Keeyask Infrastructure Project

Terrestrial and Aquatic Monitoring Plan

Amphibian Monitoring

Annual Report 2012-2013

KEEYASK

Hydropower Limited Partnership

December 2013

KEEYASK INFRASTRUCTURE PROJECT

TERRESTRIAL AND AQUATIC MONITORING PLAN

Amphibian Monitoring: Annual Report 2012 - 2013

Report for

MANITOBA CONSERVATION AND WATER STEWARDSHIP

Prepared on Behalf of the
Keeyask Hydropower Limited Partnership

Prepared by

Stantec Consultants Inc.

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EXECUTIVE SUMMARY

The Keeyask Hydropower Limited Partnership is constructing the Keeyask Infrastructure Project (the Project or KIP). The Project is located approximately 40 km southwest of Gillam, extending between Provincial Road (PR) 280 and Gull Rapids on the Nelson River (Map 2-1). The Project includes a start-up camp and associated infrastructure, a 25 km all-weather access road and the first phase of a main camp.

As part of the KIP licensing conditions (*Environment Act* Licence No. 2952R), the Keeyask Hydropower Limited Partnership is conducting terrestrial effects monitoring during the KIP construction. This annual report covers the period beginning at the start of construction, January 2012, through to March 31, 2013. May 2012 marked the first year of amphibian construction-related monitoring within the KIP Local Study Area. Surveys for amphibians targeted species with breeding ranges that include the KIP Regional Study Area: wood frog, boreal chorus frog and northern leopard frog. Surveys occurred at eight potential breeding ponds located within the KIP Local Study Area. Wood frog and boreal chorus frog were the only species of amphibian detected. Although the historical breeding range for northern leopard frog (*special concern* under Schedule 1 of the *Species at Risk Act* (SARA) and COSEWIC includes the Local Study Area, none were observed during baseline (2001-2011) or monitoring (2012) studies.

At the time of amphibian surveys, the KIP road was under construction and access (via truck) within the Local Study Area was limited. Due to this limitation, a helicopter was used to gain access to some of the wetlands located along the road right-of-way (ROW) and borrow areas. Surveys relied upon the use of recording units to capture peak frog breeding activity in the later part of the day. Results from the 2012 amphibian monitoring studies indicate that boreal chorus frogs and wood frogs continue to be widely dispersed throughout the KIP Local Study Area. Construction activity did not appear to have any measureable effect on frog occupancy of wetlands located adjacent to construction areas. Retention of vegetated buffers and set-backs from active construction sites are factors contributing to the continued use of breeding ponds by frogs.

Survey efforts are anticipated to expand in 2013 due to improved access along the KIP road. In 2013 and subsequent years, monitoring will continue to focus on amphibians breeding in wetlands throughout the Local Study Area, including any new potential frog breeding areas that may form along the road or in borrow areas.

ACKNOWLEDGEMENTS

Stantec Consultants Inc. would like to thank Manitoba Hydro for their support throughout these studies, and the Keeyask Cree Nations partners for permitting these studies within their resource management areas and areas of community interest. We wish to thank Kenneth Ouskan of Tataskweyak Cree Nation for his assistance during the 2012 field studies. We also wish to express our gratitude to the other KIP consulting teams that assisted in providing input and logistical support for this project. We appreciate the efforts of Mr. Ron Bretecher, and Ms. Mary Lang for their organizational assistance.

STUDY TEAM

Leane Wyenberg, M.Sc.	Biologist
Jacqueline Reidy, B.Sc.	Biologist
Scott Lobban, B.Env.Sc.	GIS Analyst
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TABLE OF CONTENTS

LIST OF MAPS

Page

LIST OF TABLES

Page

LIST OF PHOTOS

Page

1.0 INTRODUCTION

Construction of the Keeyask Infrastructure Project (the Project or KIP), consisting of a start-up camp, a 25 km all-weather road, and the first phase of a main camp on the north side of Gull Rapids (Map 2-1), was initiated in January, 2012[1]. As outlined in the KIP Environmental Assessment Report (Keeyask Hydropower Limited Partnership 2009), an Environmental Monitoring Program was developed to verify anticipated effects, including those on local amphibian **populations**. The amphibian monitoring was developed with specific objectives to:

- Verify/test EA Report predictions regarding the effects of construction activities on local **amphibian** abundance and distribution;
- Determine if any unexpected impacts on amphibian abundance and distribution are occurring as a result of construction activities; and
- Determine if any mitigation options should be required, as a result of unexpected impacts to amphibians occurring due to construction-related activities.

