



Welcome to the Irrigator Meter Rates Open House



Please review the
following boards and
then complete the
survey

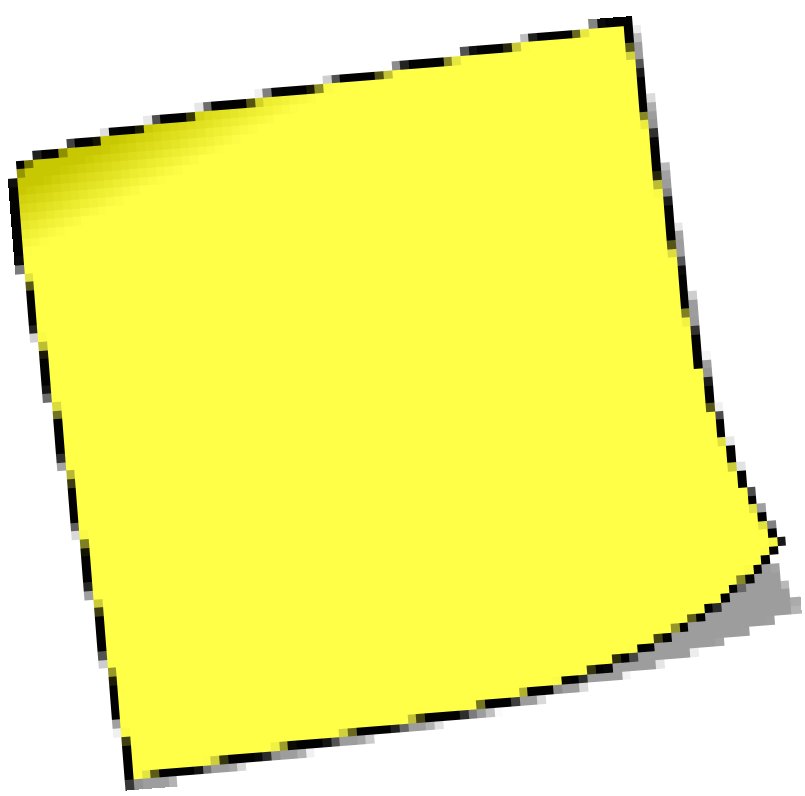
(Boards are the same
on each side of the
room)

Thank you!



Project Goals:

- Engage the community
- Explore irrigation billing models
- Promote responsible water management
- Collect the same revenue from the irrigator water users as a group



WHAT GOALS WOULD YOU LIKE TO ADD?



Water Facts

Summerland has sufficient water for the foreseeable future given typical snow pack, precipitation, weather patterns and consumption.

There are two water sheds with total water volume of 66,180 ML/year.

Water consumption licenses held by the District total 22,316 ML/year.

Average consumption is 9,450 ML/year.



Water Facts

Irrigators

- Consume 5,100 ML/year (53%) of Summerland's total water consumption for irrigation of arable lands
- Currently pay 18% of water revenues
- Are billed a flat rate based on arable acreage with no consumption charge

Domestic and Commercial Customers

- Consume 4,350 ML/year (47%) of water of Summerland's total water consumption
- Currently pay 82% of water revenues
- Are billed a base rate and a consumption charge



WATER LICENSES

In BC, all water is owned by the Province. The basic, primary and most fundamental water management tool is the water license. The water license is the legal foundation of water use and management between the District of Summerland and the Province of BC. A water license:

- allows the Province to manage all its water assets such as water sheds
- allows for a specific water use, the amounts allowed, the times of year use is allowed, and the source that the water can be drawn from.
- is priority based, older licenses have priority over newer licenses in times of shortages.

The District of Summerland holds some of the very oldest licenses in BC, including domestic, irrigation and storage, providing a secure water source. The District of Summerland is entrusted with the responsibility of administering the water supply to the community. The Council makes decisions regarding water use based on the greater good of the community as a whole.

There is a direct link between the agricultural land within the District of Summerland and the irrigation licenses the District holds. Without the agricultural land base to support the need for irrigation water, the District would not have these licenses.

