[DRAFT]

Kenai River Water Quality Monitoring Quality Assurance Project Plan (QAPP)

**Multi-Agency Baseline**

***V. 2. Updated April 2019***

***V. 3. Updated April 2020***

***V.4. Updated July 2022***



***Original Version Prepared by:* Kenai Watershed Forum 44129 Sterling Highway**

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*Prepared for:*

**STATE OF ALASKA**

**DEPARTMENT OF ENVIRONMENTAL CONSERVATION**

**Division of Water**

**Water Quality Standards and Restoration**

***Note: the most current version of this draft may be downloaded at*** [***https://bit.ly/draft\_qapp\_2022***](https://bit.ly/draft_qapp_2022)

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## Al. Title and Approval Page

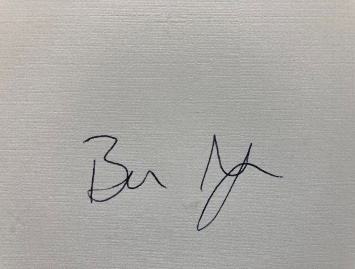
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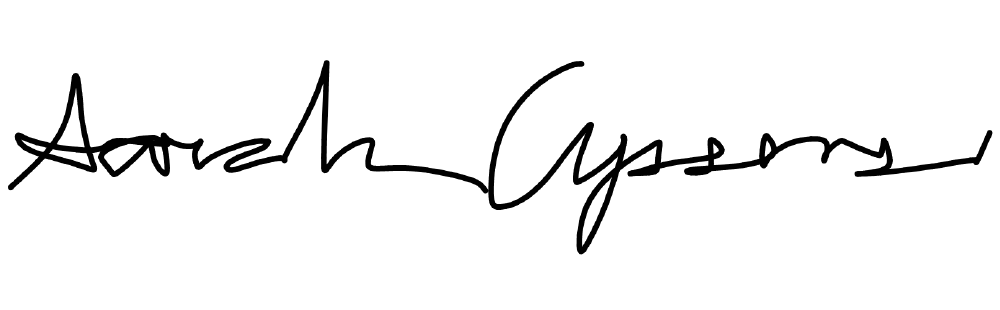
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## A2. Acknowledgements

This document was originally developed by the Kenai Watershed Forum and was modeled and adapted, with permission, from Quality Assurance Project Plans (QAPP) produced by the Cook Inlet Keeper of Homer, Alaska. Portions of the Cook Inlet Keeper QAPP were adapted from similar plans developed by The Friends of Casco Bay (Maine) and Texas Watch. The United States Environmental Protection Agency (EPA), the Alaska Department of Environmental Conservation (ADEC), the United States Geological Survey (USGS), and the National Marine Fisheries Service / Auke Bay Laboratory (NMFS / ABL) also provided guidance and cooperation in helping both the Cook Inlet Keeper and the Kenai Watershed Forum develop and refine their QAPP.

## A3. Distribution List

Signees (Project Manager, Project QA Officer, ADEC Project Manager and ADEC QA Officer) shall receive a copy of the QAPP and subsequent revisions. Offers for official copies of this QAPP and any subsequent revisions will be extended to individuals on the Distribution List.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Table 1. Distribution List** | | | | |
| **NAME** | **POSITION** | **AGENCY** | **DIVISION/ BRANCH** | **CONTACT INFORMATION** |
| Benjamin Meyer | Project Manager, QA Officer | KWF |  | (907) 260-5449  [hydrology@kenaiwatershed.org](mailto:hydrology@kenaiwatershed.org) |
| Sarah Apsens | Project Manager | ADEC | Division of Water | (907) 262-3411  [sarah.apsens@alaska.gov](mailto:sarah.apsens@alaska.gov) |
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Copies of this Quality Assurance Project Plan will be made available onliune at [https://www.kenaiwatershed.org/science-in-action/research-information/water-quality](https://www.kenaiwatershed.org/science-in-action/research-information/water-quality/)/. Interested parties may request a digital copy from ADEC or KWF, or purchase a copy for the cost of production and shipping by writing the Kenai Watershed Forum, 44129 Sterling Highway, Soldotna, AK 99669, or calling (907) 260-5449.

## A4. Project / Task Organization

**KWF Project Manager/ Project QA Officer** Benjamin Meyer

**ADEC QA Officer**

John Clark

**ADEC Project Manager**

Sarah Apsens

**KWF Sampling Teams**

Determined Annually

Figure 1. Project management organization

**Key Contacts and Responsibilities**

Sarah Apsens - ADEC Project Manager. Ms. Apsens will oversee the project for DEC, provide technical support, QAPP review, review of any proposed sampling plan modifications, and the review of all reports.

