

2010: Okanagan Water Supply

Water Management Support

Review #3

09 June 2010

1:30pm – 2:30pm

2010 Schedule

#1 – 18 February (8)

#2 – 14 April (16)

#3 – 09 June (24)

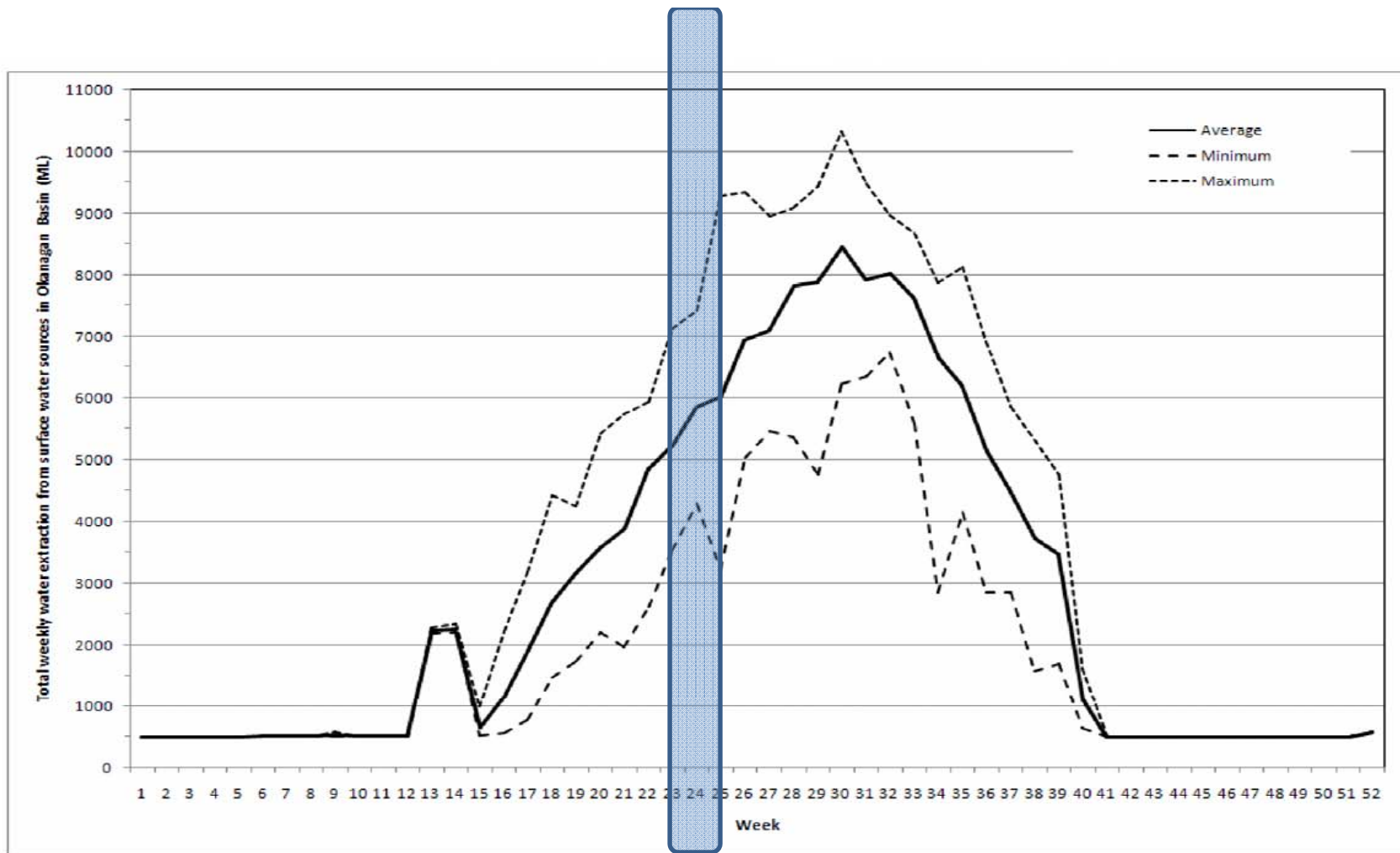


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Note: Average, minimum, and maximum weekly totals over the 1996 to 2006 period are shown. Weeks 1-12 and 41-52 are periods when little to no irrigation occurs. The assumption of constant indoor water use is the reason for no variability during these weeks.

Figure 6.5 Total weekly water extraction from surface sources in the Okanagan Basin

2010 Okanagan Water Supply: June 9th Updates (Week 24)

OKANAGAN WATERSHED

- Okanagan Basin Water Board [**Sears**]

Context

FLOW

- BC MOE [**Chapman / Ivanov**]
- International Osoyoos Lake Board of Control [**Millar**]

Snow Pillow / Okanagan Lake (River)
Osoyoos Lake

GROUNDWATER

- BC MOE [**Chapman / Ivanov**]

Okanagan Groundwater

PRECIPITATION / CLIMATE

- Environment Canada [**Lundquist**]

Okanagan Climate

Okanagan Basin Water Board [**Jatel**]

Host



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Current State of Basin Hydrology

Decision Support for Okanagan Water Management



Palmer Drought Severity Index

- The Palmer Drought Severity Index is a measure of "the relative dryness or wetness effecting water sensitive communities".

FLOW

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

GROUNDWATER

- One Water
- Sensitivity to Mining

PRECIPITATION

- Climate information
- Temperature profile

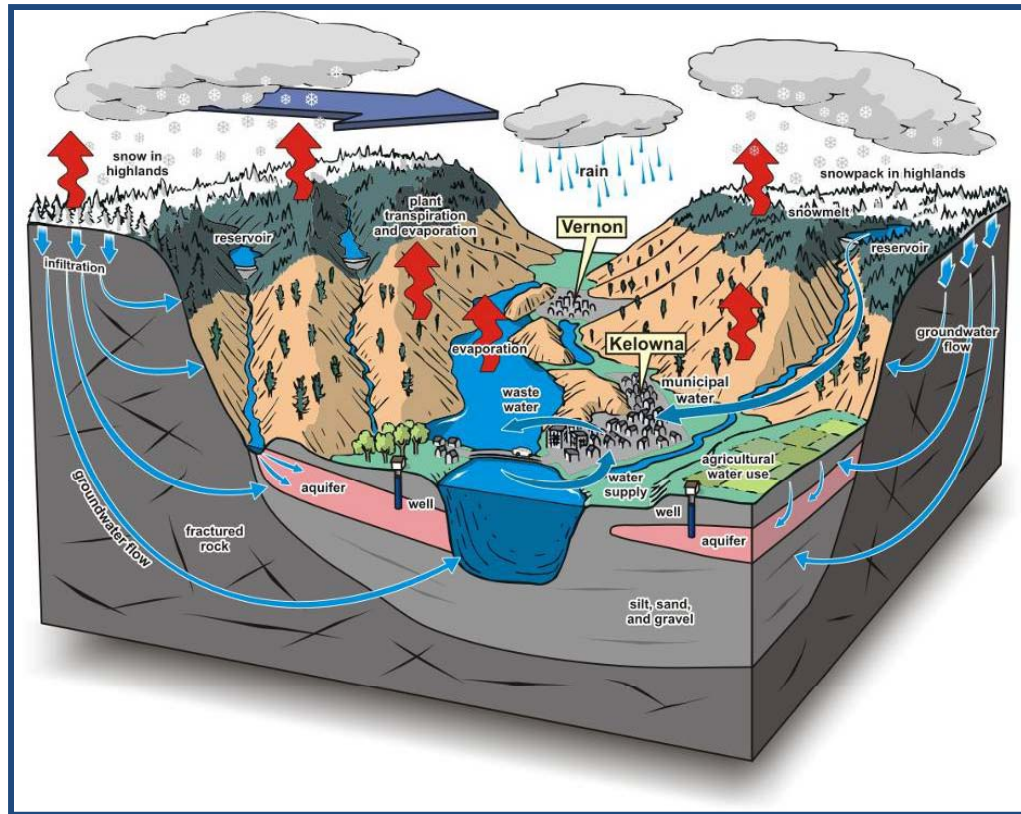


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Regional approaches to regional water issues

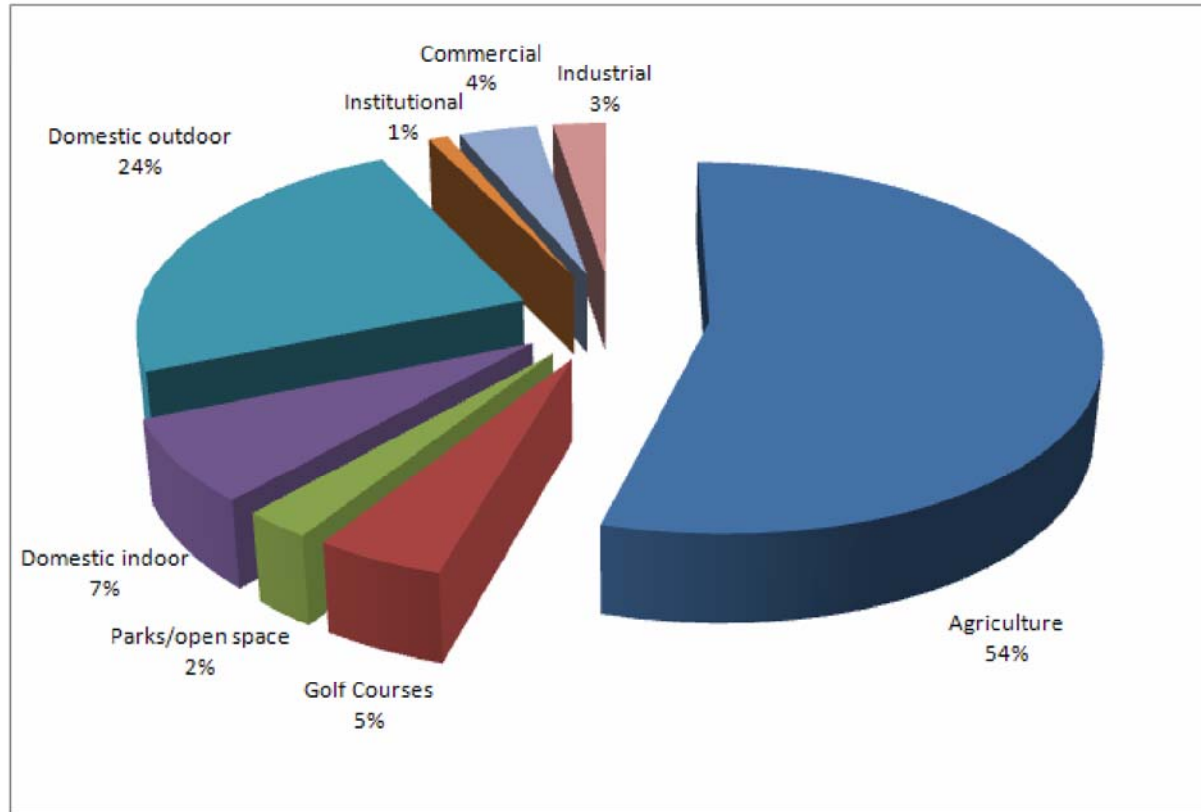


Variation in supply means each water source needs its own drought plan

Valley-wide patterns call for a valley-wide plan

OBWB is doing the science for the Basin plan





Note that losses associated with each end-use are included within each category.