There are approximately 1,290 hectares (3,187 acres) irrigated in Summerland (Water Availability Report, March 2014) which is 49% of the volume available through the licenses, watered to a depth of 800 mm or 31.5 inches. See the board about water use by crops for Summerland for more information.

Definitions



Irrigation Roll – A register established in the early 1970's to collect the money necessary to operate the irrigation water system.

If a property was on the irrigation roll, the property owner was billed a per arable acre charge for the use of irrigation water. In anticipation of metered consumption charges for domestic, in 2010 properties under 2 arable acres were removed from the irrigation roll. In 2016, when metered irrigation rates have been determined, the irrigation roll will be integrated into the metered billing system. A listing of the arable acreage of the properties connected to the irrigation system will be retained.

Farm Status – This status is determined by BC Assessment. Owners must complete the application form and meet income requirements to qualify. *The Classification of Land as a Farm Regulation*, B.C. Reg. 411/95, made under the *Assessment Act*, provides that the following land may qualify for farm class:

- a) land used for a qualifying agricultural use;
- b) land used for a purpose that contributes to a qualifying agricultural use;
- c) land used for a farmer's dwelling;
- d) land in an agricultural land reserve (ALR) that is used for a retired farmer's dwelling;
- e) land used for the training and boarding of horses when operated in conjunction with horse rearing; and
- f) in some cases, vacant land associated with a farm.

Threshold – for billing purposes, the level of consumption at which an increased rate or penalty will be applied. There may be multiple thresholds in a billing model, expressed as an annual amount of water. In the 2008 Water Master Plan, the depth of water that is sufficient to grow grass crops in Summerland was determined to be 800 mm or 31.5 inches.

Base fee – a set charge per arable acre for irrigator water

Metered consumption rate – a charge based on the volume of irrigator water provided to the property

Penalty – an additional charge for metered consumption of irrigator water that exceeds the threshold identified in the billing model

Flow rate – a measurement of the volume of water as it passes a specific point in the delivery system, usually a valve. It can be measured in megalitres (million litres), cubic meters (thousand litres). Significant factors in determining the rate are the pressure in the system and the diameter of the pipe.

FLOW RATES AND ALLOCATION

There are a number of tools available for irrigation water management. Often, they are intended to be used together, as an integrated package, to help in delivering a smooth operating system. Two important tools are:

Flow Rates

Flow rates are related to municipal pipe sizes and distribution system pressures intended to enable the District to deliver water to meet the peak demand. The flow rate currently used to meet the peak demand is 6 imperial gallons per arable acre per minute (gpm). For example, a parcel of 10 arable acres has a maximum flow through the meter at any one time of 60 gpm.

Irrigated parcels should have irrigation zones and system design and delivery that take into account the maximum flow rate

Water Volume Allocation

Allocation is the total volume of water that can be used at one location over the entire irrigation season. There are a number of factors that can affect the allocation such as the volume stated on the water license, the actual amount of water available and other variables identified by the District.

Summary:

Flow Rate = volume of water used per minute

Allocation = volume of water used per season.



SUMMERLAND IRRIGATION

Irrigation Requirement (mm)					
Land use	1997	1998	2003	2009	2010
Alfalfa	368	828	844	559	536
Apple	343	752	767	541	499
Berry	208	640	630	360	359
Cherry	426	837	862	637	571
Forage	446	806	833	646	600
Fruit	383	807	827	604	533
Grape	92	350	361	186	173
Turf Farm	656	1017	1081	907	768
Vegetable	410	661	694	636	454
Greenhouse	358	884	902	560	582
Nursery	330	828	855	524	540
Recreational Turf	572	954	962	805	694
Golf	592	864	1017	830	697
Domestic Outdoor	562	938	975	797	709