This annual report covers the period beginning at the start of construction, January 2012, through to March 31, 2013. As outlined in the KIP Terrestrial and Aquatic Monitoring Plan (2012)**,** amphibian construction monitoring surveys were conducted in the spring of 2012. This document reports the findings of these monitoring studies.

Previous baseline amphibian studies have indicated the presence of breeding populations of boreal chorus frogs (*Pseudacris triseriata*) and wood frogs (*Rana sylvatica*) within the KIP Study Area (Keeyask Hydropower Limited Partnership 2009). Historic breeding ranges of the northern leopard frog (*Rana pipiens*) includes the KIP Study Area, however none have been observed in recent decades, nor were any observed or detected during Project-related amphibian

[1] A complete and detailed Project and Study Area Description is provided in the Keeyask Infrastructure Project Environmental Assessment Report (Keeyask Hydropower Limited Partnership 2009).

surveys[2]. Northern leopard frog is listed as a species of *special concern* under Schedule 1 of the federal *Species at Risk Act* (**SARA**) and under **COSEWIC**.

2.0 METHODS

In May 2012, the KIP road was under construction and access (via truck) within the Local Study Area was limited. Due to this limitation, a helicopter was used to gain access to some of the wetlands located along the KIP right-of-way (ROW) and borrow areas.

Between May 14 and 16, 2012, amphibian populations were monitored at eight locations within the Local Study Area (Map 2-1). Automated recording units (Photo 2-1) were placed adjacent to five potential frog breeding ponds, wetlands and aquatic habitats located along the KIP road right-of-way (ROW; Map 2-1). All sites sampled occurred within the Local Study Area. Units deployed were programmed to record frog breeding calls during the late afternoon (1600hr) and evening hours (2000-2400hr), periods of peak amphibian activity. Recordings were later reviewed for the presence of frogs. The remaining three monitoring sites were visited during peak calling activity, and therefore no recording units were deployed. Information on **species** calling was recorded at the time of the wetland visit. With the exception of three wetlands (Site 2, 3 and 4; Figure 2-1), all areas visited were investigated for the presence of egg masses. At Site 2, 3 and 4, access to the edges of open water areas was hampered by the presence of unstable floating mats of deep peat. All three of these wetlands are associated with creeks.

At each of the eight monitoring sites, frog courtship calls were coded according to methods described by USGS 2012. They are as follows:

