



RAMP Releases Peer Review Panel Report

January 31, 2011 – Fort McMurray, AB: The Regional Aquatics Monitoring Program (RAMP) today released the report from its latest external peer review process.

RAMP undertook the review of its existing aquatic monitoring program to assess and update its program as part of RAMP's focus on continuous improvement to its programs. The nine-member peer review panel has submitted a report which recommends a number of changes and improvements be made to RAMP's monitoring program.

"We asked for an independent scientific assessment of our program by the review panel on behalf of our stakeholders and Albertans in general, and we thank the members of the review panel for their diligent work and thoughtful recommendations," said Brenda Miskimmin, RAMP's Fort McKay representative.

"The peer review report suggests more work needs to be done in the area of aquatic monitoring in the Lower Athabasca region. RAMP has previously and will continue to incorporate such internal and external input into the growth and evolution of its program," said Miskimmin.

"As one part of the network of monitoring programs in the region, RAMP will do whatever it can to contribute to further enhancement of environmental monitoring in the Lower Athabasca."

RAMP is able to provide immediate responses to some of the scientific recommendations contained in the panel's report. As RAMP is expecting to receive further direction from the provincial and federal reviews now underway, it will integrate its peer review recommendations with those provided through the government reviews and provide a more comprehensive response at a later date.

"The body of data collected by RAMP year over year has contributed to a better understanding of the cumulative aquatic effects of resource development in the Athabasca region. RAMP will continue to contribute its aquatic monitoring data and information both publicly, via its website, and to the federal and provincial reviews now underway."

The RAMP peer review panel was selected by an independent facilitator, and was composed of nine individuals selected for their scientific expertise in climate and hydrology, water quality, benthic invertebrate communities and sediment quality, fish populations and acid-sensitive lakes.

The panelists were Dr. Donald Burn; Dr. D. George Dixon; Dr. Monique Dubé; Dr. Joe Flotemersch; Dr. William G. Franzin; Dr. John Gibson; Dr. Kelly Munkittrick; Dr. John Post and; Dr. Shaun Watmough.

About RAMP:

The Regional Aquatics Monitoring Program (RAMP) is a science-based multi-stakeholder aquatic environmental monitoring program initiated in 1997 and is one of a number of programs monitoring the aquatic environment in the Lower Athabasca region of Alberta. The intent of RAMP is to determine, evaluate and communicate the state of the aquatic environment and any changes that may result from resource development within the Regional Municipality of Wood Buffalo.

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[Background Material Follows]

BACKGROUNDER

Background: Initial responses to Peer Review Panel Recommendations

Data Analyses

Based on the recommendations from the Peer Review, there are several refinements to the analyses or evaluations of current approaches that will be included, or more prominently presented in the 2010 RAMP Technical Report, scheduled for release in April 2011:

Use individual fish analysis rather than means in analyses of metals in fish tissues (Sec. 3.4)

- Graphical presentation of mercury concentrations in fish tissue from individual fish will be added.

Include all available historical pre-RAMP [fish] data (Sec. 3.4)

- Additional historical fish data from studies conducted prior to RAMP will be added.

Use appropriate statistical methods to both decrease variability in sampling results and associated noise in the data (Sec. 3.3)

- The application of the regional reference-condition approach to determine baseline variability in water quality and benthic invertebrate measurement endpoints will be evaluated to ensure the observed variability is accurately represented.

Clarify the method and application for use of the Water Quality Index (Sec. 3.2)

- The method and approach of the Water Quality Index in the Technical Report will be modified to follow the Canadian Council of Ministers of the Environment (CCME) water quality index.

Use of the steady state critical load component [for acid-sensitive lakes component] needs to be reevaluated (Sec. 3.5)

- A summary of the assumptions used in the steady state critical load model and a justification of the analytical methods used for the Acid-Sensitive Lakes component will be added.

Development of a clearly stated sampling design strategy [Acid-Sensitive Lakes component] (Sec. 3.5)

- A summary of the work completed to address the seasonal sampling, timing of sampling, and episodic acidification effects for the Acid-Sensitive Lakes component will be added.

Spatial Scope

Focus on long-term trend analysis by maintaining a high number of monitoring stations. The addition of climate stations, specifically in the region south of Fort McMurray (Sec. 3.1)

- RAMP will add climate stations with increasing spatial scope as dictated by expanding development. Also, with the addition of new RAMP member companies south of Fort McMurray, it is anticipated that new climate stations will be installed in the near future.

Increase [water quality] monitoring of lakes and other surface water features, especially baseline sites (Sec. 3.2)

- The RAMP Technical Committee is currently evaluating new baseline stations both in rivers and in lakes with the expectation to increase the number of baseline sampling stations in the 2011 sampling program.

