

FW: Early warning note draft for Okanagan Lake

Tuesday, September 19, 2017
11:08 AM

Subject	FW: Early warning note draft for Okanagan Lake
From	Warner, Robert FLNR:EX
To	Crampton, Ray W FLNR:EX
Sent	Tuesday, May 9, 2017 4:35 PM
Attachments	 EWN Okanagan ...

fyi

From: Oetter, Andy FLNR:EX

Sent: Tuesday, May 9, 2017 3:58 PM

To: Schell, Steve E FLNR:EX; Schafthuizen, Jim FLNR:EX

Cc: Warner, Robert FLNR:EX; Reimer, Shaun FLNR:EX

Subject: Early warning note draft for Okanagan Lake

For your review and to forward if you agree with it

Thanks to Bob and Shaun who are the authors

	Andy Oetter <i>Director of Resource Authorizations Direct 250-828-4445 Thompson Okanagan Region Ministry of Forests, Lands and Natural Resource Operations 441 Columbia Street Kamloops, BC V2C 2T3</i>	 PREMIER'S AWARD ORGANIZATIONAL EXCELLENCE 2016 REGIONAL RECIPIENT
--	---	---

Page 002 to/à Page 003

Withheld pursuant to/removed as

s.13

FW: Ramping up Okanagan River flows starting Monday April 24th

Tuesday, September 19, 2017
9:36 AM

Subject	FW: Ramping up Okanagan River flows starting Monday April 24th
From	Reimer, Shaun FLNR:EX
To	'JAY O'BRIEN'
Sent	Monday, May 1, 2017 11:18 AM

From: Reimer, Shaun FLNR:EX
Sent: Wednesday, April 19, 2017 1:21 PM
To: 'Josephy, Alvin (ECY)'; 'Josephy, Alvin (ECY)'
Cc: Graham, Gwyn; 'Anna Warwick Sears'; 'John Arterburn'; Xia, Cenling FLNR:EX; Burdock, Greg W FLNR:EX; Warner, Robert FLNR:EX
Subject: Ramping up Okanagan River flows starting Monday April 24th

Hi Jay. As discussed, I am starting to ramp up flows significantly next week. My modelling shows some pretty narrow margins in terms of keeping Okanagan Lake from rising too much this year. With that in mind, and after consultation with the Dept. of Fisheries and Oceans as well as Okanagan Nation Alliance fisheries, I plan to raise flows as follows:

- April 24th – Raise flows by 8 m³/s (282 cfs)
- April 26th – Raise flows by 12 m³/s (424 cfs)
- April 26th – Raise flows by 12 m³/s (424 cfs)

The intent is to have an outflow of 52 m³/s (1836 cfs) at Penticton by end of next week. As of today, there is a 7 m³/s (247 cfs) difference in flows between Penticton gauge and Oliver gauge due to tributary inflows. I expect this difference to increase with further rain and snowmelt. If the tributary inflows get too high, I may be forced to back off flows at Penticton.

I will likely increase the flow the following week (May 1st to May 5th) in the range of 8 m³/s (282 cfs) to 13 m³/s (459 cfs). The latter would take me to the top end of the design discharge for the channel below Okanagan Lake dam. I think we can expect these high flows to continue well into June or beyond depending on the weather.

Of course all of the numbers above are approximate targets and some 'tweaking' will have to be done over the course of the changes so that the other lakes don't get out of balance.

Call me if you would like any more information.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

OLRS Gate Changes May 5, 2017

Wednesday, September 20, 2017
8:30 AM

Subject	OLRS Gate Changes May 5, 2017
From	Reimer, Shaun FLNR:EX
To	Reimer, Shaun FLNR:EX; Xia, Cenling FLNR:EX; Burdock, Greg W FLNR:EX
Cc	Warner, Robert FLNR:EX
Sent	Friday, May 5, 2017 3:00 PM

Shaun changed OK dam (four gates: 61 cm to 50 cm).
Carson changed Skaha dam (four gates: 118 cm to 105 cm).
Carson opened four gates at McIntyre to 100%.

This decrease is a temporary measure to lower Vaseux and Skaha lakes and to reduce peak flows in the river at Oliver until tributary input drops. Shaun

Sent from my iPhone

Whiteman Creek Hydrograph May 16, 2017

Wednesday, September 20, 2017

9:55 AM

Subject	Whiteman Creek Hydrograph May 16, 2017
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 16, 2017 11:45 AM

Today's info from Whiteman Creek. Looks like it dropped roughly 20 cm in last few days and hydrograph looks like a natural reduction in flow. There could still be a problem if the reported drop (30 cm) by OIB was overnight. Shaun

Real-Time Hydrometric Data Graph for WHITEMAN CREEK ABOVE BOULEAU CREEK (08NM174) [BC]

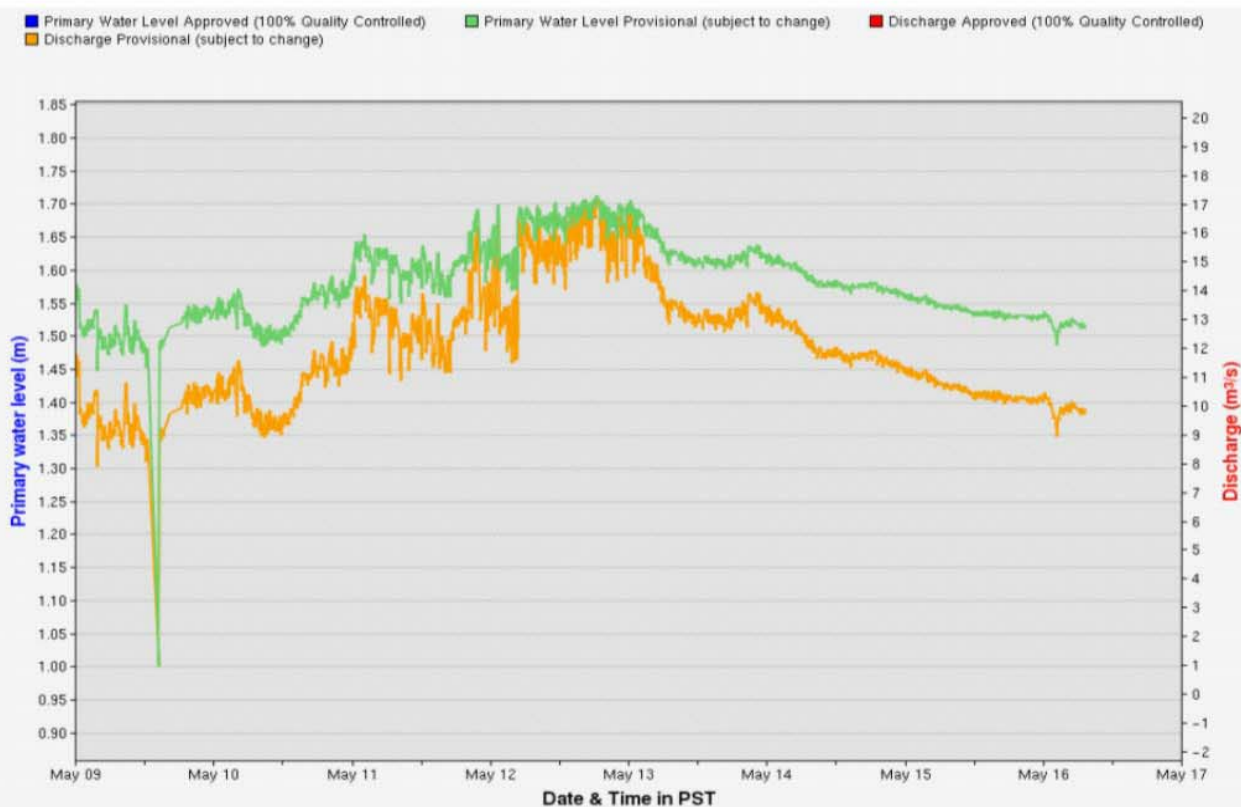
Graph

Table

Station: 08NM174

Data Type: Real-Time

Apply



Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

RE: Early warning note draft

Wednesday, September 20, 2017
9:28 AM

Subject	RE: Early warning note draft
From	Warner, Robert FLNR:EX
To	Oetter, Andy FLNR:EX; Reimer, Shaun FLNR:EX
Sent	Tuesday, May 9, 2017 3:52 PM

Make it so! Good stuff - Thanks Andy

From: Oetter, Andy FLNR:EX

Sent: Tuesday, May 9, 2017 3:50 PM

To: Warner, Robert FLNR:EX; Reimer, Shaun FLNR:EX

Subject: FW: Early warning note draft

Can you live with these changes ... sorry tried to shorten it

Can I move it forward with these proposed changes?

Great job!!!!

Thanks

	Andy Oetter <i>Director of Resource Authorizations Direct 250-828-4445 Thompson Okanagan Region Ministry of Forests, Lands and Natural Resource Operations 441 Columbia Street Kamloops, BC V2C 2T3</i>	
--	---	--

From: Warner, Robert FLNR:EX

Sent: Tuesday, May 9, 2017 3:05 PM

To: Reimer, Shaun FLNR:EX

Cc: Oetter, Andy FLNR:EX

Subject: Early warning note draft

Shaun –as discussed any clangers please respond all – needs to be finalized by 430-thanks

Bob Warner RPF <i>Resource Manager 250-490-8232 C250-462-8887 Okanagan Shuswap Natural Resource District Ministry of Forests, Lands and Natural Resource Operations</i>	
---	--

FW: Early warning note draft for Okanagan Lake

Tuesday, September 19, 2017
10:35 AM

Subject	FW: Early warning note draft for Okanagan Lake
From	Warner, Robert FLNR:EX
To	Crampton, Ray W FLNR:EX
Sent	Tuesday, May 9, 2017 4:35 PM
Attachments	 EWN Okanagan ...

fyi

From: Oetter, Andy FLNR:EX

Sent: Tuesday, May 9, 2017 3:58 PM

To: Schell, Steve E FLNR:EX; Schafthuizen, Jim FLNR:EX

Cc: Warner, Robert FLNR:EX; Reimer, Shaun FLNR:EX

Subject: Early warning note draft for Okanagan Lake

For your review and to forward if you agree with it

Thanks to Bob and Shaun who are the authors

	Andy Oetter <i>Director of Resource Authorizations Direct 250-828-4445 Thompson Okanagan Region Ministry of Forests, Lands and Natural Resource Operations 441 Columbia Street Kamloops, BC V2C 2T3</i>	 PREMIER'S AWARD ORGANIZATIONAL EXCELLENCE 2016 REGIONAL RECIPIENT
--	---	---

Page 009 to/à Page 010

Withheld pursuant to/removed as

s.13

Early warning note draft

Friday, September 15, 2017

1:23 PM

Subject	Early warning note draft
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Cc	Oetter, Andy FLNR:EX
Sent	Tuesday, May 9, 2017 3:04 PM
Attachments	 EWN Okanagan ...

Shaun –as discussed any clangers please respond all – needs to be finalized by 430-thanks

Bob Warner RPF <i>Resource Manager</i> 250-490-8232 C250-462-8887 <i>Okanagan Shuswap Natural Resource District</i> <i>Ministry of Forests, Lands and Natural Resource Operations</i>	
---	--

Page 012 to/à Page 013

Withheld pursuant to/removed as

s.13

RE: Kal Dam over the weekend

Wednesday, September 20, 2017
9:30 AM

Subject	RE: Kal Dam over the weekend
From	Reimer, Shaun FLNR:EX
To	Magill-Hofmann, Kimm FLNR:EX; Warner, Robert FLNR:EX
Sent	Tuesday, May 9, 2017 10:45 AM

Thanks Kimm. At this point I would ask that the dam be checked and cleared of debris each day. As well, a gate change may be required if flows get too high in Vernon.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231
Cell: 250-809-7762

From: Magill-Hofmann, Kimm FLNR:EX

Sent: Tuesday, May 9, 2017 9:54 AM

To: Warner, Robert FLNR:EX

Cc: Reimer, Shaun FLNR:EX

Subject: Kal Dam over the weekend

Mark is our lead and Mike is his support. I told them they would be on call and Shaun would contact them if they are needed. Shaun can you clarify what exactly you need from them? Are they to check on their own initiative or wait for your call.

s.22

Kimm Magill-Hofmann, RPF

Senior Licensed Water Authorizations Officer
Okanagan Shuswap Natural Resource District
250-260-4623

Mission Creek HEC-RAS results at 155 m3/s

Wednesday, September 20, 2017

7:50 AM

Subject	Mission Creek HEC-RAS results at 155 m3/s
From	Reimer, Shaun FLNR:EX
To	s 22 'Todd Cashin'; 'jason.brolund@westkelownacity.ca'
Cc	'Joe Creron'; 'iwilson@kelowna'; 'Kevin Van Vliet'; 'Alan Newcombe'; 'EOCooperations'; 'Darin Thompson'; Warner, Robert FLNR:EX
Sent	Wednesday, May 10, 2017 5:35 PM
Attachments	 MissionCRK

Hello, here is the Mission modelled at 155 m3/s at the gauge. The critical cross sections are shown in yellow. Yellow numbers that are negative, indicate where overtopping would occur. A few places are up to 33 cm low. We have not concentrated on any areas where we might just not have enough freeboard. Values in metres and right bank is north side, left bank is south side. This obviously does not take into account the material being added now. Big caveats here: Modelling was done with cross sections that were quite far apart. It's difficult to discuss confidence levels here since there will be errors with model and forecast but it's the best information we have right now. Thanks to Carson for running the model for us.
Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

River Sta	Profile	W.S. Elev (m)	Levee El Left (m)	Levee El Right (m)	Frbrd Left (m)	Frbrd Right (m)
8605.389 XS-58C	Max WS	387.04				
8331.299 XS-58B	Max WS	385.22				
8199.345 XS-58A	Max WS	384.96				
8099.049 XS-58	Max WS	382.86	384		1.14	
8035.206 XS-57	Max WS	382.34				
7938.948 XS-56A	Max WS	381.36				
7936.448 Ped Bridge2		Bridge				
7933.948 XS-56B	Max WS	380.86				
7852.777 XS-56	Max WS	380				
7669.233 XS-55	Max WS	377.71				
7484.659 XS-54	Max WS	375.82				
7302.536 XS-53	Max WS	373.81				
7120.021 XS-52	Max WS	372.01				
6969.653 XS-51A	Max WS	371.03				
6967.153 Ped Bridge1		Bridge				
6964.653 XS-51B	Max WS	370.66				
6934.41 XS-51	Max WS	370.38		372.477		2.097
6832.859 XS-50	Max WS	369.76		372.077		2.317
6764.166 XS-49	Max WS	369.42		371.229		1.809
6624.459 XS-48	Max WS	368.46		369.951		1.491
6493.687 XS-47	Max WS	367.8		368.379		0.579
6309.199 XS-46	Max WS	366.37		367.502		1.132
6189.365 XS-45	Max WS	365.7		366.462		0.762
6051.403 XS-44	Max WS	364.75		365.398		0.648
5906.031 XS-43	Max WS	363.66		364.31		0.65
5759.089 XS-42	Max WS	362.85	363.46	363.43	0.61	0.58
5643.891 XS-41A	Max WS	362	362.89	363.25	0.89	1.25
5517.077 XS-41	Max WS	361.14	362.05	362.22	0.91	1.08
5354.394 XS-40A	Max WS	360.09	361.02	361.17	0.93	1.08
5228.45 XS-40	Max WS	359.25	359.97		0.72	
5144.839 XS-39A	Max WS	358.75	359.39	359.92	0.64	1.17
5039.312 XS-39	Max WS	358.18	358.9	359.24	0.72	1.06
4975.593 XS-38	Max WS	357.75		358.6		0.85
4959.394 XS-37A	Max WS	357.76		358.56		0.8
4881.444 XS-37	Max WS	357.49	359	358.7	1.51	1.21
4852.55 XS-36	Max WS	357.5	359	359	1.5	1.5
4848.134 KLO Bridge		Bridge				
4843.718 XS-35	Max WS	357.4	359	359	1.6	1.6
4810.946 XS-34	Max WS	356.89		357.65		0.76
4765.925 XS-33A	Max WS	356.62		357.62		1
4530.432 XS-33	Max WS	355.55	356.96	356.99	1.41	1.44
4309.805 XS-32	Max WS	354.62	355.46	355.95	0.84	1.33
4193.361 XS-31B	Max WS	354.44	355.623	355.598	1.183	1.158
4188.443		Int Struct				
4183.525 XS-31A	Max WS	353.87	355.55	355.25	1.68	1.38

4061.767 XS-31	Max WS	353.42	355	354.94	1.58	1.52
3863.118 XS-30	Max WS	352.91	354.07	354	1.16	1.09
3656.394 XS-29	Max WS	352.15	353.13	352.99	0.98	0.84
3488.118 XS-28	Max WS	351.56	352.49	352.5	0.93	0.94
3269.759 XS-27	Max WS	350.81		350.824		0.014
3023.41 XS-26	Max WS	350.15		350.069		-0.081
2809.594 XS-25	Max WS	349.71		349.707		-0.003
2660.547 XS-24	Max WS	349.47		349.525		0.055
2504.637 XS-23	Max WS	349.19		349.354		0.164
2337.739 XS-22	Max WS	348.79		350.584		1.794
2319.239 XS-21	Max WS	348.72				
2311.739 Casorso Br		Bridge				
2304.239 XS-20	Max WS	348.69				
2291.872 XS-19	Max WS	348.55	348.234	350.03	-0.316	1.48
2221.357 XS-18	Max WS	348.35	348.304	348.417	-0.046	0.067
2202.839 XS-17	Max WS	348.31	348.135	348.228	-0.175	-0.082
2183.063 XS-16	Max WS	348.2	348.162	348.291	-0.038	0.091
2062.92 XS-15	Max WS	347.92	347.849	348.481	-0.071	0.561
1952.201 XS-14A	Max WS	347.67	347.853	347.587	0.183	-0.083
1834.144 XS-14	Max WS	347.56	347.393	347.235	-0.167	-0.325
1659.476 XS-13	Max WS	347.15	347.097	347.022	-0.053	-0.128
1619.326 XS-12A	Max WS	347.05	347.029	346.844	-0.021	-0.206
1459.666 XS-12	Max WS	346.68	346.592	346.451	-0.088	-0.229
1249.086 XS-11	Max WS	346.14	346.197	345.65	0.057	-0.49
1239.06 XS-10	Max WS	346.08	346.231	346.206	0.151	0.126
1232.949 XS-9	Max WS	346.07	346.309	346.256	0.239	0.186
1216.822 XS-8	Max WS	346.12	346.383	346.198	0.263	0.078
1096.855 XS-7	Max WS	345.89	345.747	345.779	-0.143	-0.111
1042.582 XS-6F	Max WS	345.87	348.41	348.956	2.54	3.086
1031.775 Gordon Dr Br		Bridge				
1013.627 XS-6E	Max WS	345.78	348.753	349.01	2.973	3.23
916.613 XS-6	Max WS	345.47	345.211	345.602	-0.259	0.132
643.356 XS-5	Max WS	344.84	344.914	345.057	0.074	0.217
548.119 XS-4A	Max WS	344.57	344.533	344.938	-0.037	0.368
498.47 XS-4	Max WS	344.44		344.96		0.52
486.26 XS-3	Max WS	344.45				
480.464 Lakeshore Br		Bridge				
474.668 XS-2	Max WS	344.49				
457.387 XS-1	Max WS	344.4				
348.075 XS-D	Max WS	344.04				
219.858 XS-C	Max WS	343.61				
128.095 XS-B	Max WS	343.22				
0 XS-A	Max WS	343				
Modeld ByCX 10May2017						

RE: FLNR Media Request: Penticton Channel Dam - Castanet

Wednesday, September 20, 2017
8:42 AM

Subject	RE: FLNR Media Request: Penticton Channel Dam - Castanet
From	Reimer, Shaun FLNR:EX
To	Price, Gabrielle GCPE:EX
Cc	Thomas, Vivian P GCPE:EX; Dean, Sharon GCPE:EX; GCPE FLNR Media Requests GCPE:EX; Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX; Schell, Steve E FLNR:EX
Sent	Thursday, May 11, 2017 12:25 PM

We are lowering flows marginally today to blunt the effects of the expected storm and resultant increase in tributary inflow in the Oliver region. But flows have been higher than our design channel flow at Penticton recently and will be again in a few days. The effect on the lake due to this temporary reduction is millimetres. Shaun

From: Price, Gabrielle GCPE:EX

Sent: Thursday, May 11, 2017 12:16 PM

To: Reimer, Shaun FLNR:EX

Cc: Thomas, Vivian P GCPE:EX; Dean, Sharon GCPE:EX; GCPE FLNR Media Requests GCPE:EX; Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX; Schell, Steve E FLNR:EX

Subject: FLNR Media Request: Penticton Channel Dam - Castanet

Hi Shaun and team,

We have received the below media request regarding the Penticton channel dam, the reporter is wanting to confirm that the channel and the dam is releasing water at pretty much full capacity?

Is this correct? Please let me know and I can respond to the reporter.

Thanks,
Gabrielle

From: Gabrielle Price [<mailto:Gabrielle.Price@gov.bc.ca>]

Sent: Thursday, May 11, 2017 12:13 PM

To: Price, Gabrielle GCPE:EX

Subject: FLNR Media Request: Penticton Channel Dam

Reporter

Colin Dacer, Reporter

Castanet (Kelowna)

colin@castanet.net

250-860-5050

Deadline ASAP

Request

Reporter is looking at the federal governments hydrometric data for the Okanagan River in Penticton, and can see the dam is releasing even more water than during last weekends flooding. Reporter is hoping to confirm that the channel and the dam is releasing water at pretty much full capacity?

Background

Recommendation

REVIEW: IB_Okanagan Lake and River Rising Flood Risk_May 11 draft 1SR.docx

Wednesday, September 20, 2017
9:50 AM

Subject	REVIEW: IB_Okanagan Lake and River Rising Flood Risk_May 11 draft 1SR.docx
From	Reimer, Shaun FLNR:EX
To	Schell, Steve E FLNR:EX; McQueen, John FLNR:EX; Oetter, Andy FLNR:EX; Crampton, Ray W FLNR:EX; Warner, Robert FLNR:EX
Cc	Noseworthy, Mike FLNR:EX
Sent	Thursday, May 11, 2017 9:13 AM
Attachments	 IB_Okanagan Lake and...

Please see attached...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Schell, Steve E FLNR:EX
Sent: Wednesday, May 10, 2017 2:17 PM
To: McQueen, John FLNR:EX; Oetter, Andy FLNR:EX; Reimer, Shaun FLNR:EX; Crampton, Ray W FLNR:EX; Warner, Robert FLNR:EX
Subject: FW: REVIEW: REVISED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx
Importance: High

Hi Andy

Our information officer will be working with you guys to complete.

Steve

From: Oetter, Andy FLNR:EX
Sent: Wednesday, May 10, 2017 2:13 PM
To: Reimer, Shaun FLNR:EX
Cc: Warner, Robert FLNR:EX; Crampton, Ray W FLNR:EX; Schell, Steve E FLNR:EX
Subject: FW: REVIEW: REVISED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx
Importance: High

Shaun

We are thinking that much like we did with the Nicola we should do a public release about the building conditions in the Okanagan system.

This would give the general public a heads up of what to expect and to prepare for this event.

We would work through GCPE to produce this document.

I have included what we sent out about the Nicola as a template for what we want. It is important that we let folks know what levels we expect the levels to

rise to

Can you work on this and send it to me for review. We will then forward to Steve to send up and work through GCPE to get out

Any questions?

Thanks



From: Thomas, Vivian P GCPE:EX
Sent: Tuesday, May 9, 2017 11:48 AM
To: Schell, Steve E FLNR:EX; Ball, Jephtha F FLNR:EX
Cc: Manwaring, Richard G FLNR:EX; van Hemmen, Charles H FLNR:EX; Oetter, Andy FLNR:EX; Schafthuizen, Jim FLNR:EX; MacDougall, Gerry L FLNR:EX
Subject: REVIEW: REVISED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx
Importance: High

Further to conversations, here's the redraft for review.

Thx,

Vivian
250 356-2475

From: Schell, Steve E FLNR:EX
Sent: Tuesday, May 9, 2017 10:58 AM
To: Thomas, Vivian P GCPE:EX
Cc: Manwaring, Richard G FLNR:EX; Ball, Jephtha F FLNR:EX; van Hemmen, Charles H FLNR:EX; Oetter, Andy FLNR:EX; Schafthuizen, Jim FLNR:EX; MacDougall, Gerry L FLNR:EX
Subject: POSTING REQUESTED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx
Importance: High

Hi Vivian,

Please review the attached draft that has been approved by Rick Manwaring, format, and post this information bulletin today.

Thank you.



Page 021

Withheld pursuant to/removed as

s.13

RE: FLNR Media Request: Penticton Channel Dam - Castanet

Wednesday, September 20, 2017
9:29 AM

Subject	RE: FLNR Media Request: Penticton Channel Dam - Castanet
From	Reimer, Shaun FLNR:EX
To	Price, Gabrielle GCPE:EX
Cc	Thomas, Vivian P GCPE:EX; Dean, Sharon GCPE:EX; GCPE FLNR Media Requests GCPE:EX; Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX; Schell, Steve E FLNR:EX
Sent	Thursday, May 11, 2017 12:26 PM

We are lowering flows marginally today to blunt the effects of the expected storm and resultant increase in tributary inflow in the Oliver region. But flows have been higher than our design channel flow at Penticton recently and will be again in a few days. The effect on the lake due to this temporary reduction is millimetres. Shaun

From: Price, Gabrielle GCPE:EX

Sent: Thursday, May 11, 2017 12:16 PM

To: Reimer, Shaun FLNR:EX

Cc: Thomas, Vivian P GCPE:EX; Dean, Sharon GCPE:EX; GCPE FLNR Media Requests GCPE:EX; Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX; Schell, Steve E FLNR:EX

Subject: FLNR Media Request: Penticton Channel Dam - Castanet

Hi Shaun and team,

We have received the below media request regarding the Penticton channel dam, the reporter is wanting to confirm that the channel and the dam is releasing water at pretty much full capacity? Is this correct? Please let me know and I can respond to the reporter.

Thanks,

Gabrielle

From: Gabrielle Price [<mailto:Gabrielle.Price@gov.bc.ca>]

Sent: Thursday, May 11, 2017 12:13 PM

To: Price, Gabrielle GCPE:EX

Subject: FLNR Media Request: Penticton Channel Dam

Reporter

Colin Dacer, Reporter

Castanet (Kelowna)

colin@castanet.net

250-860-5050

Deadline ASAP

Request

Reporter is looking at the federal governments hydrometric data for the Okanagan River in Penticton, and can see the dam is releasing even more water than during last weekends flooding. Reporter is hoping to confirm that the channel and the dam is releasing water at pretty much full capacity?

Background

Recommendation

RE: Okanagan Lake and River Media Requests: Okanagan Lake Levels

Wednesday, September 20, 2017
9:31 AM

Subject	RE: Okanagan Lake and River Media Requests: Okanagan Lake Levels
From	Reimer, Shaun FLNR:EX
To	Thomas, Vivian P GCPE:EX
Cc	Price, Gabrielle GCPE:EX; Warner, Robert FLNR:EX; Noseworthy, Mike FLNR:EX
Sent	Friday, May 12, 2017 2:23 PM

Geodetic survey of Canada but it basically means metres above sea level.

From: Thomas, Vivian P GCPE:EX

Sent: Friday, May 12, 2017 2:23 PM

To: Reimer, Shaun FLNR:EX

Cc: Price, Gabrielle GCPE:EX; Warner, Robert FLNR:EX; Noseworthy, Mike FLNR:EX

Subject: RE: Okanagan Lake and River Media Requests: Okanagan Lake Levels

Thx very much! What is "geodetic"?

342.48 m geodetic

From: Reimer, Shaun FLNR:EX

Sent: Friday, May 12, 2017 2:19 PM

To: Thomas, Vivian P GCPE:EX

Cc: Price, Gabrielle GCPE:EX; Warner, Robert FLNR:EX; Noseworthy, Mike FLNR:EX

Subject: Okanagan Lake and River Media Requests: Okanagan Lake Levels

Hi Vivian. As discussed earlier by phone, I am providing some general information that I hope will satisfy most media

Enquiries re: Okanagan Lake Level and River flows.

Unseasonably high precipitation in March, April, and into May have led to extremely high water levels regionally. Okanagan Lake is currently above the annual peak target and rising rapidly. It is projected that Okanagan Lake could exceed 30 cm over the peak target level of 342.48 m geodetic sometime in June. The level at which the lake will peak will largely be dependent on the weather in the coming weeks. Outflows through Okanagan Lake Dam are being maximized, leading to extremely high flows in Okanagan River through to Osoyoos Lake. Residents along the Okanagan River near Oliver will see elevated groundwater levels close to the river. The water will potentially reach record levels on Vaseux Lake and residents should take steps to protect their property.

The Ministry of Forests, Lands and Natural Resource Operations operates the Okanagan Lake, Skaha Lake and McIntyre dams, which regulates water levels and flows from Okanagan Lake to Osoyoos Lake. Ministry staff continue to actively monitor conditions. Those being affected by flooding should contact their local government for direction and resources.

Waterfront property owners are encouraged to move any equipment away from the water. During periods of high flow, river banks may be unstable and more prone to sudden collapse. Stay well away and keep young children and pets away from the banks of fast-flowing streams and flooded areas or bridges. Boater should take extra care on the lakes because of the large volumes of wood debris coming down from the tributaries.

