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THE REGIONAL DISTRICT OF EAST KOOTENAY

MOSQUITO CONTROL PROGRAM
WASA/TA TA CREEK/SKOOKUMCHUCK MOSQUITO CONTROL EXTENDED SERVICE
AREA

SEASON END REPORT DECEMBER 2012

PROGRAM STAFF:

Mark Vaandering

Project Manager

Kendra Lewis

Program Coordinator/Mosquito Control Technician

CONTAINING:

Summary of 2012 Season Activities

Morrow BioScience Ltd.

RDEK - 1 - Season End Report – December 2012 Project No. MB12-104

SUMMARY OF ACTIVITIES

Like 2011, the 2012 season was an extremely busy one throughout the province for mosquito control and the Wasa, Tata Creek and Skookumchuck area was no exception. In Spring 2012, the snow pillow in the mountains of the Kootenay River watershed was high (127% of normal as of April1, 129% as of May 1 and 124% as of June 1).

Ground-based treatments of snowmelt pools began in mid-May and continued into June. Heavy precipitation in early June, coupled with above-average remaining snowpack at that time combined to raise the Kootenay River to record flood levels and triggered the need for expanded aerial treatments. By June 12th the treatments covered by the 'base contract' had been exceeded and supplementary ground and aerial treatments continued. Due to budget constraints, formal treatments were curtailed, at the request of the RDEK, as of June 20th. Limited ground-based treatments were continued, at the expense of Morrow Bioscience Ltd., in order to try to maintain mosquito nuisance at tolerable levels.

This season a total of 2,066 hectares were treated, well above the 700 hectares included in the base contract.

Given the extent of the flooding this season and the early curtailment of 'formal treatments', adult mosquito populations were maintained at tolerable levels for most of the season. Without the extraordinary control effort, adult mosquito annoyance levels would have been extremely high making most outdoor activities impossible.

Larvicide Applications Summary

DATE		LOCATION	PRODUCT	QUANTITY APPLIED (kg)	AREA (ha)	APPLICATION MODE
May	16	Wasa Skookumchuck		0	0.000	
May	18	Wasa Skookumchuck		0	0.000	
May	22	Skookumchuck	Aquabac	36.4	6.067	Blower/Hand
May	22	Thunderhoof	Aquabac	54.6	9.100	Blower/Hand
May	22	Thunderhoof Highway	Aquabac	36.4	6.067	Blower/Hand
May	29	Prairie Road	Aquabac	18.2	3.033	Blower/Hand
May	29	Station House	Aquabac	18.2	3.033	Blower/Hand
May	30	Prairie Rd / Skookumchuck		0	0.000	
May	31	Prairie Road	Aquabac	109.2	18,200	Blower/Hand
May	31	Bearclaw	Aquabac	163.8	27.300	Blower/Hand
May Total				436.8	72.800	
Jun	11	Thunderhoof	Aquabac	45.5	7.583	Blower/Hand
Jun	11	Prairie Rd	Aquabac	63.7	10.617	Blower/Hand
Jun	11	Highway South	Aquabac	18.2	3.033	Blower/Hand