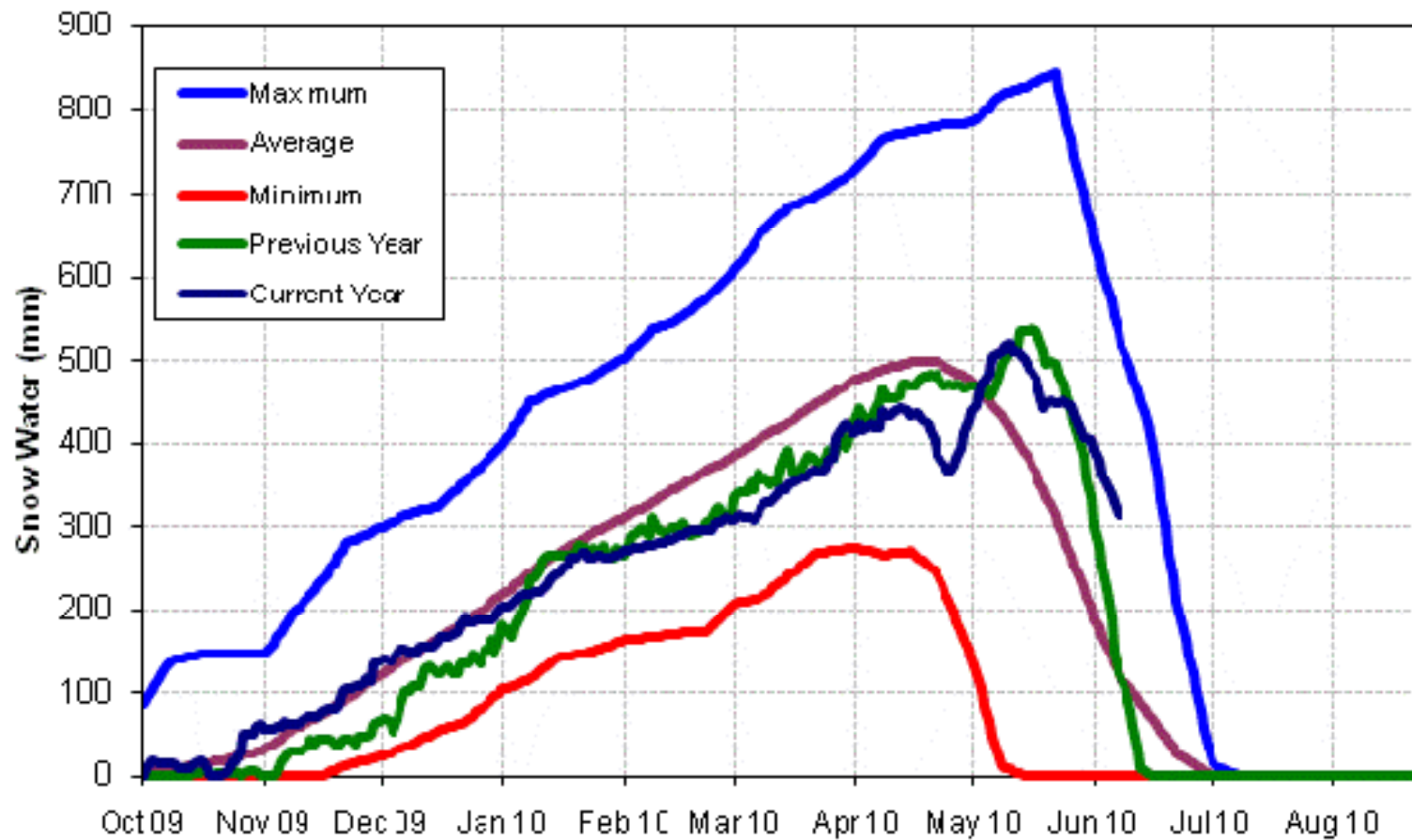
Figure 6.3 Typical (1996-2006 average) distribution of total water use by end-uses in the Okanagan Basin

2010 June: Reservoir Levels



Lake Country	• Beaver & Oyama	100%
South East Kelowna	• McCulloch	92%
Black Mountain Irrigation	• Ideal (Belgo) reservoir	100%
	• James Lake-reservoir	100%
West Kelowna	• Big Horn Dam	100%
	• Esperon	100%
	• Rose Valley Dam	98.5 %
	• Lambly	100%
Peachland	• Peachland Lake	100%
Summerland	• All 12 reservoirs	100%

Snow – Mission Creek Snow Pillow



Current to noon 2010-06-06
Updated 2010-06-07 8:40:34 AM

May Rain – How wet was it?

Pretty Wet!

Kelowna - 53 mm (135% of normal)
Penticton - 76 mm (203% of normal)
Vernon North - 46 mm (approx. near normal)

Mission Creek Snow Pillow - 169 mm
Brenda Mine - 77 mm
Grano Creek (Kettle) - 164 mm

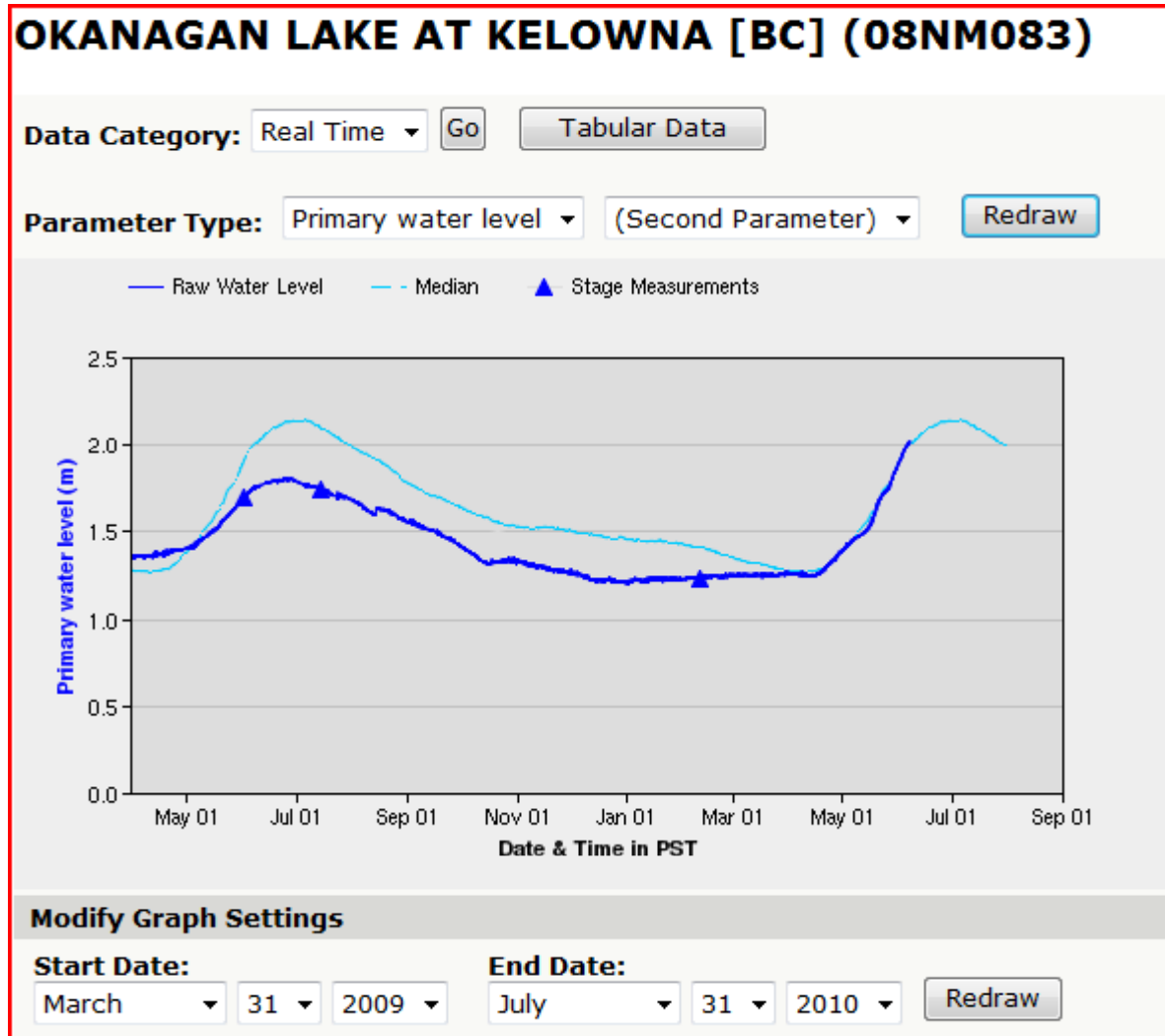
MoFR Fire Weather

Ida Bell - 106 mm
Fintry - 71 mm
McCuddy - 68 mm
Kettle - 72 mm
Rock Creek - 52 mm
Eight Mile - 83 mm



Okanagan Lake Levels @ Kelowna (08NM083)

07 June 2010



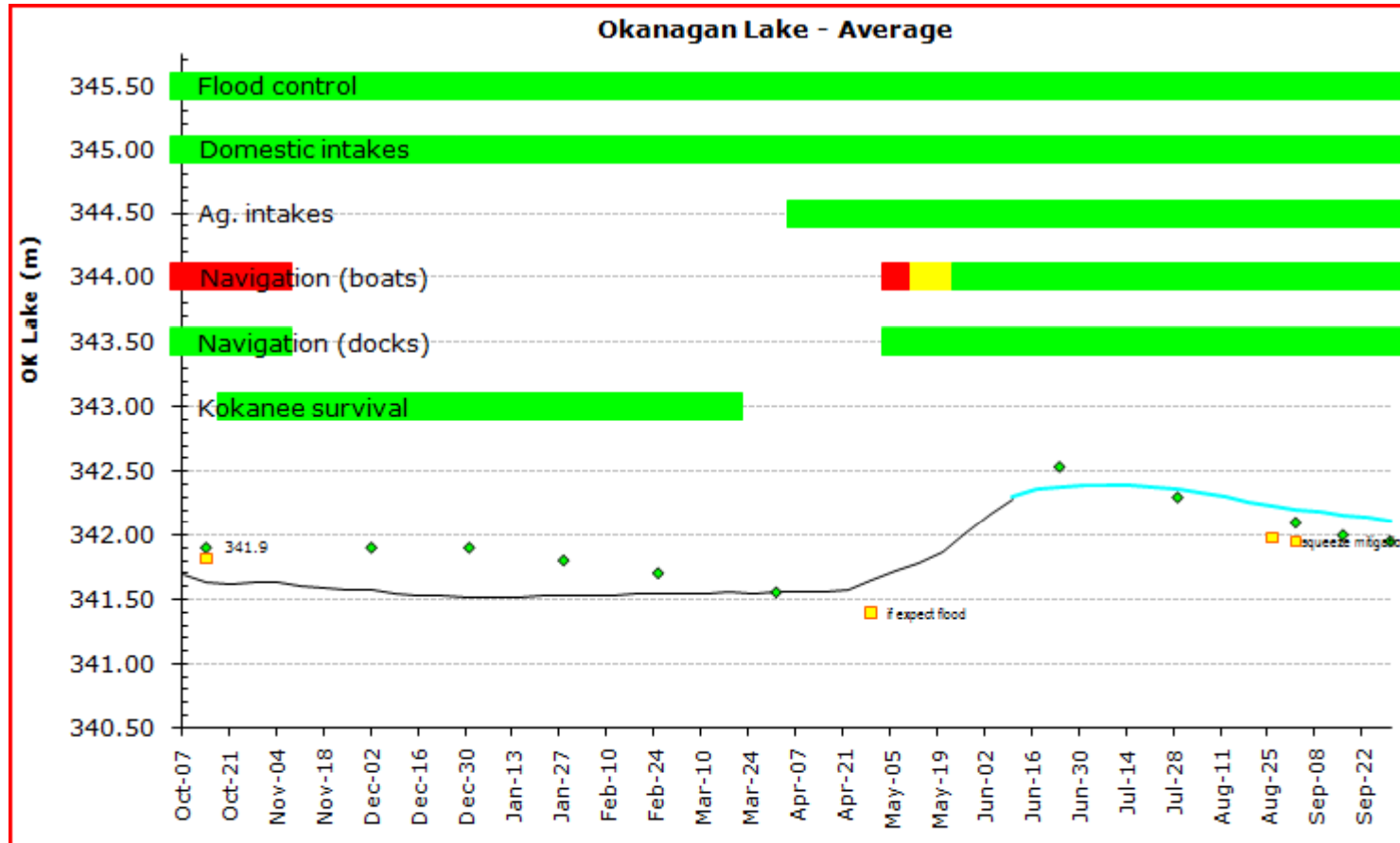
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Fish Water Management Tool Projections : 2009-2010 Water Year

