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Monitoring Program Design

The monitoring program for each RAMP component (climate and hydrology, water quality, benthic invertebrate communities, sediment quality, fish populations, and water quality in acid-sensitive lakes) is designed with consideration of the following factors:

Sampling station selection and sampling design. Sampling is conducted at locations that may be influenced by oil sands projects and at locations that are uninfluenced by major human development (baseline areas). The network of stations or sampling areas is designed to include a wide variety of environmental conditions found in the oil sands area. Some stations are included because monitoring at specific locations is required by regulatory approvals.

Sampling protocol. Equipment, sampling methods, timing of sampling, and sample handling procedures are standardized as much as possible to ensure comparability of results between stations and from year to year.

Measurement endpoints, criteria for determining effects, and analytical approach. RAMP monitors a high number of environmental variables each year. Although all variables are evaluated, there is a smaller number of key variables, or measurement endpoints, that RAMP focuses on for in-depth analyses and assessment of effects. Effects are assessed by comparing measured values of these variables with the range of natural values measured in baseline areas, with guidelines established by government agencies, or with historical data. Statistical procedures are used by some components to explore and analyze data.

The monitoring program for each component is updated annually by the RAMP Technical Program Committee in response to findings and changes in oil sands development. Additional information on the design of each component can be found in the RAMP Technical Design and Rationale document and the annual RAMP technical reports.



RAMP has been designed to achieve a holistic understanding of environmental effects.
Source: Hatfield Consultants 2007
(click to enlarge)

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