

AEMP PROGRAM COMPONENTS SURVEY – Results Summary

#	AEMP Program Topics	Relevance Do you know about these program topics? Yes or No/Somewhat	Understanding Do you know what these topics mean? Yes or No/Somewhat	Total # of No to Yes responses	Results for all participants (n = 9)	Priority Rank # 1 (High) to 12 (Low)
10	AEMP Response Framework	5 No 3 Yes	6 No 2 Yes	11 No : 5 Yes	mean 4.25 median 1.0	1
8	Monitoring Parameters	5 No 2 Yes	4 No 3 Yes	9 N : 5 Y	mean 4.4 median 1.0	2
2	Community Engagement	5 No 1 Yes – get involved	4 No 2 Yes	9 N : 3 Y	mean 3.16 median 1.5	3
3	Traditional Knowledge	4 No 3 Yes – an ongoing and needed process	1 No 7 Yes	5 N : 10 Y	mean 5.3 median 2.0	4
4	Small Fish Study	3 No 4 Yes – much needed	2 No 6 Yes	5 N : 10 Y	mean 5.14 median 3.0	5
7	Monitoring Stations locations, numbers	5 No 3 Yes	2 No 5 Yes	7 N : 8 Y	mean 4.8 median 3.5	6
6	Water Quality Monitoring	2 No 5 Yes - big issue for FGH	2 No 6 Yes	4 N : 11 Y	mean 5.71 median 5.0	7
1	Technical Report of results and maps	6 No 2 Yes	4 No 4 Yes	10 N : 6 Y	mean 5.14 median 6.0	8
11	Statistical Design and Tests	4 No 4 Yes	4 No 4 Yes	8 N : 8 Y	mean 5.7 median 6.0	9
5	Large Fish Study	3 No 4 Yes – much needed	2 No 6 Yes	5 N : 10 Y	mean 6.3 median 6.0	10
9	Accumulated Environmental State (AES)	3 No 5 Yes	3 No 5 Yes	6 N : 10 Y	mean 6.0 median 6.5	11
12	Communication of Results	2 No 6 Yes	4 No 4 Yes	6 N : 10 Y	mean 5.8 median 8.0	12

Imperial Norman Wells Operations Aquatic Effects Monitoring Program version 4.0

Imperial described the key components included in the AEMP program are:

1. Water quality monitoring of the Mackenzie River and Bosworth Creek

This incorporates sampling locations and techniques intended to characterize the Environmental State of the water bodies regionally and locally (around Norman Wells Operations) both upstream and downstream of the facility.

2. Small-bodied fish monitoring program

Designed to be executable with available fish species in environmentally relevant locations (one site-influences stream and one non-influenced stream) that have small home ranges allowing data to be more reliably attributable to Norman Wells Operation (NWO) stressors if indicated.

3. Large Fish Study

Not included in this AEMP submission, is the development of the community large fish study, as the SLWB indicated they will lead the development of this component. A working group which includes several Sahtu community members, SLWB and Imperial has recently been formed with the first session held on November 29-30, 2022 and the second session scheduled for July 12-13, 2023. This group will play a key role in the development of the large-bodied fish program, ensuring continued collaboration during execution. Imperial looks forward to participating in this working group next year as the Terms of Reference and program are designed.

2023 FIELD PROGRAM

Additional field work to be conducted in 2023, including, but not limited to:

- i) conduct the Special Effects Study for small-bodied fish species as proposed by HESL,
- ii) investigate and rationalize the inclusion of additional sampling locations for water quality recommended by ECCC, iii) identify other small-bodied fish sampling locations on the Mackenzie River to be able to demonstrate facility effects on aquatic life, and
- iv) consider and rationalize the other parameters recommended to be monitored in water and fish by ECCC, SRRB, ECC.
- v) Other added suggestions from the Survey Handout
 - Birds and other waterfowl, ducks and other birds, bird study.
 - Permafrost study, Ice study, Ice study, Ice study.
 - Kelly Lake for example.
 - Moose studies, Moose studies (Ticks, lungs, kidneys, other), Caribou study would be good too.
 - Mackenzie River? Fish moving up and down.
 - Work is starting, need to wait for some results.
 - Burbot testing because they are bottom feeders, Loche study.
 - Soil sampling.

