

JOINT WATER QUALITY MONITORING PROGRAM FOR TRANSBOUNDARY WATERS

Program Description and Two-Year Work Plan¹

Context

In accordance with the Statement of Cooperation (SoC), British Columbia (BC) and Alaska (AK) propose a Transboundary Waters Monitoring Program and two-year Work Plan including the scope, elements and funding of a defined coordinated monitoring effort. These documents describe a process for the collection, summary and distribution of baseline water quality and quantity data and for monitoring the condition of fish and other aquatic life potentially impacted by pollutants in Transboundary Waters.

Geographical Scope

The Alsek, Taku, Stikine, and Unuk rivers.

The Technical Working Group on Monitoring (TWG-M) identified that development is not occurring or planned in the Alsek watershed in BC or AK and recommends focusing efforts on the Taku, Stikine, and Unuk rivers where upstream industrial development has occurred, is occurring, or is planned.

Program Outreach

The members of the TWG-M engaged with Tribes, First Nations, Nisga'a Nation, state and federal agencies, provincial and federal ministries, non-governmental organizations and the general public informally by phone and email and formally at:

- The Alaska Transboundary Environmental Data Workshop held in Juneau in April 2016;
- The Alaska Forum on the Environment held in Anchorage February 2016 and 2017;
- Meetings in Juneau and Ketchikan in March 2017 to review SoC goals and identify concerns;
- Meetings in Juneau in April 2017 to review SoC goals, discuss collaborative opportunities, and leverage resources; and
- Workshop in Juneau in May, 2017 to provide an update on efforts under the SoC and an opportunity for input on the preliminary draft monitoring program description and two-year workplan.

Program outreach revealed Tribes and stakeholders desire to understand both the existing environmental conditions in transboundary waters and the potential for upstream Canadian mining and industrial activities to impact Alaska's downstream Taku, Stikine, and Unuk water quality, water quantity, and fish resources.

¹ This document was prepared for Bilateral Working Group review and was approved on October 5, 2017. This document forms Attachment 1 to the BC/AK SoC.

Coordination

BC and AK will coordinate with Tribes, First Nations, Nisga'a Nation, state and federal agencies, provincial and federal ministries, non-governmental organizations, and industry, to use resources effectively and minimize duplication when implementing the work plan. To the extent possible, BC and AK will coordinate abiotic and biotic sampling parameters in an effort to ensure data comparability.

Funding

BC and AK may seek funding to complete the work plan through internal budget processes and working in partnership with Tribes, First Nations, Nisga'a Nation, state and federal agencies, provincial and federal ministries, non-governmental organizations, and industry.

Data Collection

Existing

AK hired a non-governmental organization to catalog recent and historic Southeast Alaska transboundary rivers water quality, water quantity and bioassessment data.²

BC inventoried recent and historic water quality, water quantity and bioassessment monitoring information and conducted a review of federal and provincial water quality agreement trend monitoring stations, provincial biomonitoring programs, provincial *Environmental Assessment Act* and *Environmental Management Act* applications and authorizations. BC has implemented issue-specific environmental impact assessment studies, such as the 2016 Tulsequah Chief Aquatic Ecological Risk Assessment.

Additional data collection is on-going through Central Council Tlingit and Haida Indian Tribes of Alaska (Central Council), United States USGS gaging stations, and Canadian hydrometric stations.

Central Council is conducting a Traditional Ecological Knowledge survey related to transboundary rivers, in cooperation with AK.

Future

AK is implementing the Alaska Monitoring and Assessment Program³ in Southeast Alaska to describe aquatic conditions across the region. Staff began sampling lakes in 2017, and will sample rivers and streams in 2018 and 2019. In addition to the Environmental Protection Agency protocol for a spatially balanced survey design across the region, the program allows survey intensification⁴ in special interest areas, like the Taku, Stikine, and Unuk rivers, while supporting correct statistical analysis of combined larger area and special interest area data. Staff will survey coastal waters, and may survey wetlands, in 2020 and 2021.

² AK is developing a quality assurance program to address data evaluation.

³ The Alaska Monitoring and Assessment Program, referred to as AKMAP, is part of a nationwide Environmental Protection Agency effort to survey the environmental condition of United States ecological resources.

⁴ Intensification of AKMAP Lake, River and Stream survey include additional monitoring locations and parameters. Additional parameters include total and dissolved metals in the water column and sediment, periphyton (unfunded), and fish tissue sampling.

AK will apply for a Pacific Salmon Commission Northern Fund grant to sample Stikine and Unuk river juvenile Dolly Varden char whole body metals concentrations. If the grant application is approved, metals data from 120 fish will be compared to Taku River and AK statewide datasets.

BC will conduct supplemental water quality monitoring projects in transboundary watersheds. BC will also expand its Biomonitoring Network, which employs the federally developed and supported Canadian Aquatic Biomonitoring Network (CABIN) protocols to measure change in biological communities to assess freshwater ecosystem health. Additional biomonitoring will include measuring metals concentrations in fish tissues to build understanding of potential impacts of pollutants from industrial activities in the watersheds.

BC will implement industry validation projects as part of the two year work plan. These projects will be in addition to industry sampling efforts and will validate data collected by industry, and may include additional sampling, split sampling, and review of lab and field Quality Assurance data.