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Jun	11	Sweet Tooth	Aquabac	91	15.167	Blower/Hand
Jun	12	Prairie Rd	Aquabac	182	30.333	Aerial
Jun	14	Channel in	7 iquado			
Jun	12	Prairie Rd	Aquabac	200.2	33.367	Aerial
Oun		Lower slough at				
Jun	12	dump	Aquabac	200.2	33.367	Aerial
Jun	12	Aushrom slough	Aquabac	182	30.333	Aerial
Jun	12	Jansen channel	Aquabac	163.8	27.300	Aerial
Jun	- 12	TaTa creek				
Jun	12	Elgerts	Aquabac	200.2	33.367	Aerial
		TaTa creek				
Jun	12	Elgerts	Aquabac	182	30.333	Aerial
		TaTa lower field		200.0	22.267	Aerial
Jun	12	trees	Aquabac	200.2	33.367	
Jun	12	Elgerts Channels	Aquabac	163.8	27.300	Aerial
Jun	12	Buddenagen	Aquabac	182	30.333	Aerial
Jun	12	Buddenagen	Aquabac	182	30.333	Aerial
Jun	12	Jameson	Aquabac	200.2	33.367	Aerial
Jun	12	Haber	Aquabac	200.2	33.367	Aerial
Jun	12	Skookumchuk	Aquabac	182	30.333	Aerial
	 -	Slough at				
		Skookumchuk				
Jun	12	bridge	Aquabac	182	30.333	Aerial
		Skookumchuk				A!-1
Jun	12	island	Aquabac	182	30.333	Aerial
Jun	12	Bearclaw	Aquabac	182	30.333	Aerial
Jun	12	Bearclaw	Aquabac	182	30.333	Aerial
Jun	13	Prairie Rd	Aquabac	145.6	24.267	Aerial
		Bummers hwy				
Jun	13	both sides	Aquabac	163.8	27.300	Aerial
		Edge of		أيميم	20.400	Apriol
Jun	13	Bummers	Aquabac	218.4	36,400	Aerial
	١.,	Hwy Bummers to	A	218.4	36.400	Aerial
Jun	13	Sation House	Aquabac	210.4	30.400	Action
	100	South end	Aquabac _	218.4	36.400	Aerial
Jun	13	Thunderhoof South end	Aquabac	2,0	00:100	
Jun	13	Thunderhoof	Aquabac	218.4	36.400	Aerial
3011	1	Thunderhoof				
Jun	13	river	Aquabac	182	30.333	Aerial
	T	Thunderhoof		}		
Jun	13	river	Aquabac_	218.4	36,400	<u>Aerial</u>
		Thunderhoof				A = 1 = 1
Jun	13	North	Aquabac	218.4	36.400	. Aerial
		Thunderhoof			00.400	A ====1
Jun	13	North	Aquabac	218.4	36.400	Aerial
Jun	13	Jameson	Aquabac	218.4	36.400	Aerial
Jun	13	Jameson	Aquabac	218.4	36.400	Aerial
Jun	13	Haber	Aquabac	145.6	24.267	Aerial

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Aerial 145.6 24.267 Hansen channel Aguabac Jun 13 Main beach **Aerial** 145.6 24.267 Aquabac Jun 13 Wasa 18.2 3.033 **Aerial** Jun 13 Rokosh Aquabac **Aerial** Aquabac 91 15.167 Jun 13 Whites Gradon Ford 145.6 24.267 **Aerial** Aquabac 16 back slough Jun Gradon Ford 163.8 27.300 **Aerial** 16 treed channel Aquabac Jun Gradon Ford 30.333 **Aerial** 182 river channel Aquabac Jun Graden Ford 218.4 36.400 **Aerial** Aquabac Jun 16 pump house Gradon Ford hwy Aerial 218.4 36.400 Aquabac 16 big pond Jun Gradon Ford hwy 36.400 Aerial 218.4 16 fenced bridge Aquabac Jun Gradon Ford 33.367 Aerial 200.2 Aquabac river channel 16 Jun **Aerial** 30.333 182 Aquabac 16 Sweet Tooth Jun Aerial 36.400 Aquabac 218.4 Jun 16 Colins **Aerial** 218.4 36.400 16 Colins big pond Aquabac Jun Aerial 36.400 Colins bridge Aquabac 218.4 Jun 16 Colins river 218.4 36.400 Aerial Aquabac 16 channel Jun Coline 2nd 182 30.333 Aerial channel Aquabac Jun 16 Sweet tooth 2nd **Aerial** 218.4 36.400 Jun 16 channel Aquabac 2 trees station 36.400 Aerial 218.4 Aquabac 16 house Jun Aerial 218.4 36.400 2 trees 2nd field Aquabac Jun 16 42.467 Aerial 254.8 Bearclaw Aquabac Jun 16 Aerial 36.400 Aquabac 218.4 Moan Road Jun 16 36,400 **Aerial** 218.4 Muskrat Ranch Aquabac 16 Jun Green **Aerial** 36.400 subdivision 218.4 Aquabac 16 Jun Thunderhoof Aerial 218.4 36.400 Aquabac 16 River Jun Thunderhoof **Aerial** 36.400 218.4 Aquabac 16 north channel Jun 2 trees nig 36.400 Aerial 218.4 slough by river Aguabac 16 Jun 9.100 Aerial 54.6 Prairie Rd Aquabac 16 Jun **Aerial** 72.8 12.133 Aquabac Prairie Rd Jun 16 18.2 3.033 Blower/Hand Aquabac Doug Ford Jun 18 Blower/Hand 3.033 18.2 Aquabac 18 Park Jun Hanson channel Blower/Hand 18.2 3.033 Aquabac 19 old hwy_ Jun