(Based on Okanagan Lake Inflow Estimates for May-July of 240 million m³)



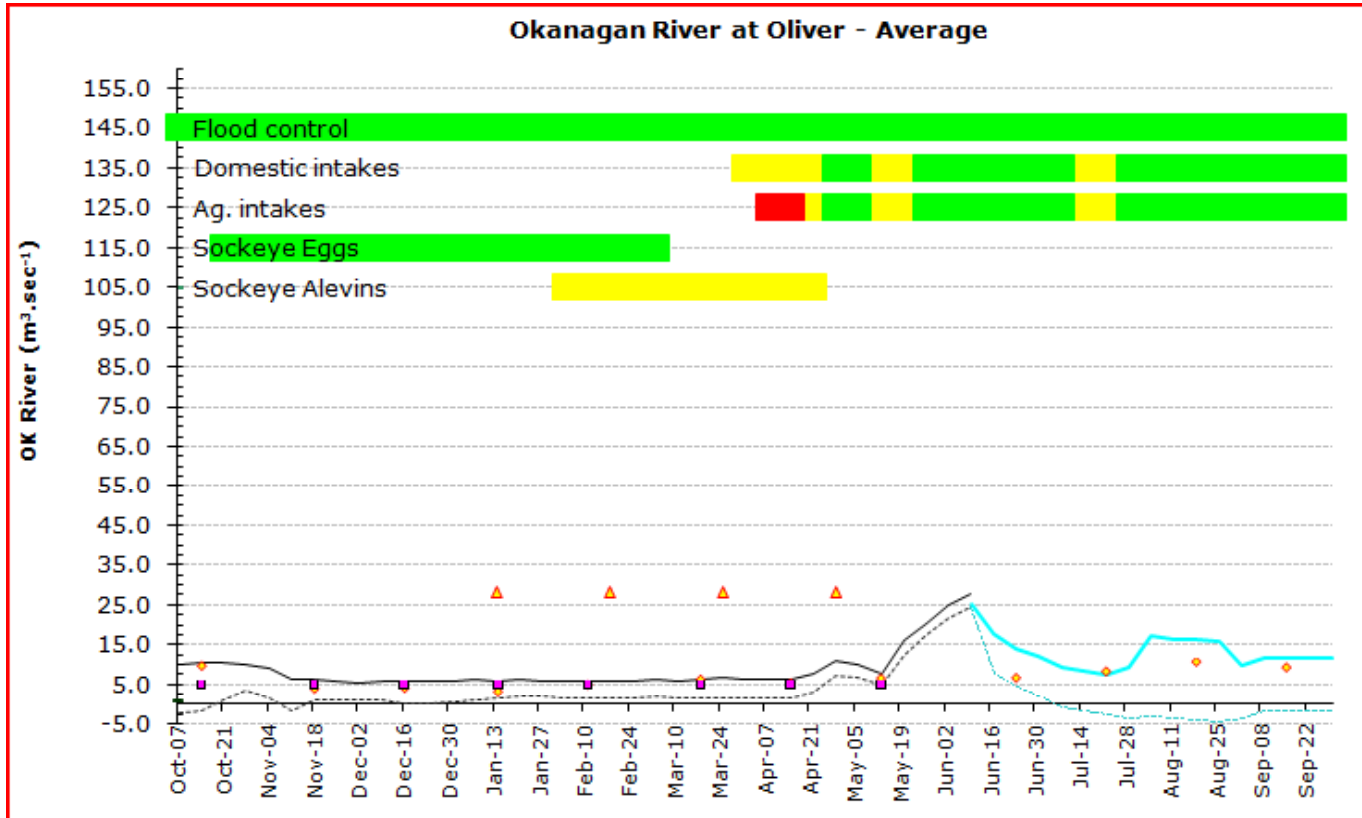
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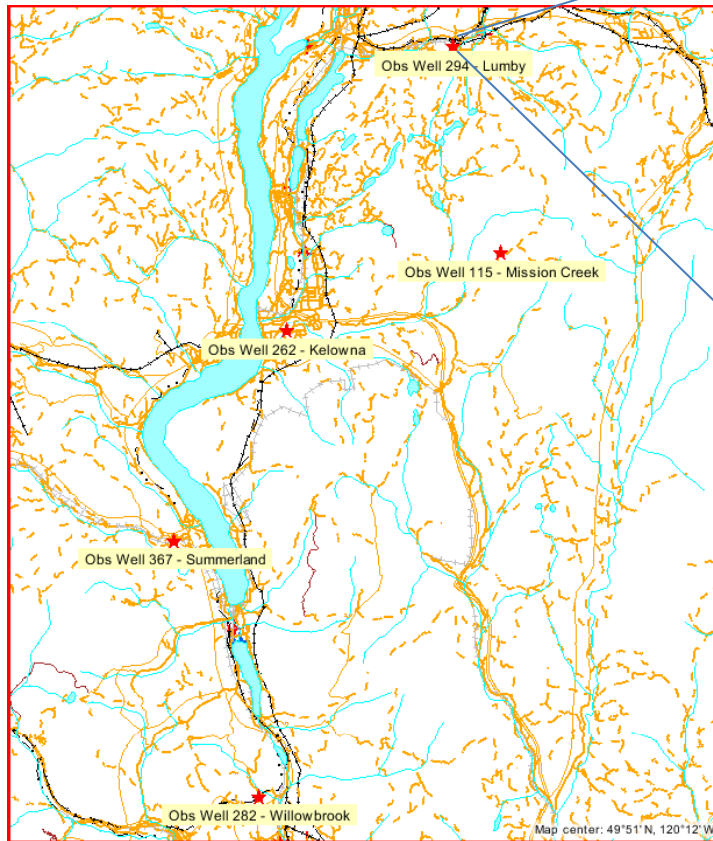
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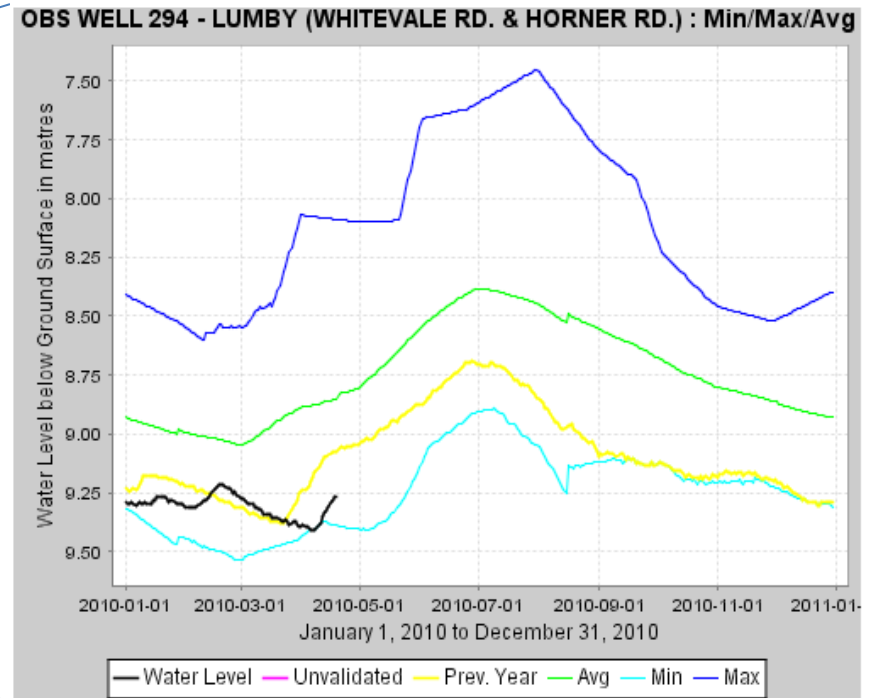
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Okanagan Groundwater: MoE Observation Wells

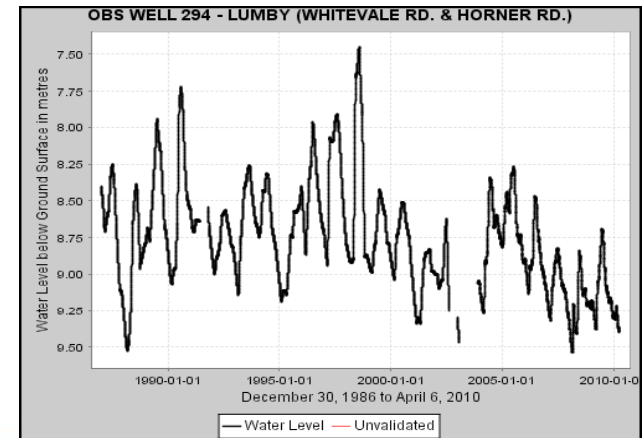
Lumby (294)



