

2015: Okanagan Water Supply

Water Management Support Webinar



27 July 2015

10:00am – 11:00am



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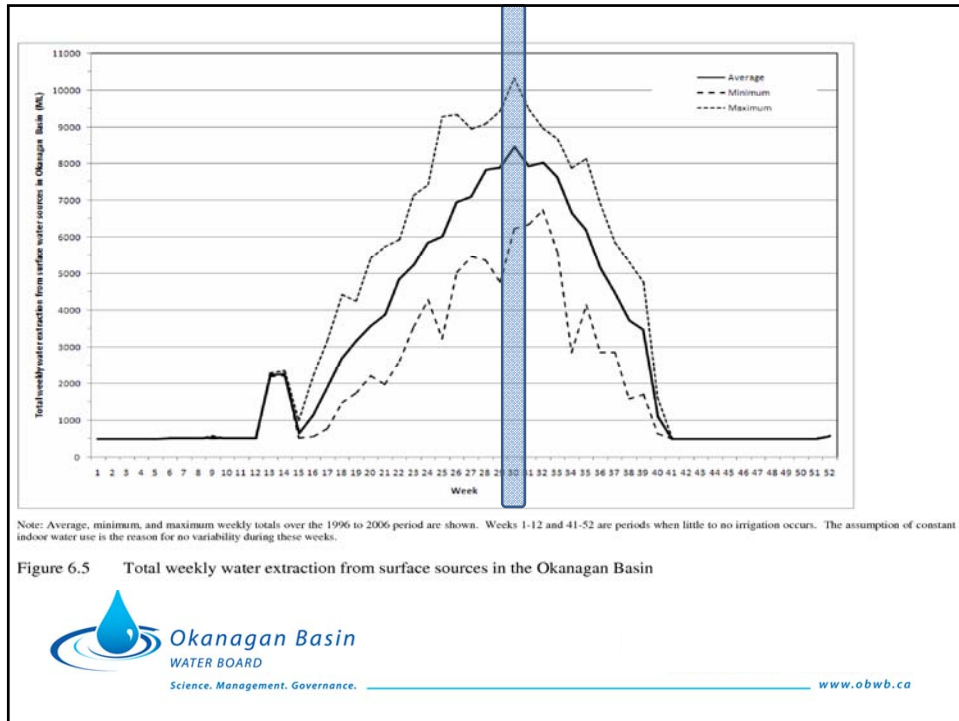
Webinar Host: **Nelson Jatel, M.A., P.Ag.**
Water Stewardship Director



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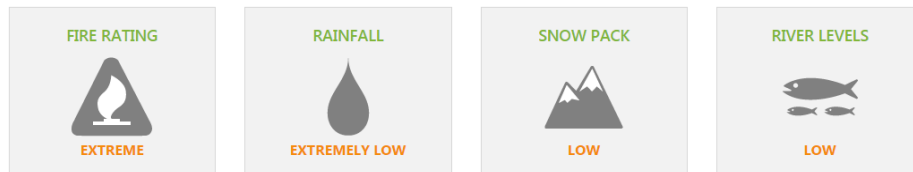
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Okanagan Water Status: July 2015

Home > Services > Water > Conservation & Reservoir Levels > Be Water Wise This Hot, Dry Summer



Okanagan Policy Gap: Learning from other BC jurisdictions

GVWD Water Shortage Response Plan - At a Glance *Application of the WSRP to Municipal Property*

■ : ACCEPTABLE ■ : RESTRICTED ■ : PROHIBITED

ACTIVITY	WSRP STAGES				RESTRICTION DETAILS
	1	2	3	4	
Municipal parks	■	■	■	■	STAGE 2: These surfaces may be watered only within the once-weekly times. STAGE 3: All forms of watering using treated drinking water are prohibited. STAGE 4: All forms of watering using treated drinking water are prohibited. Shut down faucets in parks & public spaces, except for drinking fountains equipped with spring-loaded shut-off.
Municipal ornamental lawns & grassed boulevards	■	■	■	■	STAGE 1: June 1-Sept 30, even-numbered addresses Mon & Wed mornings 1-6 am, odd-numbered addresses Tues & Thurs mornings 1-6 am, all non-residential addresses Fri morning 4-9 am. STAGE 2: Even-numbered addresses Wed morning only 1-6 am, odd-numbered addresses Tues morning only, 1-6 am STAGES 3-4: All forms of watering using treated drinking water are prohibited.
Municipal hydrant flushing	■	■	■	■	STAGES 1-4: Only for unscheduled safety or public health reason. Routine flushing to be scheduled outside WSRP timeframe.

Prepared for lawn sprinkling regulations (Jun 1 to Sep 30, 2015)



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Current State of Basin Hydrology

Decision Support for Okanagan Water Management



FLOW

- Snow Pack (Storage)
- Okanagan Lake (River)

GROUNDWATER

- One Water
- Sensitivity to Mining

PRECIPITATION

- Climate information
- Temperature profile



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2015 Okanagan Water Supply: July 27th Updates (Week 30)

Presentation team

Introduction [Nelson Jatel]

OKANAGAN WATERSHED

- Okanagan Basin Water Board [Anna Warwick Sears]

FLOW & STORAGE

- BC River Forecast Centre [Toby Gardner]
- Okanagan River & Upper reservoirs [Shaun Reimer]
- Osoyoos Lake Levels [Nelson Jatel]

GROUNDWATER

- Prepared by BC MOE / FLNRO [presented by Don Dobson]

FIRE PREPAREDNESS

- FLNRO Fire Season readiness [Bob Warner]

PRECIPITATION / WEATHER

- Environment Canada [Lisa Coldwells]

Okanagan Basin Water Board [Nelson Jatel]

Context


Drought status
Flow & storage
Osoyoos Lake

Groundwater

Fire season risk

Weather forecast

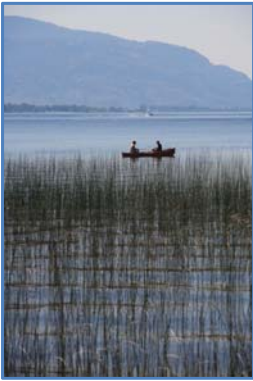
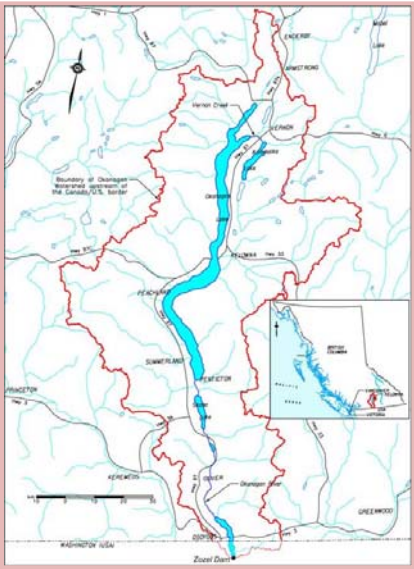
Concluding remarks
and thank you




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Better information = better decisions on Okanagan Water



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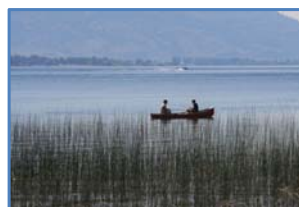
OBWB – getting the word out since 1970

- Share resources, identify problems, suggest solutions, improve communication
- Water governance mandate
- Water management support
- Collaboration, community-to-community



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One water, one community, many needs



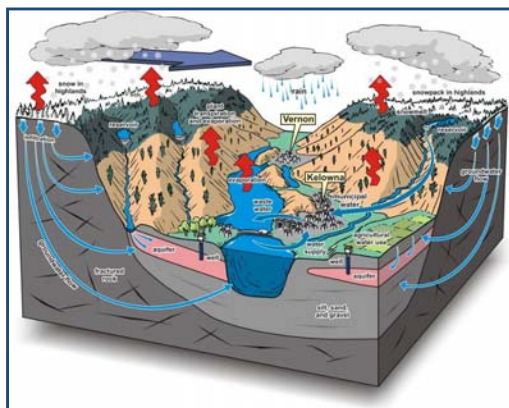
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 <p>Okanagan Basin WATER BOARD Science. Management. Governance.</p>	<p align="center">British Columbia Drought Response Plan</p> <p align="center">  BRITISH COLUMBIA The Best Place on Earth </p> <p align="center">June 2010</p> <p align="center">Prepared for the Ministry of Environment on behalf of the Inter-Agency Drought Working Group</p> <p align="center">Prepared by:</p> <p align="center">  econnics • eco-efficiency specialists econnics • eco-efficiency specialists www.econnics.com kirk@econnics.com +1 250 588 8851 </p>	
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Regional approaches to practical water management issues