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Jun	19	Whites	Aquabac	18.2	3.033	Blower/Hand
Jun	19	Leask	Aquabac	18.2	3.033	Blower/Hand
Jun	20	Thunderhoof North	Aguabac	109.2	18,200	Blower/Hand
Jun	20	Green house	Aquabac	18.2	3.033	Blower/Hand
Jun	20	Sawdust pile	Aquabac	18.2	3.033	Blower/Hand
Jun	20	park	Aquabac	18.2	3.033	Blower/Hand
Jun	21	2 trees by station house	Aquabac	127,4	21.233	Blower/Hand
Jun	21	Doug Ford	Aquabac	18.2	3.033	Blower/Hand
Jun T				11902.8	1983.800	
Jul	1	Wasa Lake	Aquabac	18.2	3.033	Blower/Hand
Jul	2	Wasa Lake	Aquabac	18.2	3.033	Blower/Hand
Jul	7	Wasa Lake	Aguabac	18.2	3.033	Biower/Hand
Jul To	otal			54.6	9.100	
Grand Total			12394.2	2065.700		

SEASON TOTALS

SEASON TOTALS	QUANTITY APPLIED (kg)	AREA (ha)	APPLICATION MODE
	11,284.0	1,883.7	Aerial
	1,110.2	182.0	Blower/Hand
Grand Total	12,394.2	2,065.7	

Monitoring Summary

		T	I	EFFICACY	KOOTENAY	
DATE	AREA	MONITORED	LARVA	CHECK	RIVER **	COMMENTS
05/05/12	THE				2516 feet	·
05/06/12					2516 feet	
05/07/12					2516 feet	
05/08/12			 		2516 feet	
05/09/12		·			2517 feet	
05/10/12			 		2518 feet	
05/11/12					2518 feet	
05/12/12			<u> </u>		2518 feet	
05/13/12			<u> </u>		2517 feet	
05/14/12					2518 feet	
05/15/12					2520 feet	
05/16/12	All Areas		,		2522 feet	pre-season site review
05/17/12					2524 feet	
05/18/12	Thunderhoof				2523 feet	beaver dam removal
05/19/12					2521 feet	

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05/20/12		1			2521 feet	
05/20/12					2521 feet	
05/22/12	Skookumchuk	MONITORED	+ 50 per			blower/hand treatment
05/22/12	Thunderhoof	MONITORED	+ 50 per			blower/hand treatment
05/22/12	Highway thunder	MONITORED	+ 50 per			blower/hand treatment
05/22/12			dip		2520 feet	Headinein
05/23/12					2521 feet	
05/24/12	Skookumchuk	MONITORED		100.00%		
05/24/12	Thunderhoof	MONITORED		100.00%		
		MONITORED	 	100.00%	2522 feet	
05/24/12	Highway thunder Station House	MONITORED	1 st 2 nd	1.00,000		
05/25/12	Station House	MONTONED	instar			
06/05/40	Prairie Road	MONITORED	1 st 2 nd		2521 feet	
05/25/12	Prairie Roau	WONTOILE	instar			
05/26/12	Bearclaw	MONITORED	1 st 2 nd instar		2520 feet	
			IIIStai		2520 feet	<u> </u>
05/27/12			 		2519 feet	
05/28/12			. 60		2010 1000	blower/hand
05/29/12	Prairie Road HWY	MONITORED	+ 50 per dip			treatment
05/29/12	Station House	MONITORED	+ 50 per dip			blower/hand treatment
05/29/12					2519 feet	
05/30/12	Prairie Road	MONITORED	+200 per		2519 feet	
05/31/12	Prairie Road	MONITORED	dip 1 st 2 nd instar			blower/hand treatment
05/31/12	Bearclaw	MONITORED	1 st 2 nd 3 rd in	star	2519 feet	blower/hand treatment
06/01/12	Bearclaw	MONITORED		100.00%		
	Degiciaw	11101111 01110	-		2520 feet	
06/01/12	Desirie Bood	MONITORED		100.00%	2523 feet	
06/02/12	Prairie Road	MONTONED	<u> </u>		2524 feet	
06/03/12		MONITORED	1 st 2 nd			1
06/04/12	Thunderhoof	MONITORED	instar			
	D-11- Dood	MONITORED	1 st 2 nd			
06/04/12	Prairie Road	MOMITORED	instar	ť		
00/04/40	Curent tooth	MONITORED	1 st 2 ^{rid}		2523 feet	
06/04/12	Sweet tooth	MOLITICIAN	instar			
06/05/42			1		2524 feet	
06/05/12 06/06/12	Thunderhoof	MONITORED	1 st 2 nd instar		2527 feet	
06/07/12	Prairie Road	MONITORED	1st 2nd		2529 feet	
			instar 1 st 2 nd		2528 feet	
06/08/12	Hwy southend	MONITORED	instar		2020 1000	