For more information on flood prevention and flood response, visit:

<http://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/preparedbc/know-the-risks/floods>

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations

102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

REVIEW: IB_Okanagan Lake and River Rising Flood Risk_May 11 draft 1SR.docx

Wednesday, September 20, 2017
9:54 AM

Subject	REVIEW: IB_Okanagan Lake and River Rising Flood Risk_May 11 draft 1SR.docx
From	Reimer, Shaun FLNR:EX
To	Schell, Steve E FLNR:EX; McQueen, John FLNR:EX; Oetter, Andy FLNR:EX; Crampton, Ray W FLNR:EX; Warner, Robert FLNR:EX
Cc	Noseworthy, Mike FLNR:EX
Sent	Thursday, May 11, 2017 9:13 AM
Attachments	 IB_Okanagan Lake and...

Please see attached...
Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Schell, Steve E FLNR:EX
Sent: Wednesday, May 10, 2017 2:17 PM
To: McQueen, John FLNR:EX; Oetter, Andy FLNR:EX; Reimer, Shaun FLNR:EX; Crampton, Ray W FLNR:EX; Warner, Robert FLNR:EX
Subject: FW: REVIEW: REVISED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx
Importance: High

Hi Andy
Our information officer will be working with you guys to complete.
Steve

From: Oetter, Andy FLNR:EX
Sent: Wednesday, May 10, 2017 2:13 PM
To: Reimer, Shaun FLNR:EX
Cc: Warner, Robert FLNR:EX; Crampton, Ray W FLNR:EX; Schell, Steve E FLNR:EX
Subject: FW: REVIEW: REVISED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx
Importance: High

Shaun
We are thinking that much like we did with the Nicola we should do a public release about the building conditions in the Okanagan system.
This would give the general public a heads up of what to expect and to prepare for this event.
We would work through GCPE to produce this document.
I have included what we sent out about the Nicola as a template for what we want. It is important that we let folks know what levels we expect the levels to rise to
Can you work on this and send it to me for review. We will then forward to Steve to send up and work through GCPE to get out
Any questions?
Thanks



Andy Oetter
Director of Resource
Authorizations
Direct 250-828-4445
Thompson Okanagan
Region
Ministry of Forests, Lands
and Natural Resource
Operations
441 Columbia Street
Kamloops, BC
V2C 2T3



From: Thomas, Vivian P GCPE:EX

Sent: Tuesday, May 9, 2017 11:48 AM

To: Schell, Steve E FLNR:EX; Ball, Jephtha F FLNR:EX

Cc: Manwaring, Richard G FLNR:EX; van Hemmen, Charles H FLNR:EX; Oetter, Andy FLNR:EX; Schafthuizen, Jim FLNR:EX; MacDougall, Gerry L FLNR:EX

Subject: REVIEW: REVISED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx

Importance: High

Further to conversations, here's the redraft for review.

Thx,

Vivian

250 356-2475

From: Schell, Steve E FLNR:EX

Sent: Tuesday, May 9, 2017 10:58 AM

To: Thomas, Vivian P GCPE:EX

Cc: Manwaring, Richard G FLNR:EX; Ball, Jephtha F FLNR:EX; van Hemmen, Charles H FLNR:EX; Oetter, Andy FLNR:EX; Schafthuizen, Jim FLNR:EX; MacDougall, Gerry L FLNR:EX

Subject: POSTING REQUESTED: IB_Nicola Lake and River Rising Flood Risk_May 9 draft 1CW.docx

Importance: High

Hi Vivian,

Please review the attached draft that has been approved by Rick Manwaring, format, and post this information bulletin today.

Thank you.



Steve Schell, RPF

Senior Project Manager, Regional Operations | South Area
Ministry of Forests, Lands and Natural Resource Operations
441 Columbia Street, Kamloops BC (V2C-2T3)
Office: 250-828-4124 | Cell: 250-319-6531

Page 027

Withheld pursuant to/removed as

s.13

RE: Okanagan Lake and River Media Requests: Okanagan Lake Levels

Wednesday, September 20, 2017
9:18 AM

Subject	RE: Okanagan Lake and River Media Requests: Okanagan Lake Levels
From	Reimer, Shaun FLNR:EX
To	Thomas, Vivian P GCPE:EX
Cc	Price, Gabrielle GCPE:EX; Warner, Robert FLNR:EX; Noseworthy, Mike FLNR:EX
Sent	Friday, May 12, 2017 2:23 PM

Geodetic survey of Canada but it basically means metres above sea level.

From: Thomas, Vivian P GCPE:EX
Sent: Friday, May 12, 2017 2:23 PM
To: Reimer, Shaun FLNR:EX
Cc: Price, Gabrielle GCPE:EX; Warner, Robert FLNR:EX; Noseworthy, Mike FLNR:EX
Subject: RE: Okanagan Lake and River Media Requests: Okanagan Lake Levels

Thx very much! What is "geodetic"?

342.48 m geodetic

From: Reimer, Shaun FLNR:EX
Sent: Friday, May 12, 2017 2:19 PM
To: Thomas, Vivian P GCPE:EX
Cc: Price, Gabrielle GCPE:EX; Warner, Robert FLNR:EX; Noseworthy, Mike FLNR:EX
Subject: Okanagan Lake and River Media Requests: Okanagan Lake Levels

Hi Vivian. As discussed earlier by phone, I am providing some general information that I hope will satisfy most media
Enquiries re: Okanagan Lake Level and River flows.

Unseasonably high precipitation in March, April, and into May have led to extremely high water levels regionally. Okanagan Lake is currently above the annual peak target and rising rapidly. It is projected that Okanagan Lake could exceed 30 cm over the peak target level of 342.48 m geodetic sometime in June. The level at which the lake will peak will largely be dependent on the weather in the coming weeks. Outflows through Okanagan Lake Dam are being maximized, leading to extremely high flows in Okanagan River through to Osoyoos Lake. Residents along the Okanagan River near Oliver will see elevated groundwater levels close to the river. The water will potentially reach record levels on Vaseux Lake and residents should take steps to protect their property.

The Ministry of Forests, Lands and Natural Resource Operations operates the Okanagan Lake, Skaha Lake and McIntyre dams, which regulates water levels and flows from Okanagan Lake to Osoyoos Lake. Ministry staff continue to actively monitor conditions. Those being affected by flooding should contact their local government for direction and resources.

Waterfront property owners are encouraged to move any equipment away from the water. During periods of high flow, river banks may be unstable and more prone to sudden collapse. Stay well away and keep young children and pets away from the banks of fast-flowing streams and flooded areas or bridges. Boater should take extra care on the lakes because of the large volumes of wood debris coming down from the tributaries.

For more information on flood prevention and flood response, visit:
<http://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/preparedbc/know-the-risks/floods>

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

FW: Year to date weekly inflows into Okanagan Lake

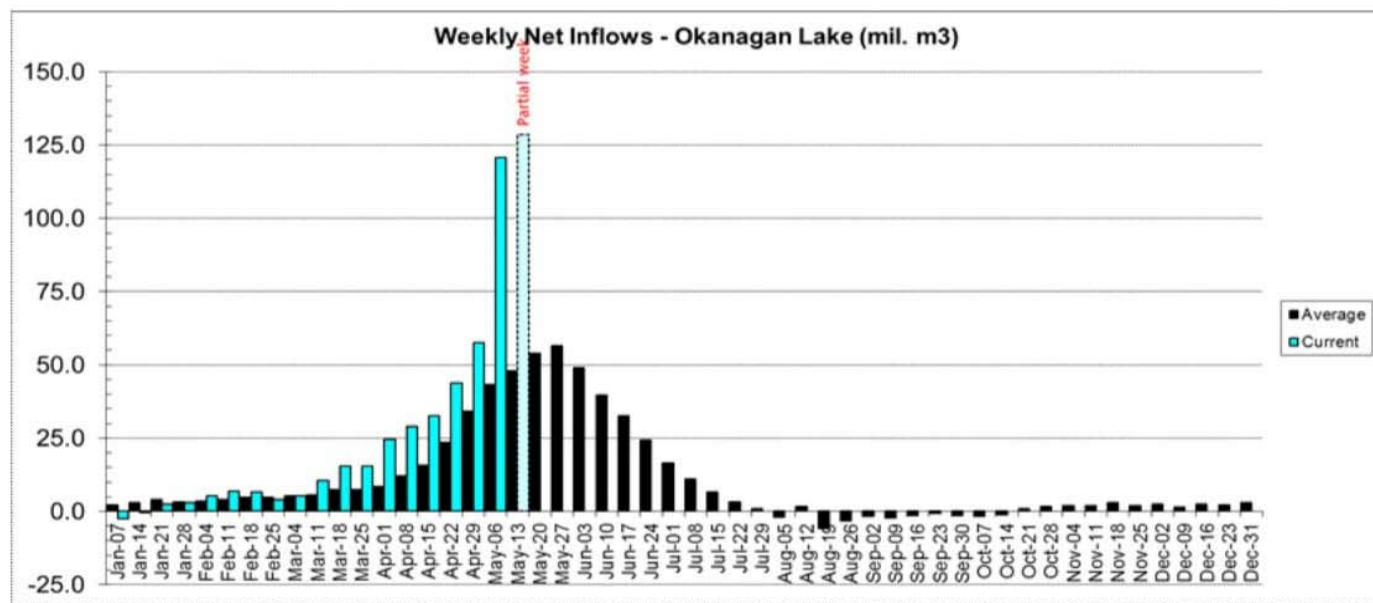
Tuesday, September 19, 2017
9:48 AM

Subject	FW: Year to date weekly inflows into Okanagan Lake
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 16, 2017 11:22 AM

Forgot to cc you

From: Reimer, Shaun FLNR:EX
Sent: Tuesday, May 16, 2017 10:02 AM
To: Schell, Steve E FLNR:EX
Cc: 'Todd Cashin'
Subject: Year to date weekly inflows into Okanagan Lake

As an FYI, this graphic shows inflows into Okanagan Lake since beginning of year. The black columns show the 30 year (1981-2010) normal weekly inflows and blue columns show this year. The Y axis represents Million cubic metres of water and each 3.46 Million cubic metre is one centimetre on the lake. Therefore, the latest partial week shown is roughly 130 Million Cubic metres which equates to 38 cm of water on the lake. And that follows the previous week when 36 cm of water entered the lake. Again, at maximum outflows, I only have the ability to reduce Okanagan Lake by roughly 11 cm per week. I need some evaporation on that lake soon.



Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

RE: Outlook Summary for Okanagan Lake

Wednesday, September 20, 2017
9:21 AM

Subject	RE: Outlook Summary for Okanagan Lake
From	Reimer, Shaun FLNR:EX
To	Hewson, David TRAN:EX
Cc	Warner, Robert FLNR:EX
Sent	Thursday, May 18, 2017 9:36 AM
Attachments	 2017-05-1...

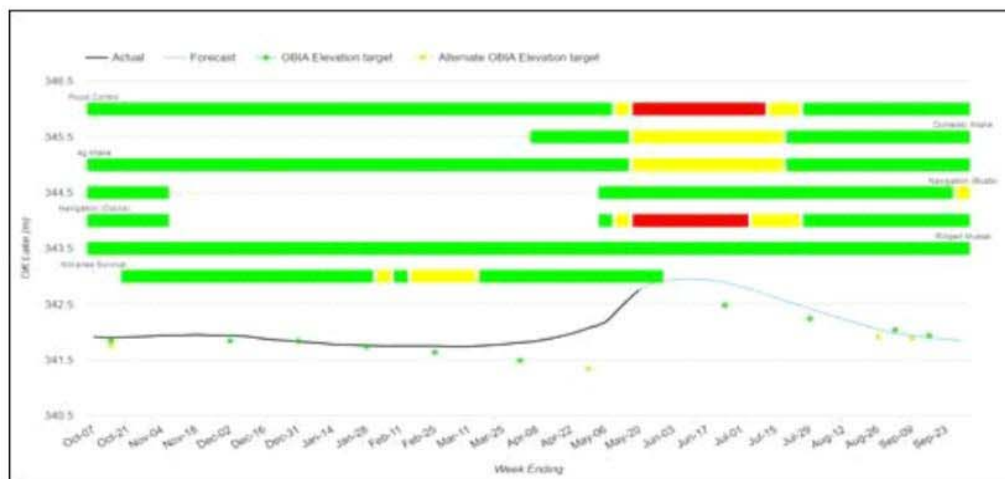
Hi David. Here is a recap of our conversation re: forecasts. I will leave it for you to forward.

River Forecast Centre In Victoria uses two models to forecast inflows into Okanagan Lake: a model they have used for some years and a model just brought into play this year. The pre-existing model gave volumetric inflow for the periods March –July, April-July, May to July. That model used precipitation data, antecedent lake elevation, and snow data (automated sites as well as sites measured manually). Due to the nature of snow measurement, those forecasts only came out once a month. Historically, the correlation between forecasts and actual has not been that great.

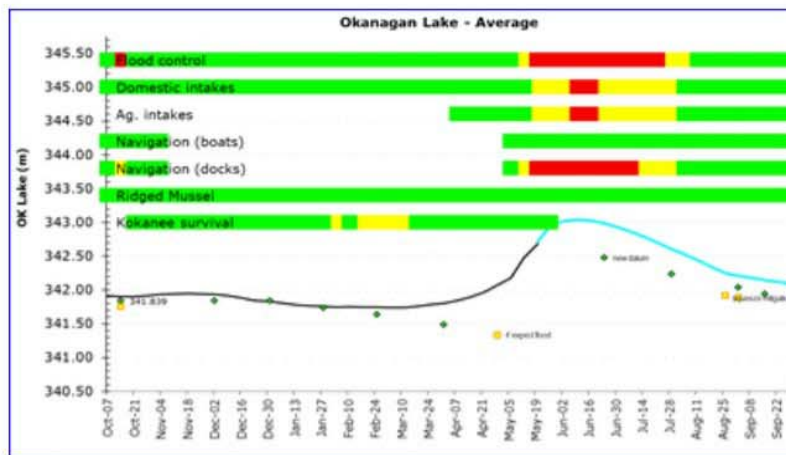
The newer Ensemble Streamflow Prediction model uses snowmelt calculated geographically based on temperature, etc. Patterns are matched against historic and volumetric inflows can be determined weekly. Time will tell how accurate this model is.

Both models have been running this year. Earlier there were discrepancies but in May, results have been close.

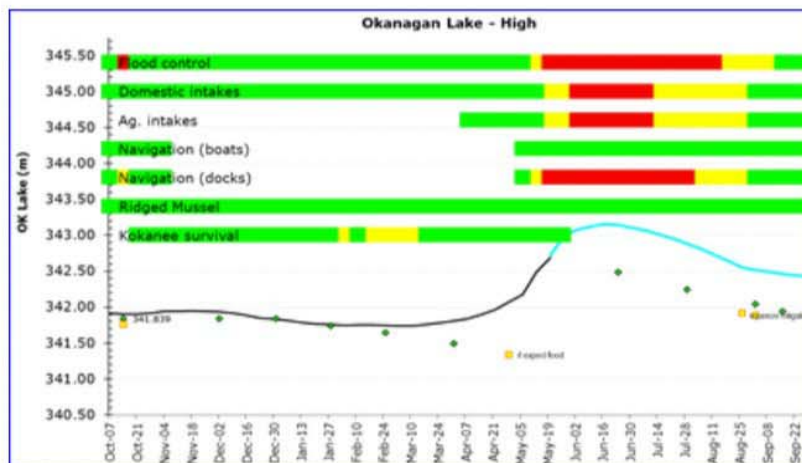
I use forecasted inflow number in two models that provide me with an estimated lake level based on that inflow forecast and my releases at Okanagan Lake Dam. They are both Fish Water Management Tool (FWMT) programs but one is brand new and still in beta testing. They differ slightly in results in that they handle the distribution of inflows over time differently. I have attached a graphic from the newer FWMT to show latest run which show Okanagan Lake reaching 342.95 m around June 10th.



The older FWMT model graphic (below) shows the lake reaching 343.03 m around that same time.



If you are looking for a what could happen scenario, then the FWMT graphic which uses the RFC inflow plus one standard deviation is shown below and suggests that the lake could reach 343.15 m around June 17th.



My back of the envelope calculations are somewhat more optimistic and are in line with the new FWMT numbers of 342.95 m.

Again, HUGE caveats to all of this. Neither the inflow forecasting models, or the FWMT models handle the weather patterns we have been seeing very well. I worry that people give too much regard to the pretty graphics the models provide. So much of the next few weeks will be dependent on whether we receive more rain or if we get an extended hot spell that will melt snow faster than the lake can discharge it. If we get back into the wet weather pattern we have seen since the beginning of March, all bets are off.

Hope this helps. Contact me with any more questions, preferably prior to Friday afternoon. I am away next week but will provide contact information for Brian Symonds (who managed the lake in 1990 and 1997) before I leave.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place

Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Hewson, David TRAN:EX
Sent: Wednesday, May 17, 2017 4:47 PM
To: Reimer, Shaun FLNR:EX
Cc: Allen, Rod J TRAN:EX; TRAN EMBC PECC Director 1 TRAN:EX
Subject: Outlook Summary for Okanagan Lake

Hi Shaun,

Should we still anticipate to receive the summary of the Okanagan Lake outlook summary that Rod Allen had requested on the call this afternoon?

Also, thanks for making yourself available on such short notice for that call today – the information was very valuable to us.

David

David Hewson, MA (DEM), BSc. | Emergency Management Program Coordinator
[Emergency Management BC](#)
Ph: 250-952-4827 Cell: 250-812-6120 (Primary)

Follow us on Twitter [@EmergencyInfoBC](#) and [@PreparedBC](#)

OLRS 1 pager for vivian thomas

Wednesday, September 20, 2017

8:27 AM

Subject	OLRS 1 pager for vivian thomas
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Sent	Thursday, May 18, 2017 1:14 PM
Attachments	 Fact Sheet OLRS May ...

Something thrown together- check the mission creek bullet

Add delete as you see fit

thanks

Bob Warner RPF Resource Manager 250-490-8232 C250-462-8887 Okanagan Shuswap Natural Resource District Ministry of Forests, Lands and Natural Resource Operations	
--	--

Page 035 to/à Page 037

Withheld pursuant to/removed as

s.13

Outlook Summary for Okanagan and Kalamalka/Wood Lakes

Wednesday, September 20, 2017
8:33 AM

Subject	Outlook Summary for Okanagan and Kalamalka/Wood Lakes
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Thursday, May 18, 2017 11:38 AM

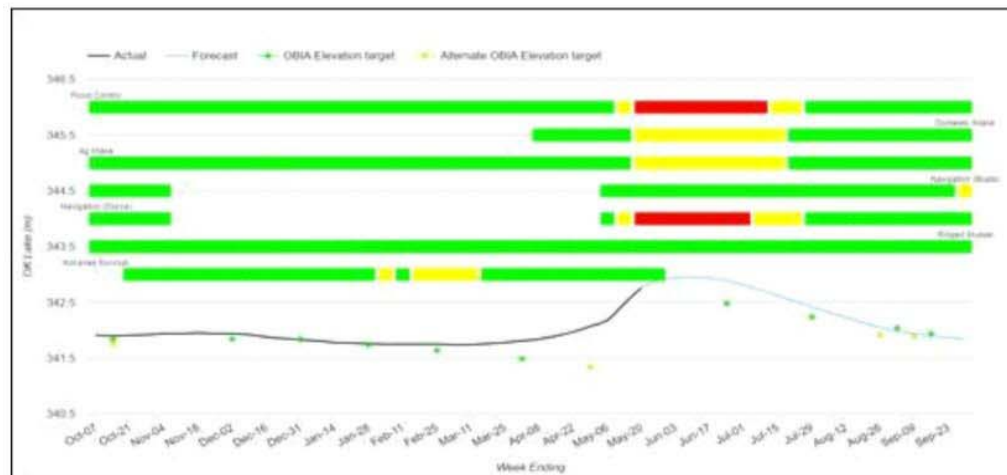
Hi Bob, here is some information re: forecasts. I will leave it for you to forward. Let me know if you need anything else on this.

River Forecast Centre In Victoria uses two models to forecast inflows into Okanagan Lake: a model they have used for some years and a model just brought into play this year. The pre-existing model gave volumetric inflow for the periods March–July, April–July, May to July. That model used precipitation data, antecedent lake elevation, and snow data (automated sites as well as sites measured manually). Due to the nature of snow measurement, those forecasts only came out once a month. Historically, the correlation between forecasts and actual has not been that great.

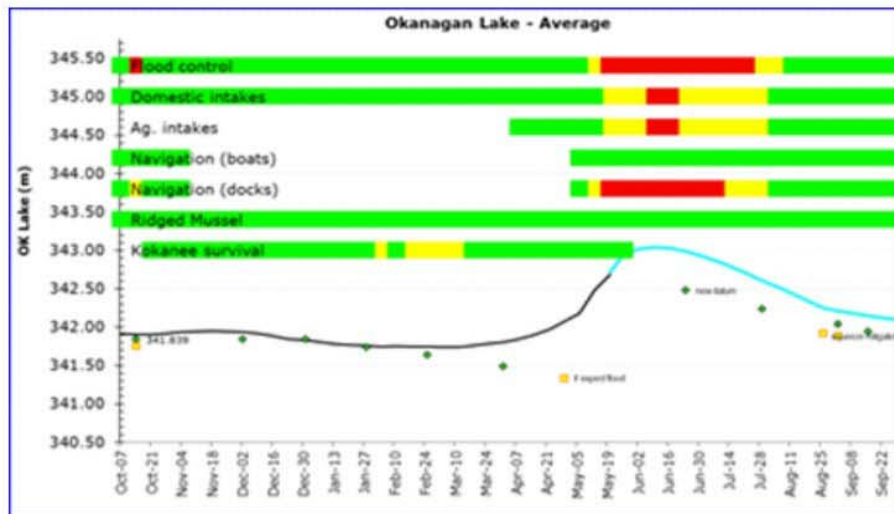
The newer Ensemble Streamflow Prediction model uses snowmelt calculated geographically based on temperature, etc. Patterns are matched against historic and volumetric inflows can be determined weekly. Time will tell how accurate this model is.

Both models have been running this year. Earlier there were discrepancies but in May, results have been close.

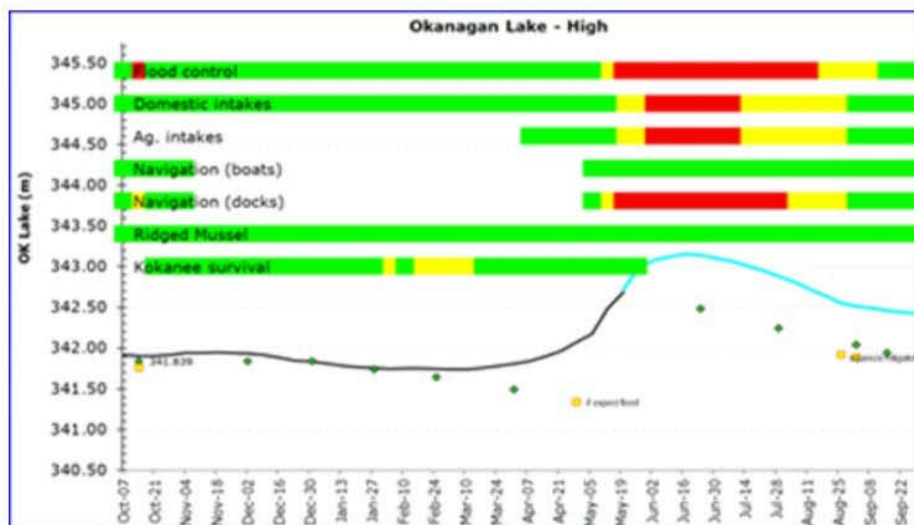
I use forecasted inflow number in two models that provide me with an estimated lake level based on that inflow forecast and my releases at Okanagan Lake Dam. They are both Fish Water Management Tool (FWMT) programs but one is brand new and still in beta testing. They differ slightly in results in that they handle the distribution of inflows over time differently. I have attached a graphic from the newer FWMT to show latest run which show Okanagan Lake reaching 342.95 m around June 10th. The coloured bars indicate the effect of the elevations for various stakeholders.



The older FWMT model graphic (below) shows the lake reaching 343.03 m around that same time.



If you are looking for a what could happen scenario, then the FWMT graphic which uses the RFC inflow plus one standard deviation is shown below and suggests that the lake could reach 343.15 m around June 17th.



My back of the envelope calculations are somewhat more optimistic and are in line with the new FWMT numbers of 342.95 m.

Kalamalka Lake: We have even less confidence in our inflow forecasting for Kalamalka/Wood Lake. We don't have the snow measurement data for that watershed. We are reaching a historic high elevation (previous record 1997) by tomorrow (May 19th). However, only approximately 12.5% of that drainage is above the 1400 metre elevation which is the approximate snowline right now. They should run out of snow soon which will make a big difference. But saturated soil conditions will continue to provide a lot of groundwater input into the lake. We continue to maximize our outflows from Kalamalka/Wood (to where the downstream Vernon Creek channel can handle it). Vernon Creek through the city of Vernon runs through numerous culverts which require constant monitoring to ensure no blockages occur which could lead to significant problems.

Again, HUGE caveats to all of this. Neither the inflow forecasting models, or the FWMT models handle the weather patterns we have been seeing very well. I worry that people give too much regard to the pretty graphics the models provide. So much of the next few weeks will be dependent on whether we receive more rain or if we get an extended hot spell that will melt snow faster than the lake can discharge it. If we get back into the wet weather pattern we have seen since the

beginning of March, all bets are off.

Hope this helps. Contact me with any more questions, preferably prior to Friday afternoon. I am away next week but will provide contact information for Brian Symonds (who managed the lake in 1990 and 1997) before I leave.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Hewson, David TRAN:EX
Sent: Wednesday, May 17, 2017 4:47 PM
To: Reimer, Shaun FLNR:EX
Cc: Allen, Rod J TRAN:EX; TRAN EMBC PECC Director 1 TRAN:EX
Subject: Outlook Summary for Okanagan Lake

Hi Shaun,

Should we still anticipate to receive the summary of the Okanagan Lake outlook summary that Rod Allen had requested on the call this afternoon?

Also, thanks for making yourself available on such short notice for that call today – the information was very valuable to us.

David

David Hewson, MA (DEM), BSc. | Emergency Management Program Coordinator
[Emergency Management BC](#)
Ph: 250-952-4827 Cell: 250-812-6120 (Primary)

Follow us on Twitter [@EmergencyInfoBC](#) and [@PreparedBC](#)

RE: Outlook Summary for Okanagan Lake

Wednesday, September 20, 2017

9:32 AM

Subject	RE: Outlook Summary for Okanagan Lake
From	Reimer, Shaun FLNR:EX
To	Hewson, David TRAN:EX
Cc	Warner, Robert FLNR:EX
Sent	Thursday, May 18, 2017 9:36 AM
Attachments	 2017-05-17- 01-11-06-S...

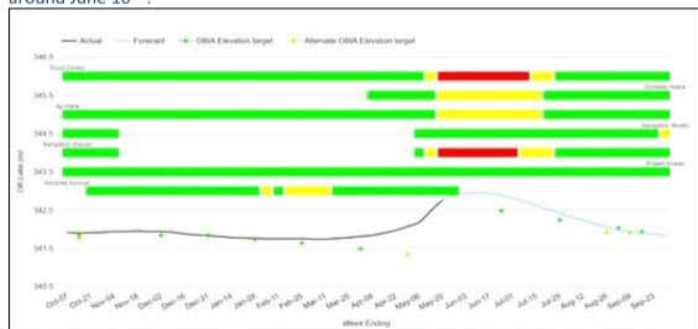
Hi David. Here is a recap of our conversation re: forecasts. I will leave it for you to forward.

River Forecast Centre In Victoria uses two models to forecast inflows into Okanagan Lake: a model they have used for some years and a model just brought into play this year. The pre-existing model gave volumetric inflow for the periods March–July, April–July, May to July. That model used precipitation data, antecedent lake elevation, and snow data (automated sites as well as sites measured manually). Due to the nature of snow measurement, those forecasts only came out once a month. Historically, the correlation between forecasts and actual has not been that great.

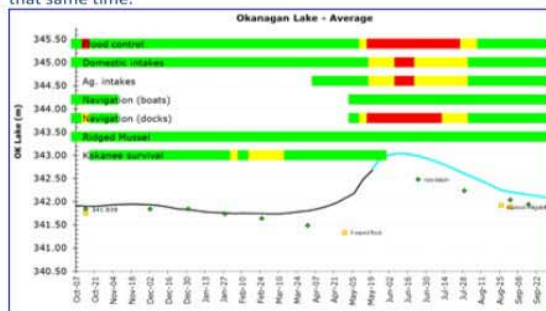
The newer Ensemble Streamflow Prediction model uses snowmelt calculated geographically based on temperature, etc. Patterns are matched against historic and volumetric inflows can be determined weekly. Time will tell how accurate this model is.

Both models have been running this year. Earlier there were discrepancies but in May, results have been close.

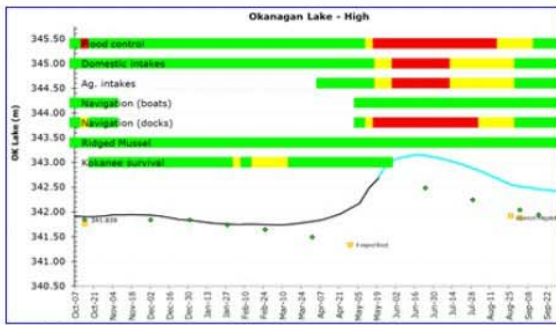
I use forecasted inflow number in two models that provide me with an estimated lake level based on that inflow forecast and my releases at Okanagan Lake Dam. They are both Fish Water Management Tool (FWMT) programs but one is brand new and still in beta testing. They differ slightly in results in that they handle the distribution of inflows over time differently. I have attached a graphic from the newer FWMT to show latest run which show Okanagan Lake reaching 342.95 m around June 10th.