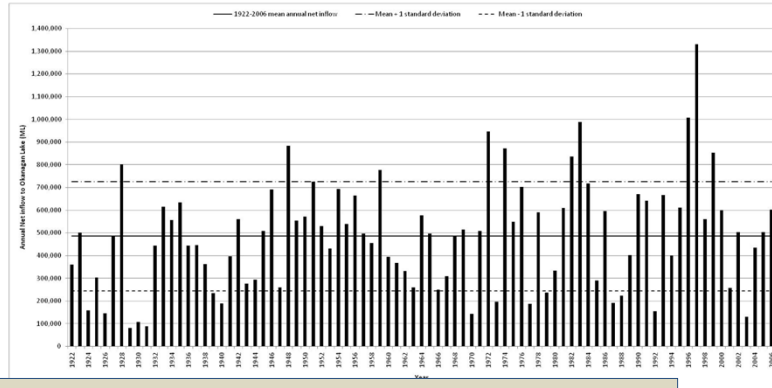


Variation between drainages

Each water source needs its own water management strategies

Because we are connected, we need coordinated strategies

Uncertainty in supply between years



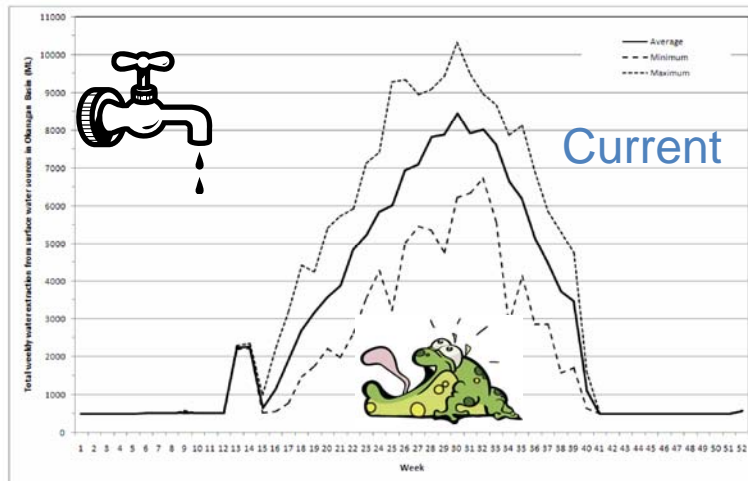
Okanagan Lake inflows 1922-2006



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Managing storage and flows to
meet peak needs



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Okanagan Hydrologic Conditions

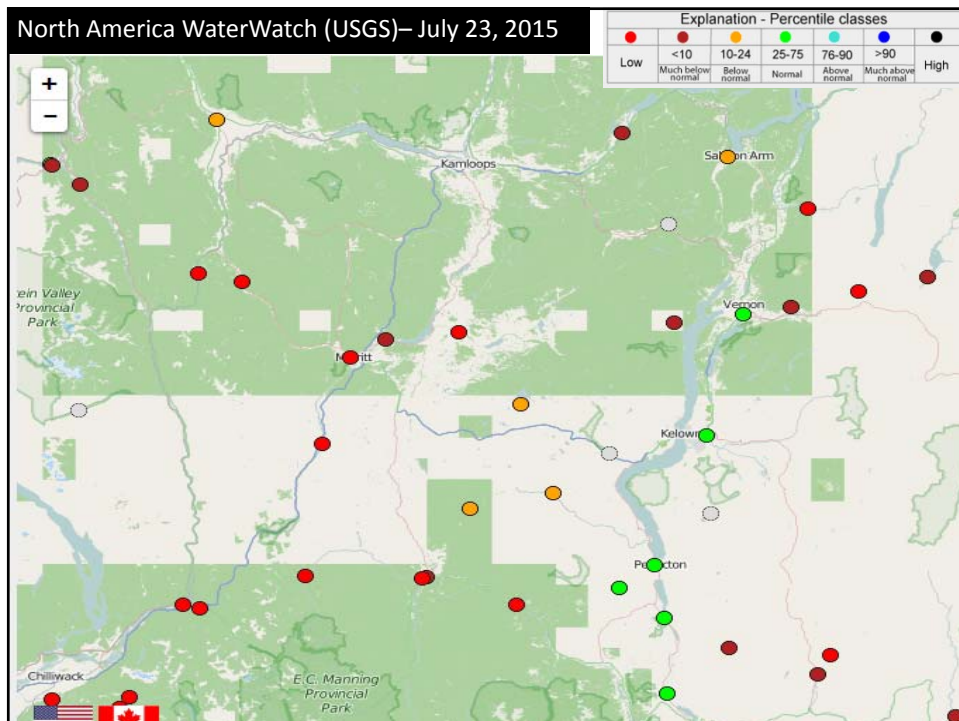
2015 Okanagan Water Supply

Tobi Gardner – River Forecast Centre

July 27, 2015

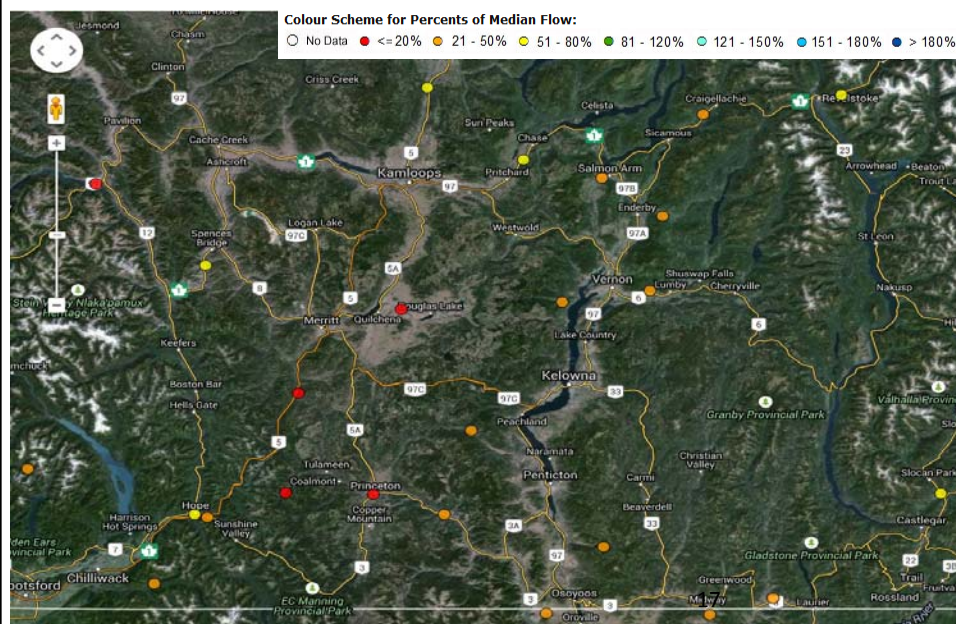


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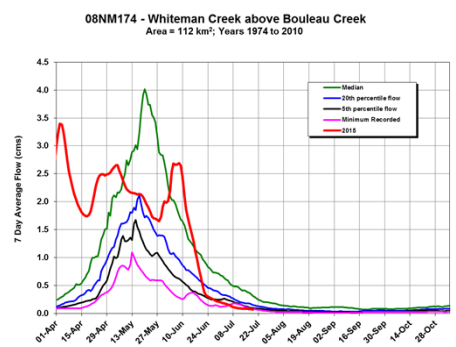
7-Day Average Streamflow Map – July 20 2015

<http://bcrc.env.gov.bc.ca/lowflow/7DayFlowGoogle.html>

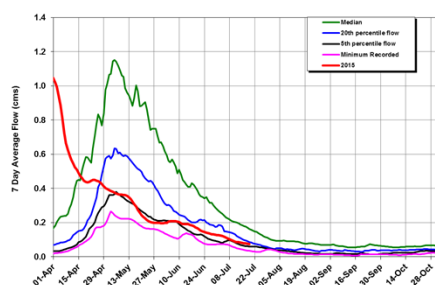


Coldstream Creek (08NM142)

- 7-Day flow = $0.07 \text{ m}^3/\text{s}$
- ~10th percentile for late July
- Current flows are similar to typical late-August conditions



08NM142 - Coldstream Creek above Municipal Intake
Area = 58 km²; Years 1974 to 2010



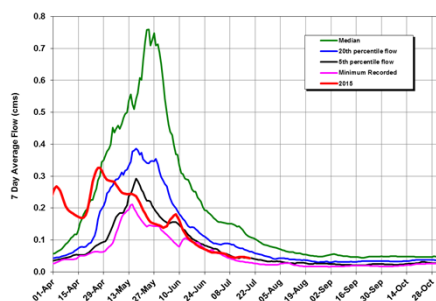
Whiteman Creek (08NM174)

- 7-Day flow = $0.07 \text{ m}^3/\text{s}$
- Close to minimum recorded for late July
- Current flows are similar to typical late-September conditions

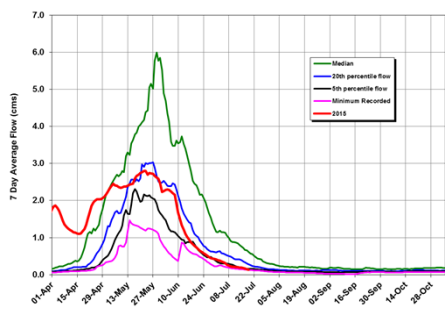
Camp Creek (08NM134)

- 7-Day flow = 0.04 m³/s
- 5th percentile for late July
- Current flows are similar to typical late-August conditions