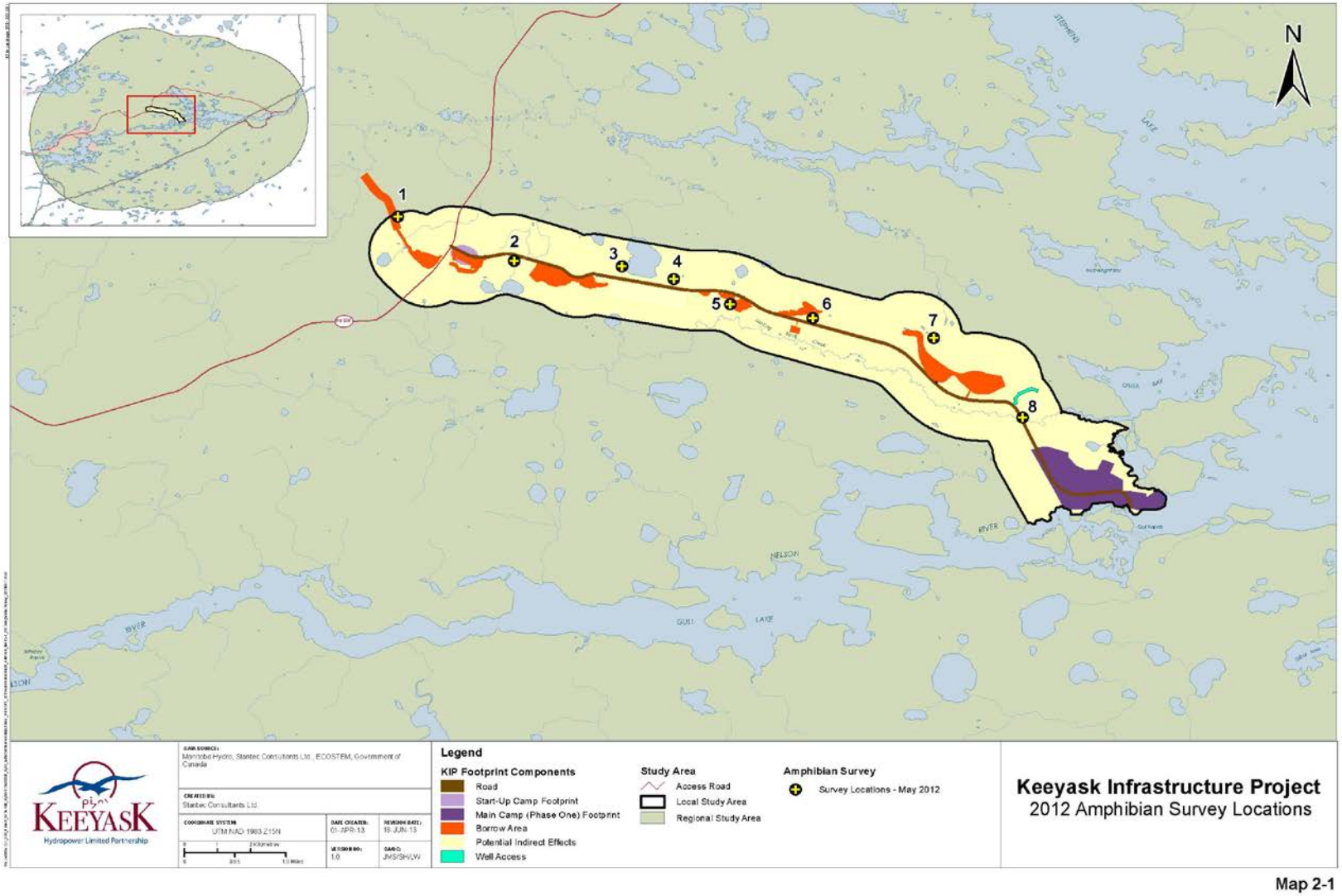
- 0= no frogs heard;
- 1= individuals could be counted, no overlapping calls;
- 2= individual calls are distinguishable but overlapping; and

[2] The KIP Study Area falls within the northern limit of the northern leopard frog's range and therefore has the potential to occur within the Project footprint.

- 3= full chorus, calls are continuous and overlapping (number cannot be estimated with precision).

Amphibian data gathered in 2012 was compared to existing baseline data for each monitoring location. Weather data for 2012 surveys is provided in Appendix A.

Photo 2-1: Installation of a Remote Recording Unit at Site 6.