The older FWMT model graphic (below) shows the lake reaching 343.03 m around that same time.



If you are looking for a what could happen scenario, then the FWMT graphic which uses the RFC inflow plus one standard deviation is shown below and suggests that the lake could reach 343.15 m around June 17th.



My back of the envelope calculations are somewhat more optimistic and are in line with the new FWMT numbers of 342.95 m.

Again, HUGE caveats to all of this. Neither the inflow forecasting models, or the FWMT models handle the weather patterns we have been seeing very well. I worry that people give too much regard to the pretty graphics the models provide. So much of the next few weeks will be dependent on whether we receive more rain or if we get an extended hot spell that will melt snow faster than the lake can discharge it. If we get back into the wet weather pattern we have seen since the beginning of March, all bets are off.

Hope this helps. Contact me with any more questions, preferably prior to Friday afternoon. I am away next week but will provide contact information for Brian Symonds (who managed the lake in 1990 and 1997) before I leave.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Hewson, David TRAN:EX

Sent: Wednesday, May 17, 2017 4:47 PM

To: Reimer, Shaun FLNR:EX

Cc: Allen, Rod J TRAN:EX; TRAN EMBC PECC Director 1 TRAN:EX

Subject: Outlook Summary for Okanagan Lake

Hi Shaun,

Should we still anticipate to receive the summary of the Okanagan Lake outlook summary that Rod Allen had requested on the call this afternoon?

Also, thanks for making yourself available on such short notice for that call today – the information was very valuable to us.

David

David Hewson, MA (DEM), BSc. | Emergency Management Program Coordinator
[Emergency Management BC](#)

Ph: 250-952-4827 Cell: 250-812-6120 (Primary)

Follow us on Twitter [@EmergencyInfoBC](#) and [@PreparedBC](#)



RE: CLIFF ID 229256 - Review

Wednesday, September 20, 2017
8:39 AM

Subject	RE: CLIFF ID 229256 - Review
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Monday, June 19, 2017 2:49 PM
Attachments	 229256 Response ...

Bob, please see draft 2. It's difficult to answer some of the original questions around numbers because I can't provide context without adding pages of tables and graphs. Because of that, I have tried to leave the response rather open ended and provided links to snow and lake level information. Shaun

From: Warner, Robert FLNR:EX
Sent: Monday, June 19, 2017 9:22 AM
To: Reimer, Shaun FLNR:EX
Subject: FW: CLIFF ID 229256 - Review

Lets just give him the link or the data either one is good with me.
thanks

"what were the daily inflow measurements/volumes to the lake and the Penticton dam daily outflow measurements/volumes starting in mid-February through March and into April? Were outflows being maximised to draw down the lake?"

thanks

From: Correspondence Serv. Sectn, FLNR:EX
Sent: Thursday, June 15, 2017 5:24 PM
To: Warner, Robert FLNR:EX
Cc: Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX
Subject: FW: CLIFF ID 229256 - Review

Hi Bob,

Sorry, we are back to acknowledging MLAs/Cabinet members in the opening...
please use the attached.

Sarah

From: FLNR.Correspondence@gov.bc.ca
[\[mailto:FLNR.Correspondence@gov.bc.ca\]](mailto:FLNR.Correspondence@gov.bc.ca)
Sent: Thursday, June 15, 2017 2:02 PM
To: Warner, Robert FLNR:EX
Cc: Johnston, Erin L FLNR:EX; Crampton, Ray W FLNR:EX
Subject: CLIFF ID 229256 - Review

Hi Bob,

Please review edits and comments in the attached draft for 229256.

Comments/questions:

1) can we say "record levels of precipitation" or "unusually high levels of precipitation" if not record-setting (current "anticipated unprecedented precipitation" is a bit of a mouthful);

2) do we need to address the other questions in the incoming, i.e.

"what were the daily inflow measurements/volumes to the lake and the Penticton dam daily outflow measurements/volumes starting in mid-February through March and into April? Were outflows being maximised to draw down the lake?"

I am sending log 229256 separately as they are a bit different.

Thanks!

Sarah (250 387 4875)

Correspondence Services

DM-CSS **Referral Slip for ID:229256** 2017/06/15

Log Type:	Email	Action:	Draft Response	Due:	2017/06/21
Batch:		Sig Level:	Regional Executive Director		

Author Type: Association
Donald Renoe, Fleet Captain
Peachland Yacht Club
Email: peachlandyachtclub@telus.net

Written: 2017/05/31 Resp Type: Email

Received: 2017/06/01 File No.:
Due: 2017/06/21 Entered By: sohara
Approved : Approved By:
Signed: Sign By:
Closed:

Address To:	MLA Dan Ashton	Issue:	Flood Safety
Copy To:	Minister Thomson	X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	Bob Warner

Subject
CI Concern and information regarding the water levels at Okanagan Lake.

Log Notes	
2017/06/15	Received draft, edited and sent v2 to Bob for review - is there still a question to answer?
2017/06/05	As agreed by Andy Oetter, we are doing this as a RED response (may relate to flooding and may involve creation of standard wording). Bob to provide draft wording for both 229256 and 229257 to CSS towards some standard wording on the issues and the RED signature. ***CSS will also check with GCPE on mention of Herald interview in 229257.***
2017/06/05	As per RS-Water Management advice, CSS has redirected to RED-TO for reply direct response. Please see directions below for REPLY DIRECT. CSS has identified Bob Warner, Resource Manager as drafter.
2017/06/02	Sent both 229256 & 229257 back to CU to redirect to regions for response.
2017/06/02	Hi Linda, Tina advises that these should be redirected to regional operations where they manage the dams in question. Please advise correspondence unit. Thank you, Ted
2017/06/02	Ted White reviewed action and has assigned it to Tina Neale to draft reply.
2017/06/01	Please copy MLA Ashton's office on response REPLY DIRECT on behalf of the Minister's office by 6/21: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the Minister's office on the response (cc: FLNR.Minister@gov.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log

Page 046

Withheld pursuant to/removal as

s.13

Outlook Summary for Okanagan and Kalamalka/Wood Lakes

Wednesday, September 20, 2017
8:34 AM

Subject	Outlook Summary for Okanagan and Kalamalka/Wood Lakes
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Thursday, May 18, 2017 11:38 AM

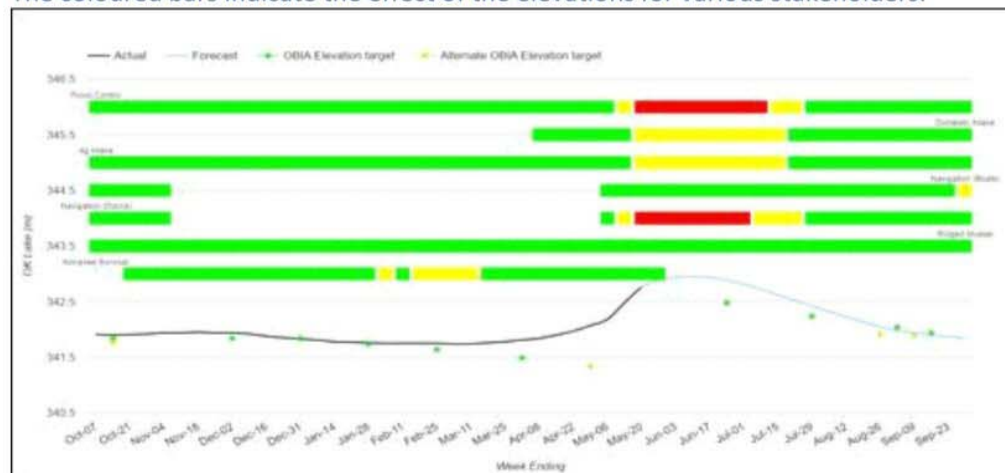
Hi Bob, here is some information re: forecasts. I will leave it for you to forward. Let me know if you need anything else on this.

River Forecast Centre In Victoria uses two models to forecast inflows into Okanagan Lake: a model they have used for some years and a model just brought into play this year. The pre-existing model gave volumetric inflow for the periods March–July, April–July, May to July. That model used precipitation data, antecedent lake elevation, and snow data (automated sites as well as sites measured manually). Due to the nature of snow measurement, those forecasts only came out once a month. Historically, the correlation between forecasts and actual has not been that great.

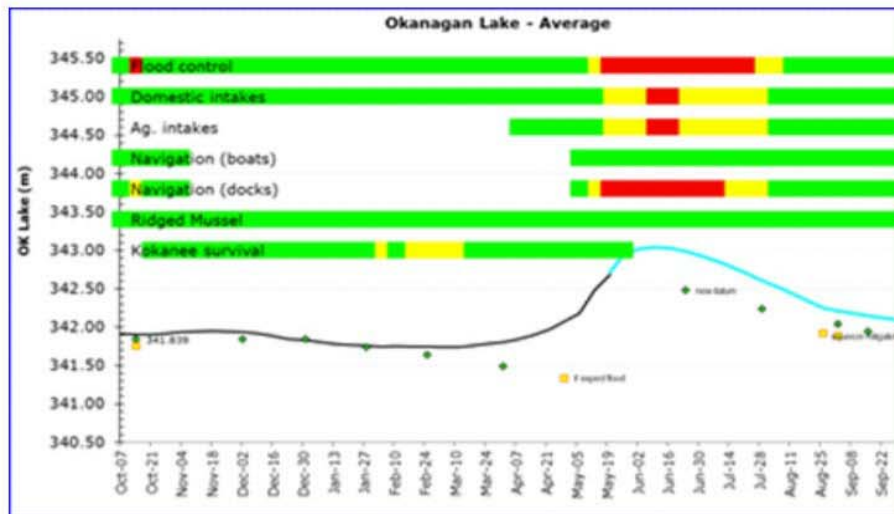
The newer Ensemble Streamflow Prediction model uses snowmelt calculated geographically based on temperature, etc. Patterns are matched against historic and volumetric inflows can be determined weekly. Time will tell how accurate this model is.

Both models have been running this year. Earlier there were discrepancies but in May, results have been close.

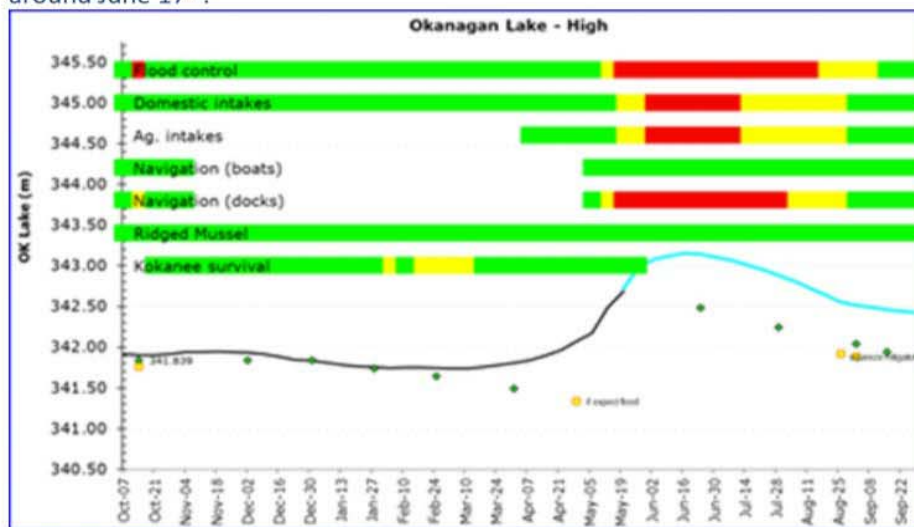
I use forecasted inflow number in two models that provide me with an estimated lake level based on that inflow forecast and my releases at Okanagan Lake Dam. They are both Fish Water Management Tool (FWMT) programs but one is brand new and still in beta testing. They differ slightly in results in that they handle the distribution of inflows over time differently. I have attached a graphic from the newer FWMT to show latest run which show Okanagan Lake reaching 342.95 m around June 10th. The coloured bars indicate the effect of the elevations for various stakeholders.



The older FWMT model graphic (below) shows the lake reaching 343.03 m around that same time.



If you are looking for a what could happen scenario, then the FWMT graphic which uses the RFC inflow plus one standard deviation is shown below and suggests that the lake could reach 343.15 m around June 17th.



My back of the envelope calculations are somewhat more optimistic and are in line with the new FWMT numbers of 342.95 m.

Kalamalka Lake: We have even less confidence in our inflow forecasting for Kalamalka/Wood Lake. We don't have the snow measurement data for that watershed. We are reaching a historic high elevation (previous record 1997) by tomorrow (May 19th). However, only approximately 12.5% of that drainage is above the 1400 metre elevation which is the approximate snowline right now. They should run out of snow soon which will make a big difference. But saturated soil conditions will continue to provide a lot of groundwater input into the lake. We continue to maximize our outflows from Kalamalka/Wood (to where the downstream Vernon Creek channel can handle it). Vernon Creek through the city of Vernon runs through numerous culverts which require constant monitoring to ensure no blockages occur which could lead to significant problems.

Again, HUGE caveats to all of this. Neither the inflow forecasting models, or the FWMT models handle the weather patterns we have been seeing very well. I worry that people give too much regard to the pretty graphics the models provide. So much of the next few weeks will be dependent on whether we receive more rain or if we get an extended hot spell that will melt snow faster than the lake can discharge it. If we get back into the wet weather pattern we have seen since the beginning of March, all bets are off.

Hope this helps. Contact me with any more questions, preferably prior to Friday afternoon. I am away next week but will provide contact information for Brian Symonds (who managed the lake in 1990 and 1997) before I leave.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Hewson, David TRAN:EX

Sent: Wednesday, May 17, 2017 4:47 PM

To: Reimer, Shaun FLNR:EX

Cc: Allen, Rod J TRAN:EX; TRAN EMBC PECC Director 1 TRAN:EX

Subject: Outlook Summary for Okanagan Lake

Hi Shaun,

Should we still anticipate to receive the summary of the Okanagan Lake outlook summary that Rod Allen had requested on the call this afternoon?

Also, thanks for making yourself available on such short notice for that call today – the information was very valuable to us.

David

David Hewson, MA (DEM), BSc. | Emergency Management Program Coordinator

[Emergency Management BC](#)

Ph: 250-952-4827 Cell: 250-812-6120 (Primary)

Follow us on Twitter [@EmergencyInfoBC](#) and [@PreparedBC](#)

FW: FLNR Media Request: Lake Levels

Tuesday, September 19, 2017
8:43 AM

Subject	FW: FLNR Media Request: Lake Levels
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Cc	Crampton, Ray W FLNR:EX
Sent	Monday, May 29, 2017 12:35 PM

Let's talk

From: Price, Gabrielle GCPE:EX
Sent: Monday, May 29, 2017 12:27 PM
To: Symonds, Brian; Reimer, Shaun FLNR:EX
Cc: Dean, Sharon GCPE:EX; GCPE FLNR Media Requests GCPE:EX; Thomas, Vivian P GCPE:EX
Subject: FW: FLNR Media Request: Lake Levels

Hi again,

Another request from Global Okanagan, details below. Would either of you be able to shed light on this one. The reporter will be running this story for tonight's news hour.

Thanks,
Gabrielle

From: Gabrielle Price [<mailto:Gabrielle.Price@gov.bc.ca>]
Sent: Monday, May 29, 2017 12:25 PM
To: Price, Gabrielle GCPE:EX
Subject: FLNR Media Request: Lake Levels

Reporter

Megan Turcato, Reporter
Global Okanagan
megan.turcato@globalnews.ca
250-309-4548

Deadline Monday, May 29, 2017 3:15 PM

Request

Reporter is doing another story regarding the flood situation in the Kelowna and Vernon area. she has two questions:

1. With Lakeshore drive flooding, Why didn't the province begin pumping Okanagan Lake earlier in anticipation of this seasons flooding.
2. The Mayor of Vernon, Akbal Mund, has done an interview with this reporter and has been critical of the province failing to protect Crown land along Lakeshore which has affected residents. Reporter would like to hear the province's side on this.

Background

Recommendation

Mission Snow Pillow

Wednesday, September 20, 2017
7:55 AM

Subject	Mission Snow Pillow
From	Reimer, Shaun FLNR:EX
To	Litke, Tony ENV:EX
Cc	Warner, Robert FLNR:EX; Campbell, David FLNR:EX
Sent	Monday, May 29, 2017 3:50 PM

Hi Tony. As discussed, I believe that a visit to the Mission ASP by someone in your program is necessary at this point in time. As we reach the levels we are seeing on Okanagan Lake, it becomes that much more important to get a good understanding of our inflows. The Mission ASP has shown some strange readings and certainly hasn't shed SWE at the rate I would have thought considering the temperatures we are seeing at the site. Even should the data prove to be accurate, right now there is tremendous value in knowing that.

Please consider sending someone to assess and/or confirm those site conditions and the state of the ASP. We are stretched pretty thin right now as far as manpower goes but let me know if there is anything else I can do to make this happen.

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

RE: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017

Wednesday, September 20, 2017
9:22 AM

Subject	RE: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017
From	Reimer, Shaun FLNR:EX
To	Oetter, Andy FLNR:EX; Newton, Steve TRAN:EX
Cc	Schell, Steve E FLNR:EX; Warner, Robert FLNR:EX
Sent	Monday, May 29, 2017 4:46 PM

Can't make this meeting but am providing the following factsheet:

Predictions:

- Okanagan Lake has been rising by approximately 2.5 cm per day recently and the level this morning was 343.08 m.
- We are awaiting new inflow information which we hope to get tomorrow. All information to this point has shown us peaking at 343.15 m but the rate of rise has us concerned that it will continue to rise after that point.
- We encourage everyone who has put flood protection into place to monitor those works and ensure that they have the access and ability to build them up as required.

Lake Level management:

- It's important to remember that weather is the major driving factor in the current situation in the Okanagan.
- Unseasonably high precipitation in March, April, and into May have led to extremely high water levels for the entire region. This has also been coupled with a later than normal snowpack melt, which has also been greater than normal.
- As soon as the ministry, and government, became aware for the potential for flooding, they communicated that to local governments so they could make the appropriate flood preparation arrangements.
- Provincial government staff have been working around the clock on flood preparation and response.
- The early snow conditions we had this year did not indicate the coming flood potential. In 2017, Okanagan snow basin indices were as follows:
 - Feb 1st: 79%
 - March 1st: 86%
 - April 1st: 105%
- Outflows from Okanagan lake dam have been as high as possible since the third week of April and exceed the design channel flows.

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Oetter, Andy FLNR:EX

Sent: Monday, May 29, 2017 4:15 PM

To: Warner, Robert FLNR:EX; Reimer, Shaun FLNR:EX; Toews, Michael T FLNR:EX; Schafthuisen, Jim FLNR:EX; Bohay, Trevor FLNR:EX

Subject: FW: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017

Importance: High

	Andy Oetter <i>Director of Resource Authorizations</i> Direct 250-828-4445 Thompson Okanagan Region Ministry of Forests, Lands and Natural Resource Operations 441 Columbia Street Kamloops, BC V2C 2T3	
---	---	--

From: Schell, Steve E FLNR:EX
Sent: Monday, May 29, 2017 10:37 AM
To: Oetter, Andy FLNR:EX
Subject: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017
Importance: High

Hey Andy,

Can you attend with me?

I don't have all of the answers to some of the technical questions that may be asked.

Steve

From: Jordan, Ryan J ABR:EX
Sent: Monday, May 29, 2017 10:23 AM
To: Schell, Steve E FLNR:EX
Subject: Fwd: OKIB Flood 2017 - Information Meeting - May 29, 2017

FYI

Ryan Jordan
Assistant Negotiator | Critical Incidents and Emergency Management Branch
Ministry of Aboriginal Relations and Reconciliation

Ph: [250-356-9691](tel:250-356-9691) | **Cell:** [778-679-0077](tel:778-679-0077)

Begin forwarded message:

From: "Jordan, Ryan J ABR:EX" <Ryan.J.Jordan@gov.bc.ca>

Date: May 29, 2017 at 9:42:43 AM PDT

To: "TRAN EMBC CTL PREOC Director 1 TRAN:EX" <preoc3.dir1@gov.bc.ca>, "Caswell, Cassandra ABR:EX" <Cassandra.Caswell@gov.bc.ca>, "Gerein, Sarah ABR:EX" <Sarah.Gerein@gov.bc.ca>, "Newton, Steve TRAN:EX" <steve.newton@gov.bc.ca>, "TRAN EMBC CTL PREOC Planning 1 TRAN:EX" <preoc3.pln1@gov.bc.ca>, "TRAN EMBC CTL PREOC Public Information 2 TRAN:EX" <preoc3.pio2@gov.bc.ca>, "Flint-Petersen, Lotte TRAN:EX" <Lotte.FlintPetersen@gov.bc.ca>

Subject: Fwd: OKIB Flood 2017 - Information Meeting - May 29, 2017

FYI

Ryan Jordan
Assistant Negotiator | Critical Incidents and Emergency Management Branch
Ministry of Aboriginal Relations and Reconciliation

Ph: [250-356-9691](tel:250-356-9691) | Cell: [778-679-0077](tel:778-679-0077)

Begin forwarded message:

From: OKIBEOCLiaisonofficer <OKIBEOCLiaisonofficer@okanagan.org>

Date: May 29, 2017 at 8:48:54 AM PDT

To: "ryan.j.jordan@gov.bc.ca" <ryan.j.jordan@gov.bc.ca>

Subject: OKIB Flood 2017 - Information Meeting - May 29, 2017

Hi Ryan,

Great meeting you the other day. I understand you have confirmed to come out tonight and assist with providing updates at our Information meeting, in addition a representative from FLNRO.

Here is our agenda for tonight:



Emergency Operations Centre

Telephone: 250-542-7132 ~ 8:00am to 5:00pm daily

2017 Flood Information Meeting

Monday May 29, 2017

6:00pm to 7:30pm

Head of the Lake Hall

118 Head of the Lake Road, IR #1

AGENDA

Open to ALL residents
who have been affect-
ed by flooding on OKIB.

Light Refreshments
provided.

Agenda is tentative and is
subject to changes.

	Opening Prayer - Elder Rudy Louie
6:00	Welcome from OKIB Leadership
6:15	Leadership/EOC Director OKIB's role in responding to floods
6:25	Provincial/Regional Emergency Opera- tions Centre
6:45	Ministry of Forest, Lands, Natural Re- source Operations (FMRO) RE: Watershed/Pinus Lake Dam
7:00	Q&A
7:15	
7:30	Closing Remarks - OKIB Leadership

See you tonight.

Sherry Louis

OKIB EOC Liaison

250-542-7132

okibeocliaison@okanagan.org

FW: Water levels and flow Okanasgan lake

Tuesday, September 19, 2017
11:18 AM

Subject	FW: Water levels and flow Okanasgan lake
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 30, 2017 4:21 PM
Attachments	 Scan_20170527 (2)  Scan_20170527

FYI I called this guy; no further action required. Shaun

From: s.22

Sent: Saturday, May 27, 2017 3:52 PM

To: Reimer, Shaun FLNR:EX

Subject: Water levels and flow Okanasgan lake

Dear Mr. Reimer

I have attached 2 charts showing the flow from Okanagan lake, one is 2016 and the other is 2107.

This year the snow pack went from 80% March to 120-140% April because of late heavy snow which was heavy rain in the valley.

However the rate of discharge from the lake did not increase until April 25 and did not approach maximum until May 1.

It would appear to me that the discharge based on rain and snow pack should have increased much earlier.

The 2016 chart with less rain and snow pack shows the discharge increasing April 15 to maximum by April 25.

Also the maximum discharge was more consistent in 2016 than this year where it has gone up and down several times.

Can you explain if this has any impact on the current flooding situation?

Thank you

s.22



Government
of Canada

Gouvernement
du Canada

[Home](#) → [Environment and natural resources](#) → [Water level and flow](#) → [Real-Time Data](#) → [Hydrometric Data Search](#)

Real-Time Hydrometric Data Graph for OKANAGAN RIVER AT PENTICTON (08NM050) [BC]

Copyright



Government
of Canada

Gouvernement
du Canada

[Home](#) → [Environment and natural resources](#) → [Water level and flow](#) → [Real-Time Data](#) → [Hydrometric Data Search](#)

Real-Time Hydrometric Data Graph for OKANAGAN RIVER AT PENTICTON (08NM050) [BC]

Copyright

RE: 229014 - Reply Direct

Wednesday, September 20, 2017
8:37 AM

Subject	RE: 229014 - Reply Direct
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 30, 2017 1:11 PM

Yes, I don't think this requires a response in terms of the dams so probably better over to EP. It would probably be good to outline the improvements of sewerage and waste treatment (and subsequent reduction in septic systems) over the years but that wouldn't be for me to dig into. Shaun

From: Warner, Robert FLNR:EX
Sent: Tuesday, May 30, 2017 1:07 PM
To: Reimer, Shaun FLNR:EX
Subject: FW: 229014 - Reply Direct

Don't think this is ours except for dam structure not being big enough to prevent flooding.
Do you know anything around septic rules etc?
Thinking this one should be forwarded on to EP or IH
Thoughts?
thanks

From: FLNR.Correspondence@gov.bc.ca [<mailto:FLNR.Correspondence@gov.bc.ca>]
Sent: Tuesday, May 30, 2017 12:34 PM
To: Warner, Robert FLNR:EX
Cc: Beadman, Krista FLNR:EX; Johnston, Erin L FLNR:EX
Subject: 229014 - Reply Direct

Hi Bob,

You have been identified as the drafter for the response to this incoming. If you feel someone else is more fit, please advise. A starter template has been provided with sig level as Gerry MacDougall, this too can be altered where you see fit:)

Thank you,

Jasmine

DM-CSS **Referral Slip for ID:229014** 2017/05/30

Log Type:	Email	Action:	Draft Response	Due:	2017/06/19
Batch:		Sig Level:	Staff		

Author Type: Private Citizen
s.22

Written: 2017/05/28 Resp Type:

Received: 2017/05/30 File No.:
 Due: 2017/06/19 Entered By: jjohl
 Approved: Approved By:
 Signed: Sign By:
 Closed:

Address To:	Premier Clark	Issue:	Water Protection
Copy To:		X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	Bob Warner

Subject

****CI**** Concerned about the septic system and flooding/rising levels in Lake Okanagan.

Forwarded by PREM Office. Interim sent by PREM with cc to FLNR Minister.

Log Notes

2017/05/30 Bob Warner has been identified as the drafter.

REPLY DIRECT by June 19.

1. Please reply direct to the writer (*Please do not use "...on behalf of Premier Clark..." Please use "I have been asked to respond.")
2. Ensure you copy PCC on response to Office of the Premier and Office of the Minister (cc: Premier@gov.bc.ca and FLNR.Minister@gov.bc.ca)
3. Add response as attachment in CLIFF log
4. Update log notes
5. Update CLIFF fields to close the log: Sign By [choose office from selection]; Resp Type [email/letter]; signed [DATE] and closed [DATE]

Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue, or if different signature level is advised, within 2-3 days.

Thank you.

Referral DM-CSS -> MO-Minister							
From:	DM-CSS	Sent:	2017/05/30	Status:	Completed	Ref Action:	FYI/File
To:	MO-Minister	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/05/30	Due:		File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS							
From:	MO-	Sent:	2017/05/	Status:	Comple	Ref Action:	Coordinate

	Minister		30		ed	<i>Action:</i>	Response
<i>To:</i>	DM-CSS	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/05/30	<i>Due:</i>	2017/06/15	<i>File No.:</i>	

Referral DM-CSS -> MO-Minister -> DM-CSS -> RED-Thompson/Okanagan							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/05/30	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED-Thompson/Okanagan	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>		<i>Due:</i>	2017/06/19 (Active (14))	<i>File No.:</i>	

RE: 229014 - Reply Direct

Wednesday, September 20, 2017
9:27 AM

Subject	RE: 229014 - Reply Direct
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 30, 2017 1:11 PM

Yes, I don't think this requires a response in terms of the dams so probably better over to EP. It would probably be good to outline the improvements of sewerage and waste treatment (and subsequent reduction in septic systems) over the years but that wouldn't be for me to dig into.

Shaun

From: Warner, Robert FLNR:EX

Sent: Tuesday, May 30, 2017 1:07 PM

To: Reimer, Shaun FLNR:EX

Subject: FW: 229014 - Reply Direct

Don't think this is ours except for dam structure not being big enough to prevent flooding.

Do you know anything around septic rules etc?

Thinking this one should be forwarded on to EP or IH

Thoughts?

thanks

From: FLNR.Correspondence@gov.bc.ca [<mailto:FLNR.Correspondence@gov.bc.ca>]

Sent: Tuesday, May 30, 2017 12:34 PM

To: Warner, Robert FLNR:EX

Cc: Beadman, Krista FLNR:EX; Johnston, Erin L FLNR:EX

Subject: 229014 - Reply Direct

Hi Bob,

You have been identified as the drafter for the response to this incoming. If you feel someone else is more fit, please advise. A starter template has been provided with sig level as Gerry MacDougall, this too can be altered where you see fit:)

Thank you,

Jasmine

DM-CSS **Referral Slip for ID:229014** 2017/05/30

Log Type:	Email	Action:	Draft Response	Due:	2017/06/19
Batch:		Sig Level:	Staff		

Author Type: Private Citizen

Written: 2017/05/28 Resp Type:

s.22

Email:

Received: 2017/05/30 File No.:

Due: 2017/06/19 Entered By: jjohl
 Approved: Approved By:
 Signed: Sign By:
 Closed:

Address To:	Premier Clark	Issue:	Water Protection
Copy To:		X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	Bob Warner

Subject

****CI**** Concerned about the septic system and flooding/rising levels in Lake Okanagan.
 Forwarded by PREM Office. Interim sent by PREM with cc to FLNR Minister.