08NM134 - Camp Creek near Thirsk

Area = 34 km²; Years 1965 to 2010

08NM171 - Vaseaux Creek above Solco Creek

Area = 117 km²; Years 1974 to 2010**Vaseaux Creek (08NM171)**

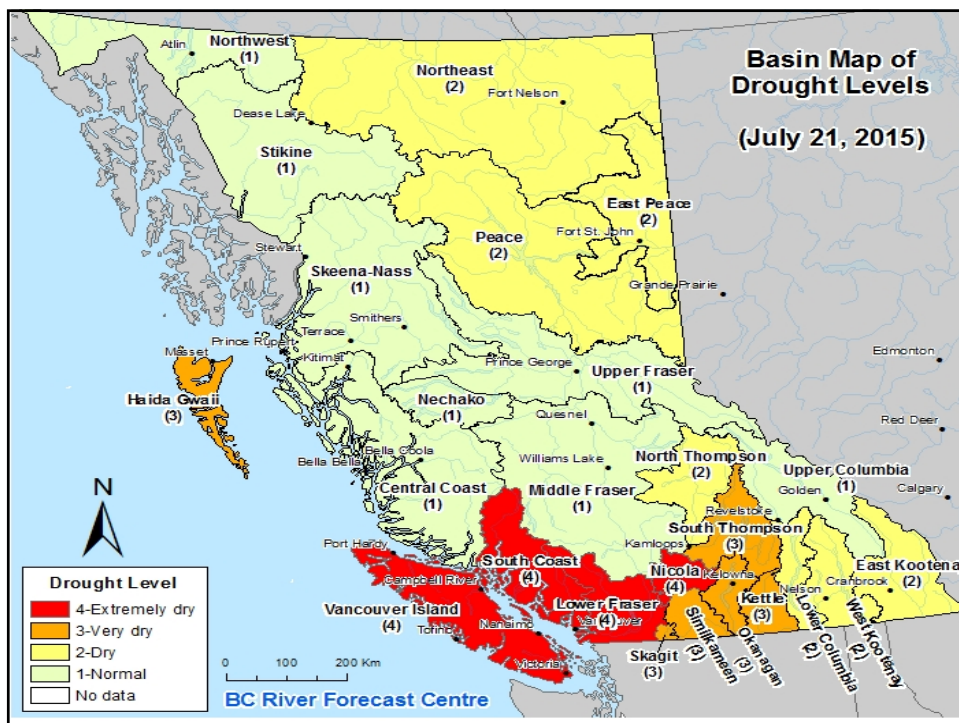
- 7-Day flow = 0.14 m³/s
- <5th percentile for late July
- Current flows are similar to typical mid-September conditions



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Summary

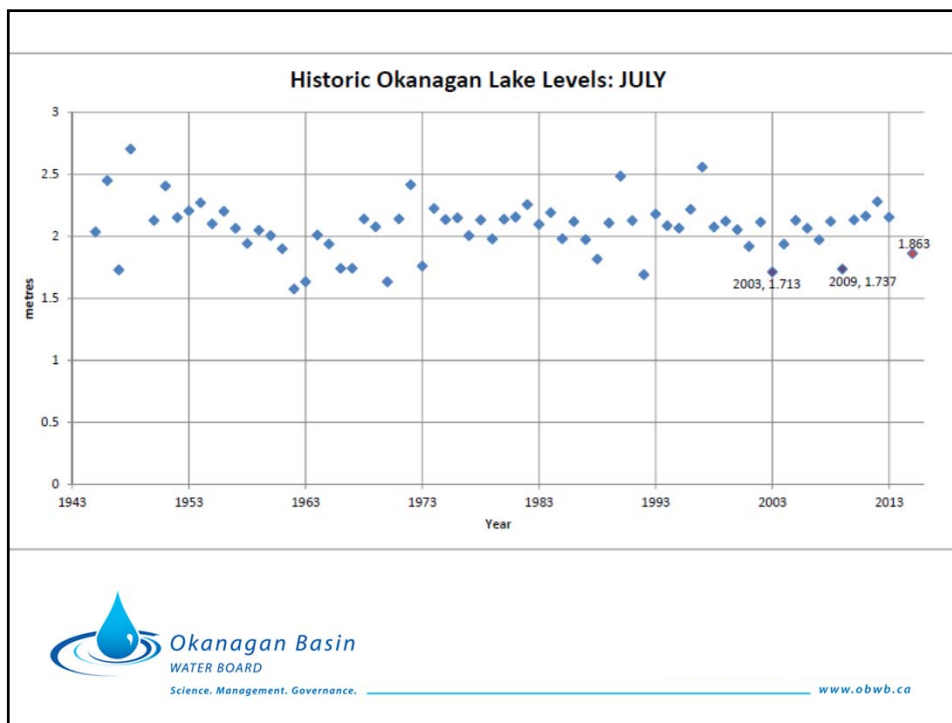
- On-going downward trend in river levels
- Current flows more typical of late-summer
- Challenges assessing small stream systems due to limited gauges
- Flows are unlikely to recover to seasonal conditions without substantial rainfall
- Further information at the RFC website:
<http://bcrfc.env.gov.bc.ca/lowflow/index.htm>

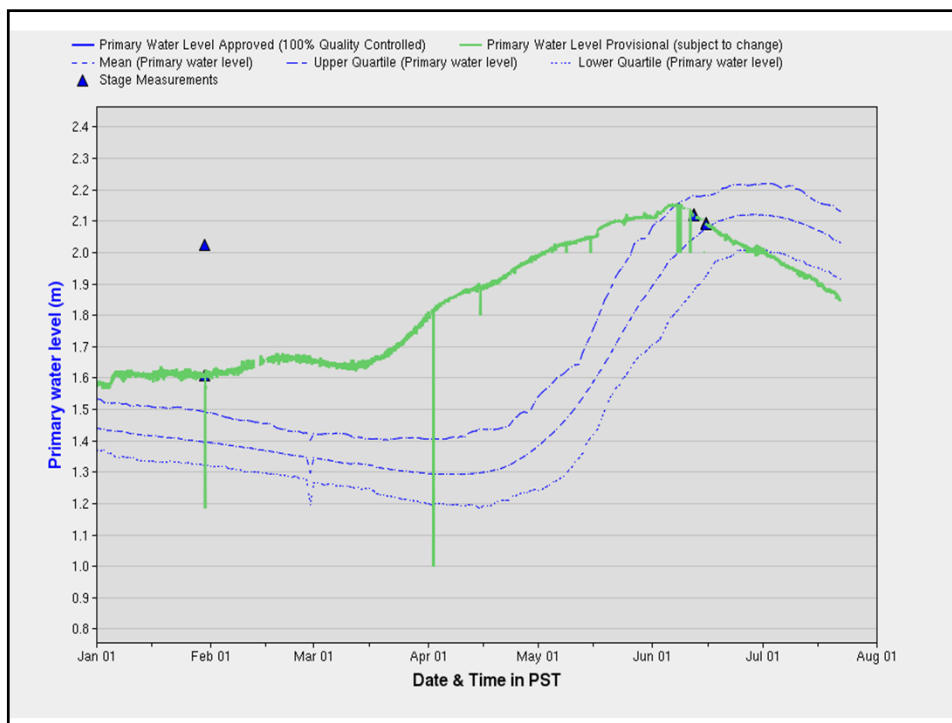
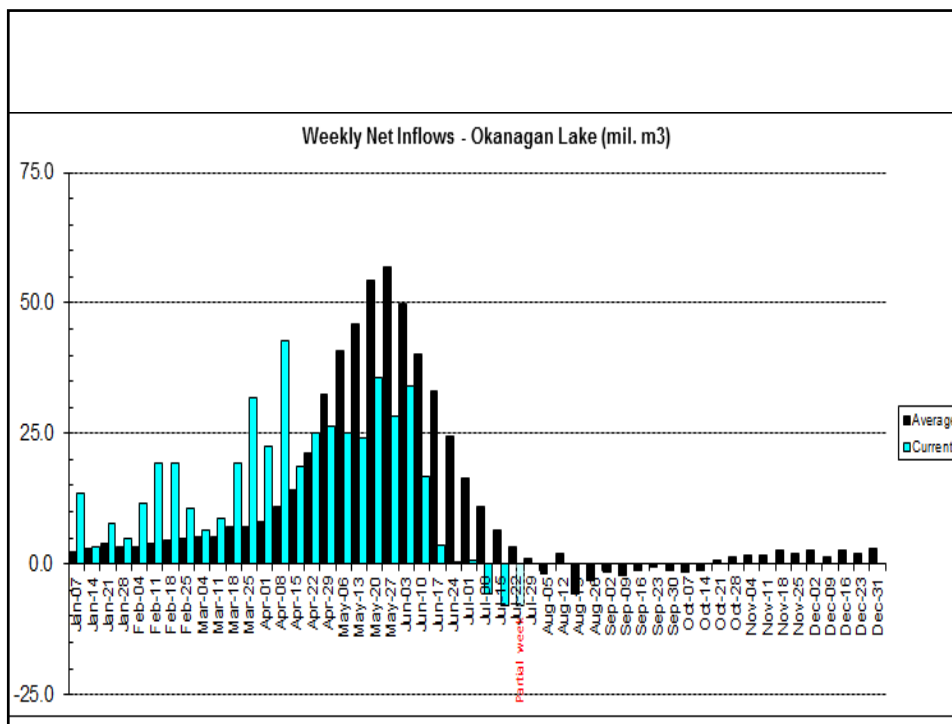


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The upper reservoirs in the Okanagan range from 61% - 100% of full capacity.

