



# Kenai River

## Turbidity Determination

### November 2018

The Kenai River is located in southcentral Alaska in the Kenai Peninsula Borough. The river supports popular king salmon and red salmon sport fisheries and many other fish species.

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#### Turbidity Impairment

Turbidity measures the cloudiness of the water and estimates the concentration of particles. While some turbidity occurs naturally, excess turbidity can have numerous adverse effects on water uses by hiding navigation hazards for boats, decreasing the light penetration for plants, and decreasing the visibility of prey and predators for fish.

ADEC initially proposed to list 7.5 miles of the lower Kenai River as being impaired by turbidity for the contact recreation, drinking water and secondary recreation designated uses in the Public Notice Draft 2014/2016 Integrated Water Quality Monitoring and Assessment Report Integrated Report (2014/16 IR) (December 2017) based on data from Kenai Watershed Forum (KWF) 2008-2010 Turbidity Monitoring Study. Several comments received during the public notice comment period indicated that river use practices on the lower Kenai River have changed since the 2008-2010 Turbidity Monitoring Study. Most comments included information about how the recreational fishery is now primarily a sockeye salmon sport fishery instead of a Chinook salmon sport fishery and that motorized boats are operated differently to target the different salmon species. Other comments stated that new boat motor regulations, implemented after 2010, may have lowered turbidity.

ADEC sought to obtain a limited amount of data with a new turbidity monitoring effort in July 2018. KWF was contracted, as part of an Alaska Clean Water Actions grant agreement, to perform turbidity monitoring on the lower Kenai River during a two-week interval in July. This project was named 'KWF/ADEC's 2018 limited turbidity monitoring project.' The principal purpose for conducting the KWF/ADEC's 2018 limited turbidity monitoring project was to perform a check on whether the river use changes that may have taken place since 2010 are still causing a turbidity impairment.

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DEC's Water Quality Reports:  
[https://dec.alaska.gov/com\\_mish/regulations/index.htm](https://dec.alaska.gov/com_mish/regulations/index.htm)

Alaska Water Quality Standards, Chapter 70:  
[https://dec.alaska.gov/com\\_mish/regulations/index.htm](https://dec.alaska.gov/com_mish/regulations/index.htm)

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KWF endeavored to replicate the previous study, including utilizing the same monitoring locations from the 2008-2010 KWF Turbidity Monitoring Study in order to make data assessment comparisons between the two studies as reliable as possible. Peak turbidity in the KWF 2008 – 2010 Turbidity Monitoring Study was correlated with times of high boating activity. Due to a closure of the Chinook salmon fishery in 2018, fewer boats were present during the limited turbidity monitoring study than would have been expected. Key conclusions from the 2018 study are:

- Average daily values recorded in KWF/ADEC's 2018 limited turbidity monitoring project ranged from 4.2 to 28.7 Nephelometric Turbidity Units (NTUs). Average daily values ranged from 4.0 to 80.7 NTUs during the 2008-2010 study. Low values have a higher degree of relative error due to instrument accuracy; when instrument accuracy is taken into consideration ADEC is unable to make of a determination of impairment or attainment.
- While the study was limited, the data does suggest turbidity patterns on the lower Kenai River were different in 2018. This may be due to changes in boating behavior and fishery activity between the 2008-2010 turbidity monitoring and the 2018 turbidity monitoring, and may account for the changes in turbidity results between the two monitoring studies.

## Conclusions

Based on the sampling results and analyses, ADEC is leaving the lower Kenai River in Category 3 (insufficient information) for turbidity in the 2014/16 IR until further information becomes available to reassess the current condition of the river. ADEC will work with local stakeholders to create a prioritized watershed plan to address potential water quality issues affecting the Kenai River.