



WATERSHED

Kenai River

Water Quality Action Framework

Analysis and stakeholder engagement to guide
management of Alaska's Kenai River Watershed

Bureau of Reclamation
WaterSMART Cooperative Watershed Management Program Phase I
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Task B: Watershed Restoration Planning

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Table of Contents

Technical Proposal	1
Executive Summary	1
Acronyms & Abbreviations	2
Project Location	2
Technical Project Description	6
Applicant Category	6
Eligibility of Applicant	9
Goals	10
Approach	11
Evaluation Criteria	14
A. Watershed Group Diversity and Geographic Scope	14
B. Addressing Critical Watershed Needs	16
C. Implementation and Results	19
D. Department of the Interior and Bureau of Reclamation Priorities	21
Project Budget	22
Budget Proposal	22
Budget Narrative	23
Appendices	25
KWF Staff Profiles	25
Environmental and Cultural Resources Compliance	27
References	28
Letters of Support	31
Board Resolution	40

Technical Proposal

Executive Summary

January 19, 2021, Kenai Watershed Forum, Soldotna, Kenai Peninsula Borough, Alaska.

Kenai Watershed Forum (KWF) is a community-based 501(c)(3) nonprofit organization founded in 1997 that works through partnerships to ensure healthy watersheds on the Kenai Peninsula of Southcentral Alaska. KWF identifies and addresses the needs of the region by providing high-quality education, restoration, and research programs focused on water quality, fish habitat, and ecological resilience. KWF's partnerships with other nonprofits, government agencies, philanthropic foundations, and corporate entities have strengthened conservation efforts on the Kenai Peninsula, creating a culture of science driven, collaborative watershed management. The proposed project will take place in the Kenai River watershed, an area that includes large swaths of federal public lands and a diversity of state, city, and private property. The Kenai River is a stronghold for wild Pacific salmon, in particular Chinook and sockeye salmon, and is vital to the region's culture, economy, and ecosystem. Development, climate change, and intensive recreational use threaten salmon habitat, and through this project, KWF aims to work with key stakeholders to develop cooperative management strategies that will maintain water quality in the watershed. KWF possesses a robust water quality data set from the Kenai River watershed spanning from year 2000 - present gathered with support of numerous community partners. KWF proposes to curate and analyze these data, conduct stakeholder outreach and engagement, and to facilitate a planning process that will establish a water quality action framework to guide future management of the watershed. Over nearly 25 years KWF has demonstrated success in leveraging local community resources to solve water quality challenges. This project will identify ongoing and emerging critical water quality issues, determine high priority challenges at the community level, and provide a roadmap for future management solutions. The proposed project presents a unique opportunity to provide a highly engaged community with the tools to ensure that existing ecological infrastructure continues to serve as the keystone of the local economy, culture, and ecosystem.

- Proposed project period: September 1, 2021 – August 31, 2023
- The proposed project area includes federal lands within Chugach National Forest, Kenai National Wildlife Refuge, and Kenai Fjords National Park.



Acronyms & Abbreviations

ADF&G - Alaska Department of Fish & Game
ADEC - Alaska Department of Environmental Conservation
AKDNR - Alaska Department of Natural Resources
CWA - Clean Water Act
CWMP - Cooperative Watershed Management Program
DOI - United States Department of the Interior
EPA - United States Environmental Protection Agency
HUC - Hydrologic Unit Code
KPB - Kenai Peninsula Borough
KPFHP - Kenai Peninsula Fish Habitat Partnership
KRBWQM - Kenai River Baseline Water Quality Monitoring
KRCMP - Kenai River Comprehensive Management Plan
KRSMA - Kenai River Special Management Area
KWF - Kenai Watershed Forum
QAPP - Quality Assurance Project Plan
Reclamation - United States Bureau of Reclamation
USFS - United States Forest Service
USGS - United States Geological Survey

Project Location

The Kenai River is a glacially-fed system located on the Kenai Peninsula in southcentral Alaska in the Kenai Peninsula Borough (KPB). The borough includes most of the peninsula as well as a large land area to the west of Cook Inlet with an area of 25,600 square miles, roughly the size of West Virginia. According to the 2010 census, the borough has a population of 55,000 with the vast majority of those individuals living on the peninsula. Of the nearly 16 million acres that make up KPB, approximately 87% is federal or state land, with the remainder owned by the borough, city, Tribal, or private entities (KPB, 2019).

The gem of the borough is the Kenai River watershed, which covers 1.38 million acres including nearly 75,000 acres of wetlands and includes the towns of Cooper Landing, Sterling, Soldotna, and Kenai. The watershed is located largely within the United States Geological Survey (USGS) Hydrologic Unit Code (HUC) 19020302. With 128 miles of state-listed anadromous waters, the watershed hosts six species of Pacific salmon including Chinook (*Oncorhynchus tshawytscha*), sockeye (*O. nerka*), pink (*O. gorbuscha*), chum (*O. keta*), coho (*O. kisutch*), and steelhead (*O. mykiss*). Salmon runs reach millions of fish that utilize the watershed for rearing and spawning habitat alongside 29 other species of fish including Pacific and arctic lamprey, dolly varden, and hooligan or eulachon.



Salmon are critical to the Alaskan economy, recreation, and culture. The Kenai river is uniquely productive, historically producing 35% of the salmon commercially harvested in the Cook Inlet basin, including 80% of the sockeye salmon, despite occupying less than 6% of the basin area (Dorava & Milner, 2000). The watershed supports commercial, recreational, personal use, and subsistence fisheries. In part because of the bounty of salmon the watershed produces, distinct groups of Alaska Native people have resided in the watershed for thousands of years, and there are archaeological sites of significance in the area. Kenaitze Dena'ina people still live in the watershed and recognize a spiritual connection to the Kenai River, which is referred to as Kahtnu in the Dena'ina language.



Figure 1. Map of the Kenai River watershed on Alaska's Kenai Peninsula. The Kenai River mainstem is 82 miles long and begins in the town of Cooper Landing at the outlet of Kenai Lake (map from *The Last Frontiersman* guide services).

- The “Upper River” extends from Kenai Lake, fed from the Sargent Icefield via the Snow River, through Skilak Lake, a 25,000 acre lake that is also fed by the melt from Skilak Glacier, part of the Harding Icefield. Major tributaries of the Upper River are the Snow River

and the Russian River, which is known for two separate runs of sockeye salmon that draw anglers from around the world. Other tributaries include Quartz Creek and Trail Creek.

- The “Middle River” flows from the outlet of Skilak Lake to the Sterling Highway bridge in the City of Soldotna. Significant development along the river begins in the Middle River at the boundary of Kenai National Wildlife Refuge. Major tributaries of the Middle River include the Moose River, Killey River, and Funny River as well as Soldotna Creek.
- The “Lower River” extends 21 miles from Soldotna to the river’s mouth into Cook Inlet in the City of Kenai. The Lower River is tidally influenced up to river mile 21 from the Cook Inlet. The saltwater slug extends to river mile 12, an area that includes a large estuary that is deemed critical habitat for the endangered Cook Inlet beluga whale by the National Marine Fisheries Service (NOAA, 2008). Harbor seals and sea lions also frequent this area. The estuary also provides habitat for an array of birds and includes the Kenai River Gull Rookery, home to thousands of nesting seabirds each summer. The Kenai Port is located in the Lower River, which is the 37th largest port in the country by value of seafood landings (*KPEDD*, 2020). Tributaries of the Lower River include Slikok Creek and Beaver Creek.

Aside from private lands in Cooper Landing, much of the watershed’s headwaters are on federal lands in Kenai National Wildlife Refuge, Chugach National Forest, and a small section in Kenai Fjords National Park. The State of Alaska and multiple local governments also manage lands in the watershed. These agencies coordinate management of the Kenai River Corridor in an interagency forum called the Kenai River Special Management Area (KRSMA). Much of the land in the lower watershed is privately owned, and significant development along the Kenai River begins in the town of Sterling continuing all the way to Cook Inlet. There is also oil and gas production in the watershed with the highest concentration of land based wells in the Beaver Creek Unit north of the City of Kenai.

There are 1,800 private land parcels on the Kenai River shoreline through the Middle and Lower River. Developed area in the watershed has increased by 20 times from the 1950s (see figure 2)(Schoen et al., 2017). While the majority of the watershed remains undeveloped, the impacts of impervious surfaces, runoff, the clearing of forests, and other landscape changes related to development have had a significant impact in the watershed, especially in the lower river region. For example, recent analyses have indicated a relationship between highway traffic volume and dissolved copper concentrations in the lower Kenai River (Sires, 2017a)

While the Kenai River itself is not a drinking water source, it is hydrologically connected to groundwater that is used for drinking water, though much more research needs to be done to understand groundwater/surface water interaction in the watershed.