Log Notes

2017/05/30 Bob Warner has been identified as the drafter.
 REPLY DIRECT by June 19.
 1. Please reply direct to the writer (*Please do not use "...on behalf of Premier Clark..." Please use "I have been asked to respond.")
 2. Ensure you copy PCC on response to Office of the Premier and Office of the Minister (cc: Premier@gov.bc.ca and FLNR.Minister@gov.bc.ca)
 3. Add response as attachment in CLIFF log
 4. Update log notes
 5. Update CLIFF fields to close the log: Sign By [choose office from selection]; Resp Type [email/letter]; signed [DATE] and closed [DATE]
 Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue, or if different signature level is advised, within 2-3 days.
 Thank you.

Referral DM-CSS -> MO-Minister							
From:	DM-CSS	Sent:	2017/05/30	Status:	Completed	Ref Action:	FYI/File
To:	MO-Minister	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/05/30	Due:		File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS							
From:	MO-Minister	Sent:	2017/05/30	Status:	Completed	Ref Action:	Coordinate Response
To:	DM-CSS	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/05/30	Due:	2017/06/15	File No.:	

		<i>a:</i>	30		15		
--	--	-----------	----	--	----	--	--

Referral DM-CSS -> MO-Minister -> DM-CSS -> RED-Thompson/Okanagan							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/05/30	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED-Thompson/Okanagan	<i>Received :</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>		<i>Due:</i>	2017/06/19 (Active (14))	<i>File No.:</i>	

FW: Water levels and flow Okanasgan lake

Tuesday, September 19, 2017
9:44 AM

Subject	FW: Water levels and flow Okanasgan lake
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 30, 2017 4:21 PM
Attachments	 Scan_20170527 (2)  Scan_20170527

FYI I called this guy; no further action required. Shaun

From: s.22
Sent: Saturday, May 27, 2017 3:52 PM
To: Reimer, Shaun FLNR:EX
Subject: Water levels and flow Okanasgan lake

Dear Mr. Reimer

I have attached 2 charts showing the flow from Okanagan lake, one is 2016 and the other is 2107.

This year the snow pack went from 80% March to 120-140% April because of late heavy snow which was heavy rain in the valley.

However the rate of discharge from the lake did not increase until April 25 and did not approach maximum until May 1.

It would appear to me that the discharge based on rain and snow pack should have increased much earlier.

The 2016 chart with less rain and snow pack shows the discharge increasing April 15 to maximum by April 25.

Also the maximum discharge was more consistent in 2016 than this year where it has gone up and down several times.

Can you explain if this has any impact on the current flooding situation?

Thank you

s.22



Government
of Canada

Gouvernement
du Canada

[Home](#) → [Environment and natural resources](#) → [Water level and flow](#) → [Real-Time Data](#) → [Hydrometric Data Search](#)

Real-Time Hydrometric Data Graph for OKANAGAN RIVER AT PENTICTON (08NM050) [BC]

Copyright



Government
of Canada

Gouvernement
du Canada

[Home](#) → [Environment and natural resources](#) → [Water level and flow](#) → [Real-Time Data](#) → [Hydrometric Data Search](#)

Real-Time Hydrometric Data Graph for OKANAGAN RIVER AT PENTICTON (08NM050) [BC]

Copyright

RE: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017

Wednesday, September 20, 2017
9:33 AM

Subject	RE: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017
From	Reimer, Shaun FLNR:EX
To	Schell, Steve E FLNR:EX
Cc	Oetter, Andy FLNR:EX; Newton, Steve TRAN:EX; Warner, Robert FLNR:EX; Li, Yi FLNR:EX
Sent	Wednesday, May 31, 2017 10:50 AM

Hi Steve. Sorry for the delayed response. I took a quick look to see if I have anything around north Okanagan currents but couldn't find anything. I wonder if Yi Li might have a recent Wind and Wave study for that area (submitted to support Works in and About a Stream) that might provide an answer. I have cc'd Yi with this note to let him comment. Yi???

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Schell, Steve E FLNR:EX

Sent: Monday, May 29, 2017 8:36 PM

To: Reimer, Shaun FLNR:EX

Cc: Oetter, Andy FLNR:EX; Newton, Steve TRAN:EX; Warner, Robert FLNR:EX

Subject: Re: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017

Thanks Shaun for providing us with this summary. As a result I was well prepared for the town hall meeting.

Thanks for your help.

One question from one counsellor:

Do you have the flow patterns around the north end of Okanagan Lake. Apparently less current on the East shoreline. Any information you can dig up will be useful.

Thanks again.

Steve

Sent from my iPhone

On May 29, 2017, at 4:46 PM, Reimer, Shaun FLNR:EX <shaun.reimer@gov.bc.ca> wrote:

Can't make this meeting but am providing the following factsheet:

Predictions:

- Okanagan Lake has been rising by approximately 2.5 cm per day recently and the level this morning was 343.08 m.
- We are awaiting new inflow information which we hope to get tomorrow. All information to this point has shown us peaking at 343.15 m but the rate of rise has us concerned that it will continue to rise after that point.
- We encourage everyone who has put flood protection into place to monitor those works and ensure that they have the access and ability to build them up as required.

Lake Level management:

- It's important to remember that weather is the major driving factor in the current situation in the Okanagan.
- Unseasonably high precipitation in March, April, and into May have led to extremely

high water levels for the entire region. This has also been coupled with a later than normal snowpack melt, which has also been greater than normal.

- As soon as the ministry, and government, became aware for the potential for flooding, they communicated that to local governments so they could make the appropriate flood preparation arrangements.
- Provincial government staff have been working around the clock on flood preparation and response.
- The early snow conditions we had this year did not indicate the coming flood potential. In 2017, Okanagan snow basin indices were as follows:
 - Feb 1st: 79%
 - March 1st: 86%
 - April 1st: 105%
- Outflows from Okanagan lake dam have been as high as possible since the third week of April and exceed the design channel flows.

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Oetter, Andy FLNR:EX

Sent: Monday, May 29, 2017 4:15 PM

To: Warner, Robert FLNR:EX; Reimer, Shaun FLNR:EX; Toews, Michael T FLNR:EX; Schafthuizen, Jim FLNR:EX; Bohay, Trevor FLNR:EX

Subject: FW: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017

Importance: High

Andy Oetter <i>Director of Resource Authorizations</i> <i>Direct 250-828-4445</i> <i>Thompson Okanagan Region</i> <i>Ministry of Forests, Lands and Natural Resource Operations</i> <i>441 Columbia Street</i> <i>Kamloops, BC</i> <i>V2C 2T3</i>	
---	--

From: Schell, Steve E FLNR:EX

Sent: Monday, May 29, 2017 10:37 AM

To: Oetter, Andy FLNR:EX

Subject: QUESTION: OKIB Flood 2017 - Information Meeting - May 29, 2017

Importance: High

Hey Andy,

Can you attend with me?

I don't have all of the answers to some of the technical questions that may be asked.

Steve

From: Jordan, Ryan J ABR:EX

Sent: Monday, May 29, 2017 10:23 AM

To: Schell, Steve E FLNR:EX

Subject: Fwd: OKIB Flood 2017 - Information Meeting - May 29, 2017

FYI

Ryan Jordan

Assistant Negotiator | Critical Incidents and Emergency Management Branch
Ministry of Aboriginal Relations and Reconciliation

Ph: [250-356-9691](tel:250-356-9691) | Cell: [778-679-0077](tel:778-679-0077)

Begin forwarded message:

From: "Jordan, Ryan J ABR:EX" <Ryan.J.Jordan@gov.bc.ca>

Date: May 29, 2017 at 9:42:43 AM PDT

To: "TRAN EMBC CTL PREOC Director 1 TRAN:EX" <preoc3.dir1@gov.bc.ca>, "Caswell, Cassondra ABR:EX" <Cassondra.Caswell@gov.bc.ca>, "Gerein, Sarah ABR:EX" <Sarah.Gerein@gov.bc.ca>, "Newton, Steve TRAN:EX" <steve.newton@gov.bc.ca>, "TRAN EMBC CTL PREOC Planning 1 TRAN:EX" <preoc3.pln1@gov.bc.ca>, "TRAN EMBC CTL PREOC Public Information 2 TRAN:EX" <preoc3.pio2@gov.bc.ca>, "Flint-Petersen, Lotte TRAN:EX" <Lotte.FlintPetersen@gov.bc.ca>

Subject: Fwd: OKIB Flood 2017 - Information Meeting - May 29, 2017

FYI

Ryan Jordan
Assistant Negotiator | Critical Incidents and Emergency Management Branch
Ministry of Aboriginal Relations and Reconciliation

Ph: [250-356-9691](tel:250-356-9691) | **Cell:** [778-679-0077](tel:778-679-0077)

Begin forwarded message:

From: OKIBEOCLiaisonofficer <OKIBEOCLiaisonofficer@okanagan.org>

Date: May 29, 2017 at 8:48:54 AM PDT

To: "ryan.j.jordan@gov.bc.ca" <ryan.j.jordan@gov.bc.ca>

Subject: OKIB Flood 2017 - Information Meeting - May 29, 2017

Hi Ryan,
Great meeting you the other day. I understand you have confirmed to come out tonight and assist with providing updates at our Information meeting, in addition a representative from FLNRO.
Here is our agenda for tonight:
See you tonight.
Sherry Louis
OKIB EOC Liaison
250-542-7132
okibeocliaison@okanagan.org

RE: REQUEST - Lake levels and flood response

Wednesday, September 20, 2017
9:25 AM

Subject	RE: REQUEST - Lake levels and flood response
From	Reimer, Shaun FLNR:EX
To	Thomas, Vivian P GCPE:EX; Warner, Robert FLNR:EX
Cc	Crampton, Ray W FLNR:EX; Price, Gabrielle GCPE:EX
Sent	Thursday, June 1, 2017 4:38 PM

Hi Vivian. I will definitely have something for Monday morning. I have been waiting for some information from Environment Canada.

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Thomas, Vivian P GCPE:EX
Sent: Thursday, June 1, 2017 4:37 PM
To: Reimer, Shaun FLNR:EX; Warner, Robert FLNR:EX
Cc: Crampton, Ray W FLNR:EX; Price, Gabrielle GCPE:EX
Subject: REQUEST - Lake levels and flood response

Hi! Further to our conversation earlier in the week, just following up on the status of the fact sheet/graphs that you were working on to address criticisms that we should have been doing something more/different/earlier. The deputy would like to see something by Monday morning, so hoping I could work with whatever you may have already put together tomorrow.

Thx,

Vivian
250-356-2475

Penticton dam

Wednesday, September 20, 2017
8:36 AM

Subject	Penticton dam
From	Warner, Robert FLNR:EX
To	FLNR DOS Vernon Staff; FLNR DOS Penticton
Cc	MacDougall, Gerry L FLNR:EX
Sent	Friday, June 2, 2017 8:44 AM

Hi folks

FYI Press asking Shaun about lake levels

<https://www.castanet.net/edition/news-story-198507-21-.htm#198507>

Thank you Shaun for your stellar work!

 	Bob Warner RPF <i>Resource Manager</i> 250-490-8232 C250-462-8887 <i>Okanagan Shuswap Natural Resource District</i> <i>Ministry of Forests, Lands and Natural Resource Operations</i>	
--	---	--

Fwd: FYI MDEC tomorrow

Tuesday, September 19, 2017
11:32 AM

Subject	Fwd: FYI MDEC tomorrow
From	Crampton, Ray W FLNR:EX
To	Reimer, Shaun FLNR:EX
Sent	Saturday, June 3, 2017 9:52 PM

You good to join me on this call tomorrow?

Thanks Shaun.

Ray Crampton District Manager <i>Okanagan Shuswap</i> <i>Natural Resource District</i> <i>Ministry of Forests, Lands and Natural Resource Operations</i> <i>2501 14th Ave, Vernon, BC</i> <i>V1T 8Z1</i> <i>Phone: (250) 558-1729</i> <i>Cel: (250) 503-7862</i> <i>mailto: ray.crampton@gov.bc.ca</i>	
--	--

Begin forwarded message:

From: "Schafthuizen, Jim FLNR:EX" <Jim.Schafthuizen@gov.bc.ca>
Date: June 3, 2017 at 9:11:02 PM PDT
To: "Crampton, Ray W FLNR:EX" <Ray.Crampton@gov.bc.ca>
Subject: FYI MDEC tomorrow

Anticipated update/questions below. Will forward call-in numbers and confirmed time when received.

Sent from my iPhone

Begin forwarded message:

From: "Duffy, Chris D TRAN:EX" <Chris.Duffy@gov.bc.ca>
Date: June 3, 2017 at 8:23:47 PM PDT
To: "Schafthuizen, Jim FLNR:EX" <Jim.Schafthuizen@gov.bc.ca>, "Cameron, Valerie Z FLNR:EX" <Valerie.Cameron@gov.bc.ca>
Subject: Re: MDEC tomorrow

Thx Jim
Anticipate :
Current lake levels
Fcst. Lake level
Potential effects of storms
Potential duration of peak water

Chris

Sent from my Samsung Galaxy smartphone.

----- Original message -----

From: "Schafthuizen, Jim FLNR:EX" <Jim.Schafthuizen@gov.bc.ca>

Date: 2017-06-03 8:19 PM (GMT-08:00)

To: "Cameron, Valerie Z FLNR:EX" <Valerie.Cameron@gov.bc.ca>

Cc: "Duffy, Chris D TRAN:EX" <Chris.Duffy@gov.bc.ca>

Subject: Re: MDEC tomorrow

Message received and will ask Shaun or Bryan. Will get back to you when I hear more. May be tomorrow morning. I am also on point tomorrow (Steve back Monday).

Sent from my iPhone

On Jun 3, 2017, at 8:07 PM, Cameron, Valerie Z FLNR:EX <Valerie.Cameron@gov.bc.ca> wrote:

Hi Chris. By copy of this message I am asking Jim Shafthuizen ,who is the primary regional contact today , to make the arrangements for Shaun or his alternate to participate. I am also cc-ing Steve Schell, who is the primary contact tomorrow if Jim is unable to make arrangements today.

Valerie

Sent from my iPhone

On Jun 3, 2017, at 7:52 PM, Duffy, Chris D TRAN:EX <Chris.Duffy@gov.bc.ca> wrote:

Hi Val

Do you have someone on the who can speak to Okanagan lake levels for an MDEC call tomorrow (16:00) .

Bryan S. Or Shaun R. ?

Thx

Chris

Sent from my Samsung Galaxy smartphone.

FW: IN_Okanagan Lake Management_June 5

Tuesday, September 19, 2017
10:37 AM

Subject	FW: IN_Okanagan Lake Management_June 5
From	Warner, Robert FLNR:EX
To	Shumka, Pam FLNR:EX
Sent	Monday, June 5, 2017 9:39 AM
Attachments	 IN_Okanaga n Lake Ma...

Fyi-

From: Thomas, Vivian P GCPE:EX

Sent: Monday, June 5, 2017 9:03 AM

To: Warner, Robert FLNR:EX; Crampton, Ray W FLNR:EX; MacDougall, Gerry L FLNR:EX; Manwaring, Richard G FLNR:EX; Schell, Steve E FLNR:EX

Cc: Reimer, Shaun FLNR:EX; Price, Gabrielle GCPE:EX

Subject: IN_Okanagan Lake Management_June 5

Here's the issues note Shaun and I worked on around how the lakes are managed.

Cheers,

Vivian

Page 076 to/à Page 079

Withheld pursuant to/removed as

s.13

FW: Seasonal Climate Statistics for M-A-M for BC and YT

Tuesday, September 19, 2017
9:40 AM

Subject	FW: Seasonal Climate Statistics for M-A-M for BC and YT
From	Reimer, Shaun FLNR:EX
To	Noseworthy, Mike FLNR:EX; Warner, Robert FLNR:EX
Sent	Tuesday, June 6, 2017 12:10 PM
Attachments	 Okanagan Valley anal...

Interesting stats...

From: Lundquist, Doug (EC) [<mailto:doug.lundquist@canada.ca>]
Sent: Tuesday, June 6, 2017 9:13 AM
To: Reimer, Shaun FLNR:EX
Cc: Yu, Cindy (EC); Charbonneau, Alyssa (EC); MacDonald, Matt (EC); Dudley, Dennis (EC); Bramwell, Giselle (EC)
Subject: FW: Seasonal Climate Statistics for M-A-M for BC and YT
Importance: High

Hi Shaun,

Attached is the data digging my climatologist colleague did for us, thanks Giselle. It is good she did it as the numbers for Kelowna are the lowest anomaly with only around 36 mm extra precipitation in March-May (meteorological spring) but in Penticton there was over 110 mm extra which was the wettest spring on record there. That doesn't mean the entire lake got that but it certainly skews the numbers. Please also note that May was around average for precipitation for the northern 2/3 of the lake but Penticton was very wet at over double. Another way of looking at spring is that in the northern 2/3 of the lake the precipitation was front end heavy with March and April having the greatest departures.

If one is to extrapolate what happened in the valley to snowpack accumulations (knowing it is only an estimation) what happened in the valley mostly affected it by helping snow water equivalent to catch up to average. As you know the snowpack had been lagging at mid and high levels until mid-winter. Also, since it was colder than average in April most of the precipitation above the valley bottom was as snow until then (we noticed this with frequent late season snows on the surrounding valley walls). Also note that it was only finally warm enough in May that precipitation came as rain to higher elevations at times. This was particularly noteworthy on the 4th to 5th of May event which was a warm set of storm with rain melting snow (and the most significant creek flooding). Also when extrapolating from valley station locations to higher terrain, Kelowna is the best station to use as the watershed is very narrow in the south and widest in the centre.

I have included my colleagues in Vancouver here who have insight as well and can certainly help answer questions.

Cheers,
Doug

From: Bramwell, Giselle (EC)
Sent: June 5, 2017 17:37
To: Lundquist, Doug (EC)
Cc: Yu, Cindy (EC); Bramwell, Giselle (EC)
Subject: RE: Seasonal Climate Statistics for M-A-M for BC and YT

Hello Doug,

Please find attached and below the results for Kelowna, Vernon and Penticton for individual months and seasonal for March, April and May 2017:

	T	Tnorm	Temp Anom	Colder Than, Normal Warmer Than	Rank	P	Pnorm	Precip % of Norm	Drier Than, Normal Wetter Than	Rank	Temp POR	Precip POR
Kelowna												
Mar-17	3.8	4.07	-0.3	Normal	21	38.3	21.6	177.7%	Wetter	3	1969	1969
Apr-17	8.4	8.4	0.0	Normal	25	38.2	29.1	131.3%	Wetter	11	1969	1969
May-17	14.4	12.8	1.6	Warmer	6	45.2	40.2	112.4%	Normal	15	1969	1969
M-A-M 2017	8.9	8.5	0.4	Normal	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Vernon (WJV)												
Mar-17	3.3	3.9	-0.6	Normal	65	52.9	25.4	208.3%	Wetter	4	1901	1903
Apr-17	8.1	8.7	-0.6	Colder	45	54.3	33.7	161.1%	Wetter	4	1900	1901
May-17	14.3	13.1	1.2	Warmer	15	52.7	47.8	110.3%	Wetter	23	1900	1900
M-A-M 2017	8.6	8.6	0.0	Normal	75	159.9	95.5	167.5%	Wetter	2	1901	1903
Penticton (YYF)												
Mar-17	4.5	5.0	-0.5	Normal	51	44.0	23.6	186.4%	Wetter	8	1908	1908
Apr-17	8.3	9.1	-0.8	Colder	30	67.1	26.0	258.1%	Wetter	4	1907	1907
May-17	14.2	13.9	0.3	Normal	34	88.5	39.3	225.2%	Wetter	2	1908	1908
M-A-M 2017	9.0	9.3	-0.3	Normal	57	199.6	88.8	224.8%	Wetter	1	1909	1908

The attached file also includes the monthly and seasonal mean temperature and total precipitation data for these climate stations for period of record.

As discussed last Thursday on the phone:

- 1) Peachland was not chosen because it is close to Kelowna and
- 2) Summerland CS was not chosen because:
 - a. Penticton A is your preferred climate station when speaking with the media
 - b. not sure when and how long in the record the 0.5 mm issue persisted due to the sprinkler system at Summerland CS

Penticton A has also been added to my normal routine to calculate monthly and seasonal climate statistics moving forward.

I wasn't clear if you wanted me to do February to May. Spring is considered March to May.

I hope this helps! If you have any questions or concerns and/or if you would like me to do an analysis with respect to February to May, please let me know.

Thank you!

Giselle

Giselle Bramwell

Regional Services Climatologist, Prediction Services Operations West,
Meteorological Services of Canada

Environment and Climate Change Canada (ECCC) / Government of Canada
Giselle.Bramwell@canada.ca / Tel: 604-664-9067

Services Réginaux Climatologue, Services Opérationnels de Prévisions de l'Ouest, Service Météorologique du Canada
Environnement et Changement Climatique Canada (ECCC) /
Gouvernement du Canada
Giselle.Bramwell@canada.ca / Tél. 604-664-9067

From: Lundquist, Doug (EC)
Sent: June 1, 2017 12:39 PM
To: Bramwell, Giselle (EC)
Cc: Yu, Cindy (EC)
Subject: RE: Seasonal Climate Statistics for M-A-M for BC and YT
Importance: High

Hi Giselle,

I need you to do some more digging for 5 stations in the Okanagan. (It comes from a request from the province attached here).

Penticton, Summerland, Peachland, Kelowna and Vernon.

What we need is a list of precip for Feb-May over the years (please also rank it and give this year's percent of average). Also a separate one for May only because precipitation in May may have been partly rain over higher terrain. The other months it was likely snow.

The reason is there is concern over how the high level of the lakes came to be in the Okanagan and although the amount of input from the lower elevations is a small part we want to make sure we understand the situation.

Can you do this or have another approach?

Cheers,
Doug

From: Bramwell, Giselle (EC)
Sent: June 1, 2017 12:23
To: EC.F Service à la clientèle Ouest / Client Service West F.EC
Cc: EC.F PYR C-desk F.EC
Subject: Seasonal Climate Statistics for M-A-M for BC and YT

Good afternoon everyone,

Please find below the seasonal climate statistics for March – April – May 2017 for BC and YT:

M-A-M 2017	T	Tavg	Temp Anom	Colder Than, Normal, Warmer Than	Rank	P	Pavg	Precip % of Norm	Drier Than, Normal, Wetter Than	Rank	Temp POR	Precip POR
Cranbrook	6.6	6.6	-0.1	Normal	76	117.6	94.3	124.7%	Wetter	13	1903	1902
Vancouver	9.7	9.7	0.0	Normal	24	446.7	267.4	167.0%	Wetter	1	1937	1937
Kelowna	8.9	8.5	0.4	Normal	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Prince George	4.8	5.0	-0.2	Normal	42	143.3	114.5	125.1%	Wetter	10	1943	1943
Fort St. John	1.9	3.0	-1.1	Colder	28	181.6	81.8	222.0%	Wetter	1	1943	1943
Victoria	9.2	9.3	0.0	Normal	55	260.7	164.4	158.6%	Wetter	2	1941	1941
Terrace	6.2	6.4	-0.3	Normal	45	279.0	224.5	124.3%	Wetter	17	1913	1913

e												
Kamloops	9.7	9.9	-0.2	Normal	72	77.1	54.2	142.2%	Wetter	9	1891	1891
Abbotsford	10.2	10.0	0.2	Normal	18	585.6	368.2	159.0%	Wetter	3	1945	1945
Dawson City (WON)	-2.9	-1.3	-1.6	Colder	53	92.9	47.5	195.6%	Wetter	5	1901	1902
Old Crow (YOC)	-9.4	-9.5	0.1	Normal	16	33.3	45.6	73.0%	Normal	23	1952	1953
Whitehorse (YXY)	-0.8	0.7	-1.5	Colder	22	6.3	33.8	18.6%	Drier	1	1943	1943
Watson Lake (YQH)	-1.9	-0.6	-1.3	Colder	21	65.9	65.8	100.1%	Normal	35	1939	1939
Burwash (YDB)	-3.7	-2.2	-1.5	Colder	13	29.2	38.6	75.6%	Normal	16	1967	1967
Fort Nelson (YYE)	1.0	1.7	-0.7	Normal	37	86.3	85.4	101.1%	Normal	39	1938	1938
Mayo (YMA)	-1.2	0.2	-1.3	Colder	39	32.0	41.6	76.9%	Drier	29	1926	1926
Nanaimo (YCD)	9.0	9.2	-0.2	Normal	68	365.6	231.9	157.7%	Wetter	2	1902	1893
Comox (YQQ)	9.2	9.1	0.1	Normal	25	276.2	215.3	128.3%	Wetter	23	1915	1895

Please note that I continue to be very suspicious about the Whitehorse precipitation data.

It might be best to simply stick with the other Yukon climate stations instead of looking at Whitehorse precipitation data as for a 2nd season, the data is questionable.

Also note that this is based on preliminary data.

Historical and most recent monthly and seasonal climate statistics for BC and YT can be found at the following locations:

<http://ecollab2.ncr.int.ec.gc.ca/theme/msc-pyr/priv/pspc/Lists/C%20Desk/AllItems.aspx>

and

\\pyr\anfp07\pwcusers\common\CLIMATE\Climate Statistics 2017\Climate_Statistics.xlsx

If you have any questions or concerns, please do not hesitate to contact me.

Thank you!

Giselle

Giselle Bramwell

Regional Services Climatologist, Prediction Services Operations West,
Meteorological Services of Canada
Environment and Climate Change Canada (ECCC) / Government of Canada

Giselle.Bramwell@canada.ca / Tel: 604-664-9067

Services Régionaux Climatologue, Services Opérationnels de Prévisions
de l'Ouest, Service Météorologique du Canada
Environnement et Changement Climatique Canada (ECCC) /
Gouvernement du Canada
Giselle.Bramwell@canada.ca / Tél. 604-664-9067

	T	Tnorm	Temp Anom	Colder Than, Normal, Warmer Than	Rank	P	Pnorm	Precip % of Norm	Drier Than, Normal, Wetter Than	Rank	Temp POR	Precip POR
Kelowna												
Mar-17	3.8	4.07	-0.3	Normal	21	38.3	21.6	177.7%	Wetter	3	1969	1969
Apr-17	8.4	8.4	0.0	Normal	25	38.2	29.1	131.3%	Wetter	11	1969	1969
May-17	14.4	12.8	1.6	Warmer	6	45.2	40.2	112.4%	Normal	15	1969	1969
M-A-M 2017	8.9	8.5	0.4	Normal	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Vernon (WJV)												
Mar-17	3.3	3.9	-0.6	Normal	65	52.9	25.4	208.3%	Wetter	4	1901	1903
Apr-17	8.1	8.7	-0.6	Colder	45	54.3	33.7	161.1%	Wetter	4	1900	1901
May-17	14.3	13.1	1.2	Warmer	15	52.7	47.8	110.3%	Wetter	23	1900	1900
M-A-M 2017	8.6	8.6	0.0	Normal	75	159.9	95.5	167.5%	Wetter	2	1901	1903
Penticton (YYF)												
Mar-17	4.5	5.0	-0.5	Normal	51	44.0	23.6	186.4%	Wetter	8	1908	1908
Apr-17	8.3	9.1	-0.8	Colder	30	67.1	26.0	258.1%	Wetter	4	1907	1907
May-17	14.2	13.9	0.3	Normal	34	88.5	39.3	225.2%	Wetter	2	1908	1908
M-A-M 2017	9.0	9.3	-0.3	Normal	57	199.6	88.8	224.8%	Wetter	1	1909	1908

FW: Seasonal Climate Statistics for M-A-M for BC and YT

Tuesday, September 19, 2017
11:01 AM

Subject	FW: Seasonal Climate Statistics for M-A-M for BC and YT
From	Reimer, Shaun FLNR:EX
To	Noseworthy, Mike FLNR:EX; Warner, Robert FLNR:EX
Sent	Tuesday, June 6, 2017 12:10 PM
Attachments	 Okanagan Valley anal...

Interesting stats...

From: Lundquist, Doug (EC) [<mailto:doug.lundquist@canada.ca>]

Sent: Tuesday, June 6, 2017 9:13 AM

To: Reimer, Shaun FLNR:EX

Cc: Yu, Cindy (EC); Charbonneau, Alyssa (EC); MacDonald, Matt (EC); Dudley, Dennis (EC); Bramwell, Giselle (EC)

Subject: FW: Seasonal Climate Statistics for M-A-M for BC and YT

Importance: High

Hi Shaun,

Attached is the data digging my climatologist colleague did for us, thanks Giselle. It is good she did it as the numbers for Kelowna are the lowest anomaly with only around 36 mm extra precipitation in March-May (meteorological spring) but in Penticton there was over 110 mm extra which was the wettest spring on record there. That doesn't mean the entire lake got that but it certainly skews the numbers. Please also note that May was around average for precipitation for the northern 2/3 of the lake but Penticton was very wet at over double. Another way of looking at spring is that in the northern 2/3 of the lake the precipitation was front end heavy with March and April having the greatest departures. If one is to extrapolate what happened in the valley to snowpack accumulations (knowing it is only an estimation) what happened in the valley mostly affected it by helping snow water equivalent to catch up to average. As you know the snowpack had been lagging at mid and high levels until mid-winter. Also, since it was colder than average in April most of the precipitation above the valley bottom was as snow until then (we noticed this with frequent late season snows on the surrounding valley walls). Also note that it was only finally warm enough in May that precipitation came as rain to higher elevations at times. This was particularly noteworthy on the 4th to 5th of May event which was a warm set of storm with rain melting snow (and the most significant creek flooding). Also when extrapolating from valley station locations to higher terrain, Kelowna is the best station to use as the watershed is very narrow in the south and widest in the centre.