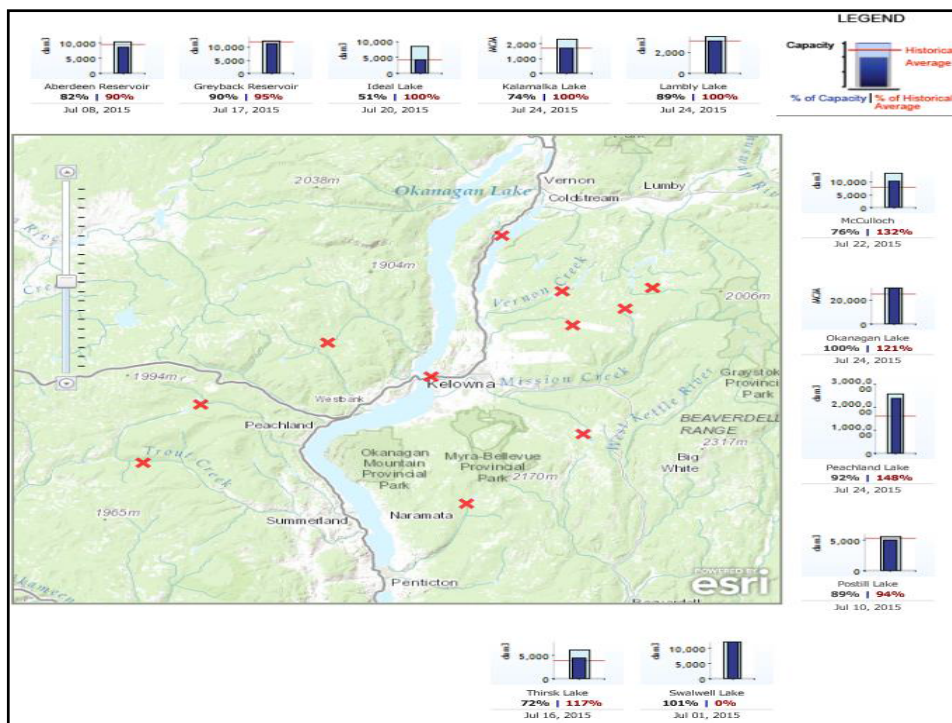


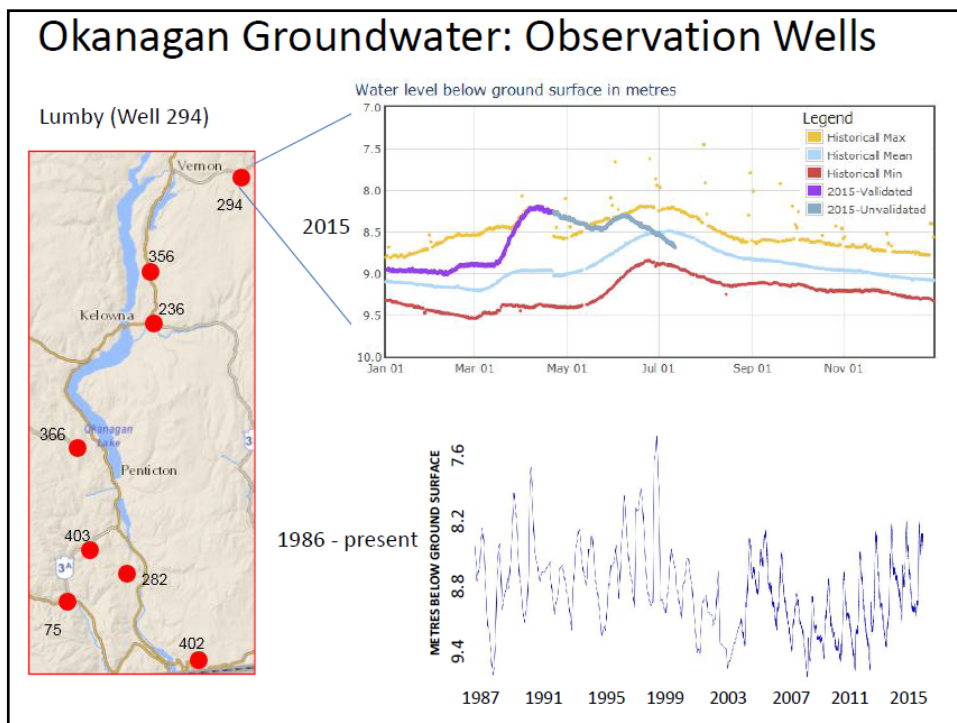
Table 1 summarizes the reservoirs/Lakes percent (%) of full capacity as categorized by the water provider and date of measurement.

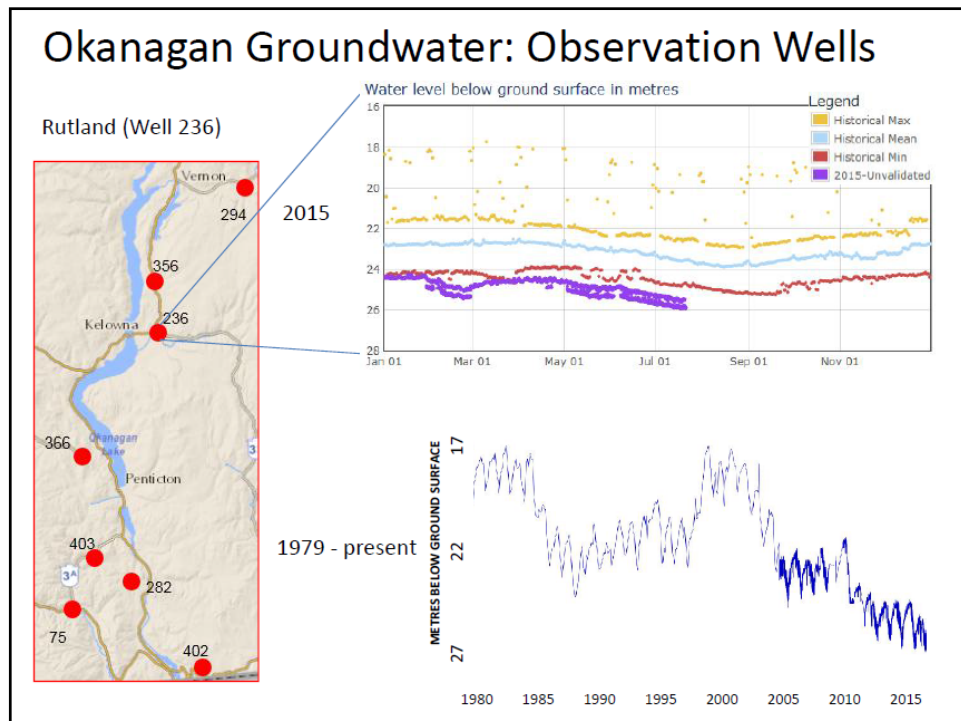
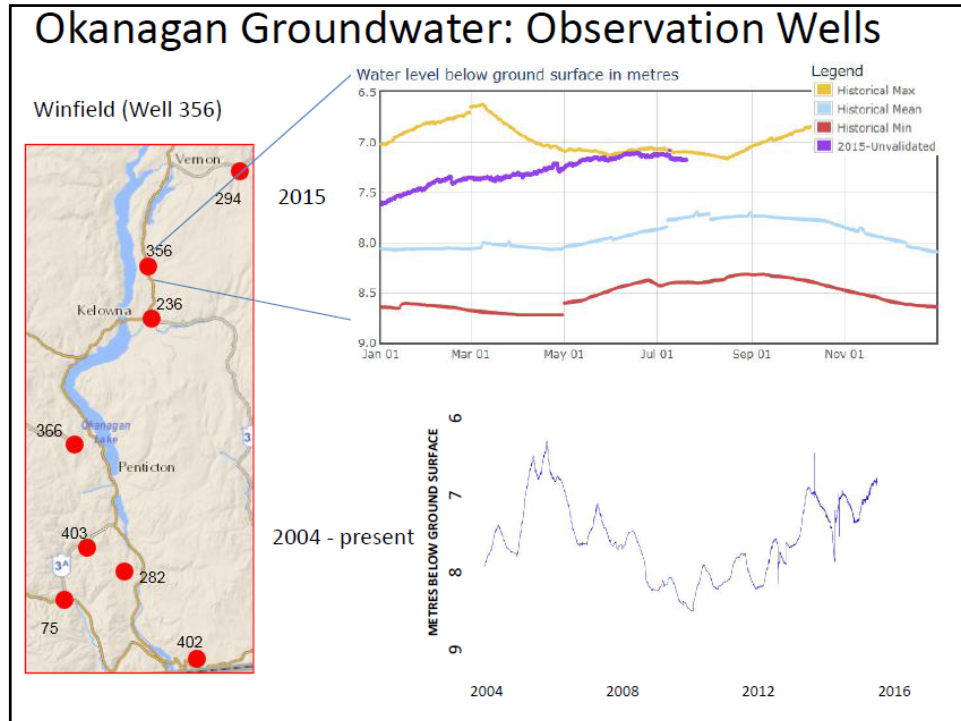
Water Provider (Date)	% Capacity
Black Mountain Irrigation District (July 20, 2015)	70%
Fish Hawk	100%
Graystoke Reservoir	78%
Ideal (Belgo) Reservoir	51%
James Lake	84%
Loch Long	100%
City of Armstrong (July 2, 2015)	99%
North Silver Star Reservoir	98%
South Silver Star Reservoir	100%
City of Penticton (July 17, 2015)	90%
Greyback Reservoir	90%
District of Lake Country (July 1, 2015)	98%
Oyama Lake	94%
Beaver (Swallow) Lake (Includes Crooked Lake)	100%
District of Peachland (July 14, 2015)	92%
Peachland Reservoir	92%
Glen and Silver do not record volumes, only elevations	
Glenmore Ellison Irrigation District (July 23, 2015)	86%
Do not know breakdown of each reservoir	
Greater Vernon Water (July 8, 2015)	81%
Aberdeen	100%
Goose Lake	65%