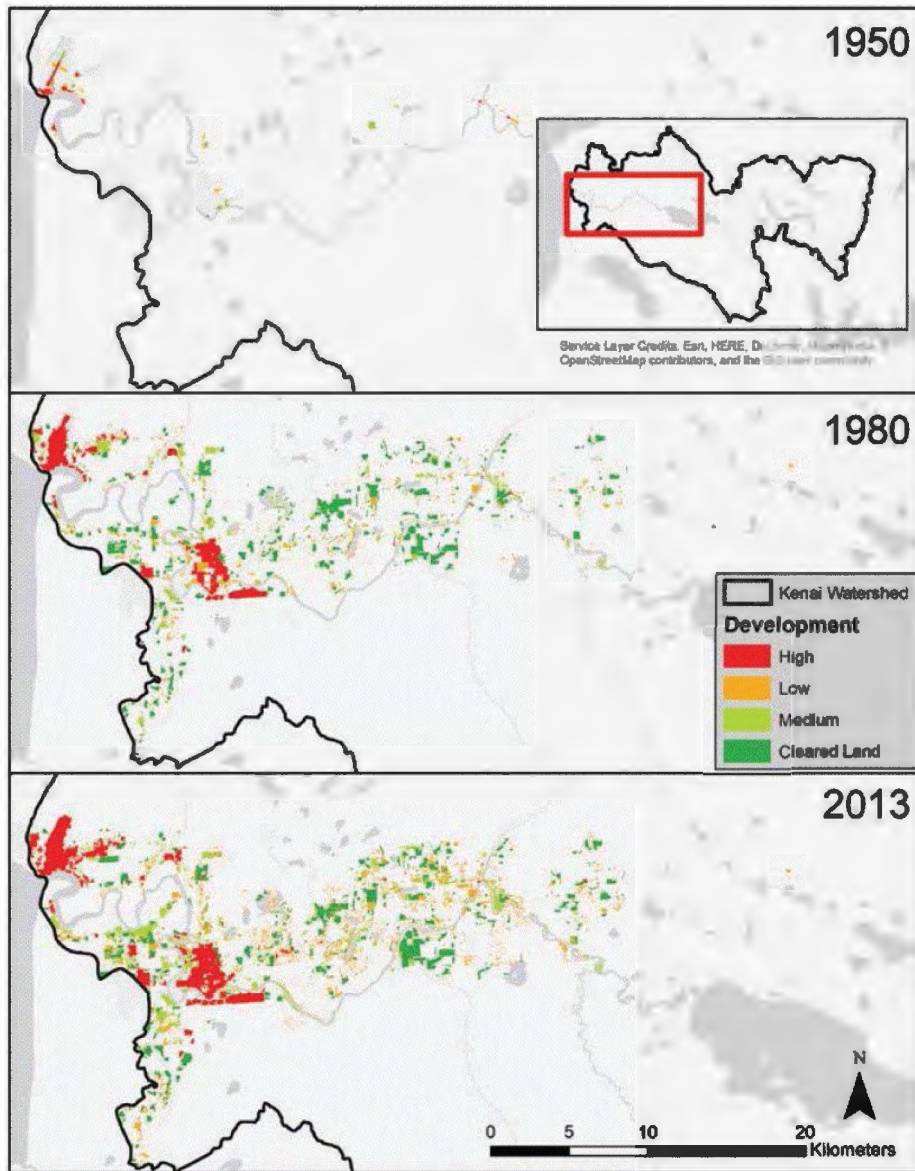


Figure 2. The expanding footprint of human development in the lower Kenai River watershed based on analysis of aerial photographs. Development is concentrated in lowlands near the river mainstem and tributaries. From Schoen et al. 2017, adapted with permission of authors.

As a result of its large salmon runs, connection to the road system, and proximity to the state’s largest population center in Anchorage, the Kenai River hosts the most popular freshwater sport and personal use fisheries in Alaska. While it is most well-known for its Chinook (king) salmon fishery (including the world record 97 ¼ lb. caught in 1985), the river supports other major sport fisheries including sockeye and coho salmon. Pink salmon, rainbow trout, and dolly varden are also fished recreationally from the river. Because of anthropogenic pressures facing the Kenai River, it is a priority for conservation efforts.

Technical Project Description

Applicant Category

KWF is an Existing Watershed Group under the statutory definition cited by the United States Bureau of Reclamation (Reclamation). KWF was founded in 1997 through a grassroots effort by local stakeholders to form a collaborative, non-governmental 501(c)(3) organization to facilitate research, education, and restoration projects in the Kenai River watershed. Since its founding, KWF has focused on understanding, protecting, and restoring water quality; mapping, reconnecting, and restoring aquatic habitat; and providing environmental education to the local community and general public through volunteer programs, outreach events, summer camp, and school programs. KWF works directly with a wide array of partners and stakeholders. Through many successful collaborative efforts, KWF's geographic scope expanded to cover the entire KPB - a region approximately the size of West Virginia - and the organization's mission was established, "working together for healthy watersheds on the Kenai Peninsula."

In KWF's 23 year history, the organization participated in and coordinated a number of watershed management projects:

- **Kenai River Baseline Water Quality Monitoring (KRBWQM):** Of particular relevance to the proposed project, KWF spearheads water quality monitoring throughout the Kenai River watershed to study nonpoint source pollution. In 1997, Alaska Department of Natural Resources (AKDNR), Alaska Department of Fish & Game (ADF&G), and KPB adopted the "Kenai River Comprehensive Management Plan" (KRCMP) (AKDNR, 1997). In Chapter 4.5, Area Wide Recommendations, Section 10.2.2., the agencies state that, "Water quality information should be collected on a systematic, long-term basis" to "assess the status and trends in the water quality of the river" and to "link the status and trends to an understanding of the natural and human factors that affect water quality." The agencies specify that such a program "must be integrated among many agencies that have differing objectives and must be of long term duration." Through conservation action planning following the adoption of the KRCMP, a technical working group led by The Nature Conservancy established the framework for a baseline water quality monitoring program. This effort led to the founding of KWF as the entity who would coordinate the monitoring project. The dataset now includes 20 continuous years of data, and KWF continues to manage KRBWQM. Using an Alaska Department of Environmental Conservation (ADEC) approved Quality Assurance Project Plan (QAPP), KWF collects data on a bi-annual basis with help from community volunteers. KRBWQM operates under a memorandum of understanding with program partners including ADF&G, KPB, DEC, United States Forest Service (USFS), City of Kenai, City of Soldotna, and Cook Inlet Aquaculture Association. A group of these partners fund the annual sampling, and KWF is not requesting any funds from Reclamation for sampling activities. In an example of KRBWQM success, KWF identified hydrocarbon pollutants in the Kenai River

in excess of United States Environmental Protection Agency (EPA) water quality standards that resulted in the listing of the river under section 303(d) of the Clean Water Act (CWA) (EPA, 2011). A local coalition formed that pursued policy actions to mitigate the problem, including a requirement for four-stroke boat motors on the river and a buy-back program for two-stroke boat engines that had been the source of the pollutants. The program was a success, and in 2010, the river was removed from the CWA 303(d) list of impaired waters. More recently KWF identified increasing levels of zinc and copper in the watershed (Guerron Orejuela, 2017), known toxins to salmon and other aquatic life. Sampling for zinc and copper is ongoing with the goal of better understanding the nonpoint source pollution problem and establishing mitigation actions that various stakeholders can achieve, an important task to the project here proposed.

- **Southcentral Alaska Hydrologic Mapping:** KWF is a leader in the State of Alaska conducting hydrologic mapping for a variety of purposes. Beginning in 2011, KWF undertook a large partnership effort resulting in an update of the National Hydrography Dataset (USGS), information that is utilized in the National Fish Habitat Partnership national assessment prioritization process and for USGS topographic maps. KWF also mapped and classified 350,811 acres of Cook Inlet wetlands throughout the KPB. These data are used by land managers and researchers for a variety of applications. KWF also plays a leading role in updating spatial and fisheries information for waters managed under the Anadromous Waters Catalog, a list of waters utilized by anadromous species that is maintained by ADF&G and affords legal protections to each mapped system. KWF also filed for a reservation of water for Slikok Creek, an anadromous waterway, to ensure that the stream would have sufficient water quantity to support habitat for salmon and other species.
- **Participation in Local Water Management and Policy Development:** As a local community-based nonprofit, KWF has long played a role in advising decision makers on matters related to watershed management. KWF was instrumental in the creation of KPB 21.18 Anadromous Waters Habitat Protection ordinance (KPB, 2013) to protect riparian habitat along anadromous river corridors, and the KWF executive director currently sits on the KPB Anadromous Waters Habitat Working Group. KWF's director also sits on the City of Kenai Harbor Commission and on the KRSMA Advisory Board.
- **Fish Passage Improvement:** When KWF was founded in 1997, 40 years of rapid development on the Kenai Peninsula included the construction of a substantial road system. In assessments of 270 culverts, only 48 provided adequate fish passage. With various partners, KWF replaced 70 of the inadequate culverts that blocked fish passage and reconnected over 2,000 miles of anadromous fish habitat. These projects ranged in scale from small to large streams. Notable projects include the replacement of the Crooked Creek culvert that passes beneath the Sterling Highway south of Soldotna. Following the culvert



replacement, KWF conducted a monitoring project in which juvenile coho salmon were tagged to monitor movement after the culvert's replacement. Fish movement data from this project (2018-2020) immediately demonstrated the effectiveness of culvert replacement as a critical habitat restoration technique.

