Field Report

Watershed Health and Data Analysis

2020 Statewide Pilot Survey

May 05 – October 27, 2020

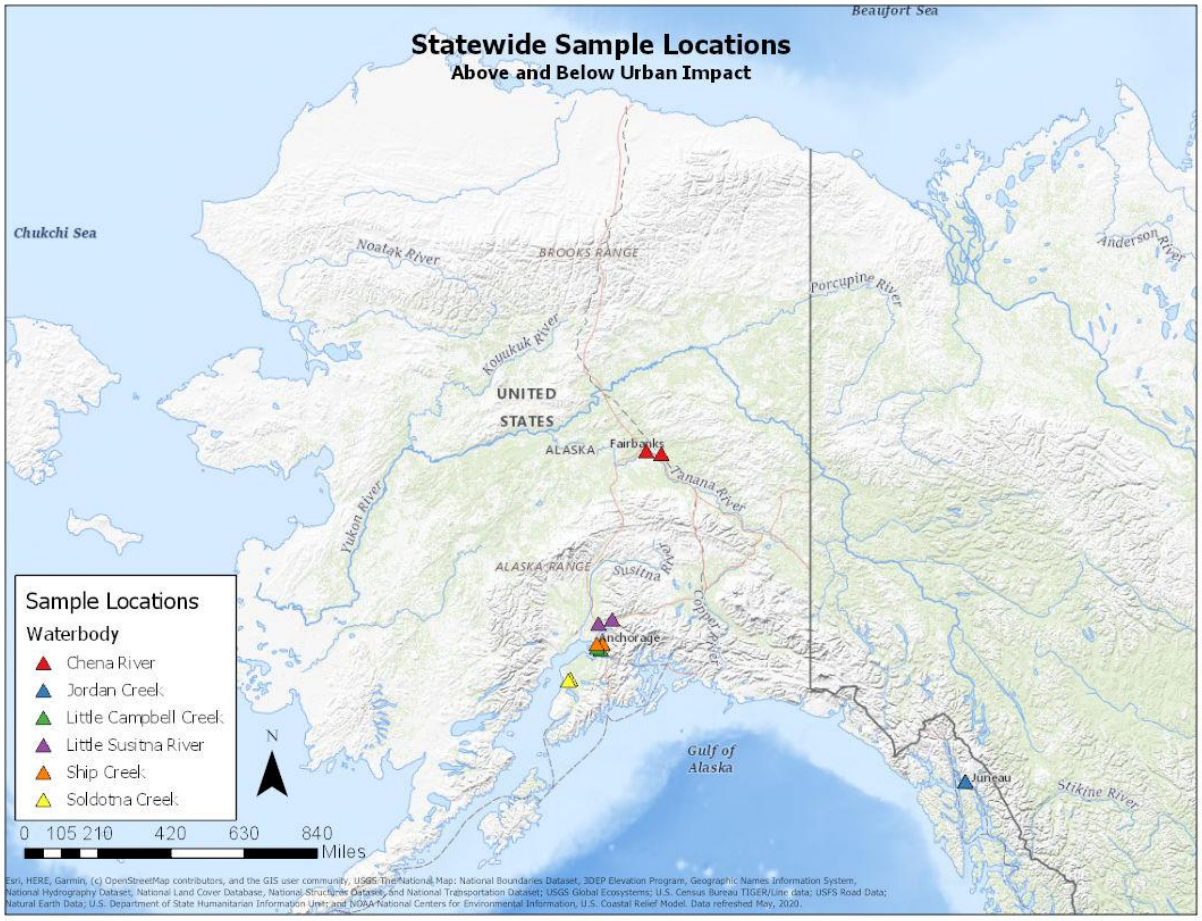

Figure 1. Statewide sample sites for WHADA 2020 Pilot Study. Sample sites were located upstream and downstream of urban development for selected waterbodies throughout Alaska.