Haddo	65%
Grizzly	97%
King Edward	81%
Meadow Valley Irrigation District (July 24, 2015)	Enough water for 2 crops. Will be out of water in two weeks.
Regional District of South Okanagan (July 20, 2015)	62%
Naramata Lake	61%
Big Meadow Lake	67%
Elinor Lake	55%
South East Kelowna Irrigation District (July 22)	78%
Brown, Fish, and Long Meadow Reservoir/Lake	73%
McCullough Reservoir	76%
Turtle Lake	91%
District of Summerland (July 16)	72%
Big Eneas	100%
Crescent Reservoir	100%
Headwaters Reservoirs (1-4)	100%
Isintok Lake	97%
Thursk Reservoir	72%
Whitehead Reservoir	84%
District of West Kelowna (July 24)	88%
Dobbin Lake	53%
Jackpine Lake	98%
Lambly Lake	89%
Paynter Lake	96%
Islaht Lake	97%
Tadpole Lake	86%
Esperson Reservoir	100%



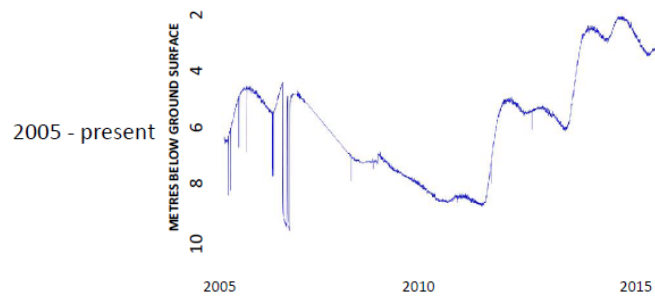
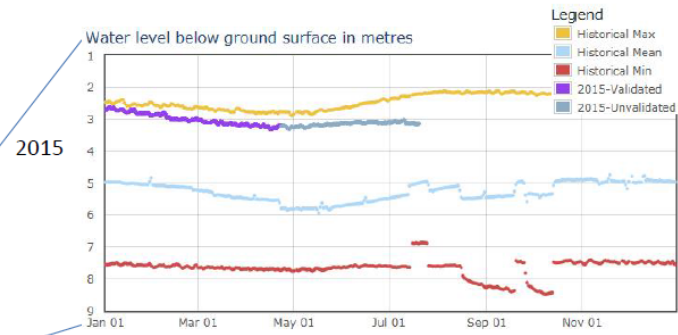
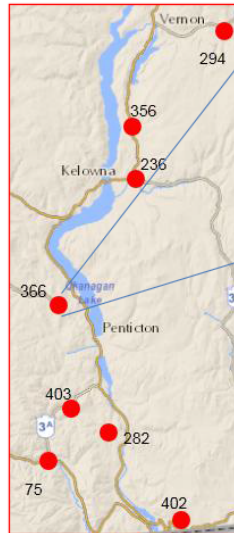
Sensitive Aquifers in the Okanagan





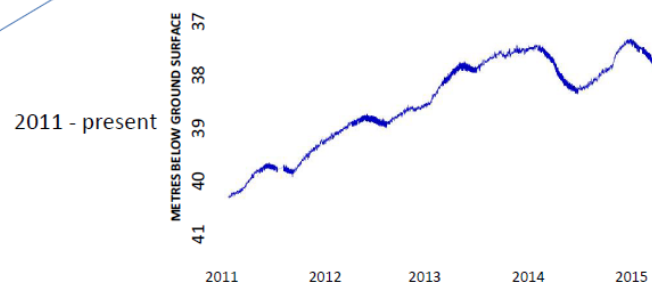
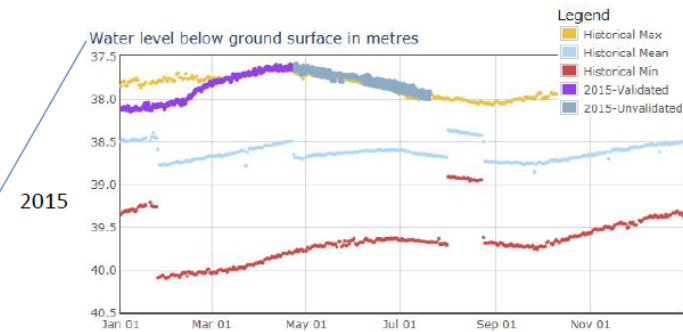
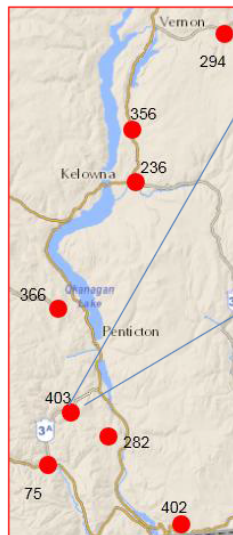
Okanagan Groundwater: Observation Wells

Summerland (Well 366)



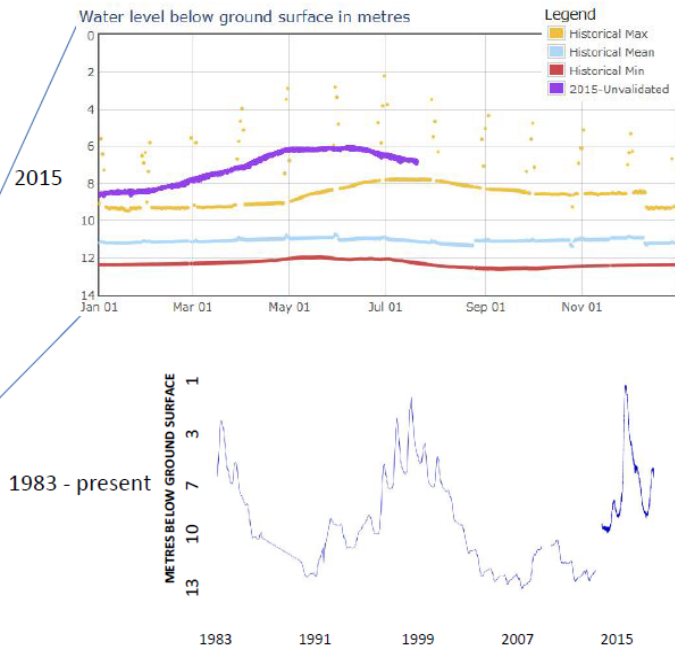
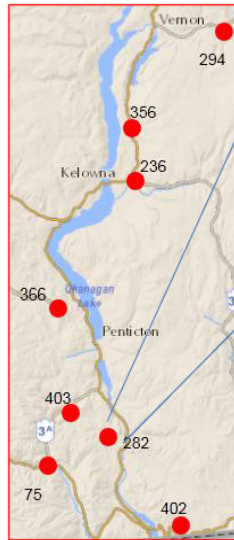
Okanagan Groundwater: Observation Wells

Twin Lakes (Well 403)



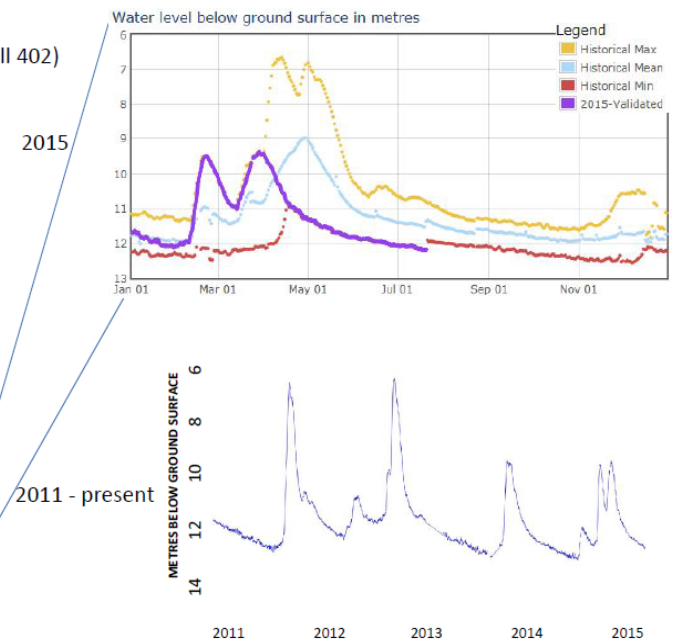
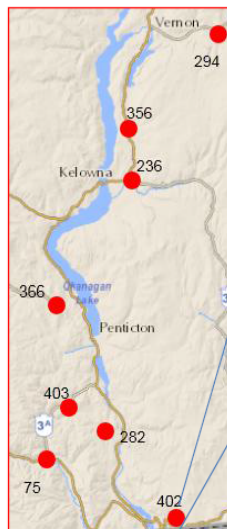
Okanagan Groundwater: Observation Wells

Willowbrook (Well 282)



Okanagan Groundwater: Observation Wells

Anarchist Mountain (Well 402)



Further Info on the Observation Network and Groundwater Hydrographs



The Observation Well Network Interactive Map tool shows the general location of all active observation wells. Clicking on a well provides information on the well including hydrographs, data downloads, detailed well reports and observation well photos.