- **Environmental education:** Adopt-A-Stream is KWF's nationally recognized environmental educational program. KWF has delivered natural resource education to a broad audience of children and adults since 2006. Through a hands-on and engaging model, Adopt-A-Stream aims to support the connection between healthy watersheds, the salmonid life cycle, and ecosystem conservation which benefit both water quality and local fish and wildlife habitat. K-12 students on the Kenai Peninsula adopt a nearby stream site to monitor and protect, leading to significant environmental investigations, curiosity, and active environmental stewardship.
- **Invasive species:** Identified through local planning processes as the highest potential threat to healthy fish habitat, invasive species present a unique threat to the project area's pristine habitat. KWF has been a leader in invasive species management on the Kenai Peninsula for almost two decades. Through this work, KWF focuses on the most threatening and detrimental non-native species on the Kenai Peninsula through integrated pest management and early detection and rapid response techniques. KWF also seeks to prevent the introduction of new, non-native species through education and outreach programs across the Kenai Peninsula. KWF plays a vital role in creating, promoting, and contributing to the goals of the Kenai Peninsula Cooperative Invasive Species Management Area to keep the Kenai Peninsula free from the detrimental effects of invasive species. KWF's Invasive Species Specialist serves as the Kenai Peninsula Cooperative Invasive Species Management Area Field Coordinator and collaborates with partners to implement management priorities on public lands throughout the Kenai Peninsula and to support landowners in making sound management decisions concerning invasive species.
- **Kenai Peninsula Fish Habitat Partnership (KPFHP):** Since January 2010 KWF has administered and coordinated the KPFHP, part of the network of National Fish Habitat Partnerships (20 total) and the only such partnership to have a state elected official as a partner, Alaska State Senator Peter Micciche. Since its inception, the KPFHP has received nearly \$3 million for coordination and partner projects, and has leveraged that funding for an additional \$4.5 million in partner matching funds. KPFHP operates under a strategic plan that identifies the focal areas of the partnership and the needs of partner organizations. Water quality and quantity make up 25% of the partnership's focus. This focus is further supported by the partnership's freshwater Conservation Action Plan (KPFHP, 2011b), developed by partners to identify the greatest threats to fish habitat in the region. Each year KWF administers the partnership's efforts via an established steering committee, and since its



inception has funded projects with other KPFHP partners to achieve the Partnership's mission "to protect, maintain, restore, and enhance fish habitat." Historically the partnership has supported and in some cases funded KRBWQM.

- **Mountains to Sea:** The Kenai Peninsula has vast amounts of federally protected public lands and habitat in Chugach National Forest, Kenai National Wildlife Refuge, and Kenai Fjords National Park. However, between this habitat and Cook Inlet is a large area of land that is privately held. Mountains to Sea is a landscape scale conservation project that is working with agencies and private landowners to ensure that watersheds, in particular anadromous rivers and streams, are managed holistically so that healthy habitat and water quality is maintained throughout river corridors (Morton et al., 2015). The Kenai River and various tributaries are among the 20 river corridors that are a focus of Mountains to Sea.
- **Stream Watch:** In 2011, KWF began administering a watershed education and stewardship volunteer program in partnership with the USFS called Stream Watch. Since 2011, Stream Watch volunteers spent 14,000 hours providing peer-to-peer ecological education to 35,000 members of the public, removing 30,000 pounds of litter and debris from fish habitat, and protecting two miles of riverbank habitat at the most visited sportfishing sites in Alaska. KWF and USFS administer Stream Watch through a collaborative agreement.

True to its name and mission, KWF operates as a collaborative watershed group, coordinating programs and partnering with the community, government agencies, businesses, and Tribes to benefit the health and resilience of the region's various watersheds.

Eligibility of Applicant

KWF meets the CWMP Phase I eligibility requirements in the following ways:

1. KWF is a grassroots, nonregulatory 501(c)(3) nonprofit organization
2. KWF is located in Soldotna, Alaska.
3. KWF's activities primarily impact water quality, but also water quantity in the Kenai River watershed. KWF, its members, and partners are directly impacted by the quantity and quality of the water in the Kenai River watershed and other regional watersheds.
4. KWF meets the definition Cooperative Watershed Management Act Section 6001(5) of a "watershed group." This definition aligns with KWF's mission, history, ongoing projects, and vision for "a future where the Kenai Peninsula community works together effectively to protect and improve our watersheds, producing rivers rich with life" (KWF, 2016).

As a watershed group, KWF's role is to facilitate community discourse and projects that propel localized and landscape scale conservation efforts on the Kenai Peninsula and benefit the health of area watersheds. From KWF's role as coordinator of the KPFHP to the organization's long



term efforts to spearhead the KRBWQM project, success at KWF is achieved by bringing together multiple stakeholders to support projects to benefit the area’s watersheds.

KWF works with a diverse group of stakeholders. The following table represents current government, organizational, and private sector partners that are relevant to this project:

Local	City of Soldotna, City of Kenai, Cook Inlet Aquaculture Association, Cook Inletkeeper, Great Land Trust, Homer Electric Association, Kachemak Heritage Land Trust, Kenai Area Fisherman’s Coalition, KPB, Kenai Soil and Water Conservation District, SGS Labs, United Cook Inlet Drift Association, Alaska Salmon Alliance
State	ADF&G, ADEC, AKDNR, Alaska Department of Transportation, Alaska State Parks, Alaska Recreational Management, Analytica Labs
Federal/ National	ConocoPhillips, Hilcorp, National Oceanic and Atmospheric Administration, National Park Service, The Nature Conservancy, Trout Unlimited, EPA, US Fish and Wildlife Service, USFS
Tribal	Kenaitze Indian Tribe, Salamatof Native Association

Table 1: KWF partners relevant to Kenai River water quality action framework development.

Goals

KWF’s goals for the CWMP Phase I project revolve around the 20-year baseline water quality dataset from the KRBWQM for the Kenai River watershed.

Goal 1: Conduct a rigorous analysis of all existing data from 2000 - present from KRBWQM efforts. Ensure that all data is permanently archived in a public repository and that previously published analyses are easily accessible to state and federal partners. Additionally, review the existing Quality Assurance Project Plan (QAPP) and update as needed.

Goal 2: Produce a technical report to provide background for stakeholder engagement. The report will make specific recommendations for mitigating water quality concerns identified in the initial analysis.

Goal 3: In recorded meetings with key stakeholders, discuss findings of the water quality analysis including trends; seek feedback about ongoing management programs; and identify mitigation strategies, monitoring needs, and potential management actions.



Goal 4: Using water quality analysis and ideas generated through stakeholder meetings, produce a Kenai River Water Quality Action Framework to serve as a foundation for watershed management.

Approach

Through the KRBWQM program, KWF possesses a robust, long-term, community-generated water quality data set that is unique in the State of Alaska for its scope and duration. The KRBWQM data set urgently requires curation, analysis, and improved accessibility in order for it to continue to provide critical knowledge to guide watershed management. To inform planning efforts and guide the implementation of water quality improvement projects KWF will produce a technical report using baseline water quality data from year 2000 - present. The proposed work includes applying modern data management and visualization techniques to these dataset to ensure that all past and future water quality data is readily available, interpretable, and applicable by all members of the public. KWF will also develop an exploratory model in order to better identify sites where water quality exceedances may occur in order to identify specific mitigation projects. Based on these analyses, KWF will conduct stakeholder engagement and establish a plan to guide watershed management with a focus on water quality.

The project includes work within CWMP Phase I Task B, Watershed Restoration Planning. KWF will complete the proposed work in four stages. Subtasks are identified below. Some subtasks will occur concurrently, and a chronological outline of project activities is provided in the Evaluation Criteria section.

Stage I - Data Analysis, Modeling, and Updating Research Methods

- Task B1 - Data archival: KWF will ensure all water quality data (2000 - present) are archived and searchable through the EPA Water Quality Portal (www.waterqualitydata.us) with appropriate metadata. Additionally, all previous water quality reports published by KWF will be made available directly through the KWF website.

- Task B2 - Exploratory data analysis: KWF staff will identify and assess spatial and temporal trends (2000 - present) in water quality. Staff will generate site-specific summary analyses for each class of water quality parameter (e.g. metals, hydrocarbon pollutants, turbidity).
 - KWF staff will generate site-specific figures and tables summarising water quality data in the context of water quality criteria thresholds (ADEC, 2020a), portraying trends across space and time.
 - Ongoing assessments of long-term datasets, as recommended in recent ADEC strategy documents (ADEC, 2020b) (section 2.4), such as that generated by KWF can help reveal if mitigations already implemented have improved some water quality concerns. Where past interventions have been installed to reduce the impact of urban runoff and other



non-point pollution sources—including riparian revegetation, sedimentation basins, diffuser outfalls, rain gardens (City of Soldotna, 2016), and beach raking to mitigate fish waste (City of Kenai, 2020)—their impact on water quality will be assessed as data allows.

- Where feasible, KWF will leverage existing tools designed to interact with data archived in the EPA water quality portal, such as the Water Quality Data Discovery Tool (U.S. Environmental Protection Agency, 2016), the USGS EGRiT analysis package (USGS, 2020), and others (Staniak & Biecek, 2019).
 - All data analysis will be conducted with reproducibility and transparency as a first-order priority. Analysis code will be written in R programming language (citation) and maintained in a public repository (GitHub) by KWF staff.
- Task B3 - Exploratory model development: using results from literature review and water quality trends identified 2000 - present, KWF staff will assess how spatial and temporal predictors correlate with exceedance of water quality criteria (ADEC, 2020a).
 - Both anthropogenic and natural factors influence water quality conditions, thus it is important to distinguish between factors that may be influenced by management actions (e.g. riparian zone conservation) and those which may not (e.g. seasonal hydrometeorological conditions).
 - As data availability permits, KWF staff will assess correlations between frequency of water quality criteria exceedances and environmental predictors. Spatial factors may include percent impervious surface within a watershed (or a proxy such as miles of paved road) as well as distance to river outlet. Hydrometeorological predictors may include annual average stream flow and precipitation, while temporal predictors may include year and season.
 - An anticipated outcome is to identify which factors are most strongly associated with water quality exceedances. An analysis incorporating many possible environmental predictors (e.g. multivariate regression) may help identify their individual influences on water quality criteria exceedances, and help understand where mitigation actions will be most effective. Once specific drivers of metals exceedances are identified, managers could work with members of area partnerships to develop site-specific mitigation plans involving strategic solutions such as phytoremediation tactics, riparian restoration efforts, strategic development, wetland preservation, and watershed user and landowner education.
 - Task B4 - Produce updated Quality Assurance Project Plan: All samples collected as part of the KRBWQM project follow procedures outlined in the QAPP last approved by the ADEC in 2019. Additional research is needed to ensure the QAPP can continue to assure high-quality data, as well as potentially include new biological parameters known to be



affected by long-term changes in water quality such as invertebrate communities or base productivity (e.g. algae concentrations).