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06/09/12		<u> </u>	T		2526feet	
06/10/12	all areas for aerial	MONITORED	1 st 2 nd		2525 feet	
00/10/12	dii dieas iui aciiai	MOMITORICE	instar			
06/11/12	Thunderhoof	MONITORED	+100 per			blower/hand
00/11/12	manaentou	Month	dip			treatment
06/11/12	Prairie Road	MONITORED	+100 per			blower/hand
00/11/12	T Tallie Toda		dip			treatment
06/11/12	Sweet tooth	MONITORED	+100 per			blower/hand
00/11/12	Oweet tooth		dip			treatment
06/11/12	HWY Thunderhoof	MONITORED	+100 per		2524 feet	blower/hand
00/11/12	THE THURSDAY	}	dip			treatment
06/12/12	See Applications		†		2525 feet	aerial
OOT TET TE	Table	•		1	i	treatment
06/13/12	See Applications				2526feet	aerial
00/10/12	Table					treatment
06/14/12	Aerial Sites	MONITORED		90.00%	2526feet	
06/15/12	Gradon Ford	MONITORED	1 st 2 nd			
00/10/12	Cladoll Ford	(1101111011111	instar			
06/15/12	Wasa Lake	MONITORED	1 st 2 nd			
00/10/12	Wasa Lake	""	instar			
06/15/12	Sweet tooth	MONITORED	1 st 2 nd			
00/13/12	OWEET TOOLL	MONTONES	instar	Į.		
06/15/12	Colins	MONITORED	1 st 2 nd			
00/10/12	Comis	MONTONES	instar			
06/15/12	2 nd channel Colins	MONITORED	1 st 2 nd			
00/10/12	2 Granner Comic		instar	1	· [
06/15/12	2 nd channel Sweet	MONITORED	1 st 2 nd			
00/10/12	tooth		instar			
06/15/12	Two Trees 2 nd field	MONITORED	1 st 2 nd			
00/10/12	1110 11000 2 11014		instar			j
06/15/12	Bearclaw	MONITORED	1 st 2 nd			
00/10/12	Dodino.		instar		1	
06/15/12	Muskrat Ranch	MONITORED	1 st 2 nd			
00/10/12	, moderat randii		instar			
06/15/12	Green Sub	MONITORED	1 st 2 nd			
00/10/12			instar	İ		
06/15/12	Thunderhoof by the	MONITORED	1 st 2 nd			
	River	}	instar			
06/15/12	Thunderhoof north	MONITORED	1 st 2 nd			
	side		instar			
06/15/12	Two Trees slough by	MONITORED	1 st 2 nd			
	River		instar			
06/15/12	Prairie Road Trees	MONITORED	1 st 2 nd	_	1	1
	by Dump		instar			
06/15/12	Praire Road	MONITORED	1 st 2 nd			
			instar			
06/15/12	Moan Road	MONITORED	1 st 2 nd		2526feet	}
			instar			
06/16/12	See Applications Table				2525 feet	aerial treatment
06/17/12	Aerial Sites	MONITORED	 	95.00%	2525 feet	

