sites failed to meet the geometric mean criterion for fecal coliform bacteria.

Also, 11 of 13 monitoring sites failed to meet one or both of the enterococci criteria protecting the contact recreation use for two or more years. Eleven of 13 sites failed to meet the 10% of samples criterion for enterococci for two or more years. Seven of 13 sites failed to meet the geometric mean criterion for enterococci.

In addition to bacteria testing, DEC conducted a more comprehensive source investigation of the pollution by using microbial source testing for bacteria genetic identification. The human host marker were detected during at least one year at all 13 monitoring locations tested. Twelve of the 13 monitoring locations also had dog host markers during at least one year with the exception of Mt. Point Surprise Beach. The gull host marker was detected in 11 of 13 locations during at least one year with the exception of Rotary Beach and Mt. Point Surprise Beach.

Is the water safe to swim in?

When elevated fecal bacteria levels are present in the marine water, precautionary measures are advised. DEC recommends people avoid exposure, such as swimming in the water, and wash after contact with the marine water. Commonly documented health issues from swimming in bacteria contaminated recreational waters include gastrointestinal illness, respiratory illnesses, skin rashes, and ear, eye, and wound infections.

Is the fish safe to eat?

When elevated fecal bacteria levels are present, precautionary measures are advised. DEC recommends rinsing fish with clean water after they have been harvested from the area. As always, people should cook seafood to a minimum internal temperature of 145 degrees Fahrenheit to destroy pathogens.

What are the plans for 2020?

DEC plans to:

1. Conduct a fourth year of monitoring at all 12 of the 2019 beach monitoring locations
2. Collect additional testing and parameters necessary to use the EPA's Virtual Beach model in 2021
3. Notify the public when levels exceed water quality recreation criterion

What happens if there are elevated results?

DEC will issue a press release and post the advisory and monitoring results on the Alaska Beach Program website https://dec.alaska.gov/beaches/, forward weekly updates to Beach listserv participants https://list.state.ak.us/mailman/listinfo/ak.beach.program/, and post social media updates. The City and Borough may post an advisory sign at the affected beach. The Alaska Beach Program website also has a new interactive map showing advisories at specific beaches, monitoring reports, press releases, and other project resources.

What happens next?

The monitoring program will help support the development of recommendations for best management practices and treatment of wastewater to reduce bacteria levels along the Ketchikan coastline. These recommendations will be included in the Ketchikan Watershed Management Plan; a draft report is scheduled for release to stakeholders in fall 2020.