- Task B5 - Assess new and emerging water quality concerns. For example, some pollutants produced by car tire wear associated with adult salmon mortality were only recently identified (Tian et al., 2020). Monitoring and assessment of new parameters will be included in the updated Quality Assurance Project Plan where feasible.

Stage II - Technical Report and Data Interpretation for Dissemination of Analysis Results

- Task B6 - Data visualization: exploratory data analysis will culminate with a public-facing, interactive map tool allowing for easy point-and-click exploration of all water quality data collected by KWF. An example of such a tool is the Utah Lake Water Quality Profile Dashboard (UDWQ, 2019). KWF will adapt existing open-source tools described in Stage 1, or work with a software development contractor towards partial fulfillment of this goal if needed.
- Task B7 - Produce report on Kenai River water quality: KWF staff will produce a report summarizing findings from KRBWQM data analysis. The report will make recommendations that can guide future management of the watershed and highlight and summarise previously discussed results from exploratory data analysis, modeling efforts, and data visualization. This report will serve as a starting point for stakeholder engagement.

Stage III - Stakeholder Engagement to Guide Planning Effort

- Task B8 - Stakeholder planning meetings: KWF staff will conduct a series of meetings with key project partners who are involved with managing water quality and quantity in the Kenai River watershed. Prior to these meetings, partners will receive the KRBWQM report, access to data, and other relevant materials in order to have informed discussions based on the latest science. Meetings will be recorded through Zoom or equivalent virtual meeting tool and/or through detailed notes in order to ensure stakeholder input is recorded for consideration. This stakeholder group includes but is not limited to: ADEC, ADF&G, AKDNR, City of Kenai, City of Soldotna, Cook Inlet Aquaculture Association, KPB, US Fish and Wildlife Service, and USFS.
 - Input will be solicited from these partners on mitigations for identified water quality threats, gaps in data, and future management practices in their jurisdiction and on a watershed scale. Feedback from stakeholders will be recorded and will influence the Kenai River Water Quality Action Framework.



Stage IV - Produce Kenai River Water Quality Action Framework

- Task B9 - Produce Kenai River Water Quality Action Framework: KWF will produce a water quality action framework utilizing data analysis, stakeholder input, and past and ongoing water quality management projects as a foundation. This framework will build on existing plans and ongoing projects and will serve as a road map for future watershed management.

Evaluation Criteria

A. Watershed Group Diversity and Geographic Scope

Sub-criterion No. A1. Watershed Group Diversity

By its nature, KWF works with a broad group of partners and has a diverse membership. From federal, state, and local entities, to Tribes, corporations, other nonprofits, and individuals, KWF takes an inclusive, community based approach and prioritizes collaboration in all of its projects. Table 1 shows the group of partners who will be directly involved with the project as collaborators. These partners will be included in the planning process either directly or through regular meetings of the KPFHP, which KWF coordinates. The stakeholder engagement portion of the proposed work illustrates an approach for engaging with these partners and incorporating their input into the project.

KWF will primarily engage with land managers and other organizations who participate in research and science-driven management to conduct the technical components of this proposal. However, the outreach done through this proposal will engage the entire constituency of KWF. For example, the Adopt-A-Stream program engages K-12 students throughout the Kenai Peninsula who will receive watershed education that will include results from this project. Over 100 Stream Watch volunteers of all ages and backgrounds will also receive basic education on this project and the findings of the analyses done—those volunteers will deliver educational messaging based on this CWMP Phase I project to thousands of members of the public at high-use fishing sites on the Kenai River in order to promote river conservation practices among the general public. KWF membership, which includes over 500 donors, will receive frequent updates in mailings and emailings about the project. This membership is highly representative of the stakeholders within the watershed.

KWF engages frequently with an array of partners in the fishing community including anglers and personal use, subsistence, and commercial fishers. Those groups will be included in the stakeholder engagement and outreach components (tasks B6-B9) of this project. It is important to note that KWF does not advocate on behalf of any particular fishing group, but rather strives to provide high quality information and programs that benefit the health of regional watersheds and fish habitat, and contribute to scientifically sound management decisions. Part of KWF's success



is that the organization does not involve itself in allocative issues. Rather, KWF fulfills its mission as a forum by ensuring that issues of watershed management are considered with representation from the broadest spectrum of area stakeholders.

A constituency particularly important to the outcomes of this project is private landowners whose property is on or near waters of the Kenai River watershed. KWF, along with the Kenai River Center, which is run by KPB, has a long history of working with landowners on projects such as creating riverside buffers, ensuring the use of light penetrating platforms for fishing and river access to ensure bank stability, and promoting natural filtration of runoff with vegetated riverbanks.

Sub-criterion No. A2. Geographic Scope

While KWF works across the KPB, this CWMP Phase I project is focused on the Kenai River watershed, which makes up a large portion of USGS HUC 19020302 (see figure 1).

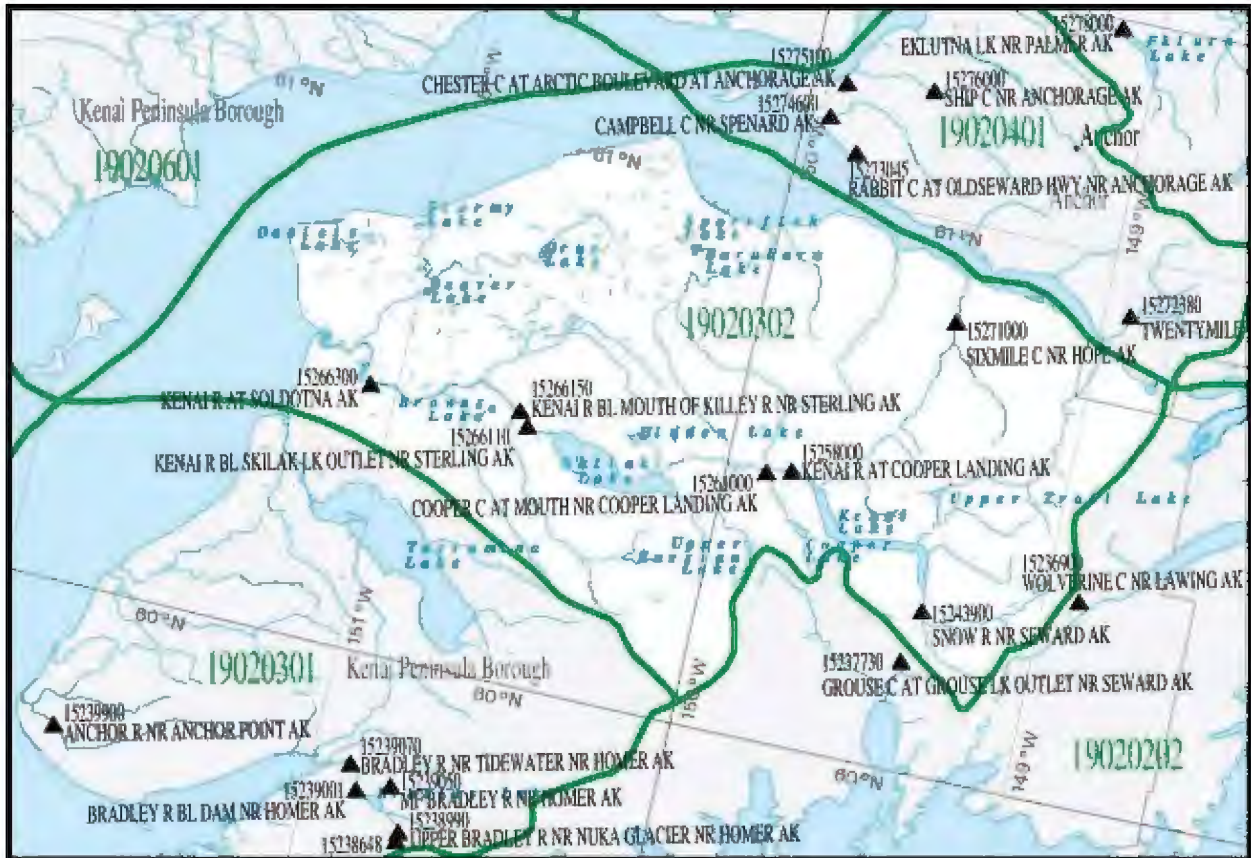


Figure 3: USGS HUC 19020302 including the Kenai River watershed (USGS, 2021).