Acknowledgements

This survey was funded in part through Environmental Protection Agency (EPA) Section 106 Clean Water Act grants. Work was completed by staff at the regional Anchorage, Fairbanks, Juneau, Wasilla, and Soldotna DEC offices.

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The Alaska Department of Environmental Conservation (DEC) established the Watershed Health and Data Analysis program (WHADA) in 2020 to characterize the environmental conditions of high priority watersheds. Data gathered by this program will be used in determining whether waterbodies meet regulatory standards and support designated uses while meeting minimum data requirements under the 2020 Alaska Consolidated Assessment and Listing Methodology (CALM). Six watersheds throughout Alaska were selected for a two-year pilot survey starting in May 2020. Data collection included water and biological samples, a physical habitat survey, and field measurements. This field report will summarize results of the 2020 sampling season.

Waterbodies for the pilot study were selected based on several factors including classification, data needs, and logistics. All waterbodies are noted as High Priority Waterbodies for the Alaska Clean Waters Actions (ACWA) program and are representative of the local area for the participating regional office. Data gaps or needs were identified for each waterbody and an assessment of staff availability was completed to determine the number of waterbodies surveyed by each regional office. Monitoring locations were selected at upstream and downstream of urban development. The selected waterbodies and sampling locations are listed below:

- Chena River (Interior, Fairbanks)
    - WHADA-ChRi-6.0 (64.840359, -147.817503)
    - WHADA-ChRi-45.3 (64.79441, -147.191477)
- Jordan Creek (Southeast, Juneau)
    - WHADA-JoCr-1.5 (58.358158, -134.574843)
    - WHADA-JoCr-2.3 (58.366523, -134.577306)
- Little Campbell Creek (Southcentral, Anchorage)
    - WHADA-LCCr-2.1 (61.147444, -149.853096)
    - WHADA-LCCr-7.5 (61.29791222, -149.423393)
- Little Susitna River (Southcentral, Wasilla)
    - WHADA-LSuRi-55 (61.626459, -149.806021)
    - WHADA-LSuRi-86 (61.716906, -149.23160)
- Ship Creek (Southcentral, Anchorage)
    - WHADA-ShCr-1.3 (61.223394, -149.874029)
    - WHADA-ShCr-12.4 (61.224464, -149.630439)
- Soldotna Creek (Southcentral, Kenai Peninsula)
    - WHADA-SoCr-0.05 (60.482719, -151.059865)
    - WHADA-SoCr-4.5 (60.515439, -150.980252)

DEC routinely leads watershed monitoring efforts throughout Alaska to gain an understanding of present water quality conditions throughout the state. The WHADA program initiates a localized effort for regional offices to assess conditions in local high priority watersheds. The design of the project mimics current and previous sampling surveys completed throughout Alaska to ensure data comparability with other ongoing statewide monitoring efforts including Bureau of Land Management (BLM)'s Assessment, Inventory and Monitoring Strategy (AIM), US Environmental Protection Agency (EPA)'s National Aquatic Resource Surveys (NARS) and Great Lakes Beach

Sanitary Surveys. Core parameters (i.e., water chemistry, physical habitat, and biological) and documented sampling procedures from the national monitoring efforts were incorporated in the WHADA program.

Sampling teams were made up of one to three crew members, determined by the sample location and type of field work planned for the sampling event. In response to the COVID-19 pandemic, specific COVID-19 safety guidelines were developed for the protection of all crew members. On arrival at the site, the location was verified for sampling to begin.

Once the site was verified, the crew collected water and biological samples according to National Rivers and Streams Assessment (NRSA) wadeable methods along a reach proportional to the width of the stream. Benthic macroinvertebrate samples and stream flow were not collected during the 2020 sampling season due to COVID-19 safety concerns and training availability.

