CHAPTER 9

Equesis Creek

9.1 GENERAL DESCRIPTION

Reference is made to the Key Map, (Figure 9.1) and the Schematic (Figure 9.2).

Equesis Creek has a natural watershed of 77 square miles and is the least developed of all the tributaries under study. It is a simple system with one major headwater lake, no significant tributaries and no diversions Into the watershed. The main valley bottom and river delta provides most present and potential irrigable land. Being largely Indian Reservation, nearly all water licencing is held by the Department of Indian Affairs.

In 1970, the area served an estimated population of 90 persons and contained 356 acres of irrigated land. Much of this area is outside the natural watershed as shown by Figure 9.1.

The headwaters of Equesis Creek are located approximately 16 miles northwest of its mouth on the ridge separating the Okanagan and Thompson River watersheds. The highest mountain on this ridge is Tuktakamin Mountain which reaches an elevation of 5811 feet. Flow from the mountain ridge and a much less steep area to the south soon reaches Pinaus Lake (CP1). This lake (elevation 3355 feet) with a surface area of 9500 acres is one of the largest natural lakes in the whole Okanagan. Outflow from Pinaus Lake passes, through a small unnamed lake before entering a deep-cut valley which leads fairly directly to Okanagan Lake. Only minor tributaries such as Ewer (MP1), Banks, McGregor and Musgrave join Equesis Creek along its course.

As shown by the area-elevation curves on Figure 14.2, the median elevation of Equesis Creek is 4000 feet. Apart from Vernon and Kelowna Creeks which are lower, this is the lowest median elevation of creeks under study in this chapter. Land rises steeply for the first 2000 feet above Okanagan Lake leaving only 20% of the watershed below 3000 feet elevation. Thereafter, average land slopes decrease at a fairly constant rate, over 70% of the subbasin being between 3000 and 5000 feet elevation. The final 10% of the area includes the mountain peaks which rise to 5800 feet.

Apart from the region near its mouth where the valley widens, the area's

tributary to the lower reaches of Equesis Creek are unremittingly steep. Between elevation 4000 and 5000 feet there exists, a relatively flat upland plat-eau which is tributary to Pinaus Lake.

The profile of Equesis Creek (Figure 14.3) shows that it rises at a slowly increasing gradient averaging 152 feet per mile to Pinaus Lake.

There are two hydrometric stations within the Equesis Creek system and these are located on Figure 9.1. One station (8NM176) on Ewer Creek provides only occasional measurements. The more significant hydrometric station is 8NM161 located near the creek mouth. Its records are daily all-year but are of short duration. Hydrographs of mean monthly flows passing this station have been plotted on Figure 4.8.

9.2 HISTORICAL BACKGROUND

There are no organized water users communities in the Equesis Creek watershed. Mater licences are held by the Department of Indian Affairs and Individual farmers.

Exploitation of the water source for irrigation purposes began in earnest around 1922 when an earth fill dam was built on Pinaus Lake. Farmers occupying the valley bottom of upland stretches of Equesis Creek diverted the water directly from the creek for use nearby. The Indian band occuping the alluvial fan of Equesis Creek diverted their water for considerable distances by wood flume. At the present time, the ditch method of irrigation is employed although it is expected that at least some areas will be converted to sprinkler irrigation in the near future.

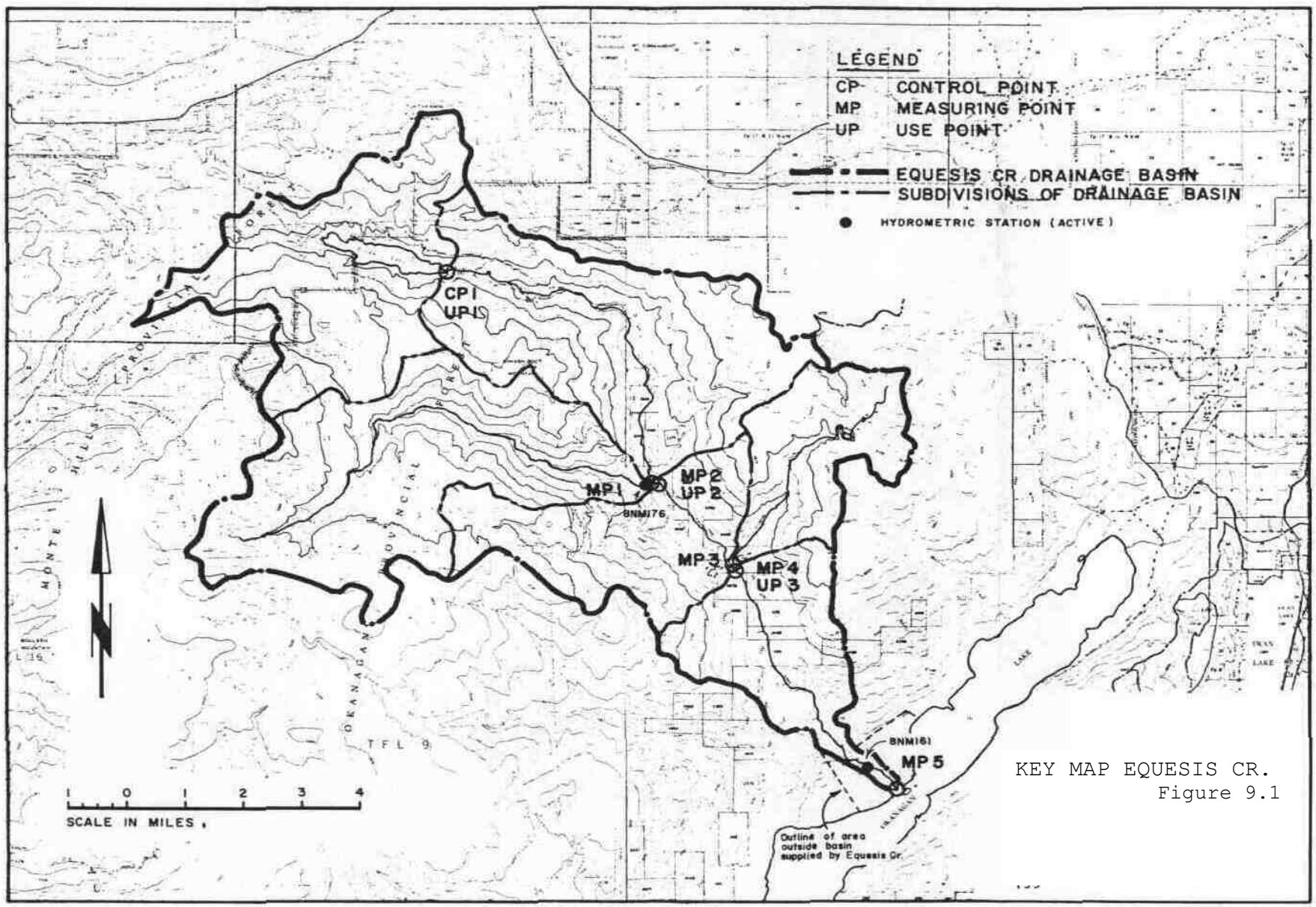
In 1953 the Department of Indian Affairs built a new dam on Pinaus Lake, raising its storage capacity to the present 2156 acre feet.

9.3 LAND USE AND WATER REQUIREMENTS