2010

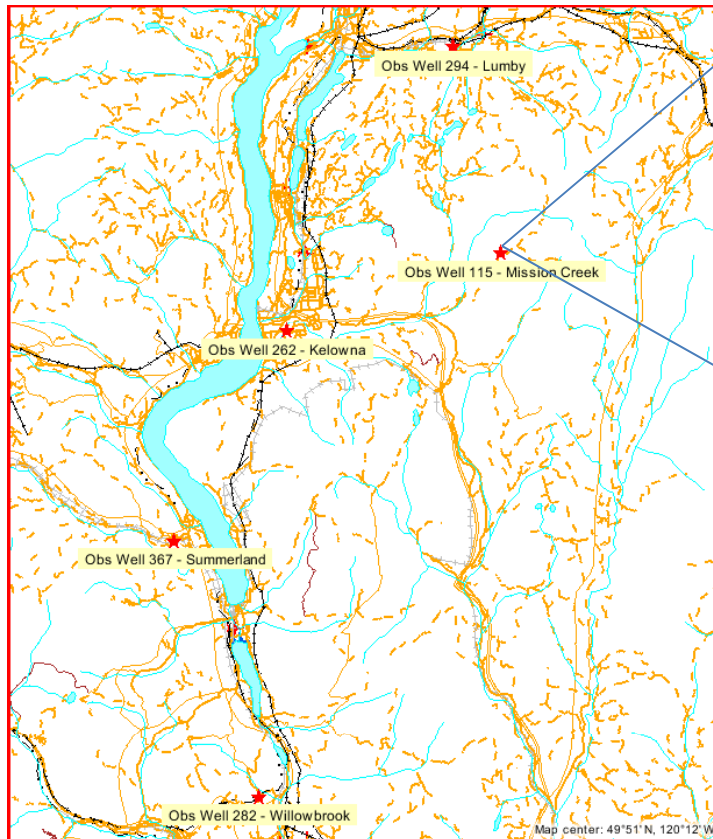


1980 - present

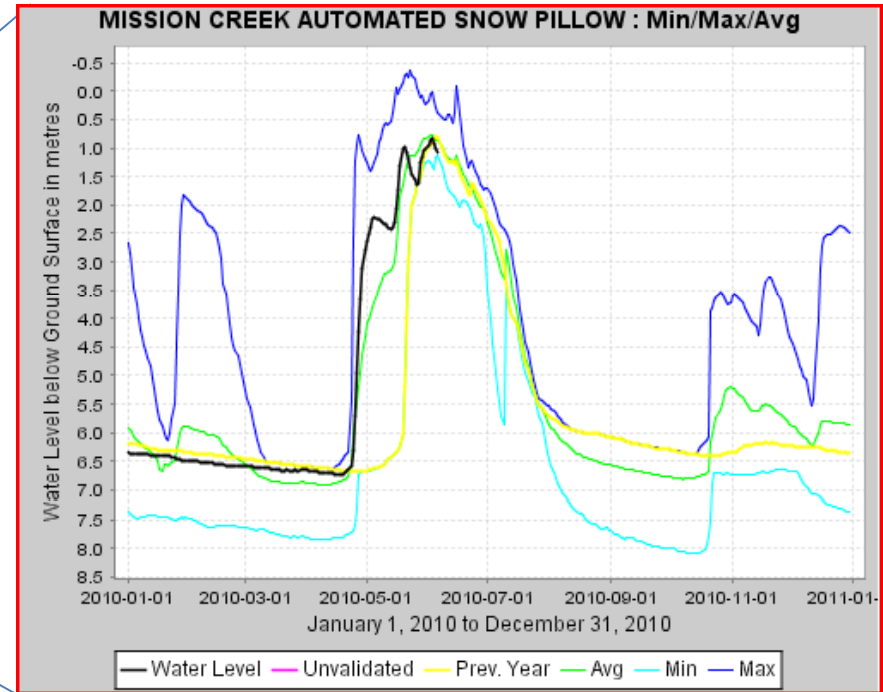


Okanagan Groundwater: MoE Observation Wells

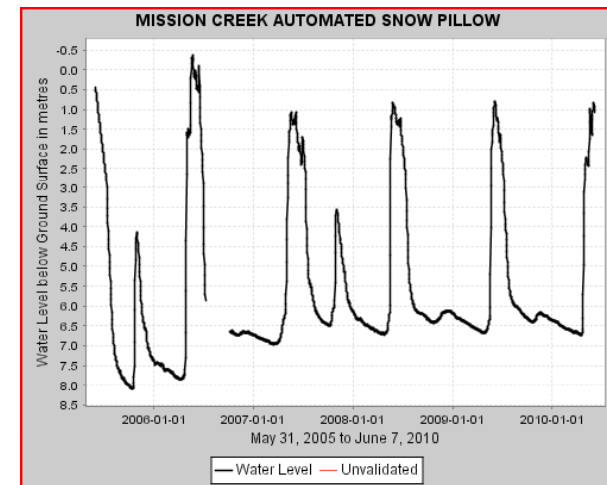
Mission Creek (115)



2010

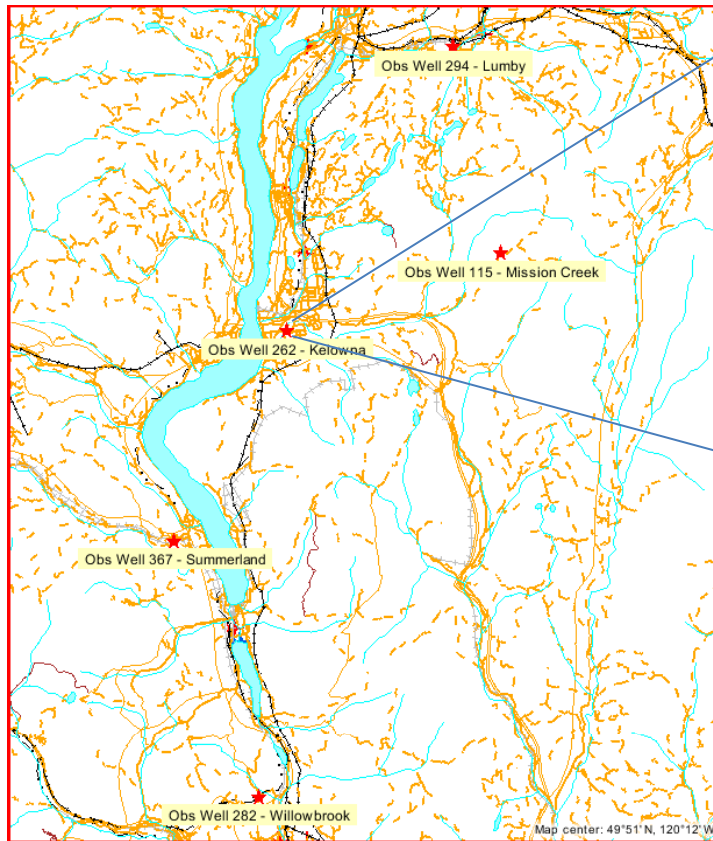


2005 - present

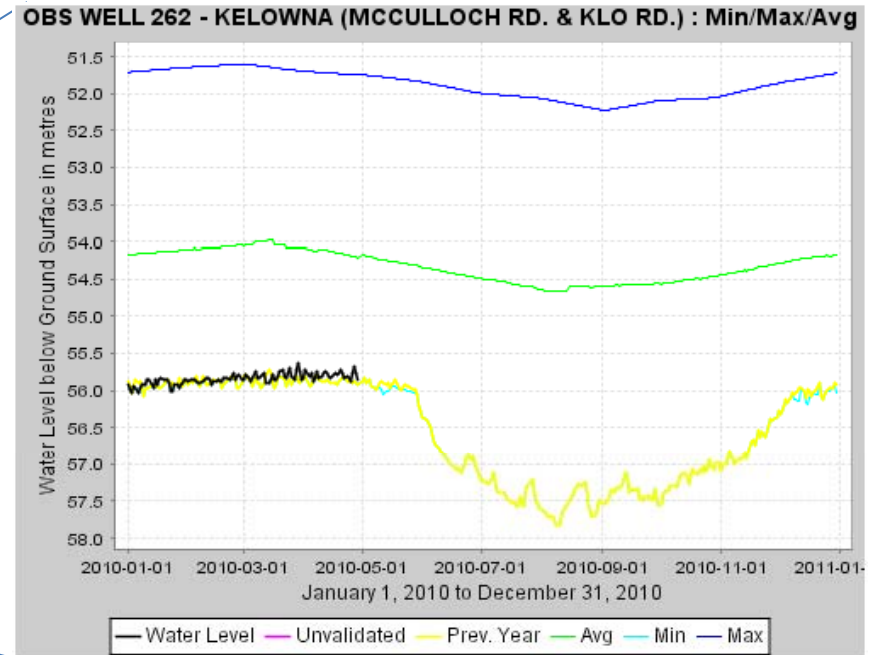


Okanagan Groundwater: MoE Observation Wells

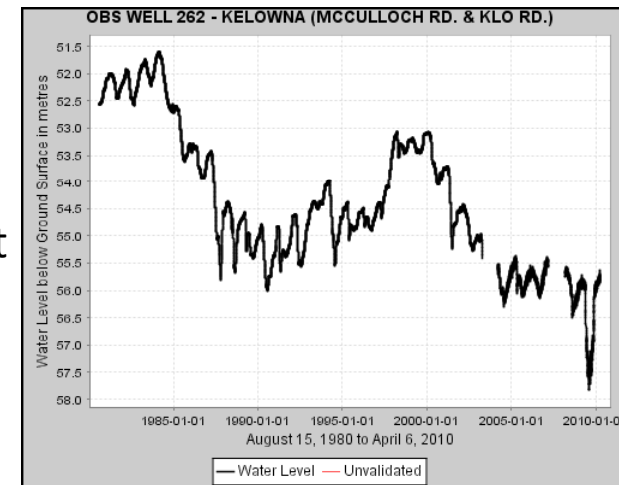
Kelowna (262)