I have included my colleagues in Vancouver here who have insight as well and can certainly help answer questions.

Cheers,

Doug

From: Bramwell, Giselle (EC)

Sent: June 5, 2017 17:37

To: Lundquist, Doug (EC)

Cc: Yu, Cindy (EC); Bramwell, Giselle (EC)

Subject: RE: Seasonal Climate Statistics for M-A-M for BC and YT

Hello Doug,

Please find attached and below the results for Kelowna, Vernon and Penticton for individual months and seasonal for March, April and May 2017:

	T	Tnorm	Temp Anom	Colder Than, Normal , Warmer Than	Rank	P	Pnorm	Precip % of Norm	Drier Than, Normal , Wetter Than	Rank	Temp POR	Precip POR
Kelowna												

a												
Mar-17	3.8	4.07	-0.3	Normal	21	38.3	21.6	177.7%	Wetter	3	1969	1969
Apr-17	8.4	8.4	0.0	Normal	25	38.2	29.1	131.3%	Wetter	11	1969	1969
May-17	14.4	12.8	1.6	Warmer	6	45.2	40.2	112.4%	Normal	15	1969	1969
M-A-M 2017	8.9	8.5	0.4	Normal	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Vernon (WJV)												
Mar-17	3.3	3.9	-0.6	Normal	65	52.9	25.4	208.3%	Wetter	4	1901	1903
Apr-17	8.1	8.7	-0.6	Colder	45	54.3	33.7	161.1%	Wetter	4	1900	1901
May-17	14.3	13.1	1.2	Warmer	15	52.7	47.8	110.3%	Wetter	23	1900	1900
M-A-M 2017	8.6	8.6	0.0	Normal	75	159.9	95.5	167.5%	Wetter	2	1901	1903
Penticton (YYF)												
Mar-17	4.5	5.0	-0.5	Normal	51	44.0	23.6	186.4%	Wetter	8	1908	1908
Apr-17	8.3	9.1	-0.8	Colder	30	67.1	26.0	258.1%	Wetter	4	1907	1907
May-17	14.2	13.9	0.3	Normal	34	88.5	39.3	225.2%	Wetter	2	1908	1908
M-A-M 2017	9.0	9.3	-0.3	Normal	57	199.6	88.8	224.8%	Wetter	1	1909	1908

The attached file also includes the monthly and seasonal mean temperature and total precipitation data for these climate stations for period of record.

As discussed last Thursday on the phone:

- 1) Peachland was not chosen because it is close to Kelowna and
- 2) Summerland CS was not chosen because:
 - a. Penticton A is your preferred climate station when speaking with the media
 - b. not sure when and how long in the record the 0.5 mm issue persisted due to the sprinkler system at Summerland CS

Penticton A has also been added to my normal routine to calculate monthly and seasonal climate statistics moving forward.

I wasn't clear if you wanted me to do February to May. Spring is considered March to May.

I hope this helps! If you have any questions or concerns and/or if you would like me to do an analysis with respect to February to May, please let me know.

Thank you!

Giselle

Giselle Bramwell

Regional Services Climatologist, Prediction Services Operations West,
Meteorological Services of Canada
Environment and Climate Change Canada (ECCC) / Government of
Canada

Giselle.Bramwell@canada.ca / Tel: 604-664-9067

Services Réginaux Climatologue, Services Opérationnels de Prévisions
de l'Ouest, Service Météorologique du Canada
Environnement et Changement Climatique Canada (ECCC) /
Gouvernement du Canada

Giselle.Bramwell@canada.ca / Tél. 604-664-9067

From: Lundquist, Doug (EC)

Sent: June 1, 2017 12:39 PM

To: Bramwell, Giselle (EC)

Cc: Yu, Cindy (EC)

Subject: RE: Seasonal Climate Statistics for M-A-M for BC and YT

Importance: High

Hi Giselle,

I need you to do some more digging for 5 stations in the Okanagan. (It comes from a request from the province attached here).

Penticton, Summerland, Peachland, Kelowna and Vernon.

What we need is a list of precip for Feb-May over the years (please also rank it and give this year's percent of average). Also a separate one for May only because precipitation in May may have been partly rain over higher terrain. The other months it was likely snow.

The reason is there is concern over how the high level of the lakes came to be in

the Okanagan and although the amount of input from the lower elevations is a small part we want to make sure we understand the situation.

Can you do this or have another approach?

Cheers,

Doug

From: Bramwell, Giselle (EC)

Sent: June 1, 2017 12:23

To: EC.F Service à la clientèle Ouest / Client Service West F.EC

Cc: EC.F PYR C-desk F.EC

Subject: Seasonal Climate Statistics for M-A-M for BC and YT

Good afternoon everyone,

Please find below the seasonal climate statistics for March – April – May 2017 for BC and YT:

M-A-M 2017	T	Tavg	Temp Anom	Colder Than, Normal , Warmer Than	Rank	P	Pavg	Precip % of Norm	Drier Than, Normal , Wetter Than	Rank	Temp POR	Precip POR
Cranbrook	6.6	6.6	-0.1	Normal	76	117.6	94.3	124.7%	Wetter	13	1903	1902
Vancouver	9.7	9.7	0.0	Normal	24	446.7	267.4	167.0%	Wetter	1	1937	1937
Kelowna	8.9	8.5	0.4	Normal	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Prince George	4.8	5.0	-0.2	Normal	42	143.3	114.5	125.1%	Wetter	10	1943	1943
Fort St. John	1.9	3.0	-1.1	Colder	28	181.6	81.8	222.0%	Wetter	1	1943	1943
Victoria	9.2	9.3	0.0	Normal	55	260.7	164.4	158.6%	Wetter	2	1941	1941
Terrace	6.2	6.4	-0.3	Normal	45	279.0	224.5	124.3%	Wetter	17	1913	1913
Kamloops	9.7	9.9	-0.2	Normal	72	77.1	54.2	142.2%	Wetter	9	1891	1891
Abbotsford	10.2	10.0	0.2	Normal	18	585.6	368.2	159.0%	Wetter	3	1945	1945
Dawson City (WON)	-2.9	-1.3	-1.6	Colder	53	92.9	47.5	195.6%	Wetter	5	1901	1902
Old Crow (YOC)	-9.4	-9.5	0.1	Normal	16	33.3	45.6	73.0%	Normal	23	1952	1953
Whitehorse (YXY)	-0.8	0.7	-1.5	Colder	22	6.3	33.8	18.6%	Drier	1	1943	1943
Watson Lake (YQH)	-1.9	-0.6	-1.3	Colder	21	65.9	65.8	100.1%	Normal	35	1939	1939
Burwash (YDB)	-3.7	-2.2	-1.5	Colder	13	29.2	38.6	75.6%	Normal	16	1967	1967
Fort Nelson (YYE)	1.0	1.7	-0.7	Normal	37	86.3	85.4	101.1%	Normal	39	1938	1938
Mayo (YMA)	-1.2	0.2	-1.3	Colder	39	32.0	41.6	76.9%	Drier	29	1926	1926
Nanaimo (YCD)	9.0	9.2	-0.2	Normal	68	365.6	231.9	157.7%	Wetter	2	1902	1893
Comox (YQQ)	9.2	9.1	0.1	Normal	25	276.2	215.3	128.3%	Wetter	23	1915	1895

Please note that I continue to be very suspicious about the Whitehorse precipitation data.

It might be best to simply stick with the other Yukon climate stations instead of looking at Whitehorse precipitation data as for a 2nd season, the data is

questionable.

Also note that this is based on preliminary data.

Historical and most recent monthly and seasonal climate statistics for BC and YT can be found at the following locations:

<http://ecollab2.ncr.int.ec.gc.ca/theme/msc-pyr/priv/pspc/Lists/C%20Desk/AllItems.aspx>

and

\\pyrvanfp07\pwcusers\common\CLIMATE\Climate Statistics 2017\Climate_Statistics.xlsx

If you have any questions or concerns, please do not hesitate to contact me.

Thank you!

Giselle

Giselle Bramwell

Regional Services Climatologist, Prediction Services Operations West,
Meteorological Services of Canada
Environment and Climate Change Canada (ECCC) / Government of
Canada

Giselle.Bramwell@canada.ca / Tel: 604-664-9067

Services Réginaux Climatologue, Services Opérationnels de Prévisions
de l'Ouest, Service Météorologique du Canada
Environnement et Changement Climatique Canada (ECCC) /
Gouvernement du Canada

Giselle.Bramwell@canada.ca / Tél. 604-664-9067

	T	Tnorm	Temp Anom	Colder Than, Normal, Warmer Than	Rank	P	Pnorm	Precip % of Norm	Drier Than, Normal, Wetter Than	Rank	Temp POR	Precip POR
Kelowna												
Mar-17	3.8	4.07	-0.3	Normal	21	38.3	21.6	177.7%	Wetter	3	1969	1969
Apr-17	8.4	8.4	0.0	Normal	25	38.2	29.1	131.3%	Wetter	11	1969	1969
May-17	14.4	12.8	1.6	Warmer	6	45.2	40.2	112.4%	Normal	15	1969	1969
M-A-M 2017	8.9	8.5	0.4	Normal	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Vernon (WJV)												
Mar-17	3.3	3.9	-0.6	Normal	65	52.9	25.4	208.3%	Wetter	4	1901	1903
Apr-17	8.1	8.7	-0.6	Colder	45	54.3	33.7	161.1%	Wetter	4	1900	1901
May-17	14.3	13.1	1.2	Warmer	15	52.7	47.8	110.3%	Wetter	23	1900	1900
M-A-M 2017	8.6	8.6	0.0	Normal	75	159.9	95.5	167.5%	Wetter	2	1901	1903
Penticton (YYF)												
Mar-17	4.5	5.0	-0.5	Normal	51	44.0	23.6	186.4%	Wetter	8	1908	1908
Apr-17	8.3	9.1	-0.8	Colder	30	67.1	26.0	258.1%	Wetter	4	1907	1907
May-17	14.2	13.9	0.3	Normal	34	88.5	39.3	225.2%	Wetter	2	1908	1908
M-A-M 2017	9.0	9.3	-0.3	Normal	57	199.6	88.8	224.8%	Wetter	1	1909	1908

RE: 229285 - Advice

Wednesday, September 20, 2017
8:38 AM

Subject	RE: 229285 - Advice
From	Warner, Robert FLNR:EX
To	Johnston, Erin L FLNR:EX
Cc	Oetter, Andy FLNR:EX; Correspondence Serv. Sectn, FLNR:EX; Reimer, Shaun FLNR:EX
Sent	Wednesday, June 7, 2017 2:23 PM

s.13

s.13,s.14

Thanks
Bob

From: Johnston, Erin L FLNR:EX
Sent: Wednesday, June 7, 2017 11:54 AM
To: Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX
Subject: FW: 229285 - Advice

Hi Guys,

Any advice on Jasmine's questions below. Thanks

Erin Johnston
Regional Executive Administrator
Thompson Okanagan Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-828-4172
Email: erin.johnston@gov.bc.ca

From: FLNR.Correspondence@gov.bc.ca [<mailto:FLNR.Correspondence@gov.bc.ca>]
Sent: Wednesday, June 7, 2017 11:22 AM
To: Johnston, Erin L FLNR:EX
Cc: Beadman, Krista FLNR:EX
Subject: 229285 - Advice

Hi Erin,

s.13

Thank you,

Jasmine

DM-CSS **Referral Slip for ID:229285** 2017/06/07

<i>Log Type:</i>	Email	<i>Action:</i>	Necessary Action	<i>Due:</i>	2017/06/27
<i>Batch:</i>		<i>Sig Level:</i>			

Author Type: Private Citizen
s.22

Written: 2017/06/05 *Resp Type:*

Email:

Received: 2017/06/07 *File No.:*

Due: 2017/06/27 *Entered By:* jjohl

Approved: *Approved By:*

Signed: *Sign By:*

Closed:

<i>Address To:</i>	Minister Polak, Minister Anton	<i>Issue:</i>	Flood Safety
<i>Copy To:</i>	Colin Basran	<i>X-Ref:</i>	
<i>Rsp Office:</i>	RED-Thompson/Okanagan	<i>Drafter:</i>	

Subject

****CI**** Penticton Dam operation and Lake Okanagan Flooding - requesting that the provincial government be responsible for prevention and compensation for loses due to flooding.

Incoming redirected from JAG and ENV

Log Notes	
2017/06/07	s.13

Referral DM-CSS -> MO-Minister							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/07	<i>Status:</i>	Completed	<i>Ref Action:</i>	FYI/File
<i>To:</i>	MO-Minister	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed</i>	2017/06/	<i>Due:</i>		<i>File No.:</i>	

		:	07				
--	--	---	----	--	--	--	--

Referral DM-CSS -> MO-Minister -> DM-CSS							
From:	MO-Minister	Sent:	2017/06/07	Status:	Pending	Ref Action:	Advice
To:	DM-CSS	Received:		Reason:		Sig Level:	
Assign To:		Completed:		Due:	2017/06/09 (Pending (2))	File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS -> RED-Thompson/Okanagan							
From:	DM-CSS	Sent:	2017/06/07	Status:	Pending	Ref Action:	Advice
To:	RED-Thompson/Okanagan	Received:		Reason:		Sig Level:	
Assign To:		Completed:		Due:	2017/06/09 (Active (2))	File No.:	

Fwd: s.22 flood comment

Tuesday, September 19, 2017
11:38 AM

Subject	Fwd: s.22 flood comment
From	Crampton, Ray W FLNR:EX
To	Warner, Robert FLNR:EX; Reimer, Shaun FLNR:EX
Sent	Thursday, June 8, 2017 11:55 AM
Attachments	 floodcomme nt  ATT00001

Ray Crampton District Manager <i>Okanagan Shuswap</i> <i>Natural Resource District</i> <i>Ministry of Forests, Lands and Natural Resource</i> <i>Operations</i> 2501 14 th Ave, Vernon, BC V1T 8Z1 Phone: (250) 558-1729 Cel: (250) 503-7862 mailto: ray.crampton@gov.bc.ca	
--	--

Begin forwarded message:

From: "MacDougall, Gerry L FLNR:EX" <Gerry.MacDougall@gov.bc.ca>
Date: June 8, 2017 at 11:25:46 AM MDT
To: "Crampton, Ray W FLNR:EX" <Ray.Crampton@gov.bc.ca>, "Schell, Steve E FLNR:EX" <Steve.Schell@gov.bc.ca>, "Oetter, Andy FLNR:EX" <Andy.Oetter@gov.bc.ca>
Subject: Fwd: s.22 flood comment

Sent from my iPhone
Begin forwarded message:

From: s.22
Date: June 8, 2017 at 10:01:57 AM MDT
To: anna.warwick.sears@obwb.ca, Gerry.MacDougall@gov.bc.ca
Subject: s.22 flood comment

Hello Anna and Gerry
Attached are some thoughts on this years Okanagan flood.
Please redirect as required. Best regards, s.22

June 8, 2017

To:

Anna Warwick Sears, Executive Director OBWB, Kelowna

Tracy Gray, Chair OBWB, Kelowna

Gerry MacDougall, Regional Executive Director FLNRO, Kamloops

Having worked [s.22](#)

I understand full well the complexity of the lake level management process. However, as I watch groundwater fill my yard and crawl space, as I sandbag my yard and those of others, and consider the tens of millions of dollars in damage and flood control costs, I wonder how could we have gone from a possible drought to an historic flood in only a month? What can we learn from this experience?

For one I think, we need to shift our thinking from climate change and drought management planning to that of climate variability and extreme event avoidance. The cost of the 2017 flood will far exceed that of multiple drought years. Hind sight might suggest we need to err more on the side of flood prediction and avoidance. The damage to infrastructure, personal property, and Okanagan reputation as a tourist destination from this flood will be hard to overestimate.

Second there is a need for reinvestment in data collection to make better management decisions. Are 3 snow pillow stations really enough for this landscape? Where does groundwater fit in the model? A good number of wells in the Okanagan Basin show groundwater well above average levels in recent years and some are similar to levels observed in the last flood of 1997. More frequent assessment of lake level outcomes based on rapid input of rainfall and stream flow data in late winter/spring are probably needed. As example, I note that although the snow pillow on April 1 was below normal, Okanagan Lake water elevation was at an historic maximum level and continued to climb through April until the gates at Penticton began opening on April 25. Did the lake really need to be that high? Snow pillow data was not at record lows on April 1 so why the record high lake level? Then during April record rain and snow accumulation occurred without apparent influence on lake level management. Consider what 25 cm less water on April 26 (assuming 1cm/d drop in Okanagan Lake) could have saved in flood damage costs. Could not some pre-emptive management action to release water in April have been considered, if more timely information been available, and considered from a flood preventative perspective? Perhaps rethinking what part of the hydrograph is captured is necessary. Catch then dump versus dump then catch the falling limb of the hydrograph.

Not only do the data inputs, and predictive models need to be reconsidered, it is imperative that the decision framework and responsibilities for making the decisions on when and how much water to release must be reviewed. The stakes are too high for one or two individuals to make the call.

Brian Symonds noted in a 2000 review paper, that water management in the Okanagan, has a long and expensive history, and will continue to be a challenge. Well, 2017 will be a whole new chapter. I hope the OBWB, local governments and the province will rise to this new challenge and commit the resources need to strengthen the data sources, predictive models, and decision making process, to enable more timely lake management decisions in the future.

OK, now that I've got that off my chest I can go back to "water management" at the local level.

Nature has served us up a warning. Time for us to learn from it!

Best regards,

s.22

Page 097 to/à Page 103

Withheld pursuant to/removed as

s.13,s.14

Page 104

Withheld pursuant to/removed as

s.14

-----Original Message-----

From: s.22

Sent: Monday, June 5, 2017 6:02 AM

To: Minister, ENV ENV:EX; Minister, JAG JAG:EX

Cc: Colin Basran

Subject: Penticton Dam operation and Lake Okanagan Flooding

Dear Ministers:

s.22 I have been advised that the
Penticton Dam operations are a BC provincial government undertaking.

Castanet News last week reported an interview with the Penticton Dam operator Shaun Reimer who insisted that he would do nothing differently (ie would not have increased dam flows earlier). This arrogance is an incredible admission of gross negligence and total lack of appreciation into systems and decision making processes. To be so overwhelmingly wrong clearly points to errors in either information gathering, predictive modelling, decision making and judgement, or a combination thereof. In these circumstances an investigation into how this situation arose is critical to doing everything possible to ensure it doesn't happen again - at least not for controllable reasons.

Under the current scenario where the Okanagan region could potentially suffer bigger overall losses than the Kelowna fires of 2005, the BC government in this case has the direct responsibility to its citizens regarding prevention and compensation for losses. A full and open investigation is warranted.

I would appreciate a response to this email, particularly with regards to an open and transparent investigation and responsibility to the citizens of the Okanagan Lake region.

Thank you

s.22

Sent from my iPhone

Martin, Doris L CSNR:EX

From: Minister, ENV ENV:EX
Sent: Monday, June 5, 2017 9:13 AM
To: Correspondence Unit ENV:EX
Subject: FW: Penticton Dam operation and Lake Okanagan Flooding

Follow Up Flag: Follow up
Flag Status: Flagged

From: s.22
Sent: Monday, June 5, 2017 6:02 AM
To: Minister, ENV ENV:EX; Minister, JAG JAG:EX
Cc: Colin Basran
Subject: Penticton Dam operation and Lake Okanagan Flooding

Dear Ministers:

s.22 . I have been advised that the Penticton Dam operations are a BC provincial government undertaking.

Castanet News last week reported an interview with the Penticton Dam operator Shaun Reimer who insisted that he would do nothing differently (ie would not have increased dam flows earlier). This arrogance is an incredible admission of gross negligence and total lack of appreciation into systems and decision making processes. To be so overwhelmingly wrong clearly points to errors in either information gathering, predictive modelling, decision making and judgement, or a combination thereof. In these circumstances an investigation into how this situation arose is critical to doing everything possible to ensure it doesn't happen again - at least not for controllable reasons.

Under the current scenario where the Okanagan region could potentially suffer bigger overall losses than the Kelowna fires of 2005, the BC government in this case has the direct responsibility to its citizens regarding prevention and compensation for losses. A full and open investigation is warranted.

I would appreciate a response to this email, particularly with regards to an open and transparent investigation and responsibility to the citizens of the Okanagan Lake region.

Thank you

s.22

Sent from my iPhone

FW: 229256 and 229257 - Reply Direct > RED response?

Tuesday, September 19, 2017
10:32 AM

Subject	FW: 229256 and 229257 - Reply Direct > RED response?
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, June 13, 2017 3:03 PM
Attachments	 229256 - FW Okanagan ...  229257 - FW Lake levels...  229256 Response ...  229257 Response ...

My draft responses for the above cliff files for your review. Shaun

From: Warner, Robert FLNR:EX

Sent: Friday, June 9, 2017 11:27 AM

To: Reimer, Shaun FLNR:EX

Subject: FW: 229256 and 229257 - Reply Direct > RED response?

Let's chat due June 19

Thanks Shaun

From: Correspondence Serv. Sectn, FLNR:EX

Sent: Monday, June 5, 2017 1:40 PM

To: Warner, Robert FLNR:EX

Cc: Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: FW: 229256 and 229257 - Reply Direct > RED response?

Hi Bob,

I've changed these two to RED signature, with draft wording due to

FLNR.Correspondence@gov.bc.ca by June 19.

Thinking about this possibly becoming standard wording on file for the issues raised, you could provide this wording as either

- a. Q&A format with each question and government's response, which CSS would then put into this and future responses according to the issues raised, or
- b. one complete response that addresses the issues raised

I could also see if there is anything similar that might be useful in CLIFF (government responses on flooding related to control of lake levels?).

Sarah

Tel. 250 387 4875

From: Oetter, Andy FLNR:EX

Sent: Monday, June 5, 2017 1:10 PM

To: Correspondence Serv. Sectn, FLNR:EX; Warner, Robert FLNR:EX; Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Crampton, Ray W FLNR:EX

Subject: RE: 229256 and 229257 - Reply Direct > RED response?

I agree with the RED signature approach

Thanks

	Andy Oetter <i>Director of Resource Authorizations Direct 250-828-4445 Thompson Okanagan Region Ministry of Forests, Lands and Natural Resource Operations 441 Columbia Street Kamloops, BC V2C 2T3</i>	
---	--	---

From: Correspondence Serv. Sectn, FLNR:EX

Sent: Monday, June 5, 2017 1:08 PM

To: Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX; Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Crampton, Ray W FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: RE: 229256 and 229257 - Reply Direct > RED response?

Perfect! As there may be more of these, perhaps Bob could prepare some consistent messaging we could store for standard wording on water level control for Okanagan Lake (or other issues raised in the attached)?

On a related note, Andy, what do you think about these being for RED signature instead, so CSS can help with review/approvals on draft wording with cc to MLA's office? (It may relate to flooding issues, which could be for RED signature as per the attached signing matrix.) Once approved, we could keep the standard wording on file for use when we get additional incomings that ask the same questions. Standard wording could be in the form of questions asked with answers below, or one complete response that clearly identifies the issues mentioned and government's response on each one.

Sarah

From: Oetter, Andy FLNR:EX

Sent: Monday, June 5, 2017 12:03 PM

To: Warner, Robert FLNR:EX; Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Crampton, Ray W FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: RE: 229256 - Reply Direct

Agreed

Seeing a trend now of folks suggesting "government" did not do enough. I think these ones associated with Okanagan Lake levels should go through Bob and he should work on consistent messaging. Perhaps we can have some standardized answers back as I assume we will see more of these

Thanks

	Andy Oetter <i>Director of Resource Authorizations Direct 250-828-4445 Thompson Okanagan Region Ministry of Forests, Lands and Natural Resource Operations 441 Columbia Street Kamloops, BC V2C 2T3</i>	
---	--	---

From: Warner, Robert FLNR:EX

Sent: Monday, June 5, 2017 11:42 AM

To: Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Oetter, Andy FLNR:EX; Crampton, Ray W FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: RE: 229256 - Reply Direct

Hi Erin

For the Okanagan Lake Regulation System, there is no need to develop another layer of FLNR folk to go through on a Cliff note. Please maintain what we have done in the past and I will continue to be the Cliff note contact for Okanagan Lake levels.

- I've talked to Steve about this and he is in agreement.

Thanks

From: Johnston, Erin L FLNR:EX

Sent: Monday, June 5, 2017 10:56 AM
To: Warner, Robert FLNR:EX; Correspondence Serv. Sectn, FLNR:EX
Subject: RE: 229256 - Reply Direct

Hi Bob,

I will send this to Steve Schell and Andy Oetter again.

Jasmine, any flooding type inquiries should be going through to Steve Schell, he is our single point of contact on this issue.

Thank you!

Erin Johnston

Regional Executive Administrator

Thompson Okanagan Region

Ministry of Forests, Lands & Natural Resource Operations

Phone: 250-828-4172

Email: erin.johnston@gov.bc.ca

From: FLNR.Correspondence@gov.bc.ca
[<mailto:FLNR.Correspondence@gov.bc.ca>]

Sent: Monday, June 5, 2017 10:44 AM

To: Warner, Robert FLNR:EX

Cc: Beadman, Krista FLNR:EX; Johnston, Erin L FLNR:EX

Subject: 229256 - Reply Direct

Hi Bob,

Another similar incoming to the last (229257). You have been identified as the drafter for this incoming, please reply direct to author by June 21. If someone else is more appropriate to draft, please advise CSS as soon as possible. I have included a starter template in the log attachments, please feel free to adapt opening paragraph and sig block as you see fit.

Thank you,

Jasmine

DM-CSS **Referral Slip for ID:229256** 2017/06/05

Log Type:	Email	Action:	Draft Response	Due:	2017/06/21
Batch:		Sig Level:	Staff		

Author Type: Association
Written: 2017/05/31
Resp Type:

Donald Renoe, Fleet
Captain
Peachland Yacht
Club

Email: peachlandyachtclub@telus.net

Received: 2017/06/01
File No.:

Due: 2017/06/21
Entered By: sohara

Approved: Approved By:

Signed: Sign By:

Closed:

Address To:	MLA Dan Ashton	Issue:	Flood Safety
Copy To:	Minister Thomson	X-Ref:	

<i>Rsp Office:</i>	RED-Thompson/Okanagan	<i>Drafter:</i>	Bob Warner

Subject
Concern and information regarding the water levels at Okanagan Lake.

Log Notes	
2017/06/05	As per RS-Water Management advice, CSS has redirected to RED-TO for reply direct response. Please see directions below for REPLY DIRECT. CSS has identified Bob Warner, Resource Manager as drafter.
2017/06/02	Sent both 229256 & 229257 back to CU to redirect to regions for response.
2017/06/02	Hi Linda, Tina advises that these should be redirected to regional operations where they manage the dams in question. Please advise correspondence unit. Thank you, Ted
2017/06/02	Ted White reviewed action and has assigned it to Tina Neale to draft reply.
2017/06/01	Please copy MLA Ashton's office on response REPLY DIRECT on behalf of the Minister's office by 6/21: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the Minister's office on the response (cc: FLNR.Minister@gov.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log

Referral DM-CSS -> MO-Minister							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/01	<i>Status:</i>	Completed	<i>Ref Action:</i>	FYI/File
<i>To:</i>	MO-Minister	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/06/01	<i>Due:</i>		<i>File No.:</i>	

Referral DM-CSS -> MO-Minister -> DM-CSS							
<i>From:</i>	MO-Minister	<i>Sent:</i>	2017/06/01	<i>Status:</i>	Completed	<i>Ref Action:</i>	Coordinate Response
<i>To:</i>	DM-CSS	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/06/01	<i>Due:</i>	2017/06/19	<i>File No.:</i>	

Referral DM-CSS -> MO- Minister -> DM-CSS -> RS-Water Management							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/01	<i>Status:</i>	Rejected	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RS-Water Management	<i>Received:</i>	2017/06/02	<i>Reason:</i>	Please see comments in Notes to redirect.	<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/06/02	<i>Due:</i>	2017/06/21	<i>File No.:</i>	

Referral DM-CSS -> MO- Minister -> DM-CSS -> RED- Thompson/Okanagan							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/05	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED-Thompson/Okanagan	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>		<i>Due:</i>	2017/06/21 (Active (12))	<i>File No.:</i>	

Page 113 to/à Page 119

Withheld pursuant to/removed as

s.3

Page 120

Withheld pursuant to/removed as

s.13,s.14

Thank you,

Jasmine

-----Original Message-----

From: s.22

Sent: Monday, June 5, 2017 6:02 AM

To: Minister, ENV ENV:EX; Minister, JAG JAG:EX

Cc: Colin Basran

Subject: Penticton Dam operation and Lake Okanagan Flooding

Dear Ministers:

s.22

I have been advised that the

Penticton Dam operations are a BC provincial government undertaking.

