

Field Report

Watershed Health and Data Analysis

2021 Anchorage and Wasilla Targeted Monitoring

May 27 – September 20, 2021



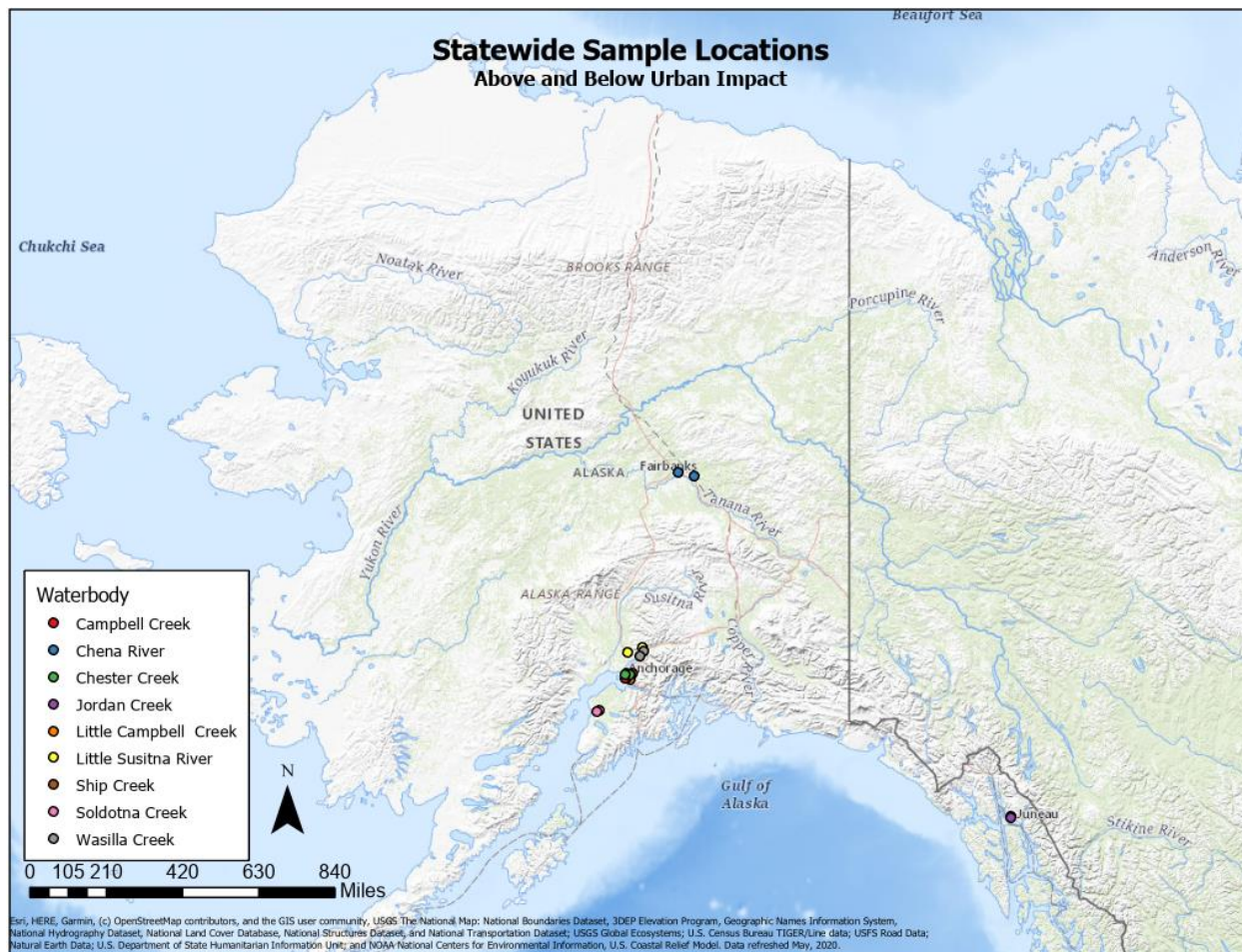


Figure 1. Statewide sample sites for WHADA, including 2021 Anchorage and Wasilla Targeted Monitoring. Sample sites were located upstream and downstream of urban development for selected waterbodies throughout Alaska.

Acknowledgements

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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. WHADA targeted monitoring efforts continued in 2021 and 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 Alaska Consolidated Assessment and Listing Methodology (CALM). Due to staff availability, targeted watersheds within the jurisdiction of the Anchorage and Wasilla regional DEC offices were selected for sampling in 2021. Data collection included water and biological samples, a physical habitat survey, and field measurements. This field report will summarize results of the 2021 sampling season.