2010



1980 - present

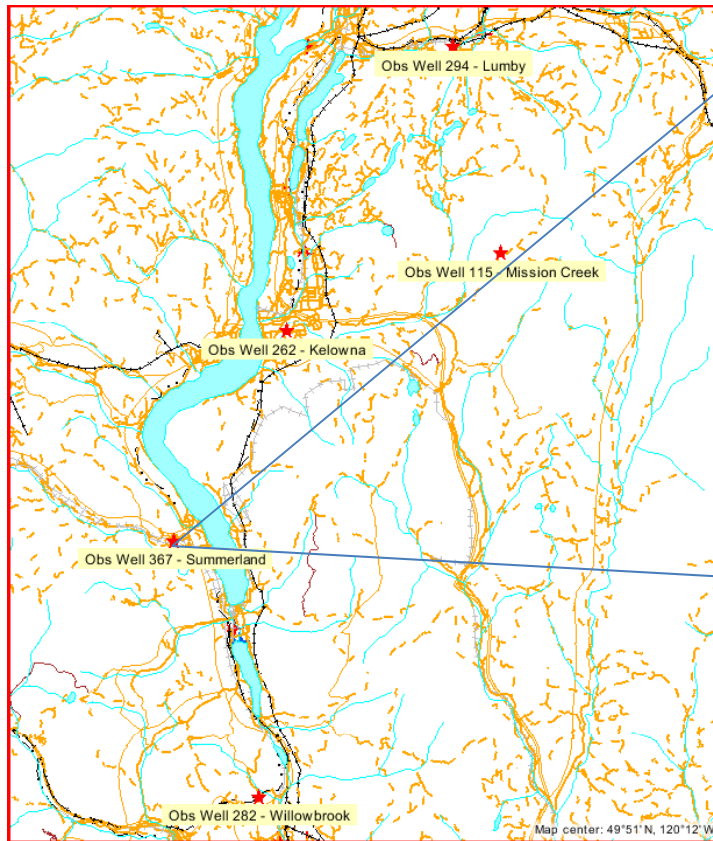


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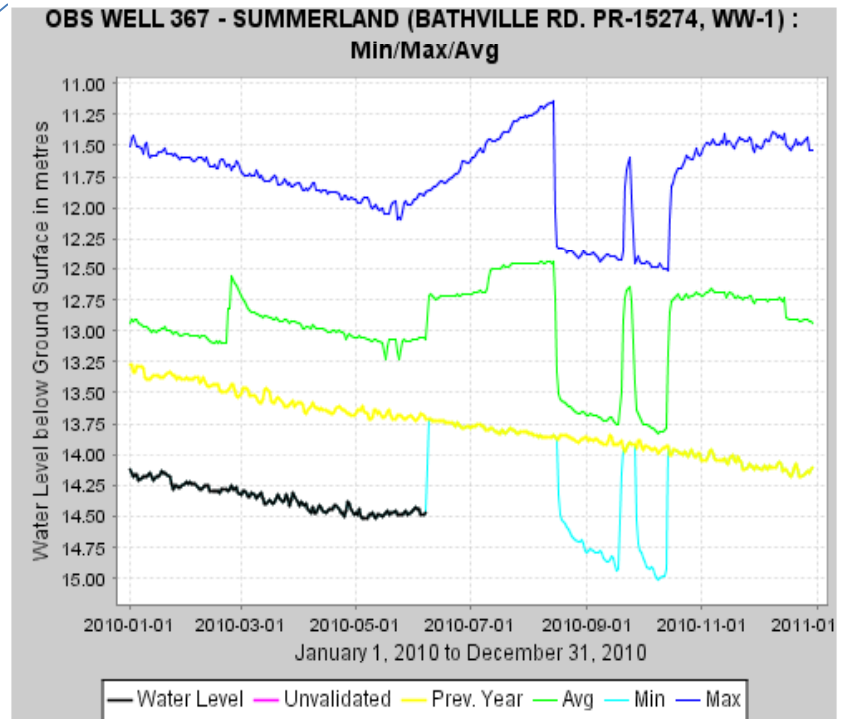
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Okanagan Groundwater: MoE Observation Wells

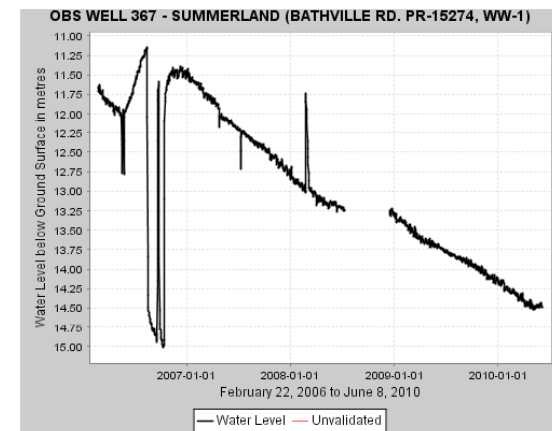
Summerland (367)



2010

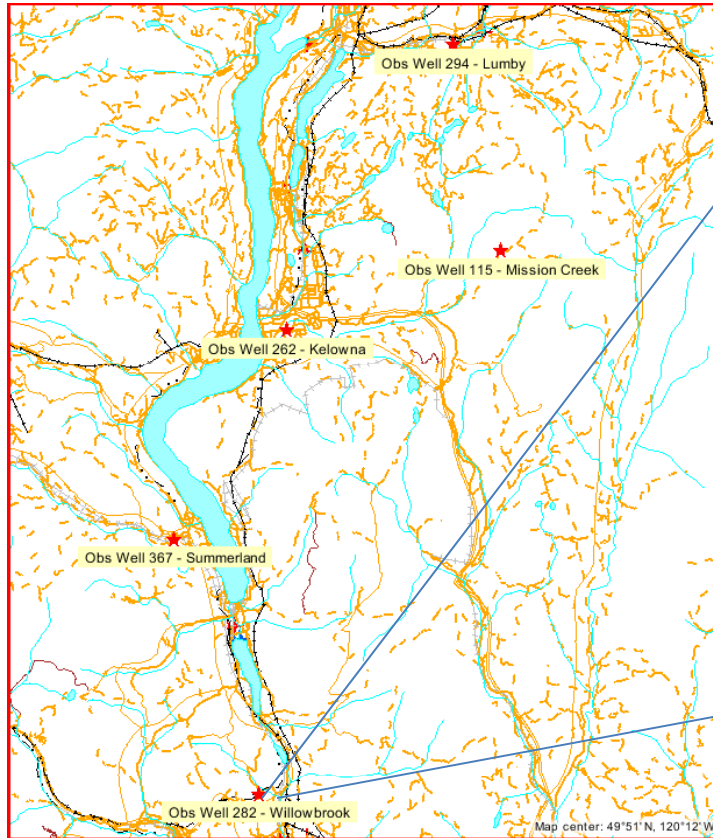


2006 - present

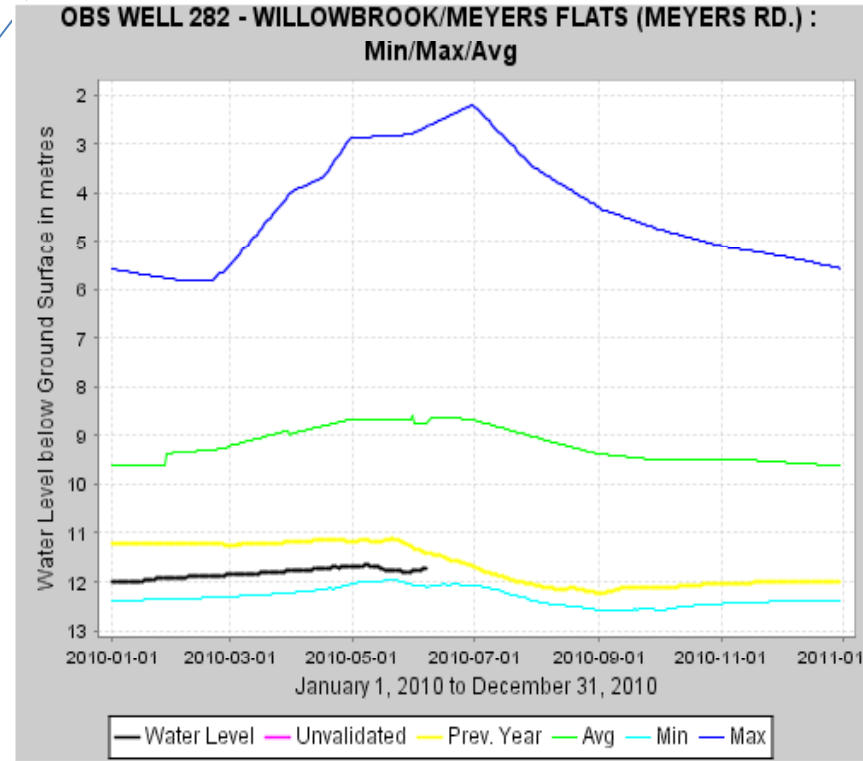


Okanagan Groundwater: MoE Observation Wells

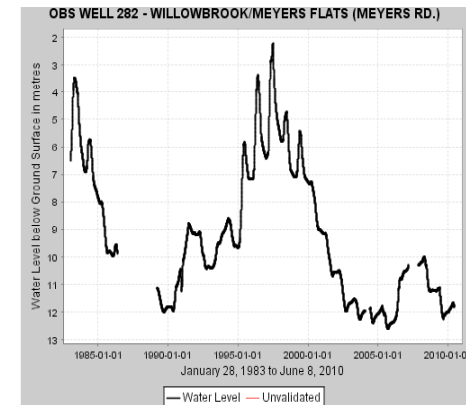
Oliver – Willowbrook (282)



2010



1980 - present

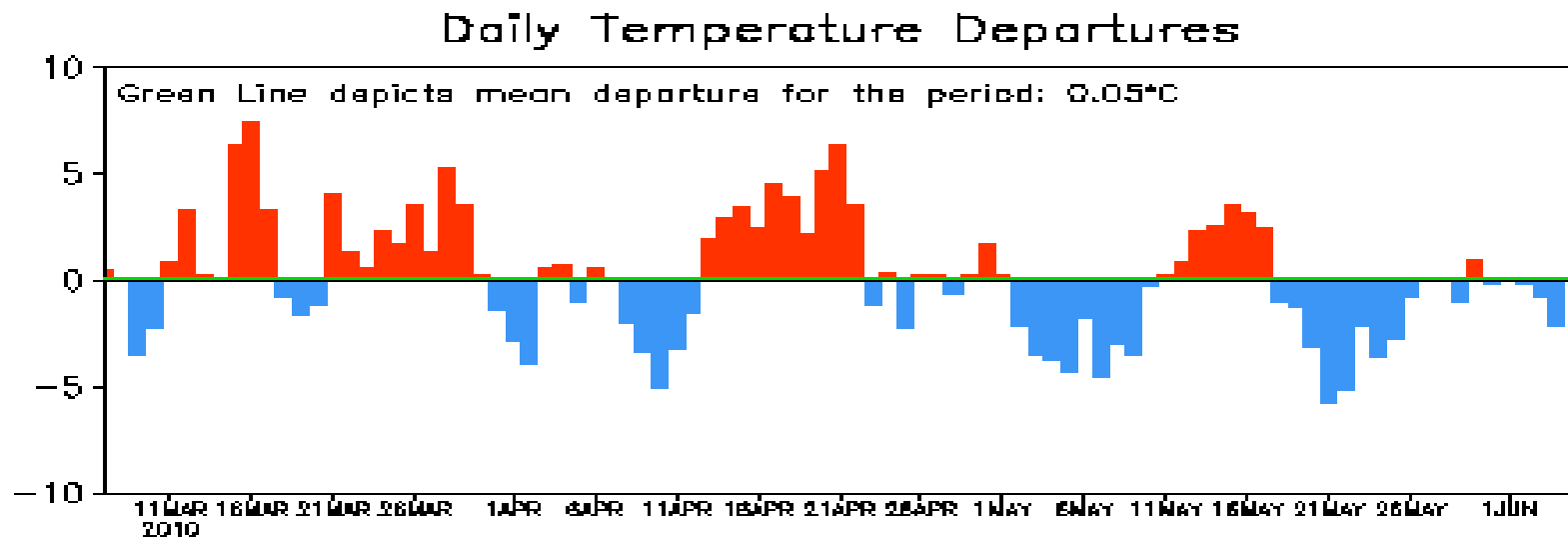
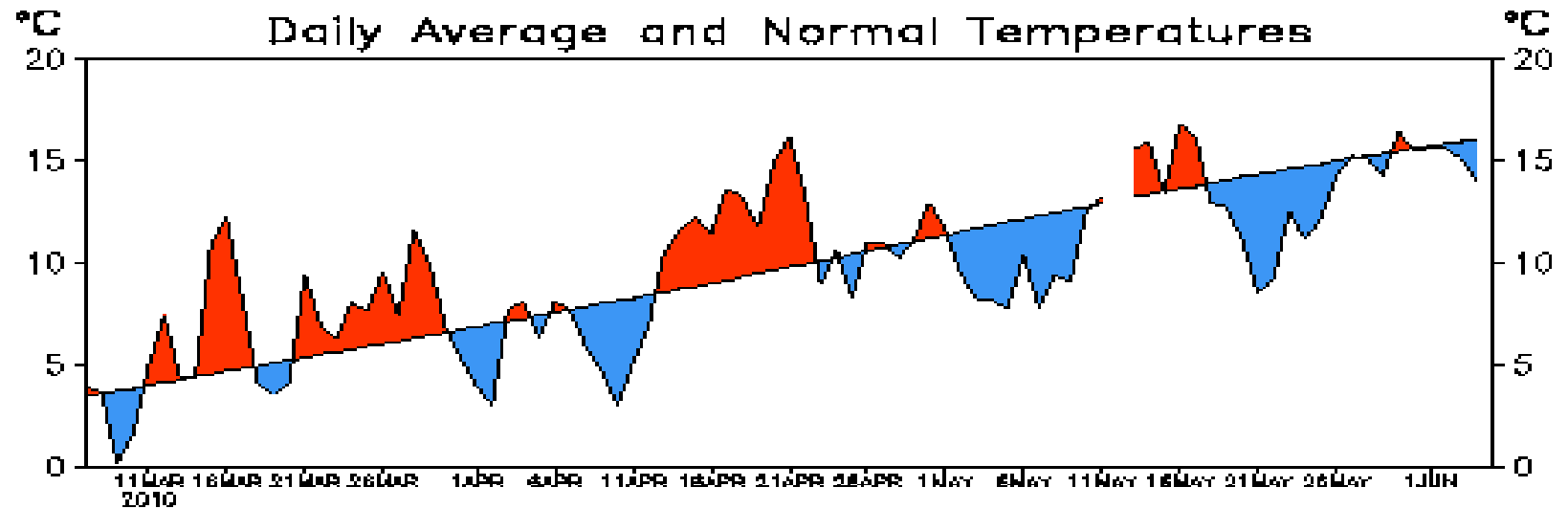