Castanet News last week reported an interview with the Penticton Dam operator Shaun Reimer who insisted that he would do nothing differently (ie would not have increased dam flows earlier). This arrogance is an incredible admission of gross negligence and total lack of appreciation into systems and decision making processes. To be so overwhelmingly wrong clearly points to errors in either information gathering, predictive modelling, decision making and judgement, or a combination thereof. In these circumstances an investigation into how this situation arose is critical to doing everything possible to ensure it doesn't happen again - at least not for controllable reasons.

Under the current scenario where the Okanagan region could potentially suffer bigger overall losses than the Kelowna fires of 2005, the BC government in this case has the direct responsibility to its citizens regarding prevention and compensation for losses. A full and open investigation is warranted.

I would appreciate a response to this email, particularly with regards to an open and transparent investigation and responsibility to the citizens of the Okanagan Lake region.

Thank you

s.22

Sent from my iPhone

Martin, Doris L CSNR:EX

From: Minister, ENV ENV:EX
Sent: Monday, June 5, 2017 9:13 AM
To: Correspondence Unit ENV:EX
Subject: FW: Penticton Dam operation and Lake Okanagan Flooding

Follow Up Flag: Follow up
Flag Status: Flagged

From: s.22
Sent: Monday, June 5, 2017 6:02 AM
To: Minister, ENV ENV:EX; Minister, JAG JAG:EX
Cc: Colin Basran
Subject: Penticton Dam operation and Lake Okanagan Flooding

Dear Ministers:

s.22 I have been advised that the Penticton Dam operations are a BC provincial government undertaking.

Castanet News last week reported an interview with the Penticton Dam operator Shaun Reimer who insisted that he would do nothing differently (ie would not have increased dam flows earlier). This arrogance is an incredible admission of gross negligence and total lack of appreciation into systems and decision making processes. To be so overwhelmingly wrong clearly points to errors in either information gathering, predictive modelling, decision making and judgement, or a combination thereof. In these circumstances an investigation into how this situation arose is critical to doing everything possible to ensure it doesn't happen again - at least not for controllable reasons.

Under the current scenario where the Okanagan region could potentially suffer bigger overall losses than the Kelowna fires of 2005, the BC government in this case has the direct responsibility to its citizens regarding prevention and compensation for losses. A full and open investigation is warranted.

I would appreciate a response to this email, particularly with regards to an open and transparent investigation and responsibility to the citizens of the Okanagan Lake region.

Thank you

s.22

Sent from my iPhone

EMAIL RESPONSE

Reference: 229285

<DATE>

Dear s.22

Thank you for your email of June 5, 2017, and sharing your concerns regarding Penticton dam operations and Okanagan Lake flooding. I have been asked to respond.

I share your concern regarding the flooding around Okanagan Lake. Unfortunately, the events leading up to this year's event were highly unusual and could not be foreseen in time to mitigate the high lake level.

The early indications were that we would only develop a low snowpack this year and flooding was not predicted. The inflow forecasting and modelling for the lake primarily relies on snow data and could not anticipate the unprecedented precipitation in March and April. This year the snowpack was below average on the first of January, February, and March, and only just above average (105% of normal) on April 1st. Decisions regarding dam releases were made on that basis.

As with all significant incidents, the ministry will be reviewing actions after the flood situation is over to better prepare for future flooding events.

Sincerely,

Gerry MacDougall
Regional Executive Director
Thompson-Okanagan
Natural Resource Region

FW: 229256 and 229257 - Reply Direct > RED response?

Tuesday, September 19, 2017
8:01 AM

Subject	FW: 229256 and 229257 - Reply Direct > RED response?
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, June 13, 2017 3:03 PM
Attachments	 229256 - FW Okanagan ...  229257 - FW Lake levels...  229256 Response ...  229257 Response ...

My draft responses for the above cliff files for your review. Shaun

From: Warner, Robert FLNR:EX

Sent: Friday, June 9, 2017 11:27 AM

To: Reimer, Shaun FLNR:EX

Subject: FW: 229256 and 229257 - Reply Direct > RED response?

Let's chat due June 19

Thanks Shaun

From: Correspondence Serv. Sectn, FLNR:EX

Sent: Monday, June 5, 2017 1:40 PM

To: Warner, Robert FLNR:EX

Cc: Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: FW: 229256 and 229257 - Reply Direct > RED response?

Hi Bob,

I've changed these two to RED signature, with draft wording due to

FLNR.Correspondence@gov.bc.ca by June 19.

Thinking about this possibly becoming standard wording on file for the issues raised, you could provide this wording as either

- a. Q&A format with each question and government's response, which CSS would then put into this and future responses according to the issues raised, or
- b. one complete response that addresses the issues raised

I could also see if there is anything similar that might be useful in CLIFF (government responses on flooding related to control of lake levels?).

Sarah

Tel. 250 387 4875

From: Oetter, Andy FLNR:EX

Sent: Monday, June 5, 2017 1:10 PM

To: Correspondence Serv. Sectn, FLNR:EX; Warner, Robert FLNR:EX; Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Crampton, Ray W FLNR:EX

Subject: RE: 229256 and 229257 - Reply Direct > RED response?

I agree with the RED signature approach

Thanks



Andy Oetter
Director of Resource
Authorizations
Direct 250-828-4445
Thompson Okanagan
Region
Ministry of Forests, Lands
and Natural Resource
Operations
441 Columbia Street
Kamloops, BC
V2C 2T3



From: Correspondence Serv. Sectn, FLNR:EX

Sent: Monday, June 5, 2017 1:08 PM

To: Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX; Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Crampton, Ray W FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: RE: 229256 and 229257 - Reply Direct > RED response?

Perfect! As there may be more of these, perhaps Bob could prepare some consistent messaging we could store for standard wording on water level control for Okanagan Lake (or other issues raised in the attached)?

On a related note, Andy, what do you think about these being for RED signature instead, so CSS can help with review/approvals on draft wording with cc to MLA's office? (It may relate to flooding issues, which could be for RED signature as per the attached signing matrix.) Once approved, we could keep the standard wording on file for use when we get additional incomings that ask the same questions. Standard wording could be in the form of questions asked with answers below, or one complete response that clearly identifies the issues mentioned and government's response on each one.

Sarah

From: Oetter, Andy FLNR:EX

Sent: Monday, June 5, 2017 12:03 PM

To: Warner, Robert FLNR:EX; Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Crampton, Ray W FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: RE: 229256 - Reply Direct

Agreed

Seeing a trend now of folks suggesting "government" did not do enough. I think these ones associated with Okanagan Lake levels should go through Bob and he should work on consistent messaging. Perhaps we can have some standardized answers back as I assume we will see more of these

Thanks



Andy Oetter
Director of Resource
Authorizations
Direct 250-828-4445
Thompson Okanagan
Region
Ministry of Forests, Lands
and Natural Resource
Operations
441 Columbia Street
Kamloops, BC
V2C 2T3



From: Warner, Robert FLNR:EX

Sent: Monday, June 5, 2017 11:42 AM

To: Johnston, Erin L FLNR:EX

Cc: Schell, Steve E FLNR:EX; Oetter, Andy FLNR:EX; Crampton, Ray W FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: RE: 229256 - Reply Direct

Hi Erin

For the Okanagan Lake Regulation System, there is no need to develop another layer of FLNR folk to go through on a Cliff note. Please maintain what we have done in the past and I will continue to be the Cliff note contact for Okanagan Lake levels.

- I've talked to Steve about this and he is in agreement.

Thanks

From: Johnston, Erin L FLNR:EX

Sent: Monday, June 5, 2017 10:56 AM
To: Warner, Robert FLNR:EX; Correspondence Serv. Sectn, FLNR:EX
Subject: RE: 229256 - Reply Direct

Hi Bob,

I will send this to Steve Schell and Andy Oetter again.

Jasmine, any flooding type inquiries should be going through to Steve Schell, he is our single point of contact on this issue.

Thank you!

Erin Johnston

Regional Executive Administrator

Thompson Okanagan Region

Ministry of Forests, Lands & Natural Resource Operations

Phone: 250-828-4172

Email: erin.johnston@gov.bc.ca

From: FLNR.Correspondence@gov.bc.ca
[<mailto:FLNR.Correspondence@gov.bc.ca>]

Sent: Monday, June 5, 2017 10:44 AM

To: Warner, Robert FLNR:EX

Cc: Beadman, Krista FLNR:EX; Johnston, Erin L FLNR:EX

Subject: 229256 - Reply Direct

Hi Bob,

Another similar incoming to the last (229257). You have been identified as the drafter for this incoming, please reply direct to author by June 21. If someone else is more appropriate to draft, please advise CSS as soon as possible. I have included a starter template in the log attachments, please feel free to adapt opening paragraph and sig block as you see fit.

Thank you,

Jasmine

DM-CSS **Referral Slip for ID:229256** 2017/06/05

Log Type:	Email	Action:	Draft Response	Due:	2017/06/21
Batch:		Sig Level:	Staff		

Author Type: Association Written: 2017/05/31 Resp Type:

Donald Renoe, Fleet
Captain
Peachland Yacht
Club

Email: peachlandyachtclub@telus.net

Received: 2017/06/01 File No.:

Due: 2017/06/21 Entered By: sohara

Approved: Approved By:

Signed: Sign By:

Closed:

Address To:	MLA Dan Ashton	Issue:	Flood Safety
Copy To:	Minister Thomson	X-Ref:	

<i>Rsp Office:</i>	RED-Thompson/Okanagan	<i>Drafter:</i>	Bob Warner

Subject
Concern and information regarding the water levels at Okanagan Lake.

Log Notes	
2017/06/05	As per RS-Water Management advice, CSS has redirected to RED-TO for reply direct response. Please see directions below for REPLY DIRECT. CSS has identified Bob Warner, Resource Manager as drafter.
2017/06/02	Sent both 229256 & 229257 back to CU to redirect to regions for response.
2017/06/02	Hi Linda, Tina advises that these should be redirected to regional operations where they manage the dams in question. Please advise correspondence unit. Thank you, Ted
2017/06/02	Ted White reviewed action and has assigned it to Tina Neale to draft reply.
2017/06/01	Please copy MLA Ashton's office on response REPLY DIRECT on behalf of the Minister's office by 6/21: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the Minister's office on the response (cc: FLNR.Minister@gov.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log

Referral DM-CSS -> MO-Minister							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/01	<i>Status:</i>	Completed	<i>Ref Action:</i>	FYI/File
<i>To:</i>	MO-Minister	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/06/01	<i>Due:</i>		<i>File No.:</i>	

Referral DM-CSS -> MO-Minister -> DM-CSS							
<i>From:</i>	MO-Minister	<i>Sent:</i>	2017/06/01	<i>Status:</i>	Completed	<i>Ref Action:</i>	Coordinate Response
<i>To:</i>	DM-CSS	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/06/01	<i>Due:</i>	2017/06/19	<i>File No.:</i>	

Referral DM-CSS -> MO- Minister -> DM-CSS -> RS-Water Management							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/01	<i>Status:</i>	Rejected	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RS-Water Management	<i>Received:</i>	2017/06/02	<i>Reason:</i>	Please see comments in Notes to redirect.	<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>	2017/06/02	<i>Due:</i>	2017/06/21	<i>File No.:</i>	

Referral DM-CSS -> MO- Minister -> DM-CSS -> RED- Thompson/Okanagan							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/05	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED-Thompson/Okanagan	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>		<i>Due:</i>	2017/06/21 (Active (12))	<i>File No.:</i>	

Page 129 to/à Page 137

Withheld pursuant to/removed as

s.3

FW: Penticton Dam operation and Lake Okanagan Flooding (ref:229285)

Tuesday, September 19, 2017
9:32 AM

Subject	FW: Penticton Dam operation and Lake Okanagan Flooding (ref:229285)
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, June 13, 2017 3:02 PM
Attachments	 FW Penticton ...  229285 Response ...

My draft response write-up attached for your review. Shaun

From: Warner, Robert FLNR:EX
Sent: Monday, June 12, 2017 3:07 PM
To: Reimer, Shaun FLNR:EX
Subject: FW: Penticton Dam operation and Lake Okanagan Flooding (ref:229285)

s.13,s.14

s.13

s.13,s.14

Thanks
Bob

From: Johnston, Erin L FLNR:EX
Sent: Wednesday, June 7, 2017 11:54 AM
To: Oetter, Andy FLNR:EX; Warner, Robert FLNR:EX
Subject: FW: 229285 - Advice

Hi Guys,

Any advice on Jasmine's questions below. Thanks

Erin Johnston
Regional Executive Administrator
Thompson Okanagan Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-828-4172
Email: erin.johnston@gov.bc.ca

From: FLNR.Correspondence@gov.bc.ca
[<mailto:FLNR.Correspondence@gov.bc.ca>]
Sent: Wednesday, June 7, 2017 11:22 AM
To: Johnston, Erin L FLNR:EX
Cc: Beadman, Krista FLNR:EX
Subject: 229285 - Advice

Hi Erin,

s.13

Thank you,
Jasmine

-----Original Message-----

From: s.22
Sent: Monday, June 5, 2017 6:02 AM
To: Minister, ENV ENV:EX; Minister, JAG JAG:EX
Cc: Colin Basran
Subject: Penticton Dam operation and Lake Okanagan Flooding

Dear Ministers:

s.22 I have been advised that the
Penticton Dam operations are a BC provincial government undertaking.

Castanet News last week reported an interview with the Penticton Dam operator Shaun Reimer who insisted that he would do nothing differently (ie would not have increased dam flows earlier). This arrogance is an incredible admission of gross negligence and total lack of appreciation into systems and decision making processes. To be so overwhelmingly wrong clearly points to errors in either information gathering, predictive modelling, decision making and judgement, or a combination thereof. In these circumstances an investigation into how this situation arose is critical to doing everything possible to ensure it doesn't happen again - at least not for controllable reasons.

Under the current scenario where the Okanagan region could potentially suffer bigger overall losses than the Kelowna fires of 2005, the BC government in this case has the direct responsibility to its citizens regarding prevention and compensation for losses. A full and open investigation is warranted.

I would appreciate a response to this email, particularly with regards to an open and transparent investigation and responsibility to the citizens of the Okanagan Lake region.

Thank you

s.22

Sent from my iPhone

Martin, Doris L CSNR:EX

From: Minister, ENV ENV:EX
Sent: Monday, June 5, 2017 9:13 AM
To: Correspondence Unit ENV:EX
Subject: FW: Penticton Dam operation and Lake Okanagan Flooding

Follow Up Flag: Follow up
Flag Status: Flagged

From: s.22
Sent: Monday, June 5, 2017 6:02 AM
To: Minister, ENV ENV:EX; Minister, JAG JAG:EX
Cc: Colin Basran
Subject: Penticton Dam operation and Lake Okanagan Flooding

Dear Ministers:

s.22 I have been advised that the Penticton Dam operations are a BC provincial government undertaking.

Castanet News last week reported an interview with the Penticton Dam operator Shaun Reimer who insisted that he would do nothing differently (ie would not have increased dam flows earlier). This arrogance is an incredible admission of gross negligence and total lack of appreciation into systems and decision making processes. To be so overwhelmingly wrong clearly points to errors in either information gathering, predictive modelling, decision making and judgement, or a combination thereof. In these circumstances an investigation into how this situation arose is critical to doing everything possible to ensure it doesn't happen again - at least not for controllable reasons.

Under the current scenario where the Okanagan region could potentially suffer bigger overall losses than the Kelowna fires of 2005, the BC government in this case has the direct responsibility to its citizens regarding prevention and compensation for losses. A full and open investigation is warranted.

I would appreciate a response to this email, particularly with regards to an open and transparent investigation and responsibility to the citizens of the Okanagan Lake region.

Thank you

s.22

Sent from my iPhone

EMAIL RESPONSE

Reference: 229285

<DATE>

Dear s.22

Thank you for your email of June 5, 2017, and sharing your concerns regarding Penticton dam operations and Okanagan Lake flooding. I have been asked to respond.

I share your concern regarding the flooding around Okanagan Lake. Unfortunately, the events leading up to this year's event were highly unusual and could not be foreseen in time to mitigate the high lake level.

The early indications were that we would only develop a low snowpack this year and flooding was not predicted. The inflow forecasting and modelling for the lake primarily relies on snow data and could not anticipate the unprecedented precipitation in March and April. This year the snowpack was below average on the first of January, February, and March, and only just above average (105% of normal) on April 1st. Decisions regarding dam releases were made on that basis.

As with all significant incidents, the ministry will be reviewing actions after the flood situation is over to better prepare for future flooding events.

Sincerely,

Gerry MacDougall
Regional Executive Director
Thompson-Okanagan
Natural Resource Region

Re: Not a bad article except my name spelled wrong

Wednesday, September 20, 2017
9:01 AM

Subject	Re: Not a bad article except my name spelled wrong
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Cc	Crampton, Ray W FLNR:EX
Sent	Wednesday, June 14, 2017 6:43 PM

I agree- nice one Sean!

Bob Warner
250-462-8887

On Jun 14, 2017, at 6:14 PM, Reimer, Shaun FLNR:EX <shaun.reimer@gov.bc.ca> wrote:

<http://www.kelownacapnews.com/news/how-did-we-get-here/>

Shared via the [Google app](#)

Sent from my iPhone

RE: Reply Direct CLIFF ID 229356

Wednesday, September 20, 2017
9:46 AM

Subject	RE: Reply Direct CLIFF ID 229356
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Thursday, June 15, 2017 1:22 PM
Attachments	 229356 s.22

Bob, I have attached the draft of my content. Unsure who the signatory on this will be. Shaun

From: Warner, Robert FLNR:EX

Sent: Thursday, June 15, 2017 12:14 PM

To: Reimer, Shaun FLNR:EX

Subject: FW: Reply Direct CLIFF ID 229356

Thanks Shaun.

To me first for send out

From: FLNR.Correspondence@gov.bc.ca [<mailto:FLNR.Correspondence@gov.bc.ca>]

Sent: Thursday, June 15, 2017 9:47 AM

To: Johnston, Erin L FLNR:EX; Warner, Robert FLNR:EX

Cc: Beadman, Krista FLNR:EX

Subject: Reply Direct CLIFF ID 229356

REPLY DIRECT on behalf of MLA Letnick by 7/6:

1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations*

2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca)

3. Add response as attachment in CLIFF log

4. Update log notes

5. Enter signed date

6. Enter sign by

7. Close log

Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

DM-CSS **Referral Slip for ID:229356** 2017/06/15

Log Type:	Email	Action:	Draft Response	Due:	2017/07/06
Batch:		Sig Level:	Staff		

Author Type: Private Citizen
s.22

Written: 2017/06/13 Resp Type:

Email: s.22

Received: 2017/06/15 File No.:
Due: 2017/07/06 Entered By: sohara
Approved: Approved By:
Signed: Sign By:
Closed:

Address To:	Norm Letnick	Issue:	Flood Safety
Copy To:		X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	

Subject

****CI**** Questions regarding rising water levels at Okanagan Lake.

Log Notes	
2017/06/15	REPLY DIRECT on behalf of MLA Letnick by 7/6: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

Referral DM-CSS -> MO-Minister							
From:	DM-CSS	Sent:	2017/06/15	Status:	Completed	Ref Action:	FYI/File
To:	MO-Minister	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:		File No.:	

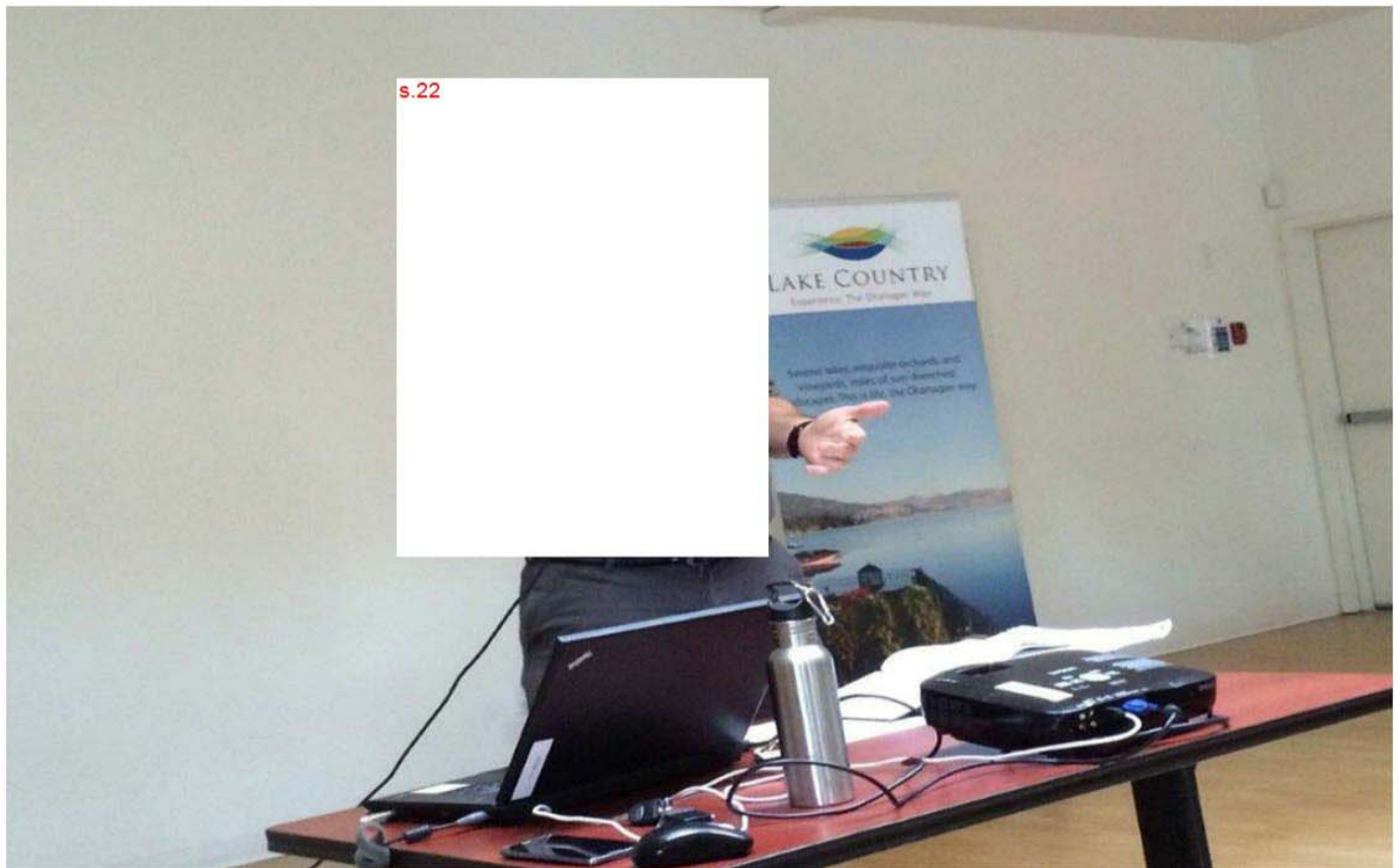
Referral DM-CSS -> MO-Minister -> DM-CSS							
From:	MO-Minister	Sent:	2017/06/15	Status:	Completed	Ref Action:	Coordinate Response
To:	DM-CSS	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:	2017/07/04	File No.:	

Referral DM-CSS -> MO-Minister -> DM- CSS -> RED- Thompson/Okanagan							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06 /15	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED- Thompson/ Okanagan	<i>Received :</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Complete d:</i>		<i>Due:</i>	2017/07/06 (Active (14))	<i>File No.:</i>	

Emailing: web1_170614_KCN_Sean-Reimer-

Wednesday, September 20, 2017
8:59 AM

Subject	Emailing: web1_170614_KCN_Sean-Reimer-
From	Martin, Doris L CSNR:EX
To	Martin, Doris L CSNR:EX
Sent	Wednesday, September 20, 2017 8:58 AM
Attachments	 web1_1706 14_KCN_S...



FW: How did we get here? - Kelowna Capital News

Tuesday, September 19, 2017
8:44 AM

Subject	FW: How did we get here? - Kelowna Capital News
From	Warner, Robert FLNR:EX
To	CSNR PNT 102 Industrial All Ministries
Cc	MacDougall, Gerry L FLNR:EX
Sent	Thursday, June 15, 2017 8:43 AM

FYI Some folks have been asking for updates on the flood situation- here is a great article on how we got here –Shaun has done masterful work along with others on the ground – too many to name.

Seems all of our Ministries and most local Penticton staff have been impacted in some way this season- either directly assessing the situation or indirectly in support – Thanks all.

Bob

From: MacDougall, Gerry L FLNR:EX

Sent: Wednesday, June 14, 2017 9:27 PM

To: Crampton, Ray W FLNR:EX

Cc: FLNR TO Region - Small RMT; FLNR DOS Vernon Staff; Shumka, Pam FLNR:EX; Walder, Chris A FLNR:EX; Cuthbertson, Danielle FLNR:EX; Reid, Jennifer D FLNR:EX; Card, Alan FLNR:EX; Toews, Michael T FLNR:EX; Bohay, Trevor FLNR:EX; Schell, Steve E FLNR:EX; Schafthuisen, Jim FLNR:EX; Warner, Robert FLNR:EX; Manwaring, Richard G FLNR:EX; Thomas, Vivian P GCPE:EX

Subject: Re: How did we get here? - Kelowna Capital News

Thank you Shaun, and Okanagan team for all your hard work this season.

Good article.

Thanks Ray for sending it around.

Gerry MacDougall

Sent from my iPhone

On Jun 14, 2017, at 6:51 PM, Crampton, Ray W FLNR:EX <Ray.Crampton@gov.bc.ca> wrote:

Thanks for your great work, Shaun!

<http://www.kelownacapnews.com/news/how-did-we-get-here/>

Ray Crampton District Manager Okanagan Shuswap Natural Resource District Ministry of Forests, Lands and Natural Resource Operations 2501 14th Ave, Vernon, BC V1T 8Z1	
---	--

Phone: (250) 558-1729 Cel: (250) 503-7862 mailto: ray.crampton@gov.bc.ca	
---	--

OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx

Wednesday, September 20, 2017

8:04 AM

Subject	OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx
From	Reimer, Shaun FLNR:EX
To	Crampton, Ray W FLNR:EX
Cc	Warner, Robert FLNR:EX
Sent	Thursday, June 15, 2017 11:16 AM
Attachments	 OK Lake Level OKIB...

Please see attached for the OKIB Town hall meeting tonight. **s.13**
s.13

Cheers...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

Ministry of **Forests, Lands and
Natural Resource Operations**



**Okanagan Indian Band
Town Hall Meeting
June 15, 2017**

**Water Management
Update**

by

Ray Crampton

Ministry of Forest, Lands & Natural
Resource Operations

Ministry of Forests, Lands and Natural Resource Operations



Okanagan Lake 2017



Add 340.236 to primary water level to get elevation above sea level.

Ministry of Forests, Lands and Natural Resource Operations



Projections:

- The snowmelt contributing to lake inflows is almost completely depleted.
- Okanagan Lake has dropped by about 3 cm in the past week.
- All lake levels and tributary creek flows should see reductions as the contribution from snowmelt declines.
- We have seen the peak flows on all creeks barring an extreme rainfall event;
- Lake levels should continue to fall barring significant rain;
- The ability to rapidly reduce lake levels is extremely limited. This means that the levels will remain high well into July;
- There is a high probability that wind will continue to be a problem going forward and flood protection works should remain in place. June is typically wet for the Okanagan and thunder and wind events are common although the Environment Canada forecast after Friday is for warm, dry conditions.
- Other flood years have consistently shown that **once summer arrives, Okanagan Lake should drop by about 1.5 cm per day.**



Ministry of Forests, Lands and Natural Resource Operations

Water Management Decisions

Each spring, inflow volume forecasts are estimated by the ministry's River Forecast Centre based primarily on snow data.. These forecasts combined with real time data of lake levels, flows, and other factors, are input to the ministry's fish water management tool (FWMT) to project Okanagan Lake levels through the year and to try to attain monthly target levels.

The ministry has guidelines it follows to protect kokanee and sockeye which include:

- Minimizing the drawdown of Okanagan Lake between the date of peak kokanee shore spawning and 100% hatch and emergence of the kokanee fry. Staff try to limit the drawdown to 15 cm so as not to 'de-water' shoreline spawned kokanee eggs. In 2017, the drawdown was 17 cm.
- Keeping the flow in the Okanagan River at Oliver below 28.3 cubic metres per second during sockeye egg and alevin incubation (between Nov 1st and 100% emergence – usually early May).
- **These guidelines are overridden if flooding is expected.**



Water Management Decisions 2017

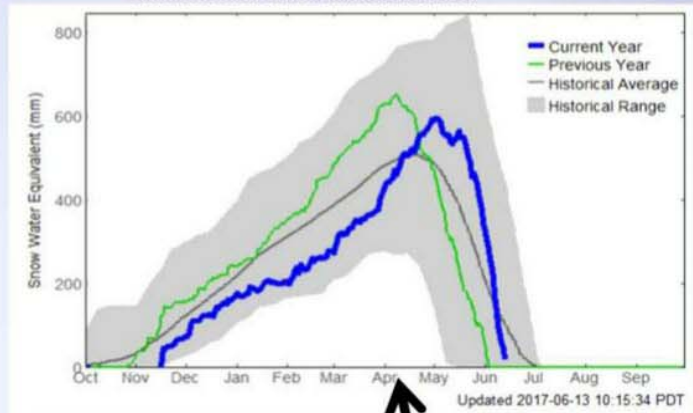
- Early Snowpack was low; No flooding was predicted.
- Inflow forecasts based on that snowpack were also low through to May.
- Inflow models used historic weather and climate patterns and did not react well to unprecedented March to May precipitation,
- **Fisheries guidelines were overridden** in April because of the ongoing wet weather. Flows were increased dramatically prior to the complete hatching/emergence of the sockeye in the Okanagan River.
- Even in early May, modelling did not project the lake going over our annual target..

