magnitude with time. Year 30 roughly coincided with the duration since Kettle reservoir flooding when most terrestrial field studies were conducted at Stephens Lake (*i.e.*, the Kettle generating station reservoir).

1.4 ASSESSMENT METHODS

1.4.1 Overview

Potential Project effects on each key topic were assessed by comparing the status of indicators for the key topic with and without the Project in place. Predictions for future levels of indicators considered current trends in the indicators, future changes in non-Project drivers and the combined effects of the Project with past, current and reasonably foreseeable future projects.

Potential Project effects on the key topics were generally addressed under the broad categories of habitat change, disturbance and access effects. Habitat change includes **habitat loss** and **habitat alteration**. Improved access would bring more equipment, materials and people into the area. Among other things, this could lead to increased resource harvesting, invasive plant spread and vehicle collisions with animals. Roads, access trails, cutlines and dykes could improve access for some animals thereby increasing mortality for other species. For example, some predators use linear features to improve hunting success. Spreading invasive plants into the area could crowd out native species in localized areas. Although unlikely, improved access could also facilitate the transmission of animal and plant diseases into an area. A potential access-related effect that could affect every component of the terrestrial ecosystem is a large human-caused fire.

1.4.2 Use of Models

Models were essential for improving the understanding of the local terrestrial ecosystems and for predicting potential Project effects. Basic model types used in the terrestrial assessment were:

- Simple conceptual models (*e.g.*, land animals will be affected because flooding reduces available habitat);
- Complex conceptual models based on literature reviews and local information (*e.g.*, network linkage diagrams that show the web of indirect Project effects);
- Expert information qualitative numerical models based on changes in habitat area, literature reviews and observed changes in the environment following similar developments in northern Manitoba and in other northern environments (*e.g.*, classifying habitat into primary and secondary habitat for beaver and then calculating the amount of beaver habitat affected by the Project);
- Simple empirical models based on observed changes with no explicit linkage to underlying processes (*e.g.*, data from existing reservoirs and regulated areas indicates that the zone of edge and elevated groundwater effects on terrestrial habitat is generally less than 50 m wide); and/or,

Table 1-3: Study Zones from Map 1-1 That are Used as the Local and Regional Study Areas for each of the Valued Environmental Components (bolded) and Supporting Topics, Organized by EIS Section

EIS Section and Topic	Study Zone[1] in Map 1-1				
	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
Section 6 – Mammals					
Caribou			LSA		RSA
Moose		LSA		RSA	
Beaver		LSA	RSA		
Other priority mammals[2]					
Section 7 – Mercury					
Mercury in wildlife[2]			LSA	RSA	

Notes: 1 Codes in the table indicate which of the study zones shown in Map 1-1 were used as the Local Study Area (LSA) and Regional Study Area (RSA) for each VEC and supporting topic. 2 Study areas vary too greatly by species to generalize in this table.

1.3.6 Temporal Scope

Temporal scope was determined separately for each key topic based on potential pathways of Project effects, including where these interactions could overlap with other past, current and reasonably foreseeable future projects. An important consideration for temporal scoping was the time required for key topic indicators to return to pre-disturbance conditions. This was closely related to life cycle length for animal key topics and the length of the natural post-disturbance recovery cycle for habitat and ecosystem key topics. Where potential Project effects differed by season (*e.g.*, nesting or calving periods) or by Project phase (*e.g.*, construction, operation), these were separated in the assessment.

In general, the temporal scope for each key topic was as follows:

- For historical conditions, as far into the past as needed to describe historical conditions and trends, subject to the availability of relevant historical information;
- For current conditions, the 2001 to 2011 period, which is when the majority of the terrestrial EIS studies were conducted; and,
- For future with and without the Project conditions, as far into the future as needed to capture potential Project effects, but no less than 100 years after Project operation commences since this is the assumed life of the Project.

For key topic indicators where reasonable estimates could be developed, potential Project effects during the operation stage were examined using the following six prediction periods: Year 1, Years 2 to 5, Years 6 to 15, Years 16 to 30, Years 31 to 100. The length of the prediction periods increased with length of time from the start of Project operation since most Project-related changes are expected to be decline in