Weather – Environment Canada

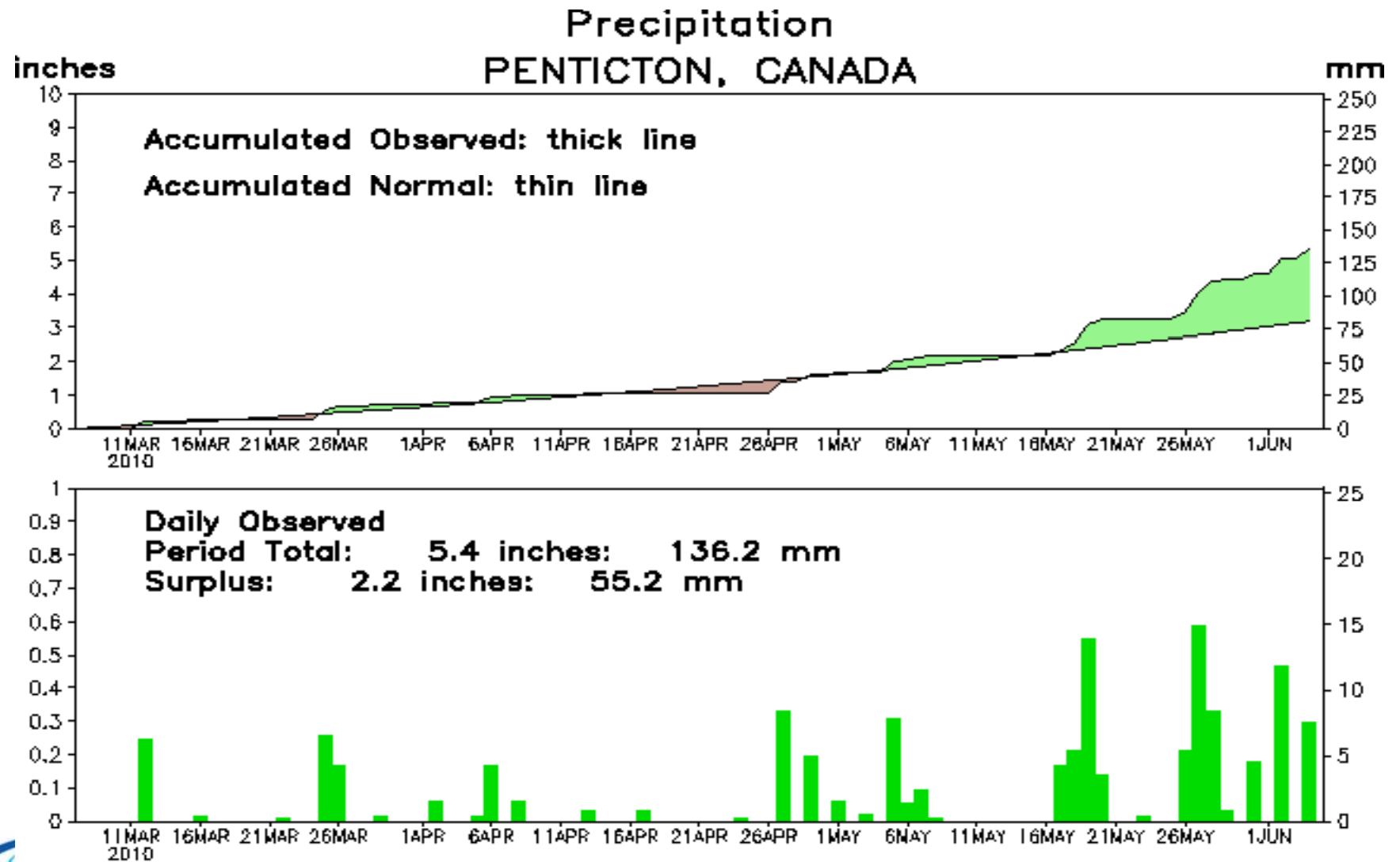
- El Niño is done in transition to La Niña
- Connection is lost and effect less defined
- **Early summer wet season – PLUS**
- Short Range turning warmer
- Medium Range variable
- Long Range pattern continuing on the wet side with warmer than normal temperature - caution

2010: Last 90 Days – Temperature

PENTICTON, CANADA



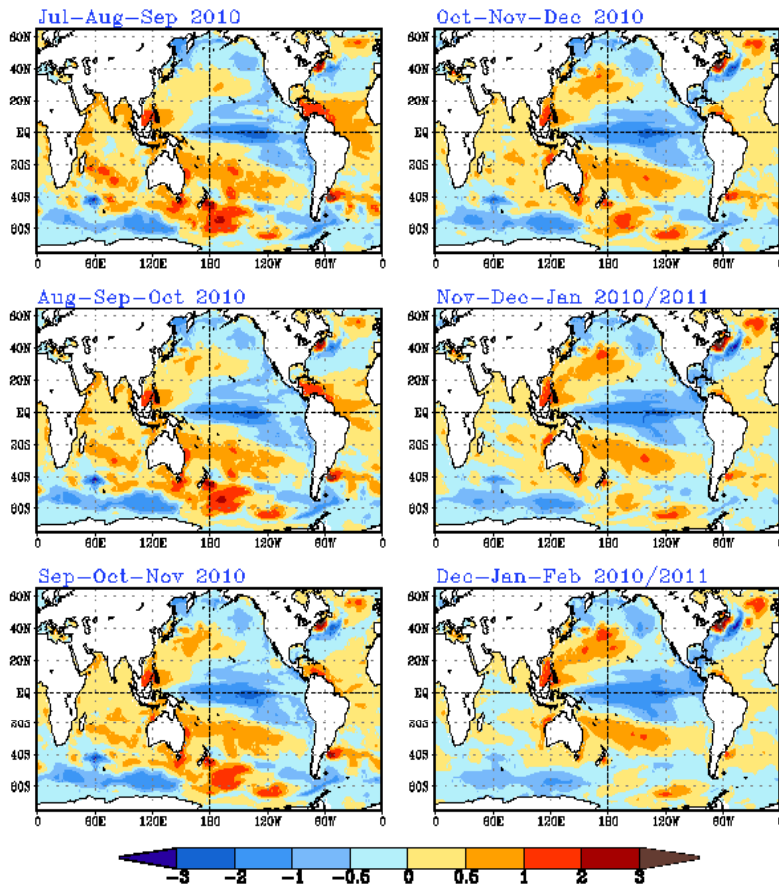
2010: Last 90 Days – Precipitation



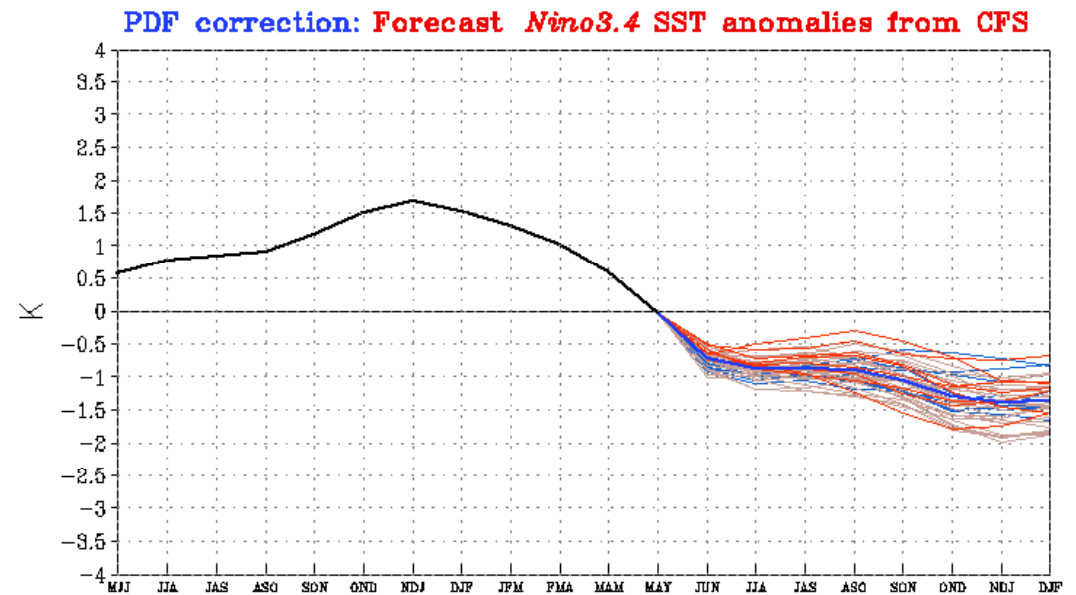
Data updated through 04 JUN 2010

CLIMATE PREDICTION CENTER/NCEP

SST Outlook: NCEP CFS Forecast Issued 6 June 2010



The CFS ensemble mean (heavy blue line) predicts the onset of La Niña conditions during Northern Hemisphere summer 2010.



Please note the anomalies displayed above are not PDF corrected (they are biased corrected).