Ministry of Forests, Lands and Natural Resource Operations



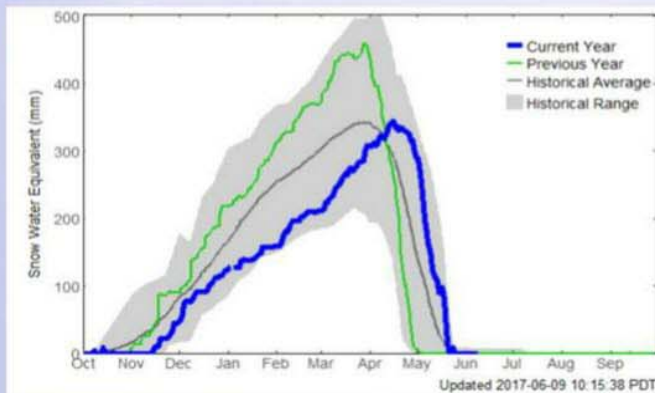
Automated Snow Station: Mission Creek 2F05P

Okanagan Snow Basin Indices		
	2017	2016
01-Jan	79%	125%
01-Feb	79%	122%
01-Mar	86%	123%
01-Apr	105%	131%
01-May	147%	75%



The Snow Basin Index represents snow monthly snow measurements taken at approximately 20 snow stations spread throughout the valley. The table above shows how this year compared to last year.

Early Decisions regarding lake levels reflected the snow conditions at the time. The graphs of two Automated Snow Stations show this year's snow water equivalent (shown in blue) and show the progression through the early spring this year. Note that it remained just above normal (black line) and even below last year (green line).



Ministry of Forests, Lands and Natural Resource Operations



Precipitation this spring

	Rank	P	Pnorm	Precip % of Norm	Drier Than, Normal, Wetter Than	Rank	Temp POR	Precip POR
Kelowna								
Mar-17	21	38.3	21.6	177.7%	Wetter	3	1969	1969
Apr-17	25	38.2	29.1	131.3%	Wetter	11	1969	1969
May-17	6	45.2	40.2	112.4%	Normal	15	1969	1969
M-A-M 2017	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Vernon (WJV)								
Mar-17	65	52.9	25.4	208.3%	Wetter	4	1901	1903
Apr-17	45	54.3	33.7	161.1%	Wetter	4	1900	1901
May-17	15	52.7	47.8	110.3%	Wetter	23	1900	1900
M-A-M 2017	75	159.9	95.5	167.5%	Wetter	2	1901	1903
Penticton (YYF)								
Mar-17	51	44.0	23.6	186.4%	Wetter	8	1908	1908
Apr-17	30	67.1	26.0	258.1%	Wetter	4	1907	1907
May-17	34	88.5	39.3	225.2%	Wetter	2	1908	1908
M-A-M 2017	57	199.6	88.8	224.8%	Wetter	1	1909	1908

Main take away from this table is that the March to May recorded precipitation numbers for Okanagan Environment Canada Stations were ranked fourth (Kelowna), second (Vernon) and first (Penticton). This is indicative of the how much rain we saw in over 100 years of records.

Ministry of **Forests, Lands and
Natural Resource Operations**

**As with all significant incidents, the ministry
will be reviewing actions after the flood
situation is over to better prepare for future
events.**



Questions?

Re: OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx

Wednesday, September 20, 2017
9:16 AM

Subject	Re: OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx
From	Crampton, Ray W FLNR:EX
To	Reimer, Shaun FLNR:EX
Cc	Warner, Robert FLNR:EX
Sent	Thursday, June 15, 2017 1:05 PM

Thanks Shaun.

Ray Crampton District Manager <i>Okanagan Shuswap</i> <i>Natural Resource District</i> <i>Ministry of Forests, Lands and Natural Resource Operations</i> <i>2501 14th Ave, Vernon, BC</i> <i>V1T 8Z1</i> <i>Phone: (250) 558-1729</i> <i>Cel: (250) 503-7862</i> <i>mailto: ray.crampton@gov.bc.ca</i>	
--	--

On Jun 15, 2017, at 11:16 AM, Reimer, Shaun FLNR:EX <shaun.reimer@gov.bc.ca> wrote:

Please see attached for the OKIB Town hall meeting tonight. **s.13**
s.13

Cheers...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

<OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx>

FW: Reply Direct CLIFF ID 229356

Tuesday, September 19, 2017
10:41 AM

Subject	FW: Reply Direct CLIFF ID 229356
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Sent	Thursday, June 15, 2017 12:13 PM
Attachments	 229356 v0  229356 incoming 1

Thanks Shaun.

To me first for send out

From: FLNR.Correspondence@gov.bc.ca
[mailto:FLNR.Correspondence@gov.bc.ca]

Sent: Thursday, June 15, 2017 9:47 AM

To: Johnston, Erin L FLNR:EX; Warner, Robert FLNR:EX

Cc: Beadman, Krista FLNR:EX

Subject: Reply Direct CLIFF ID 229356

REPLY DIRECT on behalf of MLA Letnick by 7/6:

1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations*

2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca)

3. Add response as attachment in CLIFF log

4. Update log notes

5. Enter signed date

6. Enter sign by

7. Close log

Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

DM-CSS **Referral Slip for ID:229356** 2017/06/15

Log Type:	Email	Action:	Draft Response	Due:	2017/07/06
Batch:		Sig Level:	Staff		

Author Type: Private Citizen
s.22

Written: 2017/06/1
3

Resp Type:

Email:

Received: 2017/06/1
5

File No.:

Due: 2017/07/06 Entered By: sohara

Approved : Approved By:
Signed: Sign By:
Closed:

Address To:	Norm Letnick	Issue:	Flood Safety
Copy To:		X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	

Subject
CI Questions regarding rising water levels at Okanagan Lake.

Log Notes	
2017/06/15	REPLY DIRECT on behalf of MLA Letnick by 7/6: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

Referral DM-CSS -> MO-Minister							
From:	DM-CSS	Sent:	2017/06/15	Status:	Completed	Ref Action:	FYI/File
To:	MO-Minister	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:		File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS							
From:	MO-Minister	Sent:	2017/06/15	Status:	Completed	Ref Action:	Coordinate Response
To:	DM-CSS	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:	2017/07/04	File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS -> RED-Thompson/Okanagan							
--	--	--	--	--	--	--	--

<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/15	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED-Thompson/Okanagan	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>		<i>Due:</i>	2017/07/06 (Active (14))	<i>File No.:</i>	

EMAIL RESPONSE

Reference: 229356

Dear s.22

Your email of June 13, 2017, to MLA Norm Letnick regarding the rising water levels at Okanagan Lake, has been referred to the Ministry of Forests, Lands and Natural Resource Operations for a response.

Yours truly,

Signatory

Title

pc: Norm Letnick, MLA, Kelowna - Lake Country

Page 165

Withheld pursuant to/removed as

s.3

FW: Reply Direct CLIFF ID 229356

Tuesday, September 19, 2017
9:37 AM

Subject	FW: Reply Direct CLIFF ID 229356
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Sent	Thursday, June 15, 2017 12:13 PM
Attachments	 229356 v0  229356 incoming 1

Thanks Shaun.
To me first for send out

From: FLNR.Correspondence@gov.bc.ca
[mailto:FLNR.Correspondence@gov.bc.ca]
Sent: Thursday, June 15, 2017 9:47 AM
To: Johnston, Erin L FLNR:EX; Warner, Robert FLNR:EX
Cc: Beadman, Krista FLNR:EX
Subject: Reply Direct CLIFF ID 229356

REPLY DIRECT on behalf of MLA Letnick by 7/6:

1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations*
2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca)
3. Add response as attachment in CLIFF log
4. Update log notes
5. Enter signed date
6. Enter sign by
7. Close log

Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

DM-CSS **Referral Slip for ID:229356** 2017/06/15

Log Type:	Email	Action:	Draft Response	Due:	2017/07/06
Batch:		Sig Level:	Staff		

Author Type: Private Citizen
s.22
Written: 2017/06/13
Resp Type:
Email:

Received: 2017/06/1 File No.:

Due: 2017/07/0 Entered By: sohara

Approved : Approved By:
Signed: Sign By:
Closed:

Address To:	Norm Letnick	Issue:	Flood Safety
Copy To:		X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	

Subject

CI Questions regarding rising water levels at Okanagan Lake.

Log Notes

2017/06/15
REPLY DIRECT on behalf of MLA Letnick by 7/6:
1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations*
2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca)
3. Add response as attachment in CLIFF log
4. Update log notes
5. Enter signed date
6. Enter sign by
7. Close log
Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

Referral DM-CSS -> MO-Minister							
From:	DM-CSS	Sent:	2017/06/15	Status:	Completed	Ref Action:	FYI/File
To:	MO-Minister	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:		File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS							
From:	MO-Minister	Sent:	2017/06/15	Status:	Completed	Ref Action:	Coordinate Response
To:	DM-CSS	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:	2017/07/04	File No.:	

Referral DM-CSS -> MO-Minister -> DM-CSS -> RED-Thompson/O							
---	--	--	--	--	--	--	--

<i>kanagan</i>							
<i>From:</i>	DM-CSS	<i>Sent:</i>	2017/06/15	<i>Status:</i>	Pending	<i>Ref Action:</i>	Reply Direct
<i>To:</i>	RED-Thompson/Okanagan	<i>Received:</i>		<i>Reason:</i>		<i>Sig Level:</i>	
<i>Assign To:</i>		<i>Completed:</i>		<i>Due:</i>	2017/07/06 (Active (14))	<i>File No.:</i>	

EMAIL RESPONSE

Reference: 229356

Dear s.22

Your email of June 13, 2017, to MLA Norm Letnick regarding the rising water levels at Okanagan Lake, has been referred to the Ministry of Forests, Lands and Natural Resource Operations for a response.

Yours truly,

Signatory

Title

pc: Norm Letnick, MLA, Kelowna - Lake Country

Page 170

Withheld pursuant to/removed as

s.3

OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx

Wednesday, September 20, 2017
8:25 AM

Subject	OK Lake Level OKIB Town Hall Mtg June 15 2017.pptx
From	Reimer, Shaun FLNR:EX
To	Crampton, Ray W FLNR:EX
Cc	Warner, Robert FLNR:EX
Sent	Thursday, June 15, 2017 11:16 AM
Attachments	 OK Lake Level OKIB...

Please see attached for the OKIB Town hall meeting tonight. **s.13**

s.13

Cheers...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

Ministry of **Forests, Lands and
Natural Resource Operations**



**Okanagan Indian Band
Town Hall Meeting
June 15, 2017**

**Water Management
Update**

by

Ray Crampton

Ministry of Forest, Lands & Natural
Resource Operations

Ministry of Forests, Lands and Natural Resource Operations



Okanagan Lake 2017



Add 340.236 to primary water level to get elevation above sea level.

Ministry of Forests, Lands and Natural Resource Operations



Projections:

- The snowmelt contributing to lake inflows is almost completely depleted.
- Okanagan Lake has dropped by about 3 cm in the past week.
- All lake levels and tributary creek flows should see reductions as the contribution from snowmelt declines.
- We have seen the peak flows on all creeks barring an extreme rainfall event;
- Lake levels should continue to fall barring significant rain;
- The ability to rapidly reduce lake levels is extremely limited. This means that the levels will remain high well into July;
- There is a high probability that wind will continue to be a problem going forward and flood protection works should remain in place. June is typically wet for the Okanagan and thunder and wind events are common although the Environment Canada forecast after Friday is for warm, dry conditions.
- Other flood years have consistently shown that **once summer arrives, Okanagan Lake should drop by about 1.5 cm per day.**



Ministry of Forests, Lands and Natural Resource Operations

Water Management Decisions

Each spring, inflow volume forecasts are estimated by the ministry's River Forecast Centre based primarily on snow data.. These forecasts combined with real time data of lake levels, flows, and other factors, are input to the ministry's fish water management tool (FWMT) to project Okanagan Lake levels through the year and to try to attain monthly target levels.

The ministry has guidelines it follows to protect kokanee and sockeye which include:

- Minimizing the drawdown of Okanagan Lake between the date of peak kokanee shore spawning and 100% hatch and emergence of the kokanee fry. Staff try to limit the drawdown to 15 cm so as not to 'de-water' shoreline spawned kokanee eggs. In 2017, the drawdown was 17 cm.
- Keeping the flow in the Okanagan River at Oliver below 28.3 cubic metres per second during sockeye egg and alevin incubation (between Nov 1st and 100% emergence – usually early May).
- **These guidelines are overridden if flooding is expected.**



Water Management Decisions 2017

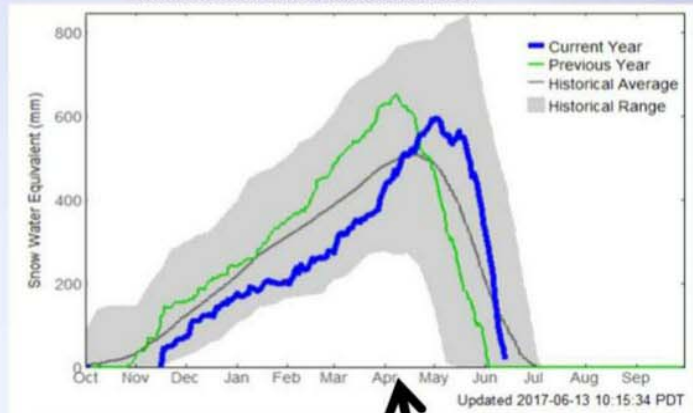
- Early Snowpack was low; No flooding was predicted.
- Inflow forecasts based on that snowpack were also low through to May.
- Inflow models used historic weather and climate patterns and did not react well to unprecedented March to May precipitation,
- **Fisheries guidelines were overridden** in April because of the ongoing wet weather. Flows were increased dramatically prior to the complete hatching/emergence of the sockeye in the Okanagan River.
- Even in early May, modelling did not project the lake going over our annual target..

Ministry of Forests, Lands and Natural Resource Operations



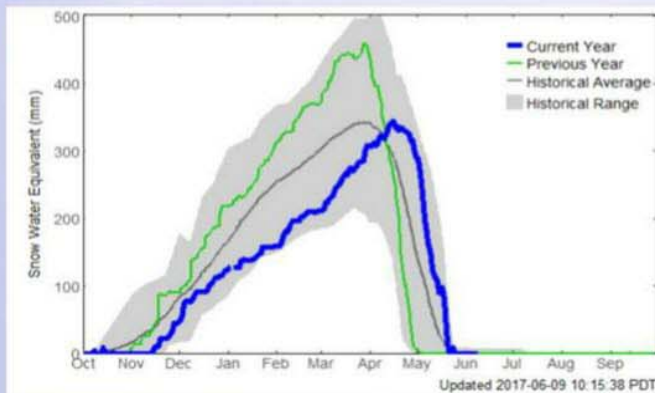
Automated Snow Station: Mission Creek 2F05P

Okanagan Snow Basin Indices		
	2017	2016
01-Jan	79%	125%
01-Feb	79%	122%
01-Mar	86%	123%
01-Apr	105%	131%
01-May	147%	75%



The Snow Basin Index represents snow monthly snow measurements taken at approximately 20 snow stations spread throughout the valley. The table above shows how this year compared to last year.

Early Decisions regarding lake levels reflected the snow conditions at the time. The graphs of two Automated Snow Stations show this year's snow water equivalent (shown in blue) and show the progression through the early spring this year. Note that it remained just above normal (black line) and even below last year (green line).



Ministry of Forests, Lands and Natural Resource Operations



Precipitation this spring

	Rank	P	Pnorm	Precip % of Norm	Drier Than, Normal, Wetter Than	Rank	Temp POR	Precip POR
Kelowna								
Mar-17	21	38.3	21.6	177.7%	Wetter	3	1969	1969
Apr-17	25	38.2	29.1	131.3%	Wetter	11	1969	1969
May-17	6	45.2	40.2	112.4%	Normal	15	1969	1969
M-A-M 2017	17	121.7	86.0	141.5%	Wetter	4	1969	1969
Vernon (WJV)								
Mar-17	65	52.9	25.4	208.3%	Wetter	4	1901	1903
Apr-17	45	54.3	33.7	161.1%	Wetter	4	1900	1901
May-17	15	52.7	47.8	110.3%	Wetter	23	1900	1900
M-A-M 2017	75	159.9	95.5	167.5%	Wetter	2	1901	1903
Penticton (YYF)								
Mar-17	51	44.0	23.6	186.4%	Wetter	8	1908	1908
Apr-17	30	67.1	26.0	258.1%	Wetter	4	1907	1907
May-17	34	88.5	39.3	225.2%	Wetter	2	1908	1908
M-A-M 2017	57	199.6	88.8	224.8%	Wetter	1	1909	1908

Main take away from this table is that the March to May recorded precipitation numbers for Okanagan Environment Canada Stations were ranked fourth (Kelowna), second (Vernon) and first (Penticton). This is indicative of the how much rain we saw in over 100 years of records.

Ministry of **Forests, Lands and
Natural Resource Operations**

**As with all significant incidents, the ministry
will be reviewing actions after the flood
situation is over to better prepare for future
events.**



Questions?

RE: Reply Direct CLIFF ID 229356

Wednesday, September 20, 2017
9:23 AM

Subject	RE: Reply Direct CLIFF ID 229356
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Thursday, June 15, 2017 1:22 PM
Attachments	 229356 Shaun Rei...

Bob, I have attached the draft of my content. Unsure who the signatory on this will be. Shaun

From: Warner, Robert FLNR:EX
Sent: Thursday, June 15, 2017 12:14 PM
To: Reimer, Shaun FLNR:EX
Subject: FW: Reply Direct CLIFF ID 229356

Thanks Shaun.
To me first for send out

From: FLNR.Correspondence@gov.bc.ca
[mailto:FLNR.Correspondence@gov.bc.ca]
Sent: Thursday, June 15, 2017 9:47 AM
To: Johnston, Erin L FLNR:EX; Warner, Robert FLNR:EX
Cc: Beadman, Krista FLNR:EX
Subject: Reply Direct CLIFF ID 229356

REPLY DIRECT on behalf of MLA Letnick by 7/6:

1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations*
2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca)
3. Add response as attachment in CLIFF log
4. Update log notes
5. Enter signed date
6. Enter sign by
7. Close log

Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

DM-CSS **Referral Slip for ID:229356** 2017/06/15

Log Type:	Email	Action:	Draft Response	Due:	2017/07/06
Batch:		Sig Level:	Staff		

Author Type: Private Citizen
s.22

Written: 2017/06/13
Resp Type:

Email:

Received: 2017/06/1 File No.:

5

Due: 2017/07/0 Entered By: sohara

6

Approved : Approved By:

Signed: Sign By:

Closed:

Address To:	Norm Letnick	Issue:	Flood Safety
Copy To:		X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	

Subject

****CI**** Questions regarding rising water levels at Okanagan Lake.

Log Notes

2017/06/15
 REPLY DIRECT on behalf of MLA Letnick by 7/6:
 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations*
 2. Ensure you copy the office of MLA Letnick on the response (cc: norm.letnick.mla@leg.bc.ca)
 3. Add response as attachment in CLIFF log
 4. Update log notes
 5. Enter signed date
 6. Enter sign by
 7. Close log
 Please notify CSS (FLNR.Correspondence@gov.bc.ca) if this is NOT your issue within 2-3 days.

Referral

DM-CSS ->
MO-Minister

From:	DM-CSS	Sent:	2017/06/15	Status:	Completed	Ref Action:	FYI/File
To:	MO-Minister	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:		File No.:	

Referral

DM-CSS ->
MO-Minister ->
DM-CSS

From:	MO-Minister	Sent:	2017/06/15	Status:	Completed	Ref Action:	Coordinate Response
To:	DM-CSS	Received:		Reason:		Sig Level:	
Assign To:		Completed:	2017/06/15	Due:	2017/07/04	File No.:	

Referral

DM-CSS ->
MO-

--	--	--	--	--	--	--	--

Minister -> DM-CSS -> RED- Thompson/Okanagan							
From:	DM-CSS	Sent:	2017/06/15	Status:	Pending	Ref Action:	Reply Direct
To:	RED-Thompson/Okanagan	Received:		Reason:		Sig Level:	
Assign To:		Completed:		Due:	2017/07/06 (Active (14))	File No.:	

EMAIL RESPONSE

Reference: 229356

Dear s.22

Your email of June 13, 2017, to MLA Norm Letnick regarding the rising water levels at Okanagan Lake, has been referred to the Ministry of Forests, Lands and Natural Resource Operations for a response.

I share your concern regarding the flooding around Okanagan Lake. Unfortunately, the events leading up to this year's event were highly unusual and could not be foreseen in time to mitigate the high lake level.

The early indications were that we would only develop a low snowpack this year and flooding was not predicted. The inflow forecasting for the lake primarily relies on snow data and could not anticipate the unprecedented precipitation in March and April. Decisions regarding dam releases were made on that basis.

Fisheries guidelines involving Okanagan River flows are in place every year and were not uniquely directed to dam operators this year. Those guidelines are overridden when flooding is expected. In fact, the guidelines were overridden as the potential impact of the continued rainfall into April was recognized. Dam releases were increased above the channel design capacity before all of the sockeye fry could survive the higher flows.

As with all significant incidents, the ministry will be reviewing actions after the flood situation is over to better prepare for future flooding events.

Yours truly,

Signatory
Title

pc: Norm Letnick, MLA, Kelowna - Lake Country

FW: Year to date weekly inflows into Okanagan Lake

Tuesday, September 19, 2017
11:28 AM

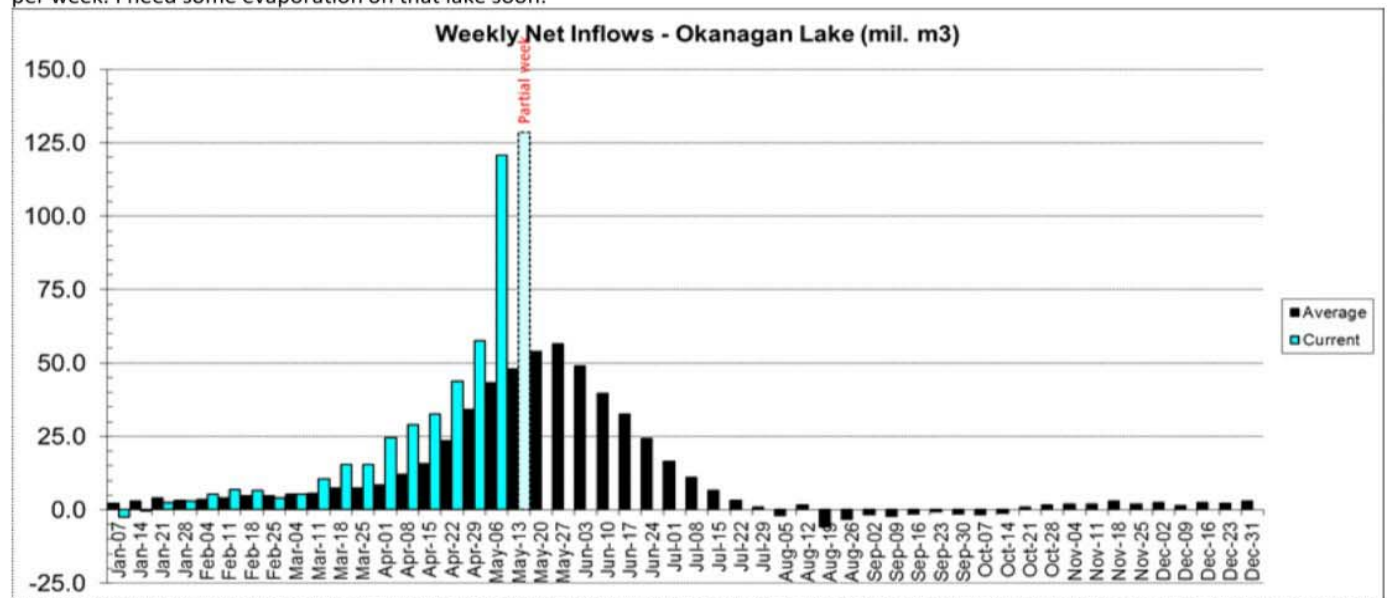
Subject	FW: Year to date weekly inflows into Okanagan Lake
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Tuesday, May 16, 2017 11:22 AM

Forgot to cc you

From: Reimer, Shaun FLNR:EX
Sent: Tuesday, May 16, 2017 10:02 AM
To: Schell, Steve E FLNR:EX
Cc: 'Todd Cashin'

Subject: Year to date weekly inflows into Okanagan Lake

As an FYI, this graphic shows inflows into Okanagan Lake since beginning of year. The black columns show the 30 year (1981-2010) normal weekly inflows and blue columns show this year. The Y axis represents Million cubic metres of water and each 3.46 Million cubic metre is one centimetre on the lake. Therefore, the latest partial week shown is roughly 130 Million Cubic metres which equates to 38 cm of water on the lake. And that follows the previous week when 36 cm of water entered the lake. Again, at maximum outflows, I only have the ability to reduce Okanagan Lake by roughly 11 cm per week. I need some evaporation on that lake soon.



Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

FW: CLIFF ID 229256 - Final Draft

Tuesday, September 19, 2017
10:34 AM

Subject	FW: CLIFF ID 229256 - Final Draft
From	Warner, Robert FLNR:EX
To	Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX
Sent	Monday, June 19, 2017 3:21 PM
Attachments	 229256 Response ...

Hi Sarah

Further to your questions below the attached document has answered them to the extent we feel comfortable doing at this stage. Included in the document are links to sites where folks can access information. We are hesitant to discuss actual numbers because they do not provide context – unless there are pages and pages of graphs and explanations.

thanks

From: Reimer, Shaun FLNR:EX

Sent: Monday, June 19, 2017 2:50 PM

To: Warner, Robert FLNR:EX

Subject: RE: CLIFF ID 229256 - Review

Bob, please see draft 2. It's difficult to answer some of the original questions around numbers because I can't provide context without adding pages of tables and graphs. Because of that, I have tried to leave the response rather open ended and provided links to snow and lake level information. Shaun

From: Warner, Robert FLNR:EX

Sent: Monday, June 19, 2017 9:22 AM

To: Reimer, Shaun FLNR:EX

Subject: FW: CLIFF ID 229256 - Review

Lets just give him the link or the data either one is good with me.

thanks

“what were the daily inflow measurements/volumes to the lake and the Penticton dam daily outflow measurements/volumes starting in mid-February through March and into April? Were outflows being maximised to draw down the lake?”

thanks

From: Correspondence Serv. Sectn, FLNR:EX

Sent: Thursday, June 15, 2017 5:24 PM

To: Warner, Robert FLNR:EX

Cc: Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX

Subject: FW: CLIFF ID 229256 - Review

Hi Bob,

Sorry, we are back to acknowledging MLAs/Cabinet members in the opening...

please use the attached.

Sarah

From: FLNR.Correspondence@gov.bc.ca
[mailto:FLNR.Correspondence@gov.bc.ca]

Sent: Thursday, June 15, 2017 2:02 PM

To: Warner, Robert FLNR:EX

Cc: Johnston, Erin L FLNR:EX; Crampton, Ray W FLNR:EX

Subject: CLIFF ID 229256 - Review

Hi Bob,

Please review edits and comments in the attached draft for 229256.

Comments/questions:

1) can we say "record levels of precipitation" or "unusually high levels of precipitation" if not record-setting (current "anticipated unprecedented precipitation" is a bit of a mouthful);

2) do we need to address the other questions in the incoming, i.e.

“what were the daily inflow measurements/volumes to the lake and the Penticton dam daily outflow measurements/volumes starting in mid-February through March and into April? Were outflows being maximised to draw down the lake?”

I am sending log 229256 separately as they are a bit different.

Thanks!

Sarah (250 387 4875)

Correspondence Services

DM-CSS **Referral Slip for ID:229256** 2017/06/15

<i>Log Type:</i>	Email	<i>Action:</i>	Draft Response	<i>Due:</i>	2017/06/21
<i>Batch:</i>		<i>Sig Level:</i>	Regional Executive Director		

Author Type: Association
Donald Renoe, Fleet Captain
Peachland Yacht Club
Email: peachlandyachtclub@telus.net

Written: 2017/05/31 *Resp Type:* Email

Received: 2017/06/01 *File No.:*
Due: 2017/06/21 *Entered By:* sohara
Approved: *Approved By:*
Signed: *Sign By:*
Closed:

<i>Address To:</i>	MLA Dan Ashton	<i>Issue:</i>	Flood Safety
<i>Copy To:</i>	Minister Thomson	<i>X-Ref:</i>	
<i>Rsp Office:</i>	RED-Thompson/Okanagan	<i>Drafter:</i>	Bob Warner

Subject

****CI**** Concern and information regarding the water levels at Okanagan Lake.

Log Notes	
2017/06/15	Received draft, edited and sent v2 to Bob for review - is there still a question to answer?
2017/06/05	As agreed by Andy Oetter, we are doing this as a RED response (may relate to flooding and may involve creation of standard wording). Bob to provide draft wording for both 229256 and 229257 to CSS towards some standard wording on the issues and the RED signature. ***CSS will also check with GCPE on mention of Herald interview in 229257.***
2017/06/05	As per RS-Water Management advice, CSS has redirected to RED-TO for reply direct response. Please see directions below for REPLY DIRECT. CSS has identified Bob Warner, Resource Manager as drafter.
2017/06/02	Sent both 229256 & 229257 back to CU to redirect to regions for response.
2017/06/02	Hi Linda, Tina advises that these should be redirected to regional operations where they manage the dams in question. Please advise correspondence unit. Thank you, Ted
2017/06/02	Ted White reviewed action and has assigned it to Tina Neale to draft reply.
2017/06/01	Please copy MLA Ashton's office on response REPLY DIRECT on behalf of the Minister's office by 6/21: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the Minister's office on the response (cc: FLNR.Minister@gov.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log

Page 189

Withheld pursuant to/removed as

s.13

FW: CLIFF ID 229256 - Review

Tuesday, September 19, 2017
8:15 AM

Subject	FW: CLIFF ID 229256 - Review
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Sent	Monday, June 19, 2017 9:22 AM
Attachments	 229256 incoming 1  229256 v3 wtc

Lets just give him the link or the data either one is good with me.
thanks

“what were the daily inflow measurements/volumes to the lake and the
Penticton dam daily outflow measurements/volumes starting in mid-
February through March and into April? Were outflows being maximised to
draw down the lake?”

thanks

From: Correspondence Serv. Sectn, FLNR:EX
Sent: Thursday, June 15, 2017 5:24 PM
To: Warner, Robert FLNR:EX
Cc: Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX
Subject: FW: CLIFF ID 229256 - Review

Hi Bob,

Sorry, we are back to acknowledging MLAs/Cabinet members in the opening...
please use the attached.