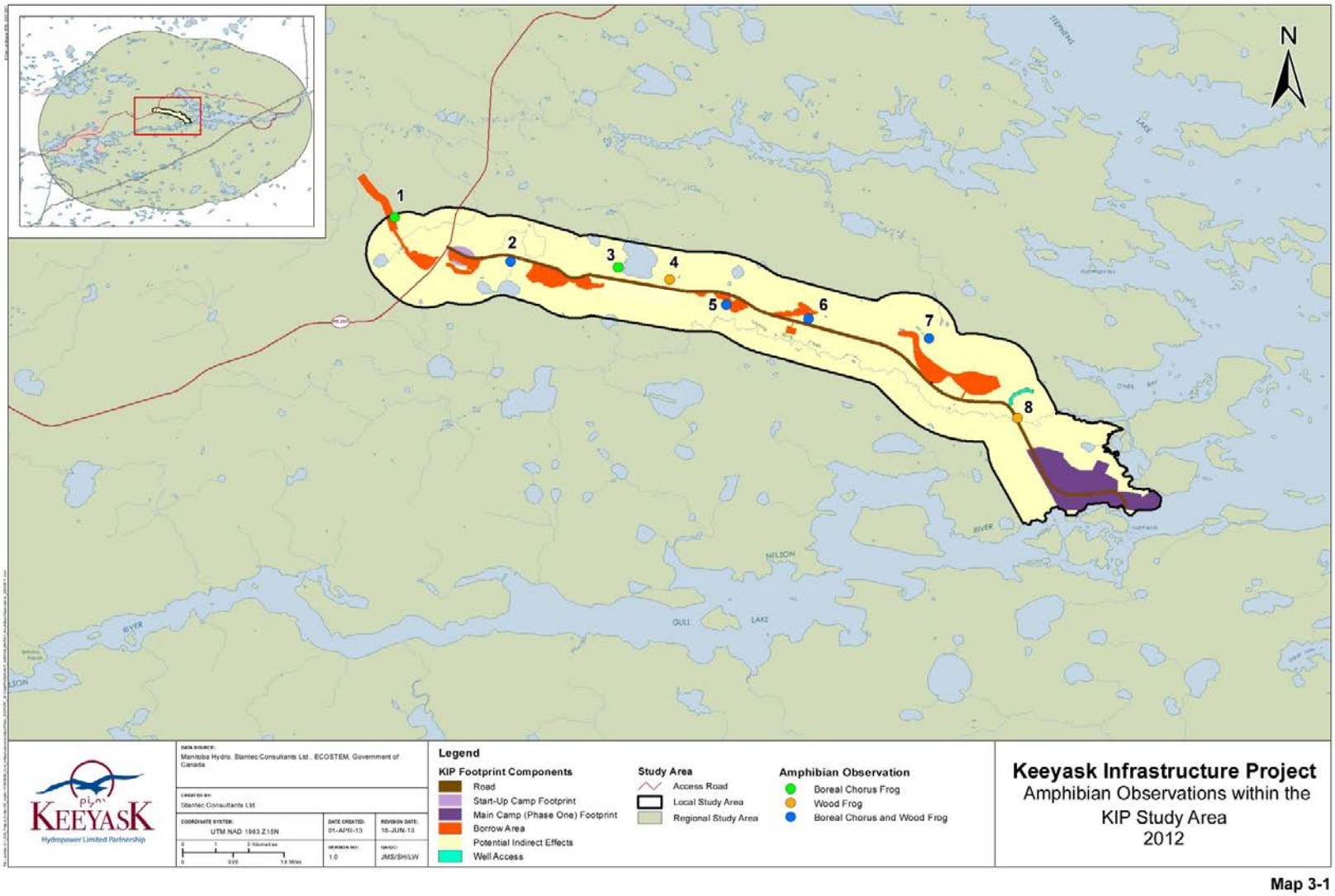
Map 2-1: Keeyask Infrastructure Project 2012 Amphibian Survey Locations.

3.0 RESULTS AND DISCUSSION

Evidence of frog breeding (courtship calls) was recorded at each of the eight amphibian monitoring locations (Table 3-1; Map 3-1). With the exception of two sites, all areas investigated supported both wood frog and boreal chorus frog (Table 3-1). At the time of surveys, Looking Back Creek (Site 8) supported only wood frog (Calling Code 2) and a shrub-ringed pond (Site 1) supported several boreal chorus frog (Calling Code 3, i.e., choruses of overlapping frog calls were heard; Photo 3-1). No northern leopard frogs were detected at any of the surveyed wetlands.

With the exception of Site 8 (small pond adjacent to Looking Back Creek), frog egg masses were noted at all of the wetlands investigated (Table 3-1). Based on calling evidence, egg masses belong to boreal chorus and/or wood frog as both commonly use the same ponds/wetlands for breeding.

Photo 3-1: Frog Breeding Pond Located at Site 1.



Map 3-1: Keeyask Infrastructure Project Amphibian Observations within the KIP Study Area 2012.

Table 3-1: Amphibian Calling Codes for each Wetland Monitoring Site (May 2012)

Sample Site[1]	Wetland Type	Species (Calling Code)[2]		Presence of Egg Masses
		May 2012	June 2011	May 2012
1[3]	Wetland with thick shrub margin	Boreal chorus frog (3)	Not sampled in 2011	Yes
2	Creek with grassy margins	Boreal chorus frog (1); Wood Frog (3)	Boreal chorus frog Wood frog	n/a
3	Creek mouth with grassy margins	Boreal chorus frog (2); Wood Frog (2)	Boreal chorus frog Wood frog	n/a
4	Wetland with grassy margins (adjacent to lake)	Boreal chorus frog (2); Wood Frog (1)	Boreal chorus frog	n/a
5	Wooded pond	Boreal chorus frog (3); Wood Frog (3)	Not sampled in 2011	Yes
6	Wooded pond	Boreal chorus frog (3); Wood Frog (1)	Boreal chorus frog (3)	Yes
7	Wooded pond	Boreal chorus frog (1); Wood Frog (2)	Not sampled in 2011	Yes
8	Looking Back Creek (ROW Crossing)	Wood Frog (2)	Wood frog (3); distant Boreal chorus frog	No