SUMMERLAND

IRRIGATION USE BY

TYPE OF SYSTEM

Irrigation Requirement (mm)					
Irrigation System	1997	1998	2003	2009	2010
Drip	241	552	565	389	354
Golf Sprinkler	592	864	1017	830	697
Gun	655	1197	1209	942	876
Handline	431	826	849	648	589
Landscape Sprinkler	563	940	975	798	709
Micro Sprinkler	364	777	800	569	518
Overtree Drip	261	486	634	527	393
Sprinkler	427	802	832	632	581
Ss Overtree	386	838	855	600	562
Ss Sprinkler	423	857	966	626	589
Ss Undertree	384	822	837	597	546
Sub Irrigation	359	685	685	518	483
Travel Gun	500	948	953	731	680



Establishing Rate Threshold Triggers

The 2008 Water Master Plan identified the annual requirement for irrigator water use at 800mm or 31.5 inches based on the moisture deficit for the highest use crop, grass.

Moisture deficit – the amount of irrigator water needed each growing season. It is the evapo-transpiration for the year less the effective precipitation.

According to Farmwest, in Summerland, the historical average moisture deficit for a **grass crop** ranges from 714 to 768 mm (28.1 to 30.2 inches). In the past 20 years, the high was 816 mm (32.1 inches) in both 2012 and 2003 and the low was 468 mm (18.4 inches) in 1999.

- **Tree fruits** will require about 25% less water than grass
- **Grapes** will require about 75% less water than grass
- **Vegetables** will require about 35% less water than grass

Evapo-transpiration – the amount of water evaporating from the ground and the leaf surface. Calculated evapo-transpiration depends on a number of factors including temperature, solar radiation, vapour pressure, and wind speed.

Farmwest is a non-profit venture developed by the Pacific Field Corn Association, a non-profit society, and receives support from the Government of Canada and the Province of British Columbia.

More details are available at www.farmwest.com

Which Properties Should Qualify for Irrigator Rates ?

Current model - which includes

- All properties on the Irrigation Water Parcel Tax Roll (properties with 2+ acres of arable land)
- All properties that have farm status

Provides less expensive water for irrigating large acreages, greenhouses, golf courses and schools

May not relate to agriculture

Only properties with farm status (per BC Assessment)

Is not dependent on property size

No benefit to large properties unless they have farm status

Only properties within the Agricultural Land Reserve (ALR)

Includes some residential properties

Includes some properties that are not actively farmed

Excludes properties with farm status outside the ALR

Only properties with agricultural zoning (A1 or A2)

Includes some residential properties

Includes some properties that are not actively farmed

Excludes properties with farm status outside the A1 or A2 zone

Some combination of the above?

Rate Model Options

Model #1 – Current System

- Base fee only
- No metered consumption charge
- No surcharge for use over the threshold

Easy to administer

Certainty of the revenue stream

Does not include a financial incentive for water wise practices

Model #2

- Base fee
- No metered consumption charge
- Surcharge for use over the threshold

Easy to administer

Certainty of the revenue stream

Financial incentive to be water wise

Does not include a financial incentive to reduce water consumption below the threshold

Meter malfunction will result in estimated water use based on historical information adjusted for the typical use that year

More Model Options

Model #3

- Base fee PLUS
 - Metered consumption charge PLUS
 - Tiered surcharge for use above the threshold
- Increased financial incentive to be water wise as growers will pay for what they use
- Dependent on the crop, a grower may pay more or less than the current fee structure
- More certainty for the revenue stream as there is a base fee component

Model #4

- Base fee PLUS
 - Metered consumption charge with a tiered rate structure (rate increases as higher volumes are used)
 - No surcharge for use over the threshold
- Increased financial incentive to be water wise
- All revenue is weather dependent and difficult to forecast
- Meter malfunctions will pose significant challenges

OTHER MODELS ?