Sarah

From: FLNR.Correspondence@gov.bc.ca
[mailto:FLNR.Correspondence@gov.bc.ca]
Sent: Thursday, June 15, 2017 2:02 PM
To: Warner, Robert FLNR:EX
Cc: Johnston, Erin L FLNR:EX; Crampton, Ray W FLNR:EX
Subject: CLIFF ID 229256 - Review

Hi Bob,

Please review edits and comments in the attached draft for 229256.

Comments/questions:

1) can we say "record levels of precipitation" or "unusually high levels of
precipitation" if not record-setting (current "anticipated unprecedented
precipitation" is a bit of a mouthful);

2) do we need to address the other questions in the incoming, i.e.

“what were the daily inflow measurements/volumes to the lake and the Penticton dam daily outflow measurements/volumes starting in mid-February through March and into April? Were outflows being maximised to draw down the lake?”

I am sending log 229256 separately as they are a bit different.

Thanks!

Sarah (250 387 4875)

Correspondence Services

DM-CSS **Referral Slip for ID:229256** 2017/06/15

Log Type:	Email	Action:	Draft Response	Due:	2017/06/21
Batch:		Sig Level:	Regional Executive Director		

Author Type: Association
Donald Renoe, Fleet Captain
Peachland Yacht Club
Email: peachlandyachtclub@telus.net

Written: 2017/05/31 Resp Type: Email

Received: 2017/06/01 File No.:
Due: 2017/06/21 Entered By: sohara
Approved : Approved By:
Signed: Sign By:
Closed:

Address To:	MLA Dan Ashton	Issue:	Flood Safety
Copy To:	Minister Thomson	X-Ref:	
Rsp Office:	RED-Thompson/Okanagan	Drafter:	Bob Warner

Subject

****CI**** Concern and information regarding the water levels at Okanagan Lake.

Log

Notes	
2017/06/15	Received draft, edited and sent v2 to Bob for review - is there still a question to answer?
2017/06/05	As agreed by Andy Oetter, we are doing this as a RED response (may relate to flooding and may involve creation of standard wording). Bob to provide draft wording for both 229256 and 229257 to CSS towards some standard wording on the issues and the RED signature. ***CSS will also check with GCPE on mention of Herald interview in 229257.***
2017/06/05	As per RS-Water Management advice, CSS has redirected to RED-TO for reply direct response. Please see directions below for REPLY DIRECT. CSS has identified Bob Warner, Resource Manager as drafter.
2017/06/02	Sent both 229256 & 229257 back to CU to redirect to regions for response.
2017/06/02	Hi Linda, Tina advises that these should be redirected to regional operations where they manage the dams in question. Please advise correspondence unit. Thank you, Ted
2017/06/02	Ted White reviewed action and has assigned it to Tina Neale to draft reply.
2017/06/01	Please copy MLA Ashton's office on response REPLY DIRECT on behalf of the Minister's office by 6/21: 1. Please reply direct to the writer on behalf of the Ministry of Forests, Lands and Natural Resource Operations* 2. Ensure you copy the Minister's office on the response (cc: FLNR.Minister@gov.bc.ca) 3. Add response as attachment in CLIFF log 4. Update log notes 5. Enter signed date 6. Enter sign by 7. Close log

Page 193 to/à Page 195

Withheld pursuant to/removed as

s.3

Page 196

Withheld pursuant to/removal as

s.13,s.22

FW: Lake levels of Okanagan Lake on May 1, 2017 (ref: 229257)

Tuesday, September 19, 2017
8:45 AM

Subject	FW: Lake levels of Okanagan Lake on May 1, 2017 (ref: 229257)
From	Warner, Robert FLNR:EX
To	Reimer, Shaun FLNR:EX
Sent	Thursday, June 29, 2017 9:25 AM

fyi

From: Warner, Robert FLNR:EX
Sent: Tuesday, June 27, 2017 3:56 PM
To: Johnston, Erin L FLNR:EX; Correspondence Serv. Sectn, FLNR:EX
Subject: RE: Lake levels of Okanagan Lake on May 1, 2017 (ref: 229257)

Hi Erin

s.13,s.22

no further response required

From: Johnston, Erin L FLNR:EX
Sent: Tuesday, June 27, 2017 3:08 PM
To: Correspondence Serv. Sectn, FLNR:EX
Cc: Warner, Robert FLNR:EX
Subject: FW: Lake levels of Okanagan Lake on May 1, 2017 (ref: 229257)

Hello,

Please see below for a response to the reply I sent out this morning for 229257. Can you please log in CLIFF. I'm not sure there is a question here for us to answer, Bob?

Thank you!

Erin Johnston
Regional Executive Administrator
Thompson Okanagan Region
Ministry of Forests, Lands & Natural Resource Operations
Phone: 250-828-4172
Email: erin.johnston@gov.bc.ca

From: s.22
Sent: Tuesday, June 27, 2017 3:05 PM
To: Johnston, Erin L FLNR:EX
Cc: Ashton.MLA, Dan LASS:EX; OfficeofthePremier, Office PREM:EX; 'Peter Weeber'; Mayor A Jakubeit; Andre Martin; Campbell Watt; 'Helena Konanz'; Judy Sentes; Max Picton; Tarik Sayeed

Subject: RE: Lake levels of Okanagan Lake on May 1, 2017 (ref: 229257)

Personally, I believe that you are spinning a tall tale.

Your flood control manager admitted on TV that the date of releasing the water was held up based on a request from the Federal Fisheries Department and the NAO. They were more interested in saving fish and your department chose to place homes in jeopardy.

A committee of all Chief Executive Officers for towns that border the lake and your department need to meet monthly starting in January each year to determine flow rates to be expelled from the Okanagan Lake. Your department must err on the side of caution and the protection of private property at all costs. Residents must come before fish at all times.

Please issue a press release to all newspapers in the Okanagan Valley defending your position, honest facts only to be presented.

All real estate transactions should have a disclosure of the height of all properties sold in relation to the highest recorded water levels recorded. New home owners need to be presented with all negative facts in order to make an educated purchase of a home.

s.22

Please forward to others that received copies of your reply

From: Johnston, Erin L FLNR:EX [<mailto:Erin.Johnston@gov.bc.ca>]

Sent: Tuesday, June 27, 2017 10:17 AM

To: s.22

Cc: Ashton.MLA, Dan LASS:EX; OfficeofthePremier, Office PREM:EX; Minister, FLNR FLNR:EX

Subject: Lake levels of Okanagan Lake on May 1, 2017 (ref: 229257)

Dear s.22

Your emails of May 31, 2017, to Dan Ashton, MLA for Penticton, and of June 1, 2017, to Honourable Christy Clark, Premier of British Columbia, concerning the high water level of Okanagan Lake, have been referred to the Ministry of Forests, Lands and Natural Resource Operations for a response.

I share your concern regarding the flooding around Okanagan Lake. Unfortunately, this year's flood event was highly unusual and could not have been foreseen in time to mitigate the high lake level.

I appreciate your thoughts that more water "should have been expelled prior to flood season." Unfortunately, the early indications were that we would only develop a low snowpack this year and flooding was not predicted. The inflow forecasting for the lake relies primarily on snow data and could not have anticipated the unusually high levels of precipitation in March and April. Decisions regarding dam releases were made on that basis.

With regards to monitoring, snow levels are measured monthly from January 1st of each year at approximately 16 sites in the Okanagan. In addition, four automated sites provide real-time snow information. Trained and experienced personnel measure this snow. There was no reason to doubt the findings that this year the snowpack was below average on the first day of January, February and March, and only just above average (105 percent of normal) on the first day of April. Also, lake and river levels are monitored daily at hydrometric stations, and real-time and historical data are available on the following Government of Canada

website: http://wateroffice.ec.gc.ca/index_e.html (search by station, i.e. Okanagan, and then click on View Report).

Thank you for taking the time to express your concerns. As with all significant incidents, the ministry will be reviewing actions after the flood situation is over to better prepare for future flooding events.

Sincerely,

Gerry MacDougall
Regional Executive Director
Thompson-Okanagan
Natural Resource Region

RE: Okanagan Lake Flooding

Wednesday, September 20, 2017
9:19 AM

Subject	RE: Okanagan Lake Flooding
From	Reimer, Shaun FLNR:EX
To	s.22
Cc	Ashton.MLA, Dan LASS:EX; Warner, Robert FLNR:EX
Sent	Tuesday, July 4, 2017 10:27 AM

Good Morning s.22

To clarify my statement, my reference to fisheries does not specifically mean sport fisheries. In order to draw down the lake every year in case of potential flooding, the lake would drop more than fifteen to twenty five centimetres and could de-water the eggs laid by shore-spawning kokanee. As well, the higher Okanagan River flows needed for that size of a drawdown would scour out gravel containing sockeye eggs. These are the direct fisheries consequences. As I have stated in the past, the guidelines speaking to these fisheries constraints are overridden when flooding is expected. Unfortunately, this year, the inflow projections based on the low snowpack conditions through to April did not lead us to expect flooding which would necessitate this override. Even so, flows were raised in April as the unseasonably high precipitation continued, and it did result in the scouring-out of some of the remaining unhatched sockeye eggs.

The disastrous agricultural, environmental, and economic issues I referred to could develop if the lake were drawn down and a drought year (or worse, a multi-year drought) were to materialize. Impacts to the agricultural diversion north of Oliver would impact approximately 3600 acres of crops. These are primarily tree fruit and vineyards and were these crops to die, it would take many years to recover. The Town of Oliver estimates that the annual value of the crops serviced by the diversion flume to be \$130 Million. This does not take into account any labour, spinoff industries, or related tourism. It also does not take into account the many farmers, orchardists, and vineyards that withdraw water from the Okanagan River directly.

Beyond the environmental impacts associated with fish I discussed earlier, extremely low river levels during a drought year impact the many oxbows and ponds connected to the river in the south Okanagan which provide habitat to species at risk.

Along with flood control, these are some of the impacts that the lake and river target levels adopted in the Okanagan Basin Implementation Agreement of 1976 attempt to balance. Clearly, ours is an imperfect science although we are actively striving to improve our ability to forecast lake inflows. Please feel free to call me at 250-490-8229 if you wish to discuss this or you need clarification of any of my points.

Regards...

Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: s.22

Sent: Sunday, July 2, 2017 12:50 PM

To: Reimer, Shaun FLNR:EX
Cc: Ashton.MLA, Dan LASS:EX
Subject: Okanagan Lake Flooding

Dear Sir,

You've stated ministry guidelines restrict draw-down of the lake to protect fish and that lowering the lake each year, just in case of flooding, could result in a lack of water, resulting in potentially disastrous effects on the fishery, as well as significant issues **agriculturally, environmentally and economically**.

I understand the possible damage that could befall the sport fishing industry. However, I'm unaware of any "significant issues" that might result from low lake levels "agriculturally, environmentally and economically". Please clarify.

Thank you

s.22

reveiw of operations

Wednesday, September 20, 2017
9:49 AM

Subject	reveiw of operations
From	Warner, Robert FLNR:EX
To	Crampton, Ray W FLNR:EX
Cc	Shumka, Pam FLNR:EX; Reimer, Shaun FLNR:EX
Sent	Thursday, July 6, 2017 2:45 PM

Hi Ray

Valerie C. called and asked me to pass along to you that there will be a contractor looking at the inputs, decisions, communication out to the public, around the operation of the OLRs this past year. She is writing the terms of reference and it is being funded thru EMBC. They hope to get it out the door in the next week or two and have it ready for submittal in September.

I have informed her we will have our own regional review in the next couple of months.

I have made Shaun aware, Valerie has made Rick aware. Honk if you have questions....when you get back of course!
thanks

  PREMIER'S AWARD ORGANIZATIONAL EXCELLENCE 2016 REGIONAL RECIPIENT	Bob Warner RPF Resource Manager 250-490-8232 C250-462-8887 Okanagan Shuswap Natural Resource District Ministry of Forests, Lands and Natural Resource Operations	
--	--	--

Fwd: Urgent Global Okanagan request

Tuesday, September 19, 2017
11:42 AM

Subject	Fwd: Urgent Global Okanagan request
From	Reimer, Shaun FLNR:EX
To	Warner, Robert FLNR:EX
Sent	Friday, June 9, 2017 3:09 PM

FYI only

Sent from my iPhone

Begin forwarded message:

From: "Hyatt, Kim" <Kim.Hyatt@dfo-mpo.gc.ca>
Date: June 9, 2017 at 3:01:07 PM PDT
To: "Sloan, Lara" <Lara.Sloan@dfo-mpo.gc.ca>
Cc: "Kennedy, Eddy" <Eddy.Kennedy@dfo-mpo.gc.ca>, "Stockwell, Margot" <Margot.Stockwell@dfo-mpo.gc.ca>, Shaun Reimer <shaun.reimer@gov.bc.ca>, "Allan, Dean" <Dean.Allan@dfo-mpo.gc.ca>
Subject: RE: Urgent Global Okanagan request

Relatively short interview. Principal question was whether the Okanagan Basin Agreement and DFO or BC-FLNRO interests in protecting Sockeye or kokanee salmon are accorded a higher priority than avoidance of flood induced risk of damage to human health or infrastructure. The answer was that if information in-hand at any point during a water management year suggests imminent risk of flood and a high likelihood of associated damage to either health and safety of people or property that fisheries protection objectives become secondary as per language in the Okanagan Basin Implementation Agreement. I noted that although we were all becoming a bit "edgy" regarding the schedule and magnitude of water releases as of the third week of April that none of the information that we had in-hand (e.g. BC River Forecast Centre water supply predictions, EC climate forecasts of seasonal precipitation out beyond 3-5 days, rate of snowpack water yields etc...) suggested a high risk of the magnitude of subsequent events that have taken place in May through early June. We also discussed the increasingly uncertain business of forecasting water yield, runoff rates (and for that matter even returns of salmon) given wider ranges of environmental variation than currently represented in the historic record (i.e. all types of forecasting are becoming increasingly difficult in the face of increased climate variability). Finally, I was asked whether DFO would cooperate in a review of the water management actions and their rationale this spring in the event that the BC Environment Minister made such a request in the coming weeks. I indicated that DFO personnel involved in FWMT Operations Team discussions would be happy to cooperate in any review that might be requested.

Regards, Kim.

Kim D. Hyatt Ph.D.

Section Head, Regional Ecosystem Effects on Fish & Fisheries
Ecosystems Science Division, Fisheries & Oceans Canada
Pacific Biological Station,
3190, Hammond Bay Road
Nanaimo, BC V9T 6N7
T: 250 756 7217
F: 250 756 7138

Associate Editor, *Canadian Water Resources Journal*, NRC Research Press

From: Sloan, Lara
Sent: June-09-17 11:22 AM
To: Hyatt, Kim
Cc: Kennedy, Eddy; Stockwell, Margot; Shaun Reimer; Allan, Dean
Subject: RE: Urgent Global Okanagan request

Yes, thank you ☺ Do you have a head shot that I could provide her with? Also, can I give her your phone number, or would you prefer to call her at 2pm?

Cheers,
Lara

From: Hyatt, Kim
Sent: June-09-17 11:11 AM
To: Sloan, Lara
Cc: Kennedy, Eddy; Stockwell, Margot; Shaun Reimer; Allan, Dean
Subject: RE: Urgent Global Okanagan request

Hi Lara! I've shifted a meeting to be able to do this so I'm available between 1:30 and 3:00 PM or alternately between 4:30 and 5:30 PM. I'm assuming this is a telephone interview?

Thanks, Kim.

Kim D. Hyatt Ph.D.
Section Head, Regional Ecosystem Effects on Fish & Fisheries
Ecosystems Science Division, Fisheries & Oceans Canada
Pacific Biological Station,
3190, Hammond Bay Road
Nanaimo, BC V9T 6N7
T: 250 756 7217
F: 250 756 7138
Associate Editor, *Canadian Water Resources Journal*, NRC Research Press

From: Sloan, Lara
Sent: June-09-17 10:14 AM
To: Hyatt, Kim
Subject: RE: Urgent Global Okanagan request

Thanks Kim ☺ Can I tell the reporter early afternoon for the interview?

From: Hyatt, Kim
Sent: June-09-17 10:13 AM
To: Sloan, Lara
Subject: RE: Urgent Global Okanagan request

I can make myself available if need be. Have been taking conference calls at home this A.M. Heading into work now and should be there by 1100 hrs. I could give you a call then.

Kim

Research Scientist and Section Head,
Regional Ecosystem Effects on Fish & Fisheries
Science Branch, Ecosystem Science Division
Pacific Biological Station,
3190, Hammond Bay Road
Nanaimo, BC V9T 6N7
T: 250 756 7217
F: 250 756 7138
Associate Editor, *Canadian Water Resources Journal*, NRC Research Press

From: Sloan, Lara

Sent: June 9, 2017 10:08 AM

To: Hyatt, Kim

Subject: Urgent Global Okanagan request

Hi Kim. Are you available to discuss this on camera?

Please read below....

Cheers,

Lara

From: Shelby Thom <Shelby.Thom@globalnews.ca>

Sent: Friday, June 9, 2017 8:12 AM

To: Bate, Dan; Girouard, Louise

Cc: RHQ - Media.PAC

Subject: Re: Urgent Global Okanagan request

Good morning.

I have an affiliate in Kamloops I can touch base with to see if someone is available (CFJC).

What is the location and approximate time your spokesperson is available?

Thank you.

Shelby

From: Bate, Dan <Dan.Bate@dfo-mpo.gc.ca>

Sent: June 8, 2017 5:00 PM

To: Shelby Thom; Girouard, Louise

Cc: RHQ - Media.PAC

Subject: Re: Urgent Global Okanagan request

Hi Shelby, our spokesperson is located in Kamloops therefore likely more difficult to get a camera there. We'll check with them in the morning and see what's possible.

Dan

From: Shelby Thom [<mailto:Shelby.Thom@globalnews.ca>]

Sent: 2017-June-08 3:25 PM

To: RHQ - Media.PAC

Cc: Shelby Thom

Subject: Urgent Global Okanagan request

Good afternoon,

This is Shelby Thom with Global Okanagan based in Penticton, BC.

I'm working on a series of stories in regards to how Okanagan lake levels got to where they are now, and looking at management and regulation of the lake levels. I would like to request an on-camera interview with a DFO representative tomorrow in the Oliver area near the spawning grounds to explain to the public how lake levels effect fish spawning.

Shaun Reimer with the BC Ministry of Forests, Lands and Natural Resources provided a chronology today of his interactions with DFO and ONA.

"Waiting for fish to hatch before increasing water levels, constraint for fisheries, cautious of Okanagan River and sockeye that spawn there, he is asked to keep water at Oliver under 28 cubic meters per second, now 77 cubic meters/second,

28 determined to be rate that won't scower out fish eggs and kill them, got into April, brought level of the river up just below that, kept abit of a buffer but trying to upgrade flows, middle of April he was more nervous because of the rain, a lot of fish had hatched, said he couldn't wait any longer, third week of April started ramping up flows to design constraints. "

My cell is 250-488-2686.

Thank you.

Shelby Thom Journalist | Global Okanagan
Global News | Corus Entertainment
342 Leon Ave | Kelowna, B.C. V1V 2M8
C: 250.488.2686
T: 250.861.8233
E: Shelby.thom@globalnews.ca **Twitter:** @Shelby_Thom
<image001.jpg>

RE: Heads up: Flood Response Review

Wednesday, September 20, 2017
8:54 AM

Subject	RE: Heads up: Flood Response Review
From	Warner, Robert FLNR:EX
To	Shumka, Pam FLNR:EX
Cc	Reimer, Shaun FLNR:EX
Sent	Thursday, July 13, 2017 4:21 PM
Attachments	 OK Nic Flood Response ...

Hi pam

A few comments in the document.

Both Shaun and I have reviewed this document- looks fairly generic. Timing looks ambitious with summer holidays, flood recovery and fires now in the mix.

Also clarification around scope –reviewing not only freshet decisions but decisions made prior to freshet.

thanks

From: Shumka, Pam FLNR:EX

Sent: Tuesday, July 11, 2017 7:25 AM

To: Warner, Robert FLNR:EX

Subject: FW: Heads up: Flood Response Review

Hi Bob, can you and Shaun pls review and comment?

From: MacDougall, Gerry L FLNR:EX

Sent: Monday, July 10, 2017 5:57 PM

To: FLNR TO Region - Small RMT

Cc: Cameron, Valerie Z FLNR:EX

Subject: FW: Heads up: Flood Response Review

Hopefully we can arrange the timing at a time when we're not in an emergency (flood/fire/Nicola is at Level 2 drought).

The review is a **good** idea though!

Andy and or Ted and or Pam, could you please assign someone to review the ToR for Valerie?

Thank you,

Gerry

From: Cameron, Valerie Z FLNR:EX

Sent: Thursday, July 6, 2017 2:02 PM

To: MacDougall, Gerry L FLNR:EX

Subject: Heads up: Flood Response Review

Hi Gerry,

I tried calling, but understand you are out in the field today, so am sending this info via email.

Rick may have already advised you that there was a request from EMBC for FLNRO to do a review of the operation of the Okanagan and Nicola infrastructure during Freshet 2017. I have been assigned this task. The intention is not a critique of operations, rather to conduct a review to learn from the experience to

make improvements if necessary. I have drafted the attached Terms of Reference and will be contacting possible contractors, with a goal of getting started on the review in the next couple of weeks.

Please pass this information to whoever in your region needs to know. Feel free to contact me if you have any questions or require further information. Thanks.

Valerie

Valerie Z Cameron, P. Geo.

Water Stewardship Manager

Water Management Branch

BC Ministry of Forests, Lands and Natural Resource Operations

PO Box 9340 Stn Prov Govt Victoria BC V8W 9M1

Phone (250) 387 5506

Fax (250) 356 0605

Email valerie.cameron@gov.bc.ca

Water for BC: Safe, Sustainable and Valued By All

Page 209 to/à Page 210

Withheld pursuant to/removed as

s.13

RE: 2017 Okanagan floodwaters

Wednesday, September 20, 2017
9:26 AM

Subject	RE: 2017 Okanagan floodwaters
From	Reimer, Shaun FLNR:EX
To	'Steve Arstad'
Sent	Monday, June 5, 2017 4:16 PM

Hi Steve, please see my responses below.
Regards...
Shaun Reimer, P.Eng.

Section Head - Public Safety & Protection
Okanagan Shuswap District
Ministry of Forests, Lands & Natural Resource Operations
102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8229
Fax: 250-490-2231

From: Steve Arstad [<mailto:sarstad@infonews.ca>]

Sent: Friday, June 2, 2017 3:48 PM

To: Reimer, Shaun FLNR:EX

Subject: 2017 Okanagan floodwaters

Hello, Shaun:

I left a telephone message regarding this topic with you as well today, Friday afternoon, 3:15 p.m.

We're trying to write a story as basically as possible, explaining why this season's freshet could not have been predicted in any logical sense.

I was at the regional district board meeting yesterday, and found myself irritated at how quickly some supposedly knowledgeable people can be, to start pointing fingers when it comes to natural causes, as though man could control everything.

To that end, I'm looking at things like:

1. Historically, how often in the past Okanagan lakes have been drained in the fall in anticipation of flood conditions, if that has ever happened.

We never have known conditions as early as the fall 1997 was the last year the lake was significantly lowered in anticipation of flooding and that could not stop the lake from reaching problematic levels. That year, an extreme snowpack starting building prior to Christmas (1996) which resulted in historically high inflows into the lake. The difference between 1997 and 2017 is that this year, we had low to average snowpacks through April 1st. The 2017 snow conditions did not indicate that we were in for a 'high water' year like they did in 1997. In 2017, the Okanagan snow basin indices were as follows:

- Feb 1st: 79%
- March 1st: 86%
- April 1st: 105%
- May 1: 147%

The forecasting models use the data and conditions at the time and can't predict the weather any better than a person can. The forecasts that were modelled were based on the low snowpack and never suggested we would get the historic volume inflows into the lake that we have experienced. By way of comparison, the Okanagan snow basin indices in 2016 were Feb 1: 122%, March 1: 123%, and April 1: 131%. There was no flooding in 2016.

2. What are the negative consequences of letting too much water flow out of the Okanagan, should predictions run counter to reality?

The seasonal target lake levels used by the Ministry are there to maintain a balance between high and low water years. Lowering the lake each year just in case of flooding could result in a lack of water which would have major effects on fisheries and would also have significant consequences agriculturally, environmentally, and economically during drought years.

2. I had a woman telling me today she recalled high water in the 1990 season, when the top steps of the climb out at the south end of the channel were underwater. I'm not sure that I don't vaguely remember that as well, but if that occurred, can you say why the flows don't reach that height in the channel this year?

This one is hard to comment on. Those stairs are likely heavily influenced by the level of Skaha Lake. I can say though, that the present flow in the Penticton channel of the Okanagan River are higher than at any time in 1990.

4. Has silt deposition become an issue hindering water flow anywhere below Okanagan Lake? That does not hinder our operations or ability to discharge water through any dams in the Okanagan River. We have settling basins at three of the major tributaries which capture much of the sediment that would otherwise enter the Okanagan River. We remove that sediment from the basins when they get full as part of our normal operations.

5. Is it possible to illustrate the flow out of Okanagan Lake through numbers, i.e. comparing the number of gallons outflow to that flowing over Niagara Falls, (if there is an average flow rate for the falls.), or how many gallons of water is represented by a one cm increase in lake level? I am not sure I see the benefits of comparing Okanagan lake Dam to Niagara. One centimetre of lake water is worth one day of discharging 40 cubic metres per second through Okanagan Lake dam. At present we are discharging 73 cubic metres per second which would be worth 1.8 centimetres of water per day. The channel below the dam is designed for 60 cubic metres per second of flow.

For the five weeks starting April 30 and ending June 3, weekly inflows into Okanagan Lake have been greater than 100 million cubic metres – this translates into a 169-cm depth of water entering into Okanagan Lake in those five weeks. These are the highest levels on record. However, staff can only lower the lake by approximately 11 to 12 cm week due to limits of the infrastructure and to avoid causing severe flooding downstream. While 169 cm of water has entered into the lake since May 1, only about 55 cm has been able to be released.

The ministry has guidelines it follows to protect kokanee and sockeye which include:

- Minimizing the drawdown of Okanagan Lake between the date of peak kokanee shore spawning and 100% hatch and emergence of the kokanee fry. Staff try to limit the drawdown to 15 cm so as not to 'de-water' shoreline spawned kokanee eggs. In 2017, the drawdown was 17 cm. The Kokanee spawning peaked when Okanagan Lake was at 341.90 m in October 2016.
- Keeping the flow in the Okanagan River **at Oliver** below 28.3 cubic metres per second during sockeye egg and alevin incubation (between Nov 1st and 100% emergence, typically early May). These guidelines are overridden if flooding is expected, but in 2017 there were no indicators (i.e. snowpack was below normal) for flooding. Starting in March 2017, Okanagan River flows were kept just under the 28.3 cubic metres per second (with a buffer) due to the precipitation and continued rise in the snowpack. However, the river constraint guideline was overridden this year because of the ongoing rainfall. Flows were ramped up to above the design flows in the third week of April despite the fact that 100% hatch and emergence of sockeye didn't occur until the first week of May.

6. We are aware of such things as channel erosion restricting flow rates at the dam, what about other downstream issues such as Similkameen River flow, and other bottlenecks? Very high flows in the Similkameen don't necessarily restrict water in the Okanagan River but can backwater and reduce flows out of Osoyoos Lake which can rise rapidly (but temporarily). Since the Okanagan River flows into Osoyoos Lake, we have, in years past, reduced the flow into that lake to keep it from rising too high until the Similkameen level dropped. That has not been an issue in 2017.

7. What is the single biggest factor, in your opinion, contributing to this year's high water event? The unforeseen precipitation that began in March and didn't let up until May. It contributed directly to the lake inflow but also built up a late snowpack.

8. Is there anything particularly unique about the Okanagan lake and river system that adds to water control issues in difficult years like this one? I am not sure that there is anything particular about the Okanagan Lake and River system that differs from other systems experiencing a difficult year like 2017. Clearly other areas and river/lake systems in British Columbia are facing flood conditions and some regions are likely just starting.

Thanks for anything you can tell me, much appreciated.

Steve Arstad

sarstad@infonews.ca

Cell: 250-488-3065

Email: sarstad@infonews.ca