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06/18/12	Doug Ford	MONITORED	+200 per		blower/hand treatment
			dip	050054	blower/hand
06/18/12	Park Wasa Lake	MONITORED	+200 per	2526feet	treatment
		MONITOREO	dip +300 per		blower/hand
06/19/12	Hanson Channel Old	MONITORED	dip		treatment
06/19/12	Whites	MONITORED	+300 per		blower/hand
00, 10, 14			dip		treatment
06/19/12	Leask	MONITORED	+200 per	2526feet	blower/hand
			dip		treatment
06/20/12	Green house	MONITORED	+100 per	1	blower/hand
			dip		treatment
06/20/12	Wasa Lake Park	MONITORED	+100 per		blower/hand
			dip		treatment
06/20/12	Sawdust Pile	MONITORED	+100 per		blower/hand
			dîp		treatment
06/20/12	Thunderhoof	MONITORED	+500 per	2526feet	blower/hand
			dip		treatment
06/21/12	Two Treesby Station	MONITORED	+500 per	2525 feet	blower/hand
	House		dip		treatment
06/21/12	Doug Ford	MONITORED	+200 per		blower/hand
			dip		treatment
06/22/12				2525 feet	_,
06/23/12				2526feet	
06/24/12				2528 feet	
06/25/12					
06/26/12					
06/27/12					ļ
06/28/12					
06/29/12					
06/30/12					
07/01/12	Wasa Lake donated	MONITORED			blower/hand treatment
07/02/12	Wasa Lake donated	MONITORED			blower/hand
V1102112					treatment
07/07/12	Wasa Lake donated	MONITORED			blower/hand
					treatment

^{** -} Gauge stick located at Kootenay River (Hansens Channel / Old highway)

Summary of Helicopter Applications
Helicopter Service: Range Helicopters Inc.
Helicopter Used: Bell 206B
June 12, 2012: 5.3 hours June 13, 2012: 5.0 hours June 16, 2012: 7.3 hours

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DISCUSSION

In an effort to assist all areas in broadcasting a uniform message regarding mosquito control and WNV, Morrow BioScience Ltd. operates a comprehensive website. This site can be found at www.morrowbioscience.com. MBL would encourage people to utilize this resource to help answer any questions they may have. MBL would also encourage the RDEK to provide a link to this website from their municipal site for easy access to local residents. It is planned to revamp/update the website prior to the 2013 season in order to further improve its content and presentation.

A summary of costs for this season is as follows:

Base Contract (less pesticides):	\$47,500.00
Larvicide:	67,867.80
Treatment over 700ha:	60,046.05
HST:	21,049.66
PST:	0.00
GST:	0.00
	\$196,463.51

A total of 12,394.2kg of larvicide or approximately 681 bags (18.2kg/bag) were applied to 2,065.7ha during the season. The season was started with no larvicide inventory carried over from last season and there were purchases totaling 678 bags (plus three bags donated by MBL), and therefore there are 0 bags in stock for next year.

Plans for Mosquito Control Program Improvements - Future Seasons

 Strive to continue to provide timely field information to RDEK staff to allow the program budget status to be closely monitored and informed decisions regarding approval of extra treatments (if necessary).

 Continue to liaise with the farmers who have control over opening Lewis Creek and coordinate the flow with the Kootenay River level.

 Continue explore and implement solutions to the beaver issues associated with drainage culverts in the Wasa area.

• Muskrat Ranch should have a control burn to eliminate the numerous reeds and tall grass that prevent the larvicide from being most effective.

It is proposed that Hansen's Channel have some trails cut in to enable easier ground access.

 Clean-up trails within the Prairie Road vicinity as overgrowth is making this area difficult to access and treat.

The highway culverts require regular maintenance.

Drainage on the Collins property would benefit from installation of a culvert.

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If you have any questions regarding this summary report, please do not hesitate to give me a call at 604-986-1168.

Mark Vaandering, P.Eng.

President

MORROW BIOSCIENCE LTD.