[1] see Map 3-1 for locations of Sample Sites
[2] Calling Code Index: 0 = no calls; 1 = individuals can be counted, there is space between calls; 2 = calls from individuals can be distinguished but there is some overlapping of calls; 3 = full chorus, calls are constant, continuous and overlapping.
3 Sample Site 1 was located over 2 km from construction disturbance during 2012 surveys.

Wetlands surveyed for amphibians in 2012 appeared to consistently support frog breeding activity despite ongoing construction activity along the road ROW and at some of the borrow sites. Vegetated buffers (e.g., shrubs, trees) remained intact around all wetlands sampled; visual inspection did not suggest that any of the wetlands near construction sites were being altered by construction activity.

Some of the wetlands sampled in 2011 fell within the Project footprint, and as expected, were lost with the development of infrastructure (e.g., road). The loss of these wetlands are anticipated to be off-set by the creation of new breeding habitat in decommissioned borrow pits. In 2012, evidence of ponding along the KIP road ROW was observed at some locations (Photos 3-2 and 3-3). These areas were not found to be suitable for frog breeding in 2012.

Photo 3-2: Ponding of Water Along the KIP Road ROW During Construction (May 2012).

Photo 3-3: Ponding of Water Along the KIP Road near Site 3 (May 2012).

4.0 CONCLUSION

Amphibian monitoring studies conducted in 2012 indicated that boreal chorus frogs and wood frogs continue to be widely dispersed throughout the KIP Local Study Area. No northern leopard frogs were observed or detected at any of the wetlands surveyed. Construction activity did not appear to have any measureable effect on frog occupancy of wetlands located adjacent to construction areas. Retention of vegetated buffers and distance from active construction sites are factors contributing to the continued use of breeding ponds by frogs.

Survey efforts are anticipated to expand in 2013 due to improved access along the KIP road. In 2013 and subsequent years, monitoring will continue to focus on amphibians breeding in wetlands throughout the Local and Regional Study Areas, including any new potential frog breeding areas that may form along the KIP road or in borrow areas.

5.0 GLOSSARY

Amphibian – cold-blooded animal of the Class Amphibia that typically lives on land but breeds in water (e.g., frogs, toads, salamanders).

COSEWIC – Committee on the Status of Endangered Wildlife in Canada.

Habitat – the place where a plant or animal lives; often related to a function such as feeding, nesting, etc.

Population – a group of interbreeding organisms of the same species that occupy a particular area or space.

SARA – *Species at Risk Act*, a Canadian Act protecting rare and endangered species.

Species – a group of inter-breeding organisms that can produce fertile offspring.

6.0 REFERENCES

6.1 LITERATURE CITED

Keeyask Hydropower Limited Partnership. 2009. Keeyask Infrastructure Project Environmental Assessment Report.

USGS. 2012. United States Geological Society. North American Amphibian Monitoring Program Accessed at http://www.pwrc.usgs.gov/naamp/index.cfm?fuseaction=app.protocol.

6.2 PERSONAL COMMUNICATION

Cash, Ben. Associate Professor of Biology and Chair of the Division of Natural Sciences. Maryville College, Maryville Tennessee. Email and telephone correspondence with Leane Wyenberg, TetrES Consultants Inc., Winnipeg, Manitoba, July 31, 2006.

APPENDIX A

WEATHER DATA

Table A-1: Weather Conditions during Amphibian Surveys (May 2012)			
Date	**Temperature (ºC)**	**Cloud Cover**	**Wind**
May 14, 2012	10	Sunny, 30% cloud cover	Calm
May 15, 2012	6	Overcast; 100% cloud cover	Winds NW 25 km
May 16, 2012	11	Sunny; 10% cloud cover	Light winds NW 5 km