The Board provided some additional direction for the AEMP Design at their meeting:

- a. To expand the sample area to look for effects on large fish all the way to the delta because large fish travel far.
- b. To remove Bosworth Creek for sampling, as there are no fish that people eat in the entire creek. **Not supported by the Working Group**
- c. To look at other species of fish and aquatic life in the river along the food chain because everything is connected.
- d. To gather TK to understand how the fish have changed from big impacts (like right after the expansion) to natural changes (whitefish arrive in good condition in July and then get skinny).

AEMP PROGRAM COMPONENTS SURVEY

AEMP Program Topics		Relevance	Understanding	Priority
		Yes/No/Somewhat	Yes/No/Somewhat	1 is your highest priority 12 is your lowest priority
there were 9 survey handouts submitted.		Do you know about these program topics?	Do you know what these topics mean?	Rate these topics from 1 to 12 based on their importance to you
1	Technical Report including Maps and analytical results	No, No, Yes, No Somewhat SW, Yes SW	No, Somewhat Yes, SW Somewhat Yes, Yes, Yes	1, 6, 12, 1, 6, 9, 1 mean 5.14 median 6 Much needed for the geological survey of the site
2	Engagement	Somewhat, Somewhat No No, SW get involved	Somewhat, yes, SW, No No, Yes community engagement	1,7, 2, 7, 1, 1 mean 3.16 median 1.5 Starting point
3	Traditional Knowledge (TK)	Somewhat Yes Yes No No No, Yes ongoing	Yes Yes Yes No Yes Yes, yes Yes	1,8, 12, 1, 12, 2, 1 mean 5.3 median 2 Tk is important and much needed for the community members
4	Small Fish Study	No Yes Yes, Yes, No Yes, SW much needed	Yes Yes Yes No Yes SW, yes Yes	1,8, 10, 1, 12, 3, 1 mean 5.14 median 3 Just starting closer to the site

5	Large Fish Study	No Yes Yes No Yes Yes, SW much needed	Yes Yes Yes No Yes SW, yes Yes	1,8, 12, 12, 6, 4, 1 mean 6.3 median 6 The larger fish seem to carry more contaminants
6	Water Quality Monitoring	Yes Yes Yes No No Yes Yes big issue for the community of FGH because we are downriver	Yes, Yes, SW, Yes, Yes No Yes Yes	1,8, 12, 1, 12, 5, 1 mean 5.71 median 5 Climate change is a good example
7	Monitoring Stations locations and numbers	Somewhat Yes Yes No No No, yes SW	No Yes Yes, Yes, No, yes Yes	1,8, 1, 12, 6, 1 mean 4.8 median 3.5 Closer to the source will be the answer to this
8	Monitoring Parameters – e.g. hydrocarbons, metals, sediment, fish tissues, etc.	Yes SW No No No No, Yes understand the contaminants, how many components?	Somewhat Yes No, Yes No No Yes	1,8, 1, 1, 12, 7, 1 mean 4.4 median 1.0 Same as above, I would suggest where and how they extracted the oil
9	Methods and details for assessing the Accumulated Environmental State (AES) of the whole aquatic ecosystem.	Yes Yes No Yes No No Yes Yes	No Yes Yes Yes No No Yes Yes	5, 8, 10, 1, 12, 10, 1, 1 mean 6.0 median 6.5 From what I have overheard yesterday it's about time closer to the source

10	AEMP Response Framework where Triggers and Action Levels (Low-Med-High) are set to determine the response to take for any pollutant that exceeds a set Standard. Part of Adaptive Management.	Somewhat Yes No No No No Yes Yes	No SW No No No No Yes Yes	1,6, 1, 1, 12, 11, 1, 1 mean 4.25 median 1.0 Ongoing. Need results
11	Statistical Design and Tests	Yes SW Yes Yes No No Yes No	No SW Yes Yes No No Yes Yes	1,7, 6, 1, 12, 12, 1 mean 5.7 median 6.0
12	Communication of Results by Plain Language Summary, or meetings, or other means. [e.g. Posters, Pictures, Graphic Presentation	No Yes Yes Yes No Yes Yes Yes	No SW Yes No No Yes Yes Yes	1,8, 10, 1, 12, 8, 1* mean 5.8 median 8.0

Of the Nine surveys submitted the following pertains to how the ranks were assigned:

- Two respondents ranked each topic with a number from 1 to 12.
- Three respondents ranked most topics as 1, with one ranking all as 1; another with one rank of 5 for AES; another with one rank of 2 for Engagement and 12 for the Large Fish Study (this letter corresponded with a No for understanding and relevance).
- One included ranks from 6 to 12 only.
- One ranked topics around the median of 6 with ranks of 6, 7, or 8.
- Two did not include ranks.