http://www.env.gov.bc.ca/wsd/data_searches/obswell/index.html



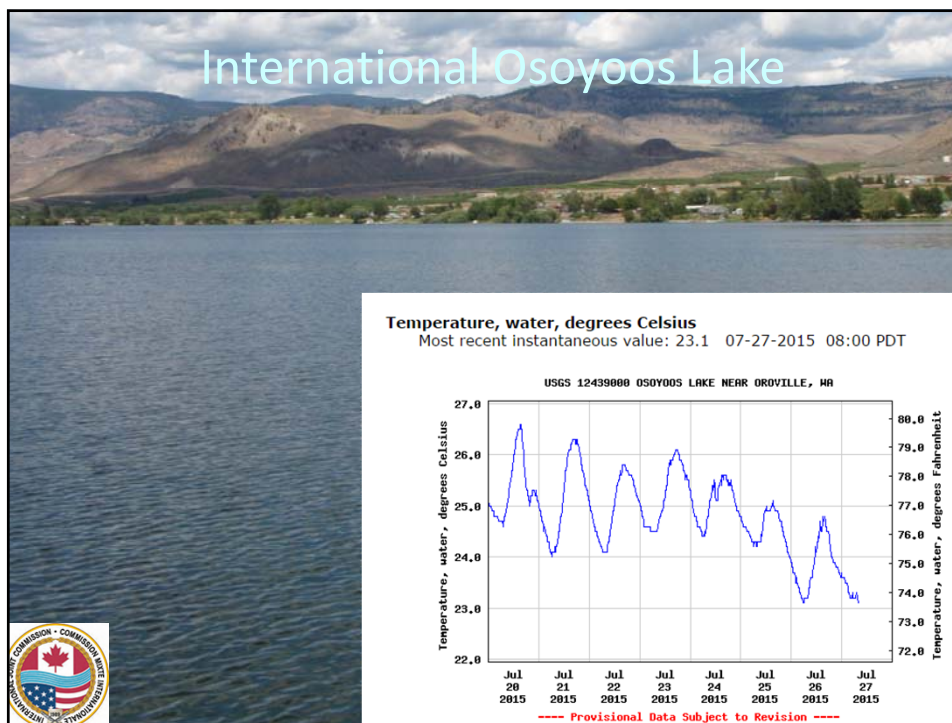
Environmental Reporting B.C. provides a summary of the long-term trends for all Observation Wells in B.C.

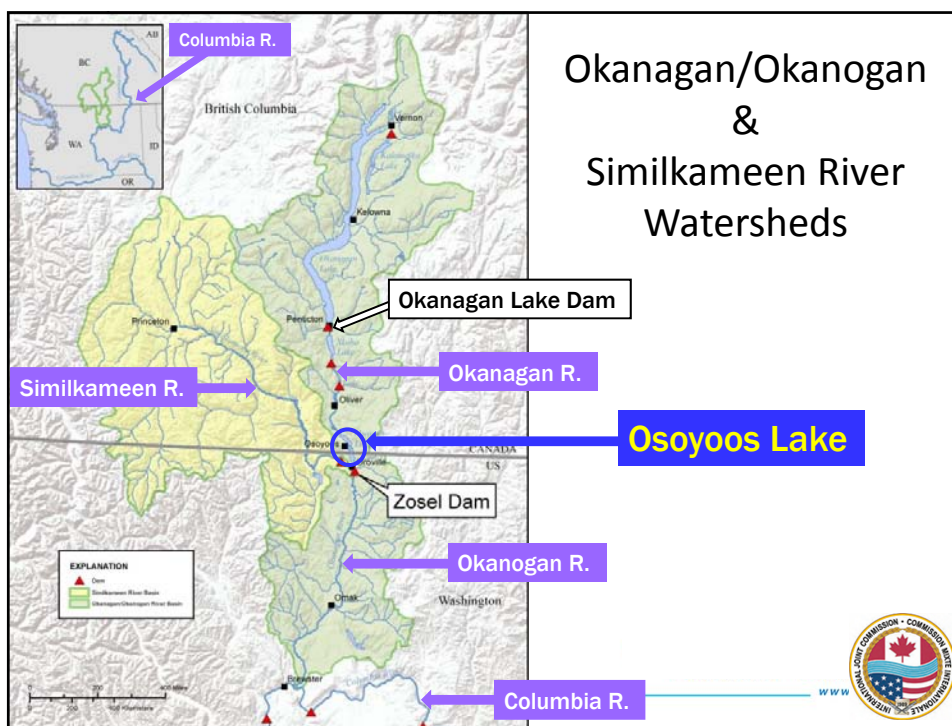
<http://www.env.gov.bc.ca/soe/indicators/water/wells/>

B.C. Ministry of Forests, Lands and Natural Resource Operations Penticton Regional Office

Skye Thomson, Regional Hydrogeologist : (250) 490-8276 Skye.Thomson@gov.bc.ca

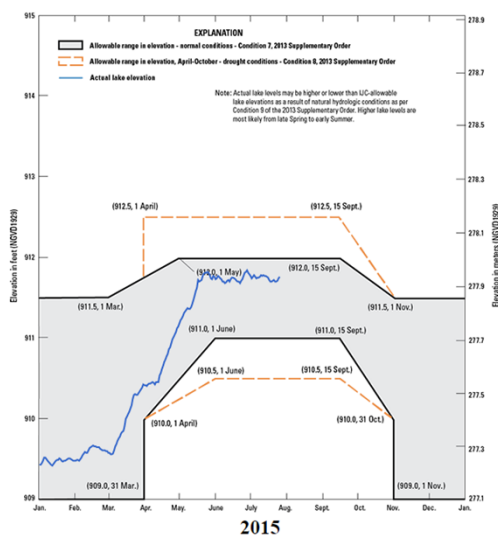
Nicole Pyett, Groundwater Protection Officer: (250) 490-2285 Nicole.Pyett@gov.bc.ca





Actual Water Level Conditions in July 2015

Actual and Allowable Lake Elevations per IJC Orders of Approval, Osoyoos Lake near Oroville, Washington, USGS Station 12439000



FLNR Fire Season



An early start to the fire year

British Columbia	To July3 (Active)	2003	2009	2014	10 yr average
Fires	916 (188)	557	995	409	537
Hectares	220,413	4,084	38,778	6,102	22,730

Kamloops Fire Centre	To July3 (Active)	2003	2009	2014	10 yr average
Fires	185 (43)	141	297	117	140
Hectares	3,563	143	9,001	330	1385

Fire starts had exceeded 1.5 times the 10 year average and hectares burnt to date have exceeded the average by nearly 10 fold

NOTABLE RECENT FIRE YEARS TO 2015 (BC Only)

Year	Total Fires	Total Hectares	Total Cost (millions)	Average Hectares per Fire
2015 to July 24	1319	296,035	\$149.1	224.4
2009	3064	247,419	\$382.1	80.8
2003	2473	265,053	371.2	107.2
AVG	1908	141,092	170.4	68.3

Current Situation

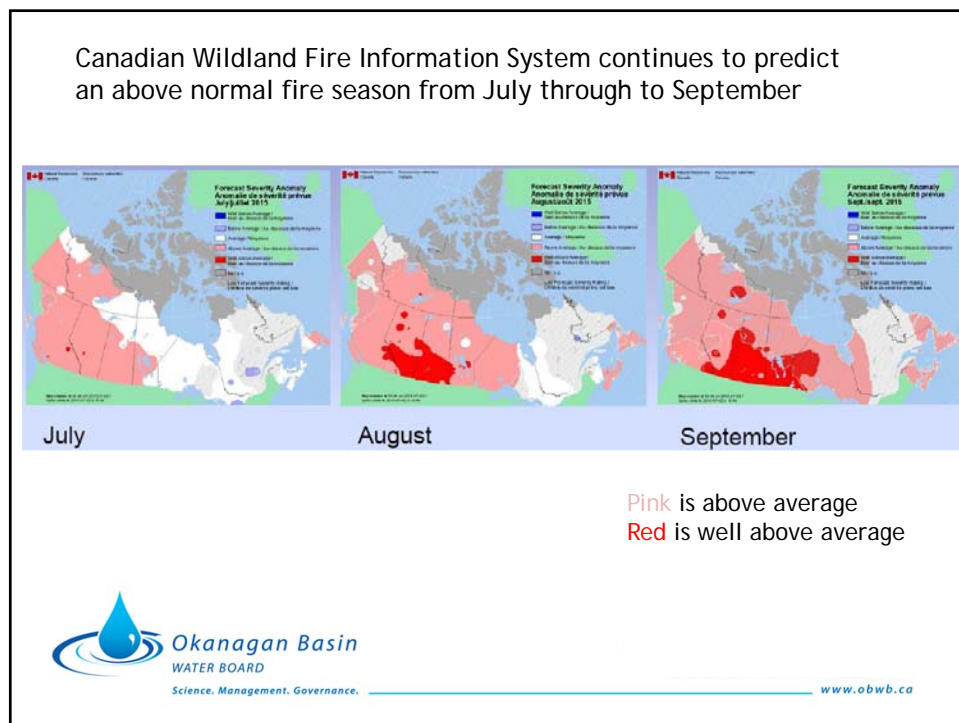
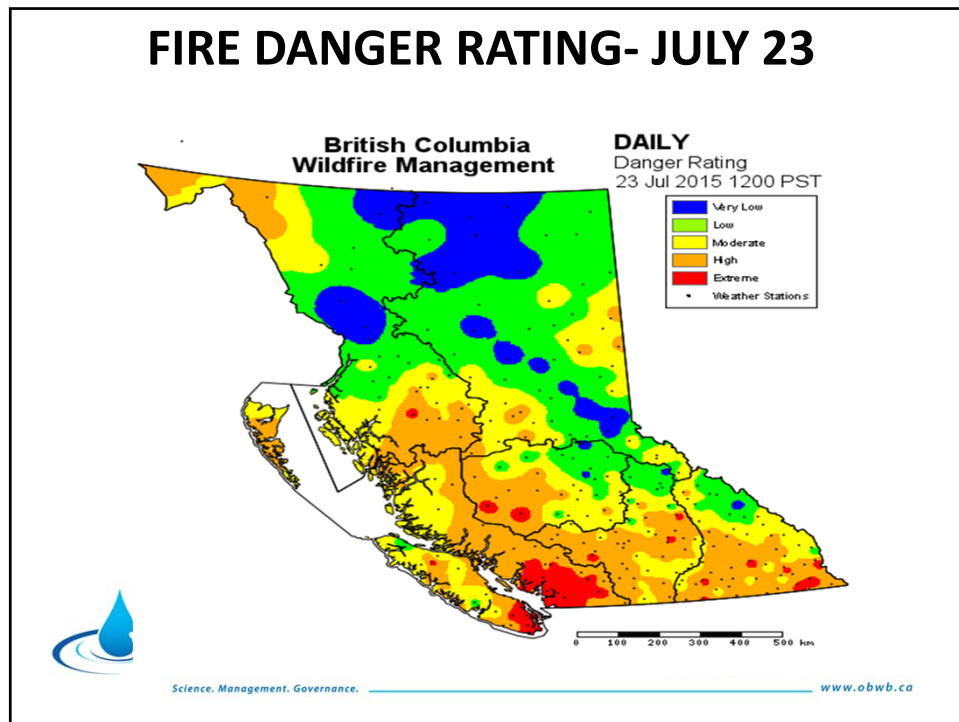
- Nationally we are in a Prep Level 5, which means that the fire load is high to extreme in most provinces and several are experiencing major incidents that are exhausting resources nationally. International mobilization has already happened through CIFFC.
- There are 21 fires on the priority wildfire list nationally, 11 of which are in BC.
- The USA is in a Level 3 Prep Level so they are also experiencing a strain on National resources. We are currently utilizing TEAMS, Out of Province resources (Including 52 from Australia) and over 700 contract firefighters
- Our resource capacity is becoming strained with activity across the province in all six fire centres.