2010 May Weather (valley bottom)



Vernon

- -0.3 degrees (near normal)
- Precipitation 45.6mm/46.5mm (near norm)

Kelowna

- Precipitation 49.7mm/39mm (127%)

Summerland

- 1.4 degrees below normal
- Precipitation 59.2mm/35.9mm (165%)

Penticton

- 1.3 degrees below normal
- Precipitation 75.8mm/37.3mm (203%)

Osoyoos

- 1.6 degrees below normal



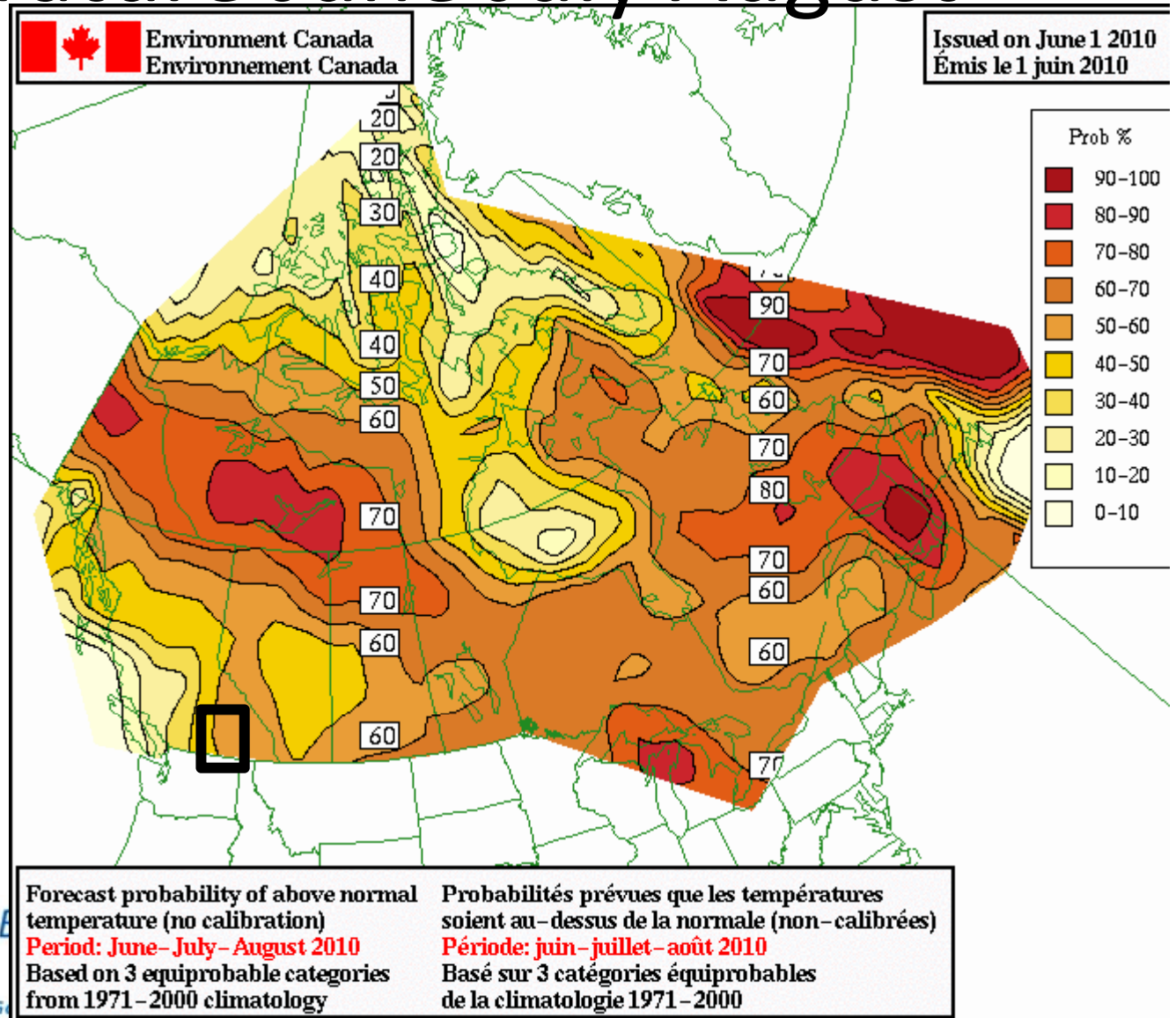
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Temperature June July August

Issued 1 June
 ~ 60% chance
 warmer than
 normal



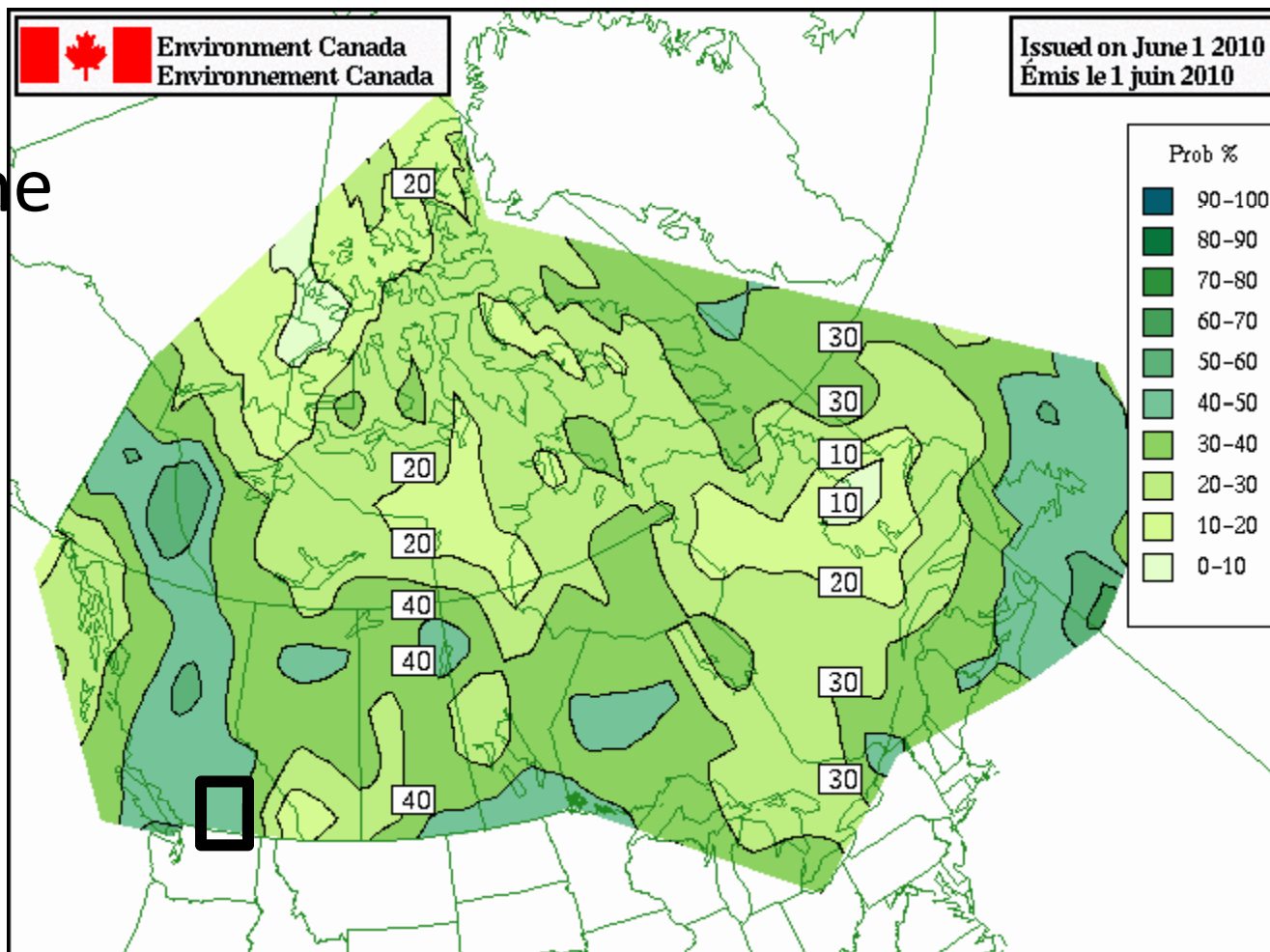
Precipitation June July August



Issued 1 June

~ 40-50%
chance for
above normal
precipitation

Driven mostly
by convection
and upper
lows –
variability



Forecast probability of above normal precipitation (no calibration)
Period: June - July - August 2010
 Based on 3 equiprobable categories from 1971 - 2000 climatology

Probabilités prévues que les précipitations soient au-dessus de la normale (non-calibrées)
Période: juin - juillet - août 2010
 Basé sur 3 catégories équiprobables de la climatologie 1971 - 2000



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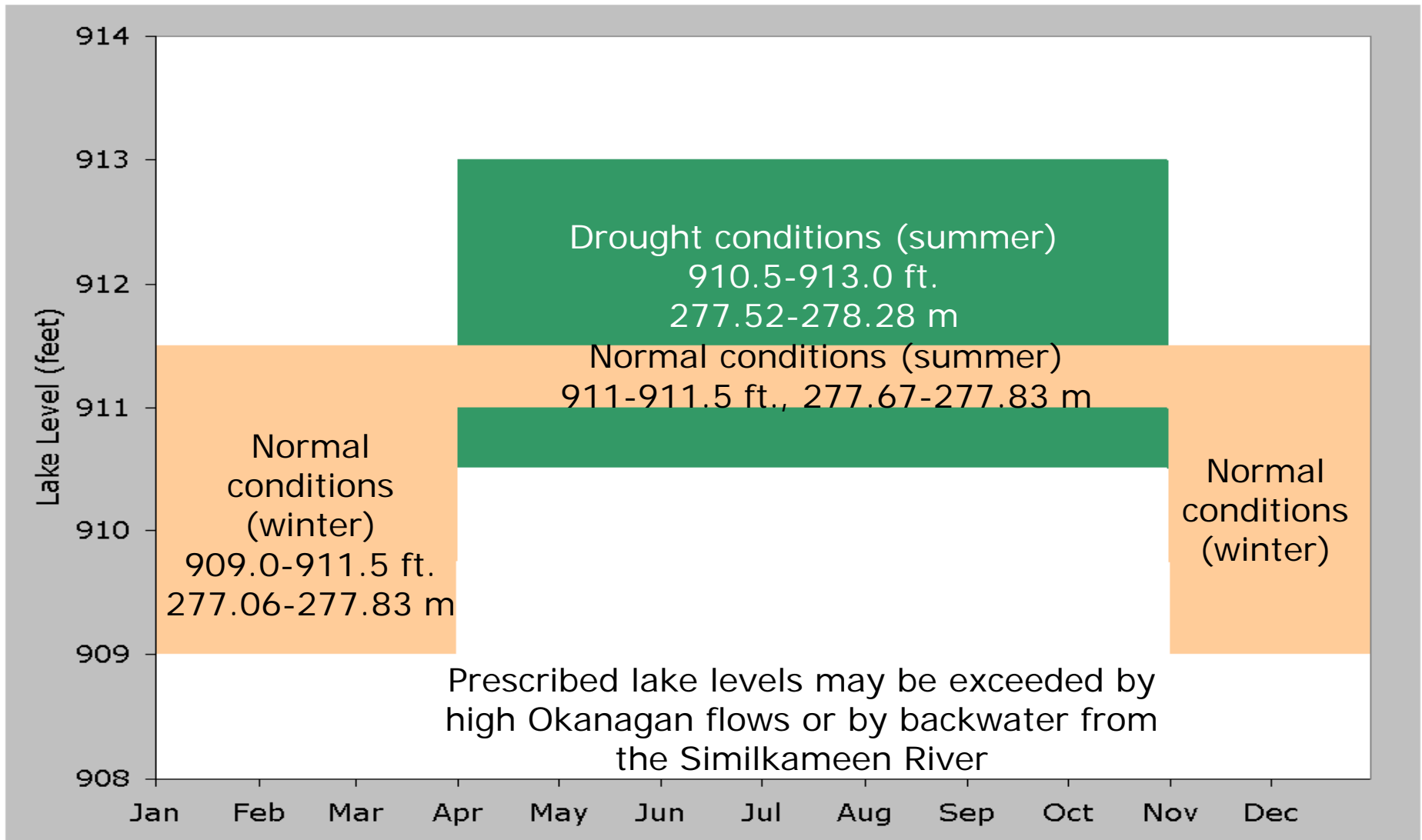
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Summary