- Physical habitat was surveyed in the spring and fall at each of the 11 transects spaced evenly throughout the sampling reach. The survey included assessments of riparian habitat, instream fish habitat, canopy cover, substrate, and human impacts.
- Water samples were collected monthly from all sites. Samples were collected either at midstream or on the banks at the sample location unless access, flow, or other factors necessitated sampling from another location. Laboratory analyses were completed for dissolved metals, cations, nutrients, total suspended solids.
- Enterococci and fecal coliform samples were collected at the downstream location for each waterbody five times within a 30-day period.

Samples were analyzed at various laboratories and complete results are expected in 2021. Data are available upon request.

The success of this project is attributed to the following personnel:

Sarah Apsens, DEC
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Table 1. Water chemistry samples collected during the 2020 WHADA Pilot Survey.

Monitoring Location ID	Latitude	Longitude	05/2020	06/2020	07/2020	08/2020	09/2020	10/2020
WHADA-ChRi-6.0	64.840359	-147.817503		✔	✔	✔	✔	✔
WHADA-ChRi-45.3	64.79441	-147.191477		✔	✔	✔	✔	✔
WHADA-JoCr-1.5	58.358158	-134.574843	✔	✔	✔	✔	✔	✔
WHADA-JoCr-2.3	58.366523	-134.577306	✔	✔	✔	✔	✔	✔
WHADA-LCCr-2.1	61.147444	-149.853096	✔	✔	✔	✔		
WHADA-LCCr-7.5	61.29791222	-149.423393	✔	✔	✔	✔	✔	
WHADA-LSuRi-55	61.626459	-149.806021	✔	✔	✔	✔	✔	✔
WHADA-LSuRi-86	61.716906	-149.2316	✔	✔	✔	✔	✔	✔
WHADA-ShCr-1.3	61.223394	-149.874029		✔	✔	✔	✔	
WHADA-ShCr-12.4	61.224464	-149.630439		✔	✔		✔	✔
WHADA-SoCr-0.05	60.482719	-151.059865		✔		✔	✔	
WHADA-SoCr-4.5	60.515439	-150.980252		✔		✔	✔	

Table 2. Pathogen samples collected at downstream sample locations during the 2020 WHADA Pilot Survey.

Monitoring Location ID	Latitude	Longitude	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
WHADA-ChRi-6.0	64.840359	-147.817503	06/02/20	06/10/20	06/16/20	06/24/20	07/01/20
WHADA-JoCr-1.5	58.358158	-134.574843	06/11/20	06/18/20	06/24/20	07/01/20	07/08/20
WHADA-LCCr-2.1*	61.147444	-149.853096	05/21/20	05/26/20	06/01/20	06/11/20	06/15/20
WHADA-LSuRi-55	61.626459	-149.806021	07/28/20	07/29/20	08/03/20	08/04/20	08/13/20
WHADA-ShCr-1.3	61.223394	-149.874029	06/10/20	06/15/20	06/17/20	06/22/20	06/29/20
WHADA-SoCr-0.05	60.482719	-151.059865	06/02/20	06/11/20	06/18/20	06/25/20	06/29/20

**Additional sample collected on 06/17/20*

Table 3. Physical habitat surveys completed during the 2020 WHADA Pilot Survey

Monitoring Location ID	Latitude	Longitude	Spring Survey	Fall Survey
WHADA-ChRi-6.0	64.840359	-147.817503	06/16/20	-
WHADA-ChRi-45.3	64.79441	-147.191477	06/17/20	06/18/20
WHADA-LCCr-2.1	61.147444	-149.853096	06/23/20	-
WHADA-LCCr-7.5	61.29791222	-149.423393	06/24/20	09/21/20
WHADA-LSuRi-55	61.626459	-149.806021	06/08/20	-
WHADA-LSuRi-86	61.716906	-149.2316	06/09/20	10/13/20
WHADA-ShCr-1.3	61.223394	-149.874029	06/23/20	09/29/20
WHADA-ShCr-12.4	61.224464	-149.630439	07/10/20	-
Due to staff training and availability, physical habitat surveys were not completed at Jordan Creek and Soldotna Creek sites.				