Deliverables

In the fall of 2018, the TWG-M will provide the Bilateral Working Group a draft Program report summarizing monitoring activities.

In the fall of 2019, the TWG-M will provide the Bilateral Working Group a final Program report summarizing existing data, data gaps, and data collected during the two-year work plan.

The TWG-M will meet quarterly to ensure continued BC and AK collaboration and information sharing as described in the SoC Communications Plan.

Two-year Work Plan

All Watersheds

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019	Fall/Winter 2019/20		
Continue to engage, collaborate and consult with Tribes, First Nations, Nisga'a Nation, industry, environmental non-governmental organizations, public, and federal agencies.	BC/AK	Continue to engage with Tribes, First Nations and stakeholders in BC and Alaska	Engagement: ongoing						
		Collaborate to identify existing data sources from other agencies							
		Collaborate to identify potential funding sources / partnerships							
		Collaborate on survey methods, parameters, and analysis							
		Collaborate on the collection, documentation, and sharing of traditional ecological knowledge.							
		Publication of monitoring results – ongoing							
						Mid-point Report: Review and summarize monitoring actions		Final Report: Review and summarize monitoring actions and results.	

ALSEK

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019
There is no current mining or other industrial activity in the BC portion of the Alsek watershed. We are not aware of planned mining or other industrial development in the reasonably foreseeable future.	BC	Four Water Survey of Canada hydrometric stations				
	AK	USGS gage station: stage, discharge, water chemistry				
		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey

Existing monitoring program

Taku

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019	
The Tulsequah-Chief mine is in receivership and discharging to the Tulsequah River, a tributary to the Taku.	BC			Baseline water quality monitoring on Taku & Tulsequah Rivers			
		Baseline water quality and sediment quality monitoring.		Baseline benthic invertebrate monitoring			
				Fish tissue sampling on main-stem Taku		Fish tissue sampling on main-stem Taku	
	AK	Central Council of Tlingit and Haida Indian Tribes of Alaska Transboundary Monitoring Project, two locations (USGS gage station and confluence Goat Creek): water chemistry, dissolved and total metals					
		USGS gage station: stage, discharge, water chemistry					
		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey	
		Intensification of AKMAP Lake survey		Intensification of AKMAP Rivers and Streams survey		Intensification of AKMAP Rivers and Streams survey	

Stikine

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019	
The Red Chris Mine is in operation in the sub-watersheds of the Iskut and Klappan.	BC	Three current Water Survey of Canada hydrometric stations					
		Current federal-provincial water quality monitoring station on the Iskut River (sub-watershed)					
		Red Chris Mine; <i>Environmental Management Act</i> authorization aquatic effects monitoring program: benthic invertebrates, periphyton, water quality, sediment quality, physical habitat assessment, fish tissue (lakes program includes three years of sampling for selenium)					
				Baseline water quality monitoring on main-stem Stikine			
				Industry data validation (Red Chris)			
		Baseline water quality and sediment quality monitoring.		Baseline benthic invertebrate monitoring			
			Fish tissue sampling on main-stem Stikine		Fish tissue sampling on main-stem Stikine		
	AK	Central Council of Tlingit and Haida Indian Tribes of Alaska Transboundary Monitoring Project, 2 locations (USGS gage station and confluence Goat Creek): water chemistry, dissolved and total metals					
		USGS gage station: stage, discharge, turbidity, water chemistry					
		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey	
Intensification of AKMAP Lake survey			Intensification of AKMAP Rivers and Streams survey		Intensification of AKMAP Rivers and Streams survey		

	Existing monitoring program
	Proposed supplemental monitoring (BC) / program intensification effort (AK)

Unuk

Background Info	Project Lead	Spring/Summer 2017	Fall/Winter 2017/18	Spring/Summer 2018	Fall/Winter 2018/19	Spring/Summer 2019	
The KSM Project is in pre-application (permitting) and Brucejack Mine is operating.	BC	Two hydrometric stations associated with Brucejack Mine; ten hydrometric stations associated with the KSM Project					
		Brucejack Mine <i>Environmental Management Act</i> authorization aquatic effects monitoring program: water quality, benthic invertebrates, sediment quality, periphyton					
		KSM Project <i>Environmental Management Act</i> authorization aquatic effects monitoring program: water quality, benthic invertebrates, sediment quality, periphyton, selenium bioaccumulation project associated with KSM concludes in 2018					
					Industry data validation (KSM/Brucejack)		
				Fish tissue sampling on main-stem Unuk		Fish tissue sampling on main-stem Unuk	
	AK	Central Council of Tlingit and Haida Indian Tribes of Alaska Transboundary Monitoring Project, 2 locations (historic USGS gage station and confluence Blue River): water chemistry, dissolved and total metals					
		USGS gage station: stage, discharge, turbidity, water chemistry					
		AKMAP Southeast Alaska region wide survey			AKMAP Southeast Alaska region wide survey		AKMAP Southeast Alaska region wide survey
		Intensification of AKMAP Lake survey			Intensification of AKMAP Rivers and Streams survey		Intensification of AKMAP Rivers and Streams survey

	Existing monitoring program
	Proposed supplemental monitoring (BC) / program intensification effort (AK)