Other Communities

Greater Vernon Irrigation District and South East Kelowna

- Allocation Fee cost per area per year
- Tiered penalty based on the percentage of over use per volume per year
- SE Kelowna turns off the irrigation service when allotment is reached, owner is penalized, and owner must discuss conservation measures with the Community prior to irrigation being turned back on

Penticton and Naramata

- Base rate per acre
- No consumption or penalty billing in place
- Starting to install meters and under review

West Kelowna

- Varies depending on irrigation area as many have recently become part of West Kelowna
- Have historical allotments
- Must either be in the ALR or have Farm Status
- Area rates structures include varying flat rates per irrigated area
- No consumption or penalty billing in place; has water rate study proposed

Glenmore - Ellison

- Flat rate per area
- Must have Farm Status and buy-in for annual allotment
- Greater flat rate per acre if no Farm Status
- No consumption or penalty billing in place

Black Mountain

- Flat rate per acre, no allotment, and must have Farm Status
- Maximum gal/minute use
- If flow is exceeded the valve is tagged and turned off
- No consumption or penalty billing in place





History

1910 - The newly formed Municipality of Summerland took over the irrigation and domestic water systems from the Summerland Development Company and the irrigation system from the Garnet Valley Land Company. The irrigation system was the first publicly owned water system in the Okanagan Valley.

1922 - Trout Creek Flats was not part of the municipality and the Trout Creek Water Improvement District (TCWID) was formed to service this area. A concrete dam existed at the mouth of the Trout Creek canyon and this diversion dam served the needs of Trout Creek.

1924 - System demands increased with the demands from the Trout Creek, the Dominion Experimental Farm and the Municipality. Crescent Lake storage dam was completed.

1933 - Drought and lack of water resulted in the loss of many orchards. Disputes occurred between the orchardists and the utility. The TCWID became the Trout Creek Irrigation District (TCID).

1941 - The new Thirsk Dam (Summerland Reservoir No. 5) is located and constructed on Trout Creek 35 km upstream of the Trout Creek intake. Sprinkler systems began to replace the furrow irrigation techniques, but water pressures were typically inadequate to maintain the required pressures. Localized pressure water systems began to develop by single growers or groups of growers.

1948 - A chlorination system was installed by the Municipality for the domestic customers.

1968 - The water pump station and lake intake near the cannery in Lower Town were rebuilt to provide domestic water to the Lower Town area.

1975 - The Agricultural and Rural Development Act (ARDA) program pressurized the water system and infrastructure was added including screens and chlorination. The irrigation and domestic water systems were combined into a single pressurized and chlorinated water system. Approximately 85 km of new water main is installed throughout Summerland. Irrigation systems were designed to deliver a maximum flow rate of 6 imperial gallons per minute per arable acre.



History

1977 - Garnet Reservoir was reconstructed approximately 100m downstream of the old dam and raised to its present level. The TCID was amalgamated with the Municipality consolidating the major water suppliers in the area.

1997 - 1997 Master Water Plan by Associated Engineering completed.

2003 - A water treatment funding grant was received by the District of Summerland. Flow issues concerns within Trout Creek arose and a conflict occurs between the Department of Fisheries and Oceans and the District. Two emergency water wells are installed above Trout Creek Intake Reservoir on the Rodeo Grounds. Emergency water supply options are also investigated at that time.

2004 - Water Use Plan process was conducted by the town. It is the first water suppliers in the Province to do so. It is successfully administered by D. Sellars of Water Management Consultants.

2005 - Reconstruction of Thirsk Dam began. The work was completed in 2007.

2007 - Water Treatment Plant construction began. Construction was completed in the spring of 2008.

2008 - The Trout Creek Water System was renamed the Summerland Water System to avoid confusion and to clarify that this distribution system provided water to more than the Trout Creek community.

2009 - Begin installation of domestic water meters and begin first water separation project on Prairie Valley Road.

2015 – Domestic/Commercial Water Meter rates come into effect.