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For more information
<http://bcwildfire.ca/index.htm>



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Environment
Canada

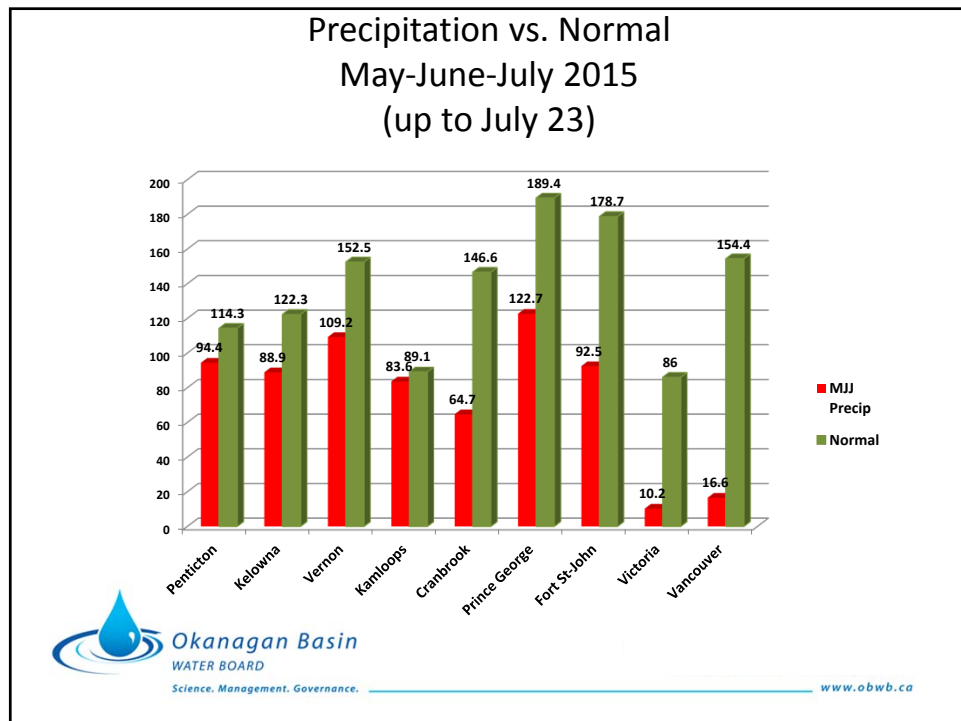
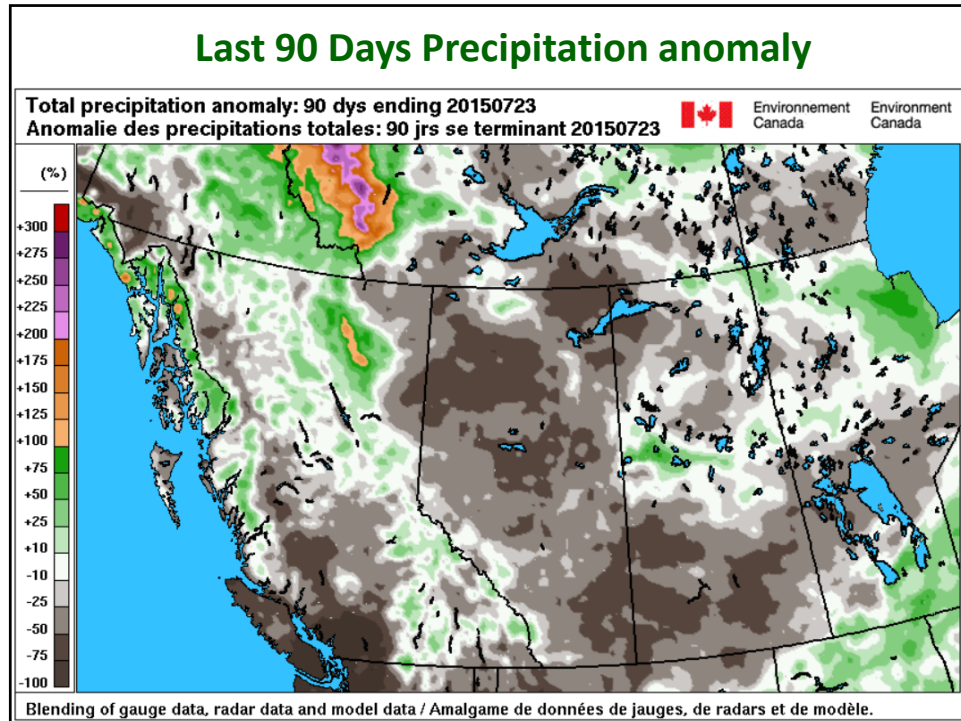
Environnement
Canada

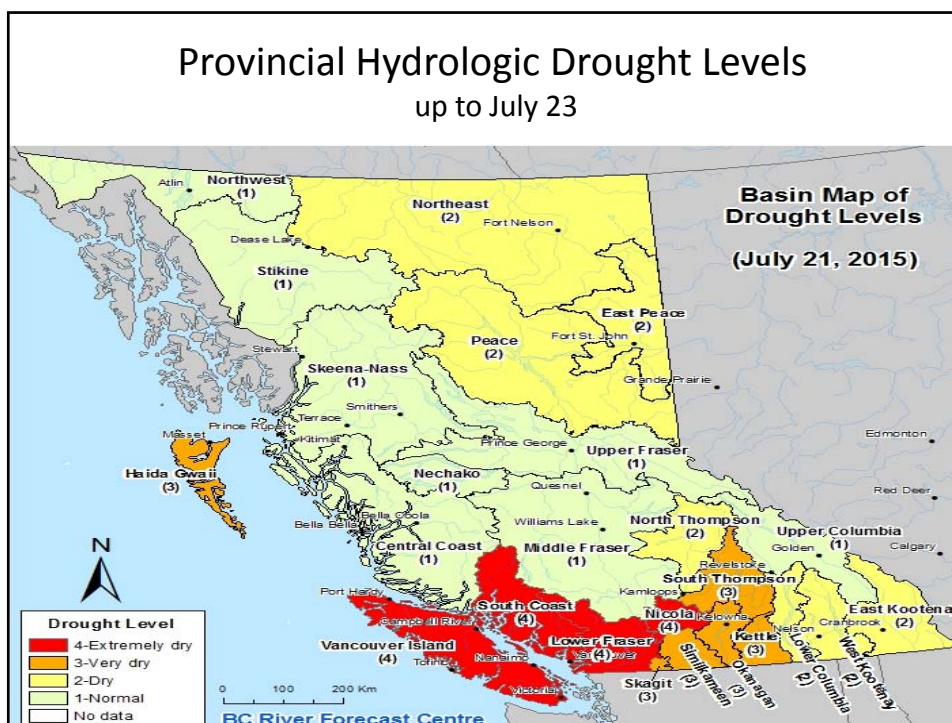
Canada



Weather Outlook 2015 Okanagan Water Supply

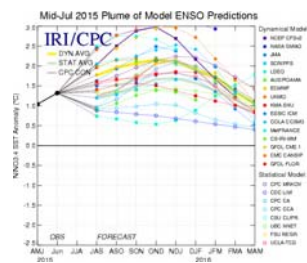
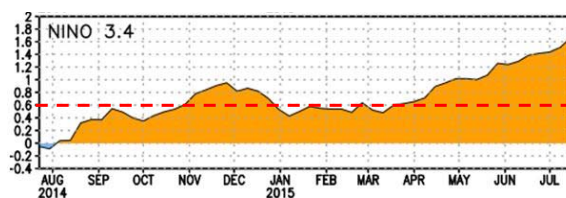
Lisa Coldwells
Meteorological Service of Canada
Pacific and Yukon Region
July 27, 2015