- Recent weather has slowed warming and reversed drying
- In short to medium range returning to normal for temperature - temporary
- Computer models continue with wetter for the longer range
- **Weather memory**
- This is consistent with a possible La Niña

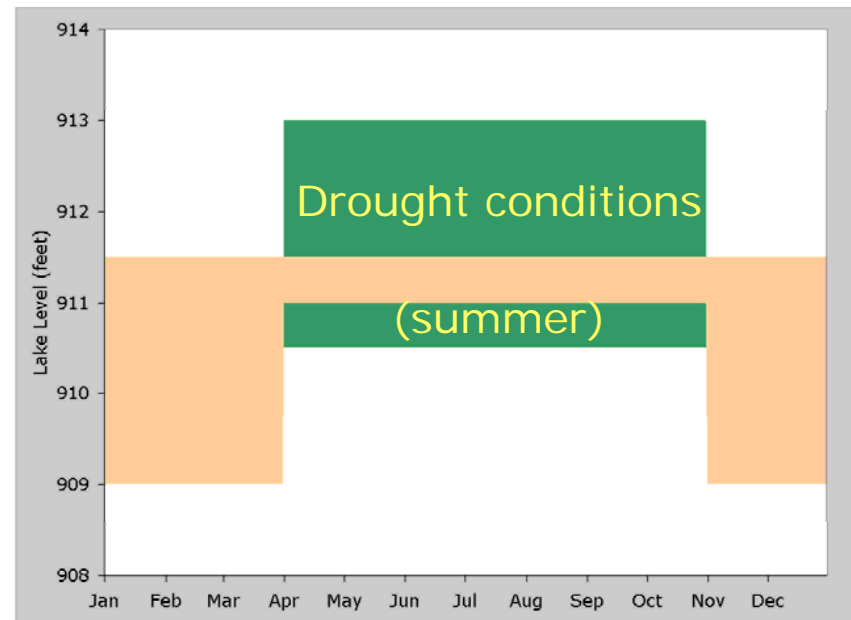
Prescribed Lake Level Range



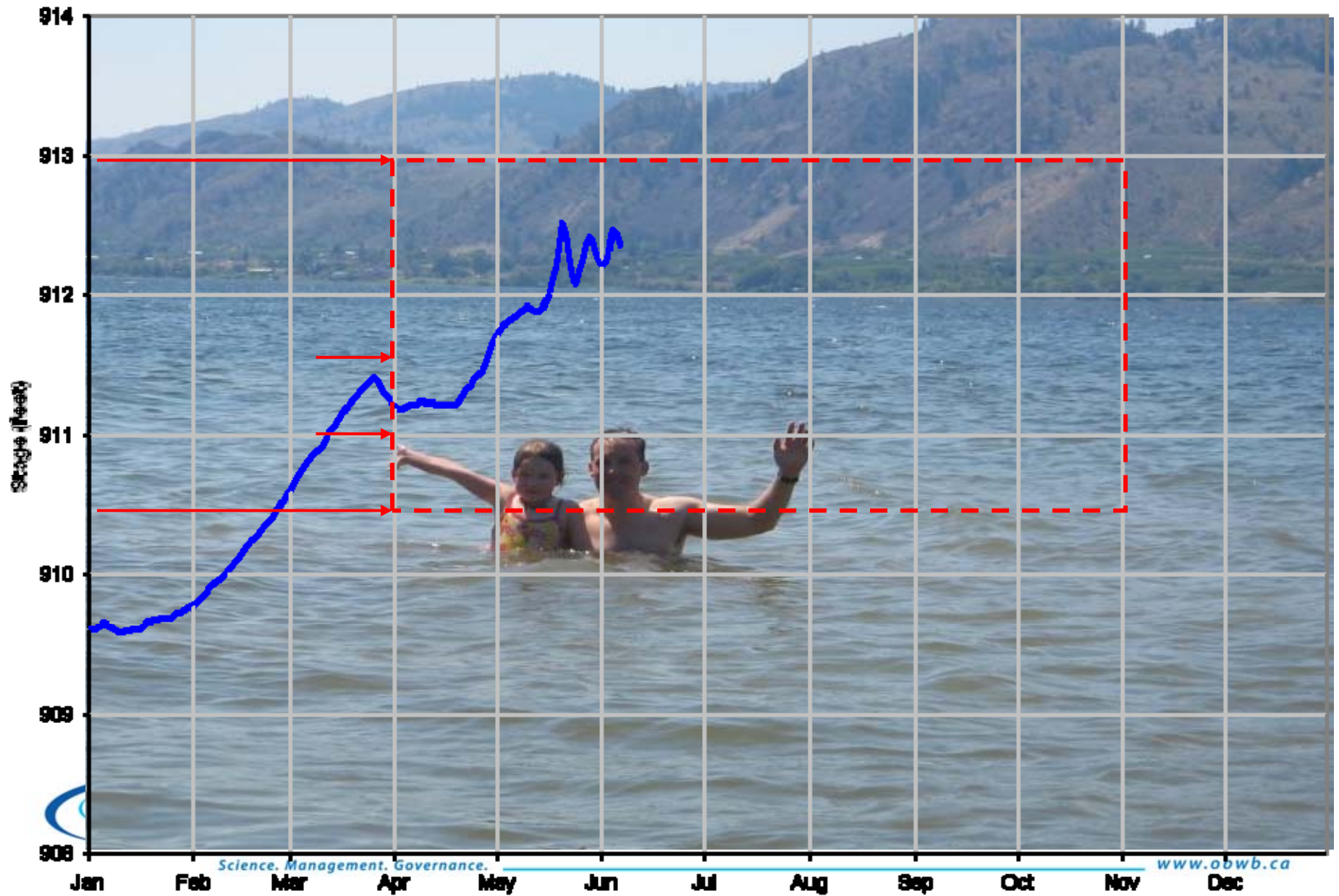
Drought Criteria

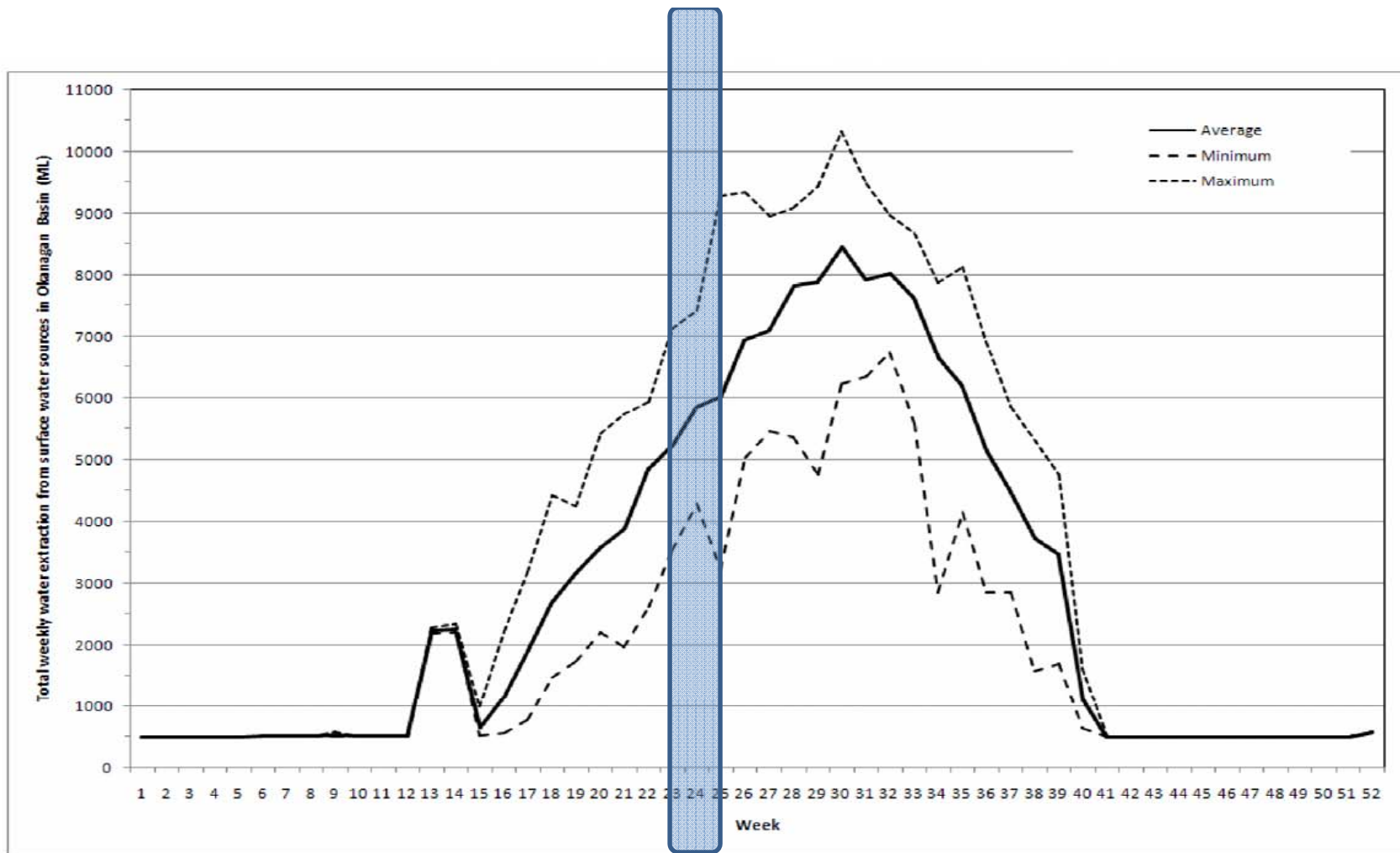
The Orders provide 3 criteria for defining a drought year

- Flow in the Similkameen River, April-July
- Inflow to Okanagan Lake, April-July
- Water level in Okanagan Lake, June-July



Osoyoos Lake 2010





Note: Average, minimum, and maximum weekly totals over the 1996 to 2006 period are shown. Weeks 1-12 and 41-52 are periods when little to no irrigation occurs. The assumption of constant indoor water use is the reason for no variability during these weeks.

Figure 6.5 Total weekly water extraction from surface sources in the Okanagan Basin

Thank you



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