John Clark - ADEC Division of Water QA Officer. Mr. Clark will be responsible for the review/approval of the QAPP and oversight of QA activities ensuring collected data meets project’s stated data quality goals. He will work with the ADEC project manager to provide recommendations and requirements to the contracting Project Manager.

Benjamin Meyer - Kenai Watershed Forum - Project Manager- Oversees the water quality monitoring efforts and projects conducted by the Kenai Watershed Forum. Provides and/or ensures adequate training is completed for each of the team members conducting water quality monitoring throughout the project. Has completed training in each of the monitoring elements outlined in the plan. Project Quality Assurance Officer - Supervises and trains water quality monitors. They are trained in Agency Baseline Sampling protocols. They are responsible for overall supervision of quality assurance and data entry.

Justin Nelson **-** SGS Environmental Laboratory Services (SGS) - Subcontractor for Kenai River Water Quality Assessment element of the project. Provides training of Agency Staff for data collection and oversees all analyses to be performed at SGS. This contract will be used to ensure proper sampling and analysis of water for 25 Kenai River Watershed sites to determine the water quality within the Kenai River Watershed.

John Essert - City of Soldotna Wastewater Treatment Plant operator plays a significant role in the Kenai River Water Quality Assessment. Will work cooperatively with the Project QA Officer and will perform a variety of water quality analysis for the Kenai Watershed Forum.

Technical Advisory Committee - The technical advisory committee will review results obtained from the monitoring effort on an annual basis. The committee may at any time ask for additional information on any aspect of the project. If monitoring data raises a particular concern, the advisory committee will be asked to suggest and review any changes to the monitoring plan. KWF will not be bound to implement any changes, but will give serious consideration to their input and will follow the committee’s wishes if feasible.

Field Monitoring Staff - Monitoring staff collect samples for the Kenai River Watershed Monitoring program. Monitoring staff are provided by the following Agencies/Organizations:

* Kenai Peninsula Borough
* U.S. Fish and Wildlife Service
* U.S. Forest Service
* Alaska Department of Fish and Game
* Alaska Department of Natural Resources
* Alaska Department of Environmental Conservation
* Cook Inlet Aquaculture Association
* Salamatof Tribe
* Kenaitze Indian Tribe
* The Kenai Watershed Forum and any volunteers under direct supervision of Kenai Watershed Forum monitoring staff.

## A5. Problem Definition/Background and Project Objectives

The Kenai Watershed Forum's (KWF) water quality program is designed to document the existing and changing conditions of water quality within the Kenai River Watershed by developing and maintaining baseline information. It is the intent of the program to first identify and then address a wide range of activities that may contribute to nonpoint source pollution in the Kenai River Watershed. The baseline water-quality monitoring program is consistent with the recommendation 4.5.10.2.2 in the ***Kenai River Comprehensive Management Plan*** (AKDNR 1997)***.*** This recommendation was developed for Alaska State Parks and the ***Upper Kenai River Cooperative Plan*** (USFWS 1997) as a partnership between Alaska State Parks, U.S. Fish and Wildlife Service and the U.S. Forest Service, Chugach National Forest. The State of Alaska does not currently operate a statewide ambient monitoring network due to the high operating costs to maintain such a system over large undeveloped areas. Historically, on the Kenai Peninsula There have been several water quality analyses conducted by state agencies in the early 1990's (Litchfield and Kyle 1992; ADEC 2022b, 2022a). Although these studies indicated that measured water quality parameters were within state and federal compliance standards, *impacts of development and recreational use were evident.* Litchfield and Kyle (1992) analyzed water quality at 17 sites located between the outlet of Kenai Lake and Cook Inlet, and recommended the continued sampling of critical water quality parameters (fecal coliform, hydrocarbon, metals, and nutrients) for the purpose of monitoring future impacts on the Kenai River. They selected representative sites with the suggestion that they be monitored at least twice a year. It was also suggested that more intensive sampling be conducted in the Lower Kenai River, where concentrations of water quality contaminants were the highest priority and of greatest concern.