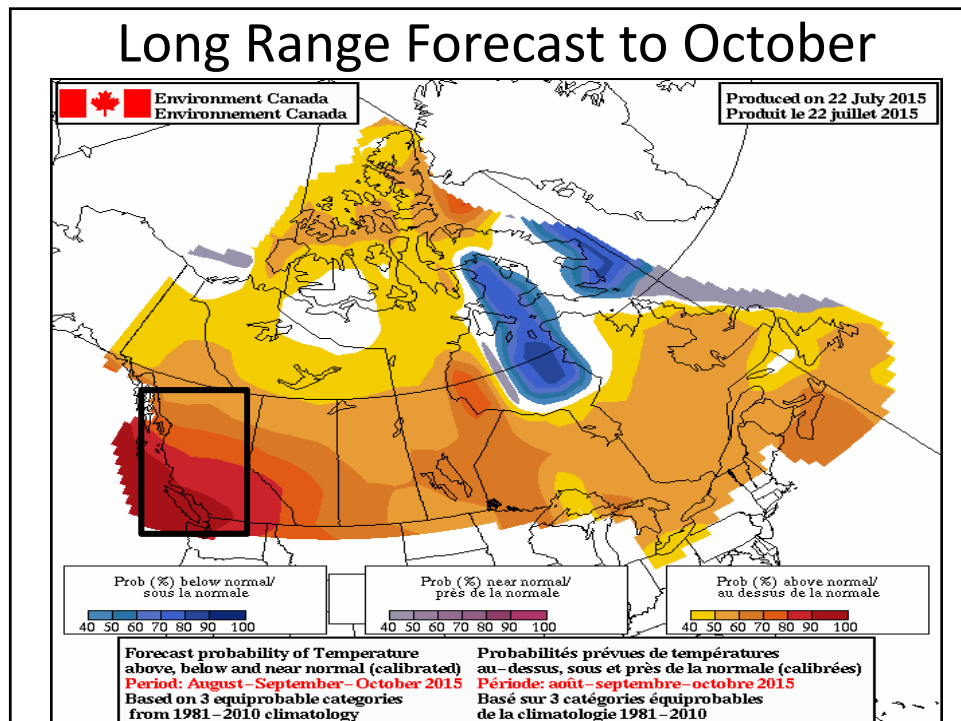
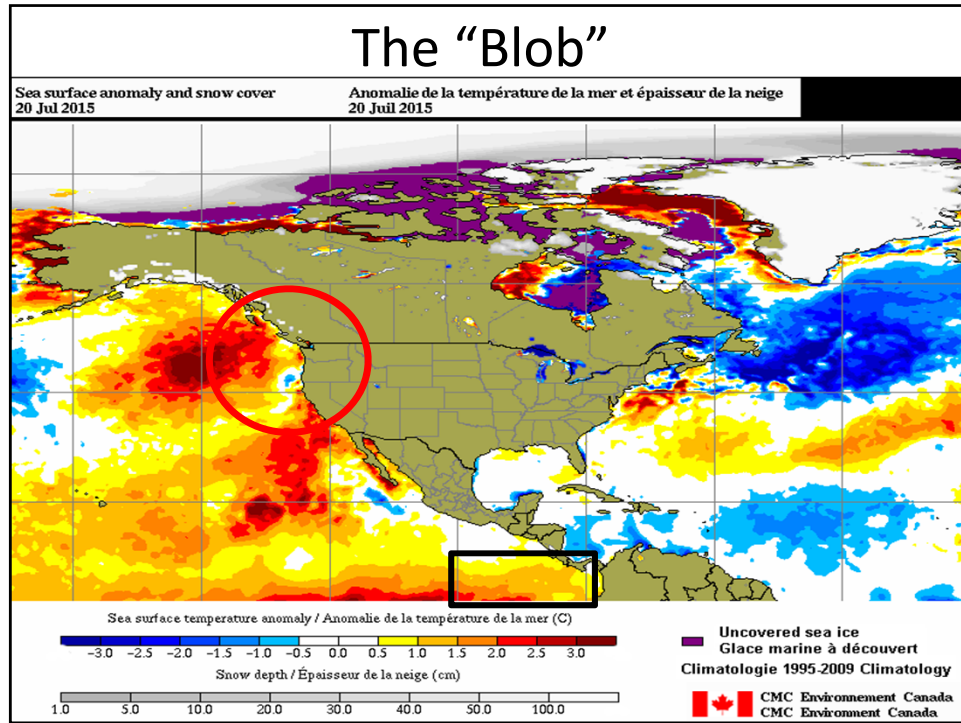


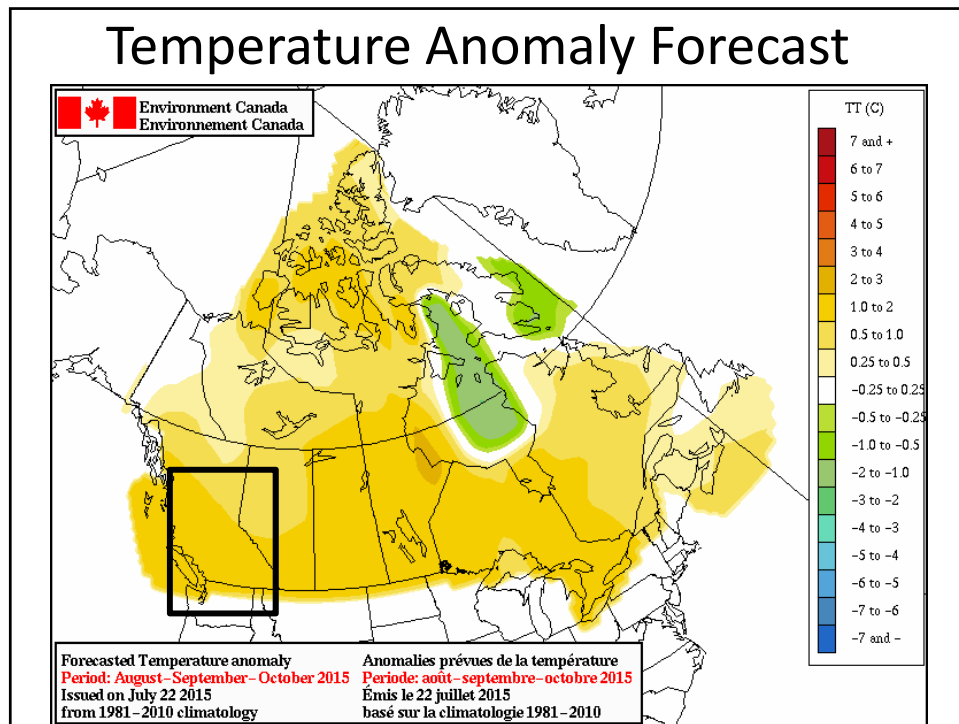


El Nino Status

- A moderate & strengthening El Niño is present
- Forecast to continue strengthening through this year and into 2015-16 winter.
- El Niño not a strong driver for summer weather
- Historical analogues do not support a warmer than normal summer







Comments, Questions, Suggestions

Lisa.Coldwells@ec.gc.ca

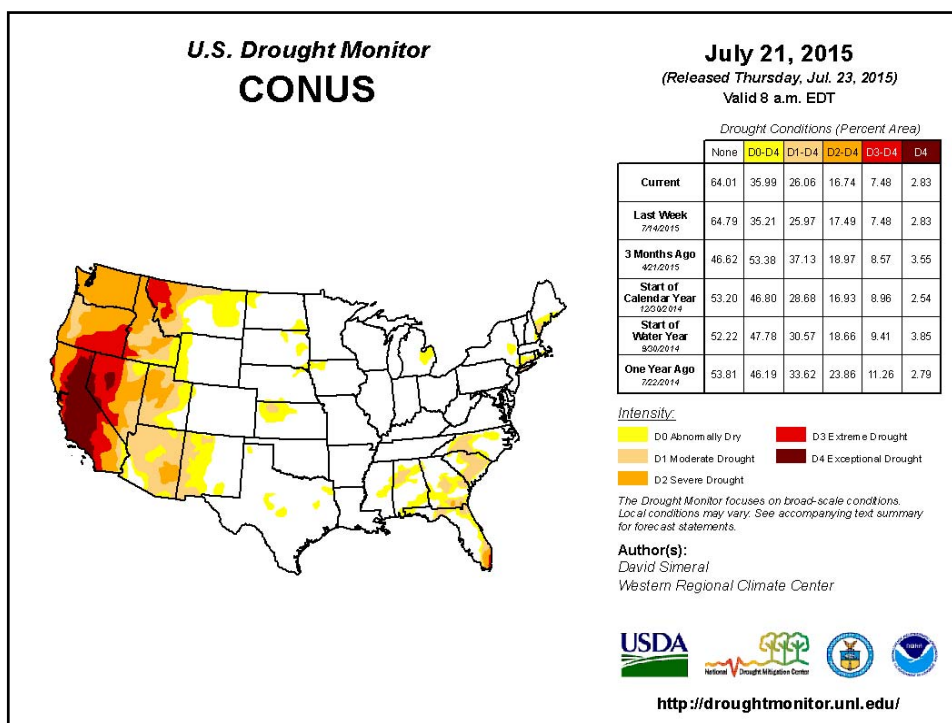
604.664.9065



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2015 Okanagan Water Supply: July 27th Updates
(Week 30)

Presentation team

- Lisa Coldwells, Environment Canada
- Don Dobson, Water Stewardship Council
- Toby Gardner, BC River Forecast Centre
- Nelson Jatel, OBWB
- Shaun Reimer, Ministry of Forest, Lands, Natural Resource Operations
- Bob Warner, Ministry of Forest, Lands, Natural Resource Operations
- Anna Warwick Sears, OBWB



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Thank you



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