Waterbodies for the 2021 targeted monitoring 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. Notably, the upstream sample site for Ship Creek was shifted from the 2020 sampling season and the new sample site is WHADA-ShCr-11. The sample site was shifted due to accessibility and safety concerns but remains within the same assessment unit as WHADA-ShCr-12.4 and the data is considered comparable. The selected waterbodies and sampling locations are listed below:

- Campbell Creek (Southcentral, Anchorage)
 - WHADA-Cam6 (61.139387, -149.9218)
 - AnchBact20-01 (61.177817, -149.8251)
- Chester Creek (Southcentral, Anchorage)
 - WHADA-Che3 (61.204757, -149.9)
 - WHADA-Che33 (61.205741, -149.7176)
- 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-11 (61.225249, -149.6497)
- Wasilla Creek (Southcentral, Wasilla)
 - WHADA-WA01 (61.66149, -149.1884)
 - WHADA-WA04 (61.56728, -149.317)

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. Stream flow and slope were not collected during the 2021 sampling season due to COVID-19 safety concerns and training availability.

- Physical habitat was surveyed once throughout the sampling reach 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. Benthic macroinvertebrate samples were collected during physical habitat assessment at each of the 11 transects by staff, unless collection was restricted by safety or accessibility concerns. Benthic macroinvertebrate samples were preserved in the field with ethanol until shipment to the lab for taxonomic identification.
- 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 2022. Data are available upon request.

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

Amber Bethe, DEC
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Lindy Rock, DEC
Meredith Witte, DEC



Table 1. Water chemistry samples collected during the 2021 Anchorage and Wasilla Targeted Monitoring Survey.

Monitoring Location ID	Latitude	Longitude	05/2021	06/2021	07/2021	08/2021	09/2021
AnchBact20-01	61.177817	-149.8251	✓	✓	✓	✓	✓
WHADA-Cam6	61.139387	-149.9218	✓	✓	✓	✓	✓
WHADA-Che3	61.204757	-149.9	✓	✓	✓	✓	✓
WHADA-Che33	61.205741	-149.7176	✓	✓	✓	✓	✓
WHADA-LCCr-2.1	61.153278	-149.8717	✓	✓	✓	✓	✓
WHADA-LCCr-7.5	61.113357	-149.7089	✓	✓	✓	✓	✓
WHADA-LSuRi-55*	61.626459	-149.806021		✓	✓	✓	✓
WHADA-LSuRi-86*	61.716906	-149.2316		✓	✓	✓	✓
WHADA-ShCr-1.3	61.223394	-149.874029	✓	✓	✓	✓	✓
WHADA-ShCr-11	61.225249	-149.6497	✓	✓	✓	✓	✓
WHADA-WA01*	61.66149	-149.1884		✓	✓	✓	✓
WHADA-WA04*	61.56728	-149.317		✓	✓	✓	✓

**Two water chemistry samples were collected in June for Wasilla sites (Little Susitna River and Wasilla Creek).*

Table 2. Pathogen samples collected at downstream sample locations during the 2021 Anchorage and Wasilla Targeted Monitoring Survey.

Monitoring Location ID	Latitude	Longitude	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
WHADA-Cam6	61.139387	-149.9218	06/01/21	06/04/21	06/08/21	06/21/21	06/24/21
WHADA-Che3	61.204757	-149.9	06/01/21	06/04/21	06/08/21	06/21/21	06/24/21
WHADA-LCCr-2.1	61.153278	-149.8717	06/01/21	06/04/21	06/08/21	06/21/21	06/24/21
WHADA-LSuRi-55	61.626459	-149.806021	07/28/21	08/03/21	08/04/21	08/18/21	08/26/21
WHADA-ShCr-1.3	61.223394	-149.874029	06/01/21	06/04/21	06/08/21	06/21/21	06/24/21
WHADA-WA04	61.56728	-149.317	07/28/21	08/03/21	08/04/21	08/18/21	08/26/21

Table 3. Physical habitat surveys completed during the 2021 Anchorage and Wasilla Targeted Monitoring Survey.

Monitoring Location ID	Latitude	Longitude	Survey Date Survey	Benthic Macroinvertebrate Sample Collected
AnchBact20-01	61.177817	-149.8251	08/30/21	✓
WHADA-Cam6	61.139387	-149.9218	06/23/21	✓
WHADA-Che3	61.204757	-149.9	07/16/21	✓
WHADA-Che33	61.205741	-149.7176	08/25/21	✓
WHADA-LCCr-2.1	61.153278	-149.8717	06/23/21	✓
WHADA-LCCr-7.5	61.113357	-149.7089	06/22/21	✓
WHADA-LSuRi-55*	61.626459	-149.806021	06/16/21	
WHADA-LSuRi-86*	61.716906	-149.2316	06/16/21	
WHADA-ShCr-1.3	61.223394	-149.874029	07/30/21	✓
WHADA-ShCr-11	61.225249	-149.6497	08/11/21	✓
WHADA-WA01	61.66149	-149.1884	06/15/21	✓
WHADA-WA04	61.56728	-149.317	07/21/21	✓
<i>*Due to safety concerns, benthic macroinvertebrate samples were not collected at Little Susitna River sites.</i>				