The baseline-monitoring program is needed to link water quality trends to an understanding of the natural and human factors that affect the water quality. The program is also necessary since many of the enforceable parameters rely on background or natural conditions. Without long-term data collection, it is impossible to know what the appropriate standards of enforcement are. This program must be integrated among many agencies that have differing objectives and must be long-term. The unique hydrologic features of the Kenai River, such as its glacier origin and two large lake systems, require an investigation that is designed to assess the whole of the watershed. The monitoring program must also be consistent with standard sampling and analysis protocols. The monitoring program addresses these needs and implements methods to monitor changes to the Kenai River as the local population and recreational use increase. For more detailed information on historical results, see the two previous Kenai River Water Quality Assessments published by Kenai Watershed Forum (Guerron Orejuela 2016; McCard 2007).

## A6. Project / Task Description

There are three project elements of the Kenai River Watershed Forum’s Water Quality Monitoring Program described in this QAPP:

1. Agency Baseline Monitoring Partnership
2. Collection of specified interval data with programmable Electronic Instruments
3. Stream Temperature Monitoring

Continuous monitoring with electronic instruments was conducted by KWF in 2008 through 2012 on the lower Kenai River, which was summarized by KWF in 2011 (Martin et al. 2011). Temperature monitoring was conducted in tributaries of the Kenai River by Cook Inletkeeper (CIK) 2008 through 2012. Monitoring results were synthesized (Mauger 2013) and later applied in a peer-reviewed manuscript publication (Mauger et al. 2017). Stream temperature monitoring continues currently in a selected subset of these streams (as of August 2022).

Detailed information about electronic instruments and stream temperature monitoring can be found in earlier versions of this QAPP (v.1 and v.2). Calibration information for the electronic instruments and temperatures monitors were retained in this version of the QAPP and can be found in the Appendices. Copies of the reports are available from DEC. These elements may be added to this QAPP in the future if needed.

There are three project elements of the Kenai River Watershed Forum’s Water Quality Monitoring Program described in this QAPP; A) Agency Baseline Monitoring Partnership. In V. 3. of this document the following elements were removed as they are not currently being conducted: 1) Collection of specified interval data with programmable Electronic Instruments, and 2) Stream Temperature Monitoring.

Continuous monitoring with electronic instruments was conducted by KWF in 2008 through 2012 on the lower Kenai River. Data was summarized in KWF 2012. Temperature monitoring was conducted in tributaries of the Kenai River by Cook Inlet Keeper (CIK) 2008 through 2012. Monitoring results were summarized in a series of working reports (CIK, 2009, 2010, 2012), and a synthesis report (CIK 2013). Detailed information about electronic instruments and stream temperature monitoring can be found in earlier versions of this QAPP (v.1 and v.2). Calibration information for the electronic instruments and temperatures monitors were retained in this version of the QAPP and can be found in the Appendices. Copies of the reports are available from DEC. These elements may be added to this QAPP in the future if needed.

In 2018, a zinc and copper monitoring project was added to the KWF Water Quality Monitoring Program (Task B). This Alaska Clean Waters Action (ACWA) grant funded project was designed to monitor copper and zinc levels in key locations on the Kenai River and its tributaries. This element was added in response to an observed increase in zinc and copper levels between 2014 and 2016 (KWF 2017, See Appendix K). This project is scheduled to occur in 2019 and 2020.

Appendix 1

Appendix 2

## References

## ADEC. 2022a. “Kenai River Water Quality Monitoring Activities.” 2022. https://dec.alaska.gov/water/nonpoint-source-control/waters-in-the-spotlight/kenai-river-water-quality-monitoring-activities/.

## ———. 2022b. “Water Quality Standards and Restoration, Water Quality Reports.” February 15, 2022. https://dec.alaska.gov/water/water-quality/reports.

## AKDNR. 1997. “Kenai River Comprehensive Management Plan.” http://dnr.alaska.gov/parks/plans/krsmapln/krsma\_1997\_complete.pdf.

## Guerron Orejuela, Edgar. 2016. “Water Quality Assessment of the Kenai River Watershed from July 2000 to July 2014.” Kenai Watershed Forum. https://dec.alaska.gov/media/16756/kenai-river-baseline-monitoring-report-final-zncuappendix.pdf.

## Litchfield, V. P., and G. B. Kyle. 1992. “Kenai River Water Quality Investigation Completion Report.” 123. Alaska Department of Fish and Game. http://www.adfg.alaska.gov/fedaidpdfs/FRED.123.pdf.

## McCard, Jennifer J. 2007. “Water Quality Assessment of the Kenai River Watershed from July 2000 to July 2006.” Kenai Watershed Forum.

## USFWS. 1997. “Upper Kenai River Cooperative Plan.” https://www.fws.gov/uploadedFiles/UpperKenaiRiverCoop\_Plan\_1997.pdf.