Data Availability and Station Evaluation

Currently, regionally distributed climate data are limited, and data that are available are not always available through the online data access point (Sec. 3.1)

- Data for all RAMP monitoring activities are now publicly available online through RAMP's website (www.ramp-alberta.org).

Clarification of test site locations with respect to developments and land disturbances (Sec. 3.2)

- Land change development is assessed and documented each monitoring year using satellite imagery. The verification and classification of stations as baseline or test is completed using the satellite imagery and any new land change from the previous year.

Include naphthenic acids (NAs) and polycyclic aromatic hydrocarbons (PAHs) as part of the monitoring program in the water column (Sec. 3.2)

- Low level naphthenic acids are already being measured in water using three different analytical methods.

Sampling Design and Frequency

Consider studies on seasonal variability in water quality in relation to results obtained from the annual fall sampling program (Sec. 3.2)

- Some seasonal sampling to acquire three years of baseline data at a station and for some mainstem Athabasca River stations already occurs. However, most established test and baseline stations are monitored annually in the fall. Alberta Environment also performs monthly water quality sampling at stations located upstream and downstream of oil sands development on the Athabasca River, which is included in the RAMP Technical Report. The RAMP Technical Committee will evaluate increased sampling frequency for future sampling years.

Increase in sampling [of benthic communities] along the mainstem Athabasca River (Sec. 3.3)

- RAMP currently focuses its sampling on the tributaries because they are the areas of most direct contact with the operations, and the most likely to demonstrate effects. Effects in the tributaries will provide early warning of potential effects in the mainstem. RAMP will further assess this recommendation.

Return to lethal sampling of sentinel [fish] species (Sec. 3.4)

- RAMP originally incorporated a non-lethal approach to monitoring sentinel fish species in an effort to minimize depletion of local fish populations. This approach was aimed particularly at small-bodied species known to exhibit limited mobility in tributary systems and followed recommendations established by the Federal Environmental Effects Monitoring (EEM) program. However, following analyses of these data, a lethal sampling program was re-introduced in 2010 as it permitted a more robust evaluation of fish health and could be undertaken using a three-year sampling rotation to minimize potential sampling effects.

Program Harmonization

Harmonization and integration of both [benthos and sediment quality] RAMP components (Sec. 3.3)

- The harmonization of the benthos and sediment quality sampling has been completed for each reach (i.e., when benthos is collected from a depositional reach, sediment samples are also collected from this reach). Benthos samples are collected at 10 sites within the reach, however, sediment samples for analytical analyses are only taken from a single location located at the downstream boundary of the reach. Sediment is collected to provide supporting data for benthic invertebrate community structure and the scale of sampling is consistent with water quality sampling.

The integration or harmonization of the hydrologic, chemical and biotic components is seen as integral in the understanding of impact significance - –Benthos and Sediment (Sec. 3.3)

- From a sampling location perspective, a great deal of harmonization among the water quality, sediment quality and benthic invertebrate (benthos) components has occurred. In addition, a pilot fish assemblage study conducted in 2009 and 2010 has been designed to harmonize with these other components. Details from this sampling program will be incorporated into the 2010 technical report to be issued in April 2011.
- In 2009, the benthos and water quality sampling were undertaken at sites where sentinel fish species monitoring was conducted to provide a more comprehensive analysis. This integration between the sentinel species program and other RAMP monitoring components will be continued in future years.

Background – Peer Review Process

RAMP initiated the peer review in June 2010, selecting Alberta Innovates – Technology Research (formerly the Alberta Research Council) as an independent third party facilitator to coordinate the Peer Review Process.

A transparent approach for selecting the reviewers was developed to reduce any potential bias within the selection process. The selection process consisted of the following steps:

- Determine the areas of expertise required for the Peer Review;
- Compile a list potential candidates within the areas of expertise identified;
- Develop a selection matrix; and
- Determine the recommended candidates based on the results of the selection matrix.

A list of 20 potential reviewers was compiled and the potential candidates were contacted and interviewed by the independent facilitator. The goal was to select two reviewers for each area of expertise (water quality, climate and hydrology, fish, benthic invertebrates and sediments and acid-sensitive lakes).

Of the list of 20 potential candidates for the Peer Review, nine were selected based on the selection matrix. The list of selected Peer Reviewers is presented below:

- Water quality: Dr. Monique Dubé (University of Saskatchewan) and Dr. George Dixon (University of Waterloo);
- Climate and Hydrology: Dr. John Gibson (Alberta Innovates) and Donald Burn (University of Waterloo);
- Fish: Dr. John Post (University of Calgary) and Dr. William Franzin (DFO Winnipeg);
- Benthic invertebrate communities and sediment quality: Dr. Kelly Munkittrick (University of New Brunswick) and Dr. Joseph Flotemersch (US EPA); and
- Acid Sensitive Lakes: Dr. Shawn Watmough (Trent University).