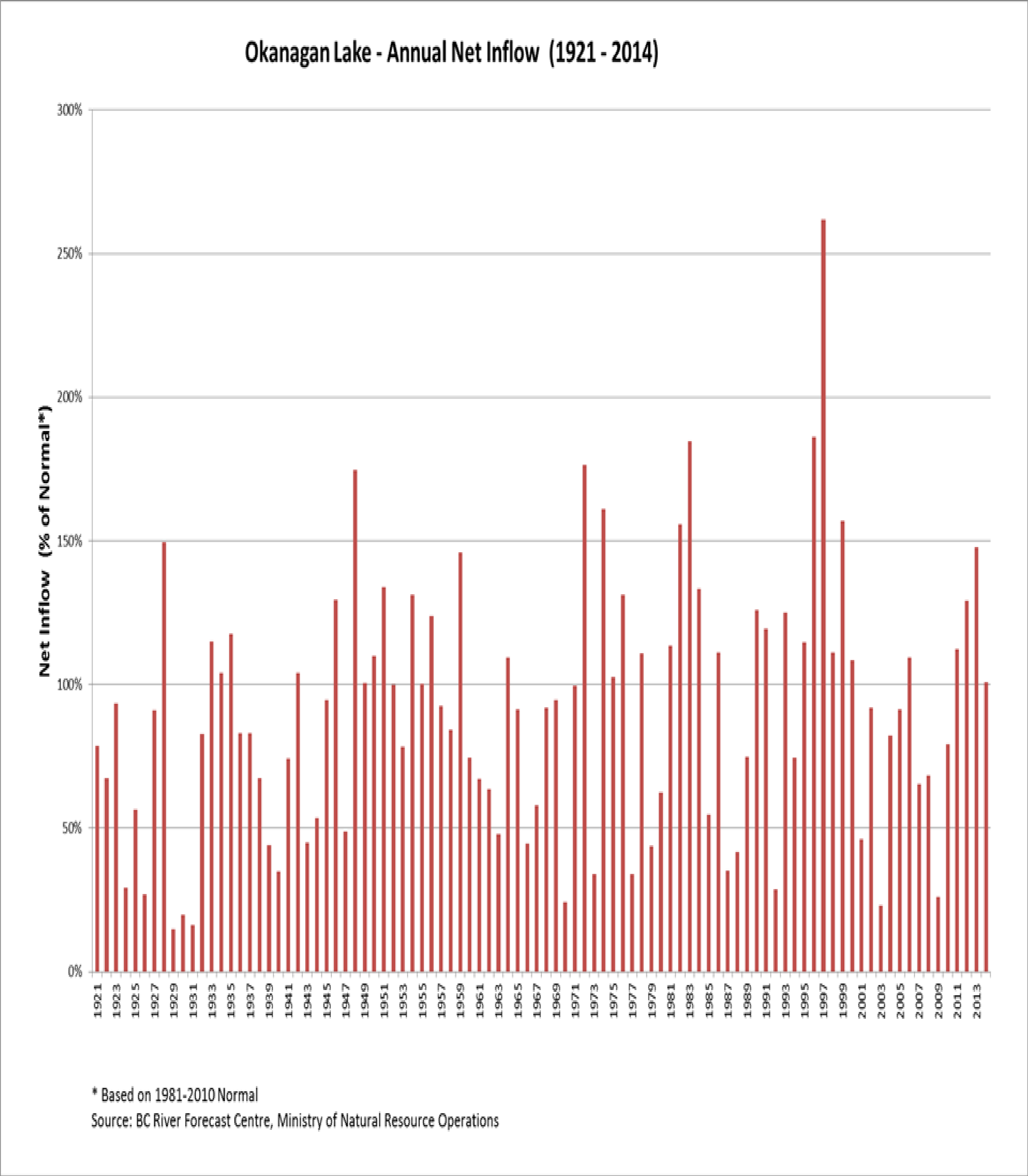


Okanagan Water Basin

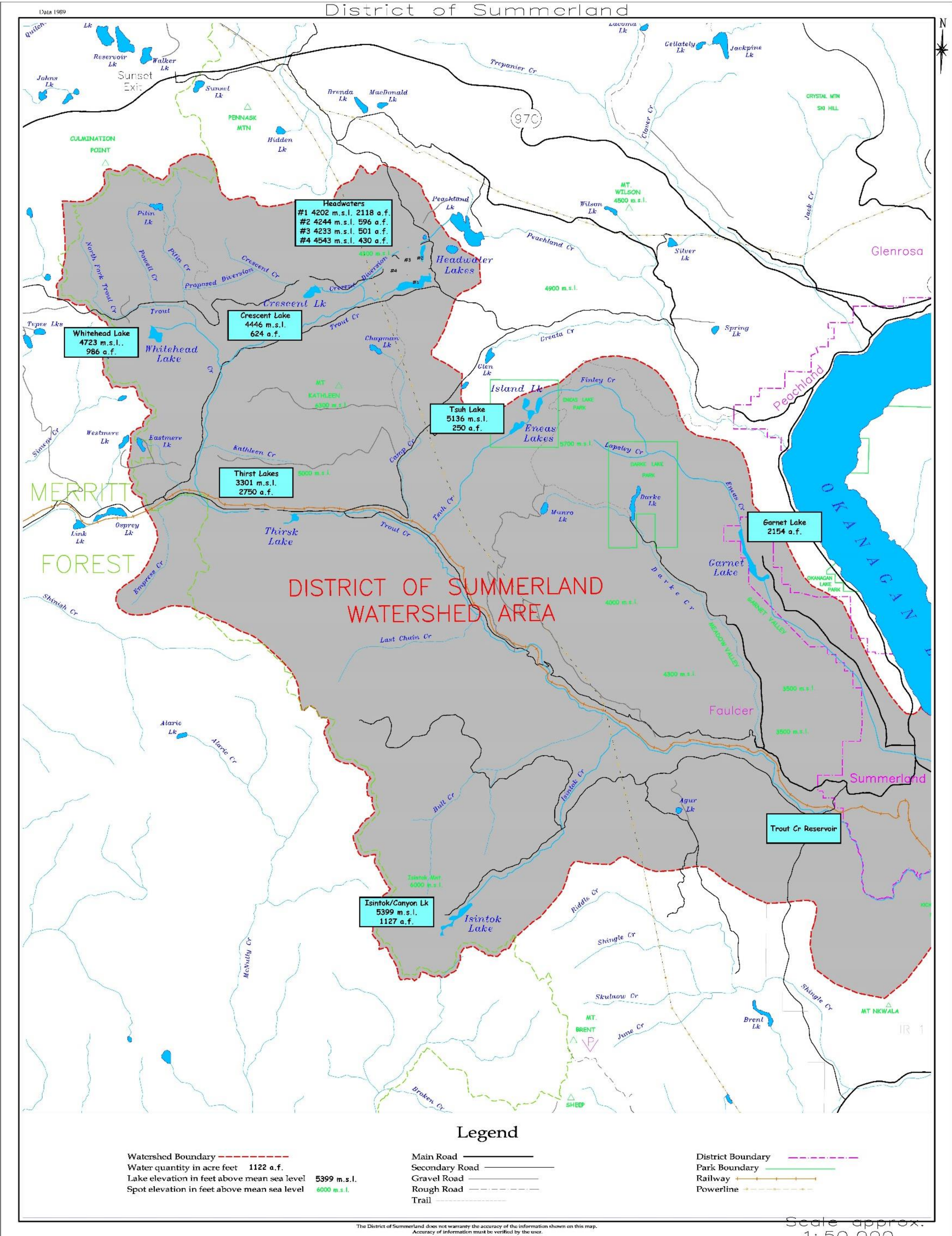
Summerland has shared water interests within the Okanagan Water Basin and participates in the Okanagan Basin Water Board (OBWB). The District supports the OBWB vision of a water system that meets the needs of residents and agriculture while supporting wildlife and natural areas, now and in the future.



