



Beyond Swimming: Playing in the Cold Waters of Alaska

Alaska Department of Environmental Conservation

Kenai Watershed Forum



Alaska Department of Environmental Conservation, Division of Water's mission is to improve and protect water quality.

Alaska Beach Program supports local communities, tribal governments and watershed councils to monitor marine water quality at high-priority beaches. Participants include: Dillingham, Haines, Homer, Juneau, Kasilof, Kenai, Naknek, Wrangell, Petersburg and Nome.

Alaska beaches are different



Alaskan beaches are not typical swimming beaches

- ➔ Recreational use is highly seasonal - low temperature waters even during summer.
- ➔ Swimming is not the primary activity – fishing, wading, dog walking, kayaking, and boating are.
- ➔ Recreational use periods are limited - fisheries are short (usually 3 weeks).
- ➔ Wildlife and migratory birds are abundant.



Lutak Inlet, Haines, AK



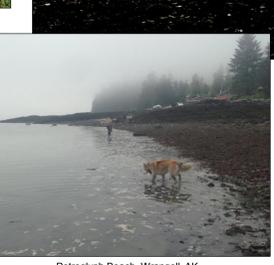
Auke Recreation Area, Juneau, AK



Portage Cove, Haines, AK



City Park Beach, Wrangell, AK



Petroglyph Beach, Wrangell, AK

Kenai River – Case study

The Kenai River, situated on the Kenai Peninsula in south central Alaska, hosts a popular personal use fishery in July. Since 2003, Alaskans harvest between 130,000 and 540,000 sockeye salmon annually in this fishery. Due to a nearby bird rookery and poor fish waste management by anglers, bacteria levels exceed water quality standards during the July dipnet salmon fishery and may pose human health risks.



South Kenai Beach, Kenai, AK



A multi-year monitoring study was designed to determine bacteria levels and sources, and develop data trends and actions needed to improve the effectiveness of public outreach and notifications.

2011 - 2014 Fecal Coliform results summary																	
Site	Single Sample Standard 200 CFU/100mL				30-Day Geometric Mean Standard 100 CFU/100mL				Exceedance?								
	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014					
N Kenai Beach	1	2	0	1	270	500	660	-	250	35.9	17.2 - 30.5	9.4	49.69	-	-	-	-
S Kenai Beach	6	6	2	8	220	260	220	320	290	142.1	120.3 - 129.9	75.9	153.79	✓	✓	-	✓
back-ground	0	0	0	0	-	-	-	-	-	18.5	17.2 - 20.9	10.8	22.65	-	-	-	-
gull rookery	0	-	-	-	-	-	-	-	-	35.7	-	-	-	-	-	-	-

2011 - 2014 Enterococci results summary																	
Site	Single Sample Standard 276 MPN/100mL				30-Day Geometric Mean Standard 35 MPN/100mL				Exceedance?								
	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014					
N Kenai Beach	1	2	1	4	540	4100	4400	3800	780	47.1	22.5 - 96.4	51	75.27	✓	✓	✓	✓
S Kenai Beach	3	3	1	5	390	320	620	330	560	103.5	85.2 - 115.8	10.8	179.07	✓	✓	-	✓
back-ground	0	0	0	0	-	-	-	-	-	21.3	10 - 17.3	10	14.19	-	-	-	-
gull rookery	0	-	-	-	-	-	-	-	-	25.6	-	-	-	-	-	-	-

Kenai River - General study findings

Factors that influence bacteria levels during the July dipnet fishery:

- ➔ Kenai dipnet fishery season and human activity
- ➔ Sockeye salmon run count
- ➔ Tidal activity
- ➔ Fish waste on beach
- ➔ Bird count/presence

Outcomes:

- ➔ Microbial Source Tracking (MST) results verify gulls are major fecal bacteria contributor
- ➔ Low tide exposed mudflats = large gull count
- ➔ Bacteria exceedances at low and high tides – but more at low tides
- ➔ Preliminary data indicates a decrease in bacteria levels since action implementation

**Increased salmon run =
Increased fish waste =
Increased bird count/presence =
Increased fecal matter =
Increased action implementation =
Decreased bacteria**

Fish waste management policies and actions:

- ➔ Providing fish cleaning stations
- ➔ Posting beach warning signs
- ➔ Raking beaches to remove fish waste
- ➔ Limited camping and dipnet/fishing areas
- ➔ Refuse service, trash pack out requirement, \$1,000 fine for littering/improper fish waste disposal
- ➔ Providing portable toilets
- ➔ Public service announcements and press releases, brochures at local venues and attached to dipnet permit
- ➔ Dipnet season July 10 – July 31 from 6am – 11pm (regardless of tides) to minimize harvest of king and silver salmon runs*

* Kenai River Late-Run Sockeye Salmon Management Plan (Title 5 Alaska Administrative Code, Chapter 21, 5 AAC 21.360)

Striving to restore healthy waters

Alaska proposes to use actual adopted water quality criteria rather than EPA-preferred BAV or 75th percentile value.

Proposed values don't account for:

- Geographic location
- Water temperature
- 17-24 hour daylight
- Recreational water uses
- Exposure magnitude / duration

Marine Criteria Elements		Fecal Coliform (FC/100 ml)	Enterococcus (MPN/100 ml)
Existing Criteria applicable in permits and monitoring efforts ¹	SSM ²	200	276 ³
	GM ²	100	35 ³
Criteria Elements		E. Coli (cfu/100 ml)	Enterococcus (MPN/100 ml)
2012 RWQC EPA 36 illnesses per 1000	STV ⁴	410	130
	GM	126	35

1. EPA 1986 RWQC.
2. Single Sample Maximum (SSM) consists of not more than 10% of samples may exceed 200 FC/100 ml, and Geometric Mean (GM) consists of 5 samples within 30 days.
3. Promulgated for Alaska in 2004 Bacteria Rule (69 FR 67217-67243). Alaska current protection = contact recreation use for lightly used beaches in marine waters
4. Statistical Threshold Value (STV).

Needs

- ⚠ EPA's secondary recreation criteria to address Alaska alternative beach notification threshold value
- ⚠ Better, more quantitative risk assessment tools
- ⚠ More progressive ways to improve sanitation for long-term solutions
- ⚠ More transparent ways to connect BEACH Act with other Clean Water Act programs
- ⚠ Connecting bacteria exceedances to 303(d) listings, TMDLs or other community planning / state regulations



References

1. Alaska Department of Environmental Conservation, 18 AAC 70 Water Quality Standards, amended as of February 19, 2016
2. Rozen, Yael and Shimshon, Belkin, 2001, Survival of enteric bacteria in seawater
3. EPA National Beach Guidance and Required Performance Criteria for Grants, 2014 Edition, EPA-823-B-14-001, July 2014
4. Kenai Beach Sampling Assessment 2011-2014, drafted dated March 2016