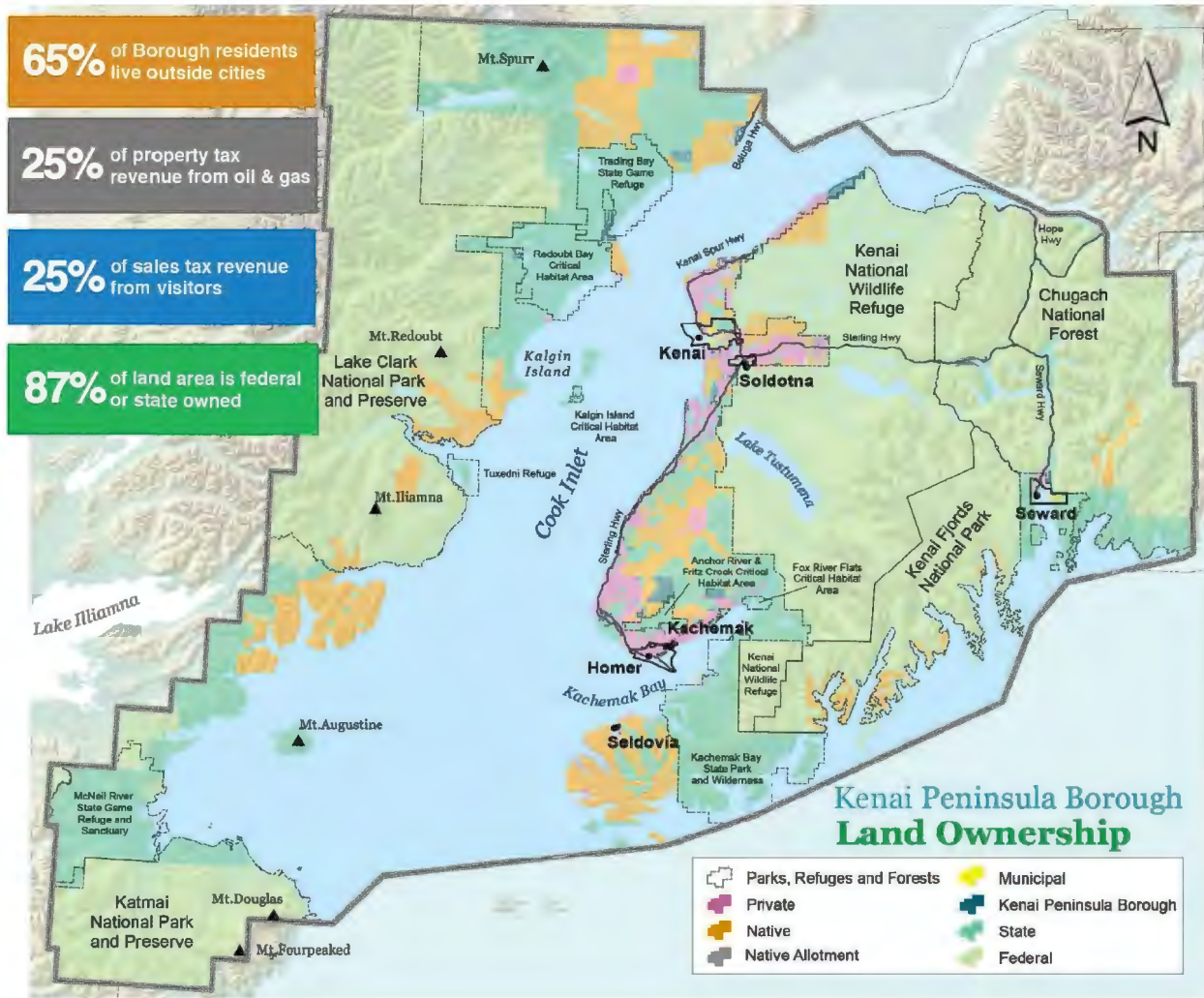


Figure 4: KPB land ownership map. Adapted from KPB Comprehensive Plan (KPB, 2019)

As a watershed organization, KWF strives to work with all stakeholders in the Kenai River watershed. This engagement is achieved through KWF’s education, research, and restoration programs as well as through KWF’s role coordinating the KPFHP. KWF’s membership and long-term partnerships represent the entire scope of the watershed, and the entirety of HUC 19020302. While there are other watersheds within HUC 19020302, many of them are on undeveloped public lands or lands far less developed than those within the Kenai River watershed, which is considered the gem of the Kenai Peninsula.

B. Addressing Critical Watershed Needs

Sub-criterion No. B1. Critical Watershed Needs or Issues

The Kenai River watershed faces an intense set of challenges to maintain its ecological resilience and water quality, many of which can be influenced by local actions. The KPFHP Freshwater Conservation Action Plan (KPFHP, 2011a) identifies and ranks the threats facing various



freshwater systems on the Kenai Peninsula including those types that make up the Kenai River watershed: glacially fed systems with lakes such as the Kenai River mainstem are ranked with an overall threat level of medium and lowland groundwater/wetland dominated systems such as the Moose River have an overall threat level of high. The primary challenges identified by KPFHP are development in the riparian zone, a warming climate, and aquatic invasive species. Another threat not mentioned, but one that does threaten water quality, is intensive recreational use.



Figure 5. Summary of changes facing salmon ecosystems in Southcentral Alaska, such as the Kenai River watershed. From Schoen et al. 2017, adapted with author's permission.

The salmon runs of the Kenai River watershed are a primary economic driver for the Kenai Peninsula region, and these fish rely on clean, cold water with suitable spawning habitat. In recent years, returns for adult Chinook salmon have declined to the lowest levels in the 30-year record (Fleischman & Reimer, 2017). Mean body size of adult Chinook salmon has also declined since the 1980s due to slower growth rates and earlier maturity (Lewis et al., 2015), raising concerns about population productivity and resilience. These concerns have resulted in fishery closures and exacerbated long-standing conflicts between stakeholders (Loring, 2016).

Development drives multiple challenges with water quality, such as stormwater runoff, increased impervious surface area, reduced vegetative buffers around water bodies, and increasing levels of water pollutants. Based on KRBWQM data, KWF is concerned with heightened levels of zinc



and copper found in water samples (Sires, 2017b) and fecal coliform and enterococci found in beach sampling at the mouth of the Kenai River (Harings, 2020), the site of a large personal-use fishery. Climate change is warming waters in the watershed (Mauger et al., 2017) and increasing glacial melt (O’Neel et al., 2014). While the Kenai River mainstem is glacially fed and relatively temperature stable, non-glacial lowland tributaries are warming at alarming rates. Heavy recreational use has led to numerous challenges including hydrocarbons in the river (a problem much improved by an effort that KWF spearheaded to transition away from two-stroke boat motors), riverbank degradation from vegetation trampling, and wake-driven turbidity increases.

Sub-criterion No. B2. Developing Strategies to Address Critical Watershed Needs or Issues

Through this CWMP Phase I project, KWF will gather information through both data analysis on existing KRBWQM project data from 2000-2020 in order to assess trends in water quality in the watershed and through stakeholder meetings. After conducting primary analysis and identifying new water quality threats or confirming existing threats, KWF will work with an array of stakeholders to identify threats that were not present in the data, potential mitigations, and specific projects to benefit the watershed. This information will be synthesized, and priorities will be established in the creation of a long-term, collaborative, and science driven action framework for managing water quality in the Kenai River watershed. KWF’s secondary goal is that this plan will drive specific actions and projects in the near-term that benefit the watershed.

Should conflicts arise in the production of the plan, KWF will take that opportunity to facilitate discussions among stakeholders who may disagree in order to come to viable solutions to water quality challenges. KWF is an experienced facilitator of projects that benefit the health of watersheds even when disparate groups of stakeholders are in disagreement. The best example of this is KWF’s successful project to solve excessive hydrocarbon levels on the Kenai River that were identified through KWF’s KRBWQM program. The Kenai River was listed as impaired under the CWA in 2006 due to heightened hydrocarbon levels. A coalition of partners helped enact policy requiring four-stroke motors on the river rather than more polluting two-stroke motors. A rapid transition to four-stroke motors was made possible through the implementation of a buy-back program for two-stroke motors funded through an EPA grant to the Kenaitze Indian Tribe. This program helped to ensure that the hardest hit constituency, fishing guides, would participate in the resolution of the problem. Following this effort, water quality data gathered through KRBWQM has shown the problem to be mitigated and the Kenai River was delisted as an impaired waterway.

With this CWMP Phase I project, KWF will build on multiple previous efforts:

- The 1997 KRCMP (AKDNR, 1997) established a broad array of projects for managing the watershed. After the KRCMP was published, KWF was formed to take on the identified action of creating a baseline water quality dataset to guide management of the river, the KRBWQM project. KWF intends to analyze the long term data collected through KRBWQM



and to produce an action framework that will guide further planning for managing the watershed. KWF is not seeking funding for sampling, but for analysis, stakeholder engagement, and planning efforts.

- The KPFHP Strategic Plan (KPFHP, 2011) guides KPFHP efforts to conserve fish habitat on the Kenai Peninsula. The plan identifies that the primary threats to water quality result from development and climate change, and it provides regional objectives for protecting and restoring water quality and quantity. The results of this CWMP Phase I project would help the KPFHP update the strategic plan and would also guide the management actions of various members of the partnership.
- The Mountains to Sea Strategic Plan (Morton et al., 2015) identifies the need for land managers, private landowners, and other stakeholder organizations to work together broadly on watershed management on the Kenai Peninsula. This CWMP Phase I will engage Mountains to Sea stakeholders and will help guide collaborative efforts between land managers and landowners to manage the Kenai River watershed.

C. Implementation and Results

Sub-criterion No. C1—Project Implementation

Project Schedule	2021				2022												2023								
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Stage 1: Data Analysis, Modeling, and Updating Research Methods	x	x	x	x	x	x																			
Stage 2: Technical Report and Data Interpretation for Dissemination of Analysis Results						x	x	x	x	x	x	x													
Stage 3: Stakeholder Engagement to Guide Planning Effort												x	x	x	x	x	x	x							
Stage 4: Produce Kenai River Water Quality Action Framework																		x	x	x	x	x	x	x	x

Table 2: KWF’s proposed CWMP Phase I project schedule

Below is a breakdown of project stage milestones and the direct cost associated with each stage:

Stage 1: Data Analysis, Modeling, and Updating Research Methods

- Milestones: Summarise and perform exploratory data analysis on water quality data from year 2000 - present, and update project QAPP.
- Cost: \$23,198

Stage 2: Technical Report and Data Interpretation for Dissemination of Analysis Results

- Milestones: Produce a detailed report interpreting results from water quality data analysis and deploy a public-facing platform to make results accessible.
- Cost: \$27,065



Stage 3: Stakeholder Engagement to Guide Planning Effort

- Milestone: Collect and assess feedback on technical report from local stakeholders to guide planning priorities.
- Cost: \$15,465

Stage 4: Produce Kenai River Water Quality Action Framework

- Milestone: Using results from the technical report and stakeholder input, produce an action framework document detailing specific strategies and locations prioritizing water quality management actions.
- Cost: \$11,599

Sub-criterion No. C2—Building on Relevant Federal, State, or Regional Planning Efforts

This project will produce a robust strategy for beginning to address the challenge of nonpoint source water pollution in the Kenai River watershed, from both a prevention and restoration standpoint. Project goals align with those outlined several regional and statewide planning documents.

- AKDNR’s KRCMP served as the original impetus for biannual water quality monitoring (AKDNR, 1997).
- ADEC’s, “Alaska Nonpoint Source Water Pollution Prevention and Restoration Strategy” document highlights the Kenai River as high priority for watershed “planning, protection and restoration” and as a priority among water bodies at risk to “protect and maintain” (ADEC, 2020b).
- City of Soldotna’s “Envision Soldotna 2030 Comprehensive Plan” highlights KWF specifically as a group to work with, “... to promote interactive learning opportunities focused on the river for local schools, residents and visitors” (City of Soldotna, 2011).
- KBP’s 2019 Comprehensive Plan includes objectives related to maintaining quality fish habitat to benefit the local community, economy and environment, including to, “Protect and enhance the natural systems that support healthy sustainable sportfish habitats and populations” and to “Support continued sportfish research, monitoring and education efforts” (KPB, 2019).
- The KPFHP Strategic Plan and Freshwater Conservation Action Plan document identifies threats to freshwater systems on the Kenai Peninsula and strategies for mitigating these threats including development in the watershed and climate change (KPFHP, 2011a, 2011b).



D. Department of the Interior and Bureau of Reclamation Priorities

Priorities	Project Support
Department of the Interior	
<i>1a. Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment</i>	This project will utilize analysis of a robust dataset to inform Kenai River watershed management and adaptation to climate change, pollution, and other threats.
<i>1e. Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands</i>	Various conservation organizations will participate in this project in collaboration with DOI agencies including US Fish and Wildlife Service and the National Park Service.
<i>3a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;</i>	This project will support collaboration between DOI and other federal entities, private landowners, and state and local governments to effectively manage the Kenai River watershed together.
<i>3b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities</i>	Entities from city, borough, and state government will participate in this project along with KWF and federal partners, building on established relationships to achieve constructive and collaborative management.
Bureau of Reclamation	
<i>1. Increase Water Supplies, Storage, and Reliability under WIIN and other Authorities to Benefit Farms, Families, Businesses, and Fish and Wildlife</i>	This project is part of a larger effort by KWF and partners to ensure sufficient water quantity and quality for fish and wildlife on the Kenai Peninsula, in particular for anadromous fish that are of great economic, cultural, and social importance. The benefits to watershed health achieved through this project and related efforts will also directly benefit families and businesses in the region.
<i>6. Improve Water Supplies for Tribal and Rural Communities</i>	As drinking water supply is generally not threatened in Tribal and rural communities on the Kenai Peninsula, this project will not improve water supply in the traditional sense, but the project will support and enhance water quality for salmon, which is a staple of the local food supply, economy, and culture.

Table 3: Explanation of project alignment with DOI and Reclamation priorities



Project Budget

Budget Proposal

Source	Amount
Costs to be reimbursed by federal funding	\$99,172
Costs to be paid by applicant	\$0
Value of third-party contributions	\$0
TOTAL Project Cost	\$99,172

Table 4: Total project cost

Budget Item Description	Computation		Quantity Type	Total Cost
	Rate (\$/unit)	Quantity		
Salaries and Wages				
Executive Director	\$36.78	200	Hours	\$7,356
Environmental Scientist	\$23.50	1560	Hours	\$36,660
Stream Watch Coordinator	\$21.00	400	Hours	\$8,400
Fringe Benefits				
Executive Director	\$13.01	200	Hours	\$2,602
Environmental Scientist	\$8.06	1560	Hours	\$12,574
Stream Watch Coordinator	\$7.92	400	Hours	\$3,168
Contractual				
Data Processing			Contract	\$2,040
Graphic Designer			Contract	\$2,000
Materials and Supplies				
Misc. Project related supplies			Misc.	\$1,500
Travel				
Vehicle	\$75.00	10	Days	\$750
Mileage	\$0.56	496	Miles	\$278
TOTAL Direct Costs				\$77,327
Indirect Cost				
2021 Provisional Rate	28.25%	\$77,327.36	% direct costs	\$21,845
TOTAL Estimated Project Costs				\$99,172

Table 5: Line item project budget



Budget Narrative

KWF requests \$99,172 in funds to complete this WaterSMART CWMP Phase 1 project.

Salaries and Wages: \$52,416

- Branden Bornemann, Executive Director, \$36.76/hr x 200 hrs = \$7,356
 - Branden will oversee all aspects of project completion and will participate directly in Stages I-IV, playing a key role in the finalization of the technical report, stakeholder meetings, and the finalization of the Kenai River Water Quality Action Framework.
- Benjamin Meyer, Environmental Scientist, \$23.50/hr x 1560 hrs = \$36,660
 - Benjamin will play a primary role in Stages I-II of the proposed project and a critical supporting role in Stages III-IV.
- Galen Hecht, Stream Watch Coordinator, \$21/hr x 400 hrs = \$8,400
 - Galen will participate primarily in Stage III of the project facilitating stakeholder engagement, communications, and outreach activities.

Fringe Benefits: \$18,344

- Includes paid time off, sick leave, healthcare stipend, IRA match, and payroll taxes.

Contractual: \$4,040

- For task B6, “Data visualization”: independent data scientist Shaun Garnett (<https://www.linkedin.com/in/shaungarnett/>) will work with KWF staff Benjamin Meyer to develop a point-and-click interactive map tool to visualize water quality data. 34 hours x \$60/hour: \$2040.
- A graphic designer will be contracted to assist with final document design for the Kenai River Water Quality Action Framework and for documents or graphics used in stakeholder engagement.

Materials and Supplies: \$1500

- 2x 1TB Lacie Rugged Hard Drives - \$80/ea: for securely storing and backing up project data and documents. Cost assessed based on past experience.
- Printing of project documents - \$1000, this includes printing of maps, graphics, reports and other required documents. Cost assessed based on past experience.
- Miscellaneous supplies including office supplies - \$360

Travel: \$1,028

- Includes use of KWF vehicles charged at \$75 per day for 10 days plus the IRS mileage rate estimated at \$0.565/mile for 496 miles during the project period. This day travel is for staff to attend meetings with stakeholders.

Indirect Cost: \$21,845



- KWF has a federally approved indirect rate for the year 2021 of 28.25%. This rate is applied to the direct costs of the project, \$77,327.

Equipment: \$0

Third-Party In-Kind Contributions: \$0

Environmental and Regulatory Compliance Costs: \$0

- This project requires no permitting or environmental review.



Appendices

KWF Staff Profiles

Branden Bornemann, Executive Director

Branden has over ten years of experience in watershed project management and partnership development on the Kenai Peninsula, Alaska (AK). Having first come to Moose Pass, AK to work for USFS while completing his graduate degree in 2009, he returned to Soldotna, AK to work for the Kenai Watershed Forum in 2011 as the organization's lead Environmental Scientist. He worked in that position until 2018, when he then became the Executive Director of the organization. In that time he oversaw a variety of watershed projects totalling more than \$10 million in budgets. Currently, he oversees all aspects of the organization, including managing a \$1-2 million average annual budget including over 20 distinct grant and contract agreements in partnership with local, state, federal, and private funders.

Benjamin Meyer, Water Quality Coordinator

Benjamin grew up in Wasilla, Alaska and has traveled throughout the state and the world. Benjamin earned his B.S. degrees in Biology and Biochemistry, and an M.S. in Fisheries from University of Alaska Fairbanks. His graduate thesis focused on modeling the effects of climate change on juvenile Chinook and coho salmon habitat in the Kenai River watershed. Benjamin has worked in diverse professions in natural resource management including wildland firefighting, wetlands delineation, and tourism. He has co-authored four peer-reviewed scientific journal articles, with two additional articles currently drafted for submission. Benjamin came to KWF in 2021 after working as a project manager at the Freshwater Ecology lab at University of Alaska Fairbanks.

Rhonda McCormick, Accounting and Grants Manager

Rhonda is a lifelong Alaskan, and grew up in Soldotna, next to the world famous Kenai River. Rhonda holds a Bachelor's Degree in Elementary Education from the University of Alaska, with a minor in Math. Rhonda worked for 8 years at an educational non-profit, and joined the Kenai Watershed Forum team in 2008 as the Accounting Manager and Grant Manager. Rhonda has managed grants and contracts for KWF at all levels: federal, state, borough, and city as well as corporate and foundations. Rhonda is solely responsible for all A/P, A/R, payroll, and financial reporting. She has had numerous federal single audits with no findings.

Galen Hecht, Stream Watch Coordinator

Galen grew up in New Mexico where he developed a passion for river conservation. Galen earned a B.A. in Human Ecology at College of the Atlantic in Maine with capstone work focused on community watershed management in the American West. Galen then undertook a Watson Fellowship to research novel community based and policy strategies for maintaining healthy



watersheds internationally. Galen came to KWF in 2020 after working as a campaigner with Rio Grande Waterkeeper in New Mexico assisting with efforts to protect and restore flows in the Rio Grande. Galen also serves on the board on Kenai Peninsula Trout Unlimited.

Megan Pike, Education Specialist

Megan coordinates the Adopt-A-Stream program and Summer Camp. Megan moved to Alaska from the state of Maine where she found a passion for environmental education and completed her B.A. in Communication Sciences and Childhood Development from the University of Maine. Since joining KWF in 2019, Megan has delivered water quality curricula to K-12 classrooms on the Kenai Peninsula and taken students on monthly creek monitoring trips. Megan is also an active member on the Alaska Natural Resources Outdoor Education (ANROE) board. She is enthusiastic about fostering a connection to nature through watershed studies, salmon stewardship, and being outdoors.

Maura Schumacher, Invasive Species Specialist

Maura spent the last eight years working in the field of invasive species management throughout the western United States and Alaska. Through this work, she developed and implemented invasive species eradication projects and performed restoration work, data collection, and data management. At KWF, Maura serves as the project manager for the Invasive Species program where she plans and completes invasive species control and survey efforts on a variety of taxa throughout the Kenai Peninsula. Maura also implements invasive species education and outreach programming within multiple communities and recreational user groups and manages a variety of funding sources to complete project work.

Dr. Michael Gracz, Wetland Program Manager

Michael has nearly 40 years experience in field ecology and research, specializing in wetlands and peatlands, but also tree rings, plant ecology, rare plants, soils, and birds. Michael joined KWF in 2003 and worked with the organization while completing his PhD from University of Minnesota-Twin Cities in Conservation Science. His dissertation, “Wetlands of Cook Inlet Basin, Alaska: Classification and Contributions to Stream Flow” was a major contribution to KWF’s hydrologic mapping efforts. Michael also holds a B.S. and M.S. in Forest Sciences and Biology. Prior to his work with KWF, Michael held numerous positions working in field biology and geographic information systems.



Environmental and Cultural Resources Compliance

- Will the proposed project impact the surrounding environment ?
 - This project includes no earth-disturbing work and will have no negative impact on the surrounding environment.
- Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?
 - The project area does include critical habitat for the endangered Cook Inlet beluga whale Distinct Population Segment. This project will have no impact on this listed species.
- Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States”? If so, please describe and estimate any impacts the proposed project may have.
 - The Kenai River is considered part of the Waters of the United States. However, the proposed project will have no negative impacts on water quality. KRBWQM data will inform state and federal CWA analyses and processes.
- When was the water delivery system constructed?
 - This is not applicable to the proposed project as the Kenai River watershed does not contain a water delivery system for municipal or agricultural use.
- Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)?
 - This project will not have any effect on any irrigation system.
- Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places?
 - This is not applicable to the proposed project as the project will not occur within an irrigation district.
- Are there any known archeological sites in the proposed project area?
 - There are known archaeological sites in the proposed project area including the K’Beq Cultural Site that is operated in partnership between USFS and the Kenaitze Indian Tribe. The project will have no effect on the K’Beq’ or any other archaeological site.
- Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?
 - The project will have no disproportionate or adverse effect on low income or minority populations.
- Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on tribal lands?
 - The proposed project will not limit access to or ceremonial use of any sites for any group.
- Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?
 - The proposed project will not contribute to the introduction, continued existence, or spread of noxious weeds or invasive species.



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Letters of Support



United States
Department of
Agriculture

Forest
Service

Glacier Ranger District

145 Forest Station Road
P.O. Box 129
Girdwood, AK 99587

File Code: 1500; 2500
Date: January 13, 2021

Branden Bornemann
Kenai Watershed Forum
44129 Sterling Highway
Soldotna, AK 99669

Dear Branden,

Glacier and Seward Ranger District (USDA Forest Service, Chugach National Forest) Rangers both strongly support the Kenai Watershed Forums (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase 1 funding.

Having 25 years of community-based non-profit experience KWF is a valued partner of collaboration on the collection of baseline water quality data from the Kenai River watershed.

This long-standing collaboration and partnership:

- has coordinated efforts of many partners to successfully collect 20 years of baseline water quality data
- serves as coordinator of the Kenai Peninsula Fish Habitat Partnership
- proves capable to conduct the analyses
- generates the stakeholder engagement that will be required to guide the Kenai River watershed management with a focus on water quality

Long-term solutions are within reach if stakeholders can align through data-driven and collaborative planning - ensuring clean water being of the utmost importance. WaterSMART funding is of great benefit to the process of understanding water quality correlations in the watershed and mitigating threats.

The KWF's efforts and the WaterSMART Cooperative Watershed Management Program Phase 1 funding project are supported by the Glacier and Seward Ranger Districts on the Chugach National Forest.

Sincerely,

Glacier District Ranger
Girdwood, AK 99587

FRANCISCO B. SANCHEZ
Seward District Ranger
Seward, AK 99664



Caring for the Land and Serving People

Printed on Recycled Paper





United States Department of the Interior

KENAI NATIONAL WILDLIFE REFUGE
P.O. Box 2139
Soldotna, Alaska 99669-2139
(907) 262-7021



IN REPLY REFER TO:
21001ajl

January 15, 2021

Branden Bornemann
Kenai Watershed Forum
44129 Sterling Highway
Soldotna, Alaska 99669

Subject: Support for Kenai River Water Quality Action Framework Proposal

Dear Branden:

The U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge, supports the Kenai Watershed Forum's (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase I funding. The implementation of this project would help all stakeholders to steward the Kenai River Watershed and its salmon, which are primary economic, cultural, and social and ecological drivers in the region.

As a community based non-profit with nearly 25 years of experience working on the Kenai River, KWF is a valued partner. In addition to being coordinator of the Kenai Peninsula Fish Habitat Partnership, KWF generated 20-years of baseline water quality data from the Kenai River watershed that has had considerable impact on watershed management. KWF is capable of conducting the analysis and stakeholder engagement required to generate a successful plan to guide Kenai River watershed management with a focus on water quality.


With the highest recreational use of any river in Alaska and with multiple federal, state, and local jurisdictions, the Kenai River watershed is complex to manage. Ensuring clean water is of the utmost importance, and long term solutions are within reach if stakeholders can align through data-driven and collaborative planning. WaterSMART funding would be of great benefit to the ongoing process of understanding water quality in the watershed and mitigating threats.



The U.S. Fish and Wildlife Service, Kenai National Wildlife Refuge strongly supports KWF's efforts and this project.

Sincerely,



 Andy Loranger
Refuge Manager





THE STATE
of **ALASKA**
GOVERNOR MICHAEL J. DUNLEAVY

**Department of Environmental
Conservation**

DIVISION OF WATER
Water Quality Standards, Assessment and Restoration Program

555 Cordova Street
Anchorage, AK 99501
Main: (907) 269 7635
www.dec.alaska.gov

January 12, 2021

United States Bureau of Reclamation
Attn: WaterSMART Proposal Review Committee

Dear Review Committee:

This letter is in support of the Kenai Watershed Forum's (KWF) proposal for WaterSMART Cooperative Management Program Phase I funding. The Alaska Department of Environmental Conservation (DEC) would benefit from the data driven management framework and stakeholder engagement that would result from the proposed project. In addition, DEC commits to participating in KWF's planning process and providing technical expertise.

With the highest recreational use of any river in Alaska and with multiple federal, state, and local jurisdictions, the Kenai River watershed is complex to manage. All five species of Pacific salmon utilize the Kenai River and its many tributaries. In turn, this ecosystem supports robust commercial, recreational, and subsistence fisheries. Ensuring clean water is of the utmost importance for the Kenai River ecosystem and the communities that rely on its many resources. The Kenai River is considered a high priority water by the state of Alaska due to past water quality impairments. The proposed data analysis and watershed planning will identify and provide a framework for future actions designed to improve water quality in this iconic watershed.

DEC has funded and participated in several KWF-led projects focused on water quality monitoring and community engagement on the Kenai Peninsula, including participating in the Kenai River baseline monitoring project (2000 to Present). As a DEC grant recipient, KWF has completed grant requirements and submitted project deliverables in a timely and complete fashion. Lastly, KWF has over 25 years of experience in engaging with stakeholders and the larger Kenai Peninsula community.

I hope you will recognize the value of KWF's project proposal in advancing Alaska's watershed protection and restoration activities by fully supporting their funding request. Please contact me or my staff if we may be of further assistance in addressing questions on this project.

Sincerely,

A handwritten signature in black ink that reads "Terri Lomax".

Terri Lomax, Program Manager





THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

DIVISION OF PARKS AND OUTDOOR RECREATION
KENAI/PRINCE WILLIAM SOUND REGION

PO Box 1247
Soldotna, AK 99669
Main: 907-262-5581
Fax: 907-262-3717

January 13, 2021

Mr. Branden Bornemann
Kenai Watershed Forum
44129 Sterling Highway
Soldotna, Alaska 99669

Subject: Support for Kenai River Water Quality Action Framework Proposal

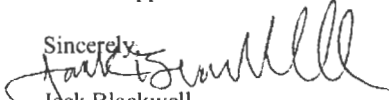
Dear Mr. Bornemann:

The Alaska Division of Parks and Outdoor Recreation (DPOR), Kenai/Prince William Sound Region supports the Kenai Watershed Forum's (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase I funding. The implementation of this project would help all stakeholders to steward the Kenai River Watershed and its salmon, which are primary economic, cultural, and social drivers in the region.

As a community-based non-profit with nearly 25 years of experience working on the Kenai River, KWF is a valued partner. In addition to being coordinator of the Kenai Peninsula Fish Habitat Partnership, KWF generated 20-years of baseline water quality data from the Kenai River watershed that has had considerable impact on watershed management. KWF is capable of conducting the analysis and stakeholder engagement required to generate a successful plan to guide Kenai River watershed management with a focus on water quality.

With the highest recreational use of any river in Alaska and with multiple federal, state, and local jurisdictions, the Kenai River watershed is complex to manage. The Kenai River has been designated as Special Management Area and managed as part of the Alaska state park system. Ensuring clean water is of the utmost importance, and long-term solutions are within reach if stakeholders can align through data-driven and collaborative planning. WaterSMART funding would be of great benefit to the ongoing process of understanding water quality in the watershed and mitigating threats.

DPOR supports KWF's efforts and this project.

Sincerely,

Jack Blackwell
Superintendent





THE STATE
of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Fish and Game

HABITAT Section
Southcentral Region Office

514 Funny River Road
Soldotna, Alaska 99669-8255
Main: 907.714.2475
Fax: 907.260.5997

January 11, 2021

U.S. Department of the Interior
Bureau of Reclamation
Matthew Reichert
PO Box 25007
Denver, CO 80225

RE: Kenai River Water Quality Action Framework Proposal
WaterSMART Cooperative Watershed Management Program

Dear Mr. Reichert:

On behalf of the Alaska Department of Fish and Game, Habitat Section, I am writing to express support for the Kenai Watershed Forum's (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase I funding. The implementation of this project will help bring diverse stakeholders together to develop concepts and plans to address water quality issues and continue responsible stewardship of the Kenai River Watershed and its salmon, which are incredibly important to the Kenai Peninsula's economy, well-being of its residents, and the health of the ecosystem.

As a community-based non-profit with nearly 25 years of experience working on the Kenai River, KWF is a valued partner. In addition to being coordinator of the Kenai Peninsula Fish Habitat Partnership, KWF generated 20-years of baseline water quality data from the Kenai River watershed that has provided important information for watershed management. KWF is capable of conducting the analysis and stakeholder engagement required to generate a successful plan to guide Kenai River watershed management with a focus on water quality.

Road and highway development, private and commercial land development, municipality storm water and wastewater systems, and the highest recreational use of any river in Alaska place a large demand on the Kenai River. Federal, state, and local governments all have considerable jurisdictions on the Kenai River watershed, making it complex to manage. Ensuring clean water is of the utmost importance, and long-term solutions are within reach if stakeholders can align through data-driven and collaborative planning. WaterSMART funding would be of great benefit to the ongoing process of understanding water quality in the watershed and mitigating threats.



Please contact me at (907) 714-2481 or brian.blossom@alaska.gov with any questions regarding this letter of support.

Sincerely,



Brian Blossom
Kenai Peninsula Area Manager
Habitat Section





Land Management

144 N. Binkley Street, Soldotna, Alaska 99669 • (907) 714-2205 • (907) 714-2378 Fax

A Division of the Planning Department

Charlie Pierce
Borough Mayor
January 4, 2021

Branden Bornemann
Kenai Watershed Forum
44129 Sterling Highway
Soldotna, Alaska 99669

Subject: Support for Kenai River Water Quality Action Framework Proposal

Dear Branden,

The Kenai Peninsula Borough Land Management Division supports the Kenai Watershed Forum's (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase I funding. The implementation of this project would help all stakeholders to steward the Kenai River Watershed and its salmon, which are primary economic, cultural, and social drivers in the region.

As a community based non-profit with nearly 25 years of experience working on the Kenai River, KWF is a valued partner of the Kenai Peninsula Borough. In addition to being coordinator of the Kenai Peninsula Fish Habitat Partnership, KWF generated 20-years of baseline water quality data from the Kenai River watershed that has had considerable impact on watershed management. KWF is capable of conducting the analysis and stakeholder engagement required to generate a successful plan to guide Kenai River watershed management with a focus on water quality.

With the highest recreational use of any river in Alaska and with multiple federal, state, and local jurisdictions, the Kenai River watershed is complex to manage. Ensuring steady supply of clean water is of the utmost importance, and long term solutions are within reach if stakeholders can align through data-driven and collaborative planning. WaterSMART funding would be of great benefit to the ongoing process of understanding water quality strategies in the watershed.

Sincerely,

Marcus A. Mueller
Land Management Officer





Economic Development + Planning
177 North Birch Street
Soldotna, AK 99669
907.262.9107
www.soldotna.org

January 10, 2021

Branden Bornemann
Kenai Watershed Forum
44129 Sterling Highway
Soldotna, Alaska 99669

RE: Support for Kenai River Water Quality Action Framework Proposal

Dear Mr. Bornemann:

The City of Soldotna supports the Kenai Watershed Forum's (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase I funding. The implementation of this project would help all stakeholders to steward the Kenai River Watershed and its salmon, which are primary economic, cultural, and social drivers in the region.

As a community based non-profit with nearly 25 years of experience working on the Kenai River, KWF is a valued partner. In addition to being coordinator of the Kenai Peninsula Fish Habitat Partnership, KWF generated 20-years of baseline water quality data from the Kenai River watershed that has had considerable impact on watershed management. KWF is a highly respected organization within our community and capable of conducting the analysis and stakeholder engagement required to generate a successful plan to guide Kenai River watershed management with a focus on water quality.

With the highest recreational use of any river in Alaska and with multiple federal, state, and local jurisdictions, the Kenai River watershed is complex to manage. Ensuring clean water is of the utmost importance, and long-term solutions are within reach if stakeholders can align through data-driven and collaborative planning. WaterSMART funding would be of great benefit to the ongoing process of understanding water quality in the watershed and mitigating threats.

The City of Soldotna supports KWF's efforts and this project.

Sincerely,

A handwritten signature in blue ink, appearing to read 'John Czarnecki', is written over a light blue rectangular background.

John Czarnecki
Director of Economic Development + Planning





January 18, 2021

Branden Bornemann
Kenai Watershed Forum
44129 Sterling Highway
Soldotna, Alaska 99669

Dear Branden:

Cook Inletkeeper supports the Kenai Watershed Forum's (KWF's) proposal to the Bureau of Reclamation for WaterSMART Cooperative Watershed Management Program Phase I funding. The implementation of this project will help stakeholders to steward the Kenai River watershed and its salmon, which are primary economic, cultural, and social drivers in southcentral Alaska.

Cook Inletkeeper is a community-based, nonprofit organization formed in 1995 that combines advocacy, education and science toward its mission to protect Alaska's Cook Inlet watershed and the life it sustains. Inletkeeper has decades of experience working with KWF, a valued partner. In addition to their important leadership serving as coordinator of the Kenai Peninsula Fish Habitat Partnership, KWF has generated 20-years of baseline water quality data from the Kenai River watershed. With this dataset, KWF has highlighted water quality concerns and influenced watershed management. KWF is capable of conducting the proposed analysis and stakeholder engagement required to generate a successful plan to guide Kenai River watershed management with a focus on water quality.

KWF's proposed project compliments Cook Inletkeeper's current WaterSMART project: *Community-based Watershed Tour: Planning for our next 25 years*, by providing Kenai River specific data to refine future restoration and protection projects to address water quality concerns and documented degradation. With the highest recreational use of any river in Alaska and with multiple federal, state, and local jurisdictions, the Kenai River watershed is challenging to manage. Ensuring clean water is of the utmost importance, and long-term solutions are within reach if stakeholders can align through data-driven and collaborative planning.

Cook Inletkeeper supports KWF's proposal for WaterSMART funding which will benefit the ongoing process of understanding water quality in the Kenai River watershed with a goal of mitigating threats.

Sincerely,

A handwritten signature in black ink that reads "Sue Mauger".

Sue Mauger
Science & Executive Director

~~~~~  
Protecting Alaska's Cook Inlet watershed and the life it sustains since 1995.



# Board Resolution



44129 Sterling Hwy | Soldotna, AK 99669  
Phone (907) 260-5449 Fax (907) 260-5412 | www.kenaiwatershed.org

## Kenai Watershed Forum Board of Directors

### Resolution: 2020-BoR-WaterSMART-01

Certified copy of this relevant extract from the minutes of the Meeting of Board of Directors of Kenai Watershed Forum held on 12/21/2020 at 6:00 pm.

After discussion the Board passed the following Resolution: 2020-BoR-WaterSMART-01 as follows:

"Resolved that the following official, BRANDEN BORNEMANN, Executive Director, is verified by this body as the official with legal authority to enter into an agreement on behalf of the organization, and that the official will work the Bureau of Reclamation to meet established deadlines for entering into a grant or cooperative agreement."

"Be it further resolved that this body has reviewed and supports the organization's proposal to the Department of the Interior, Bureau of Reclamation, Water Resources and Planning Office, WaterSMART Cooperative Watershed Management Program Phase I Grants, Funding Opportunity Number: BOR-DO-20-F003/Catalog of Federal Domestic Assistance Number: 15.554."

Yeas: 7 Nays: 0

Authorized Board Member Signature:

Matthew R. Lunde

Date: 1/12/21