OVER 90 YEARS OF DATA ILLUSTRATE THE VARIABILITY OF WATER FLOW INTO THE OKANAGAN LAKE VALLEY

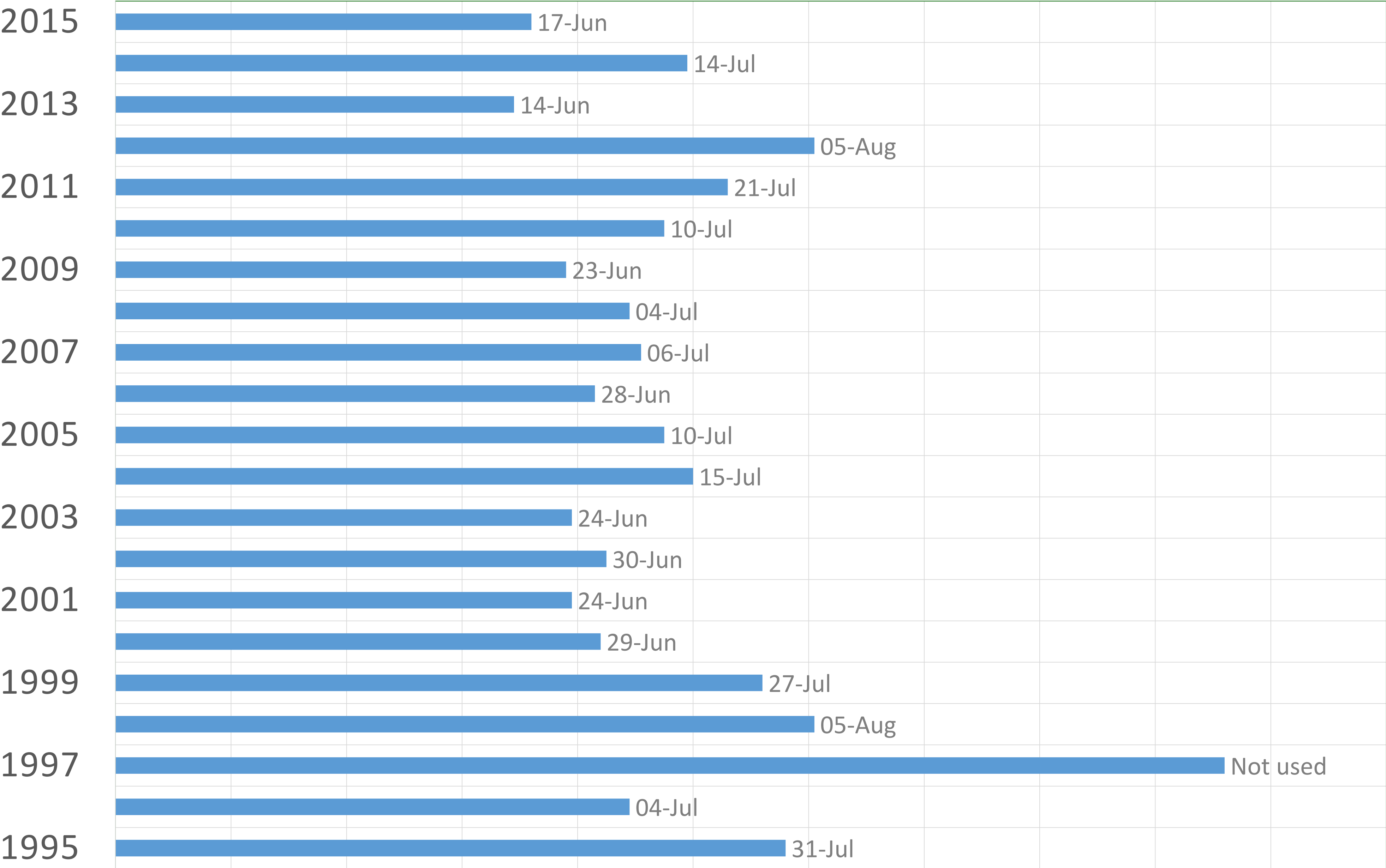


SUMMERLAND WATERSHED MAP

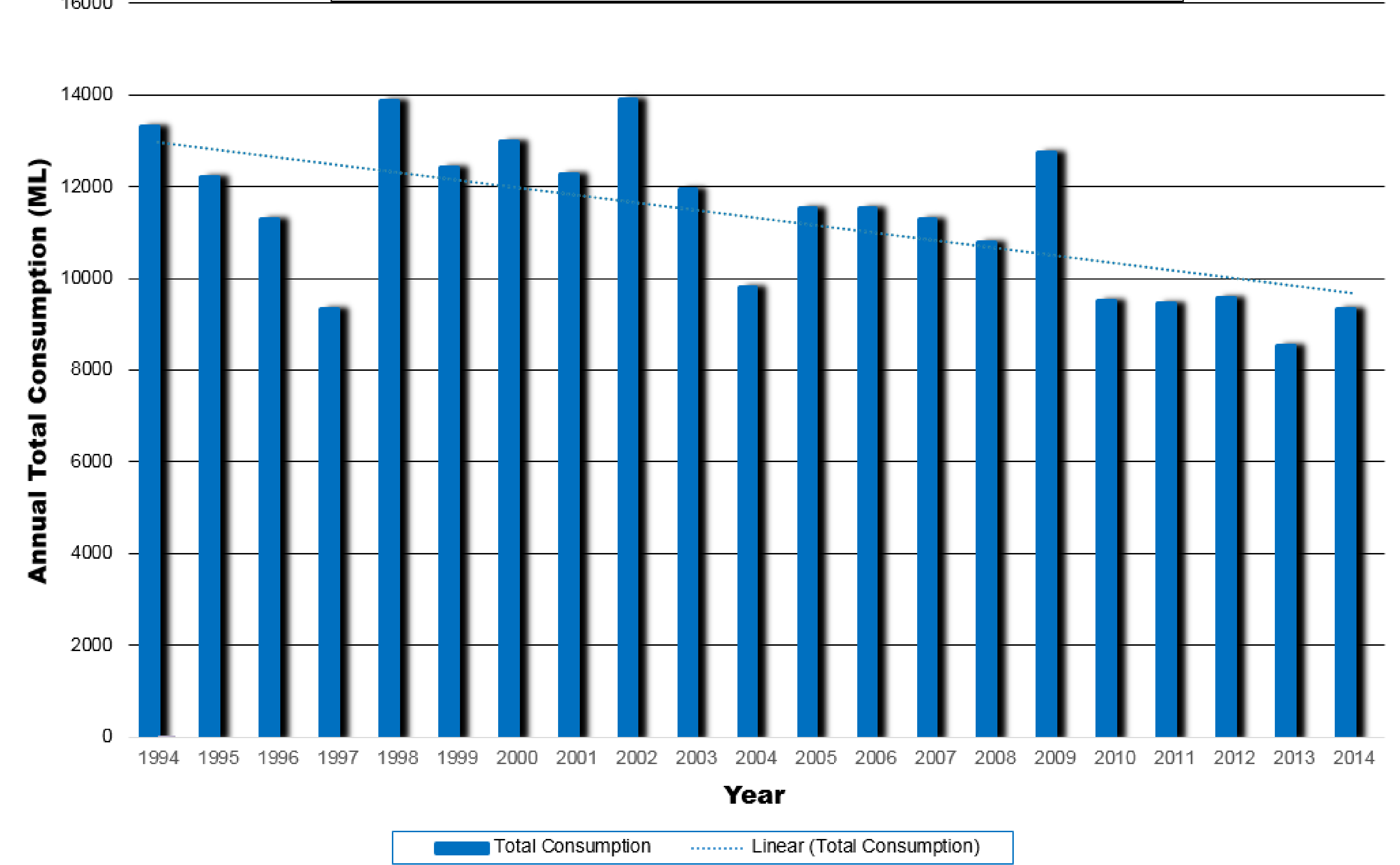


HISTORICAL DATA

DATES THIRSK DAM STOPPED SPILLING



Summerland 20 Year Water Consumption





WHAT'S

Proposed timeline

November - The information from this open house will be reviewed, presented to the Water Advisory Committee and considered when determining the preferred rate model

December – Another open house with the preferred model for irrigator water rates will be held

- This open house will also include options for domestic second services

- Information from the second open house will reviewed, presented to the Water Advisory Committee and considered when reporting to Council

January/February – Committee review and further open house if needed

February – Recommendations to Mayor and Council

February – Bylaw to Mayor and Council for adoption

March – Adjustment of bylaw if needed and final reading

April – Adoption of bylaw

N
E
X
T

Thank you for attending.
We appreciate
your input!

Please complete the survey
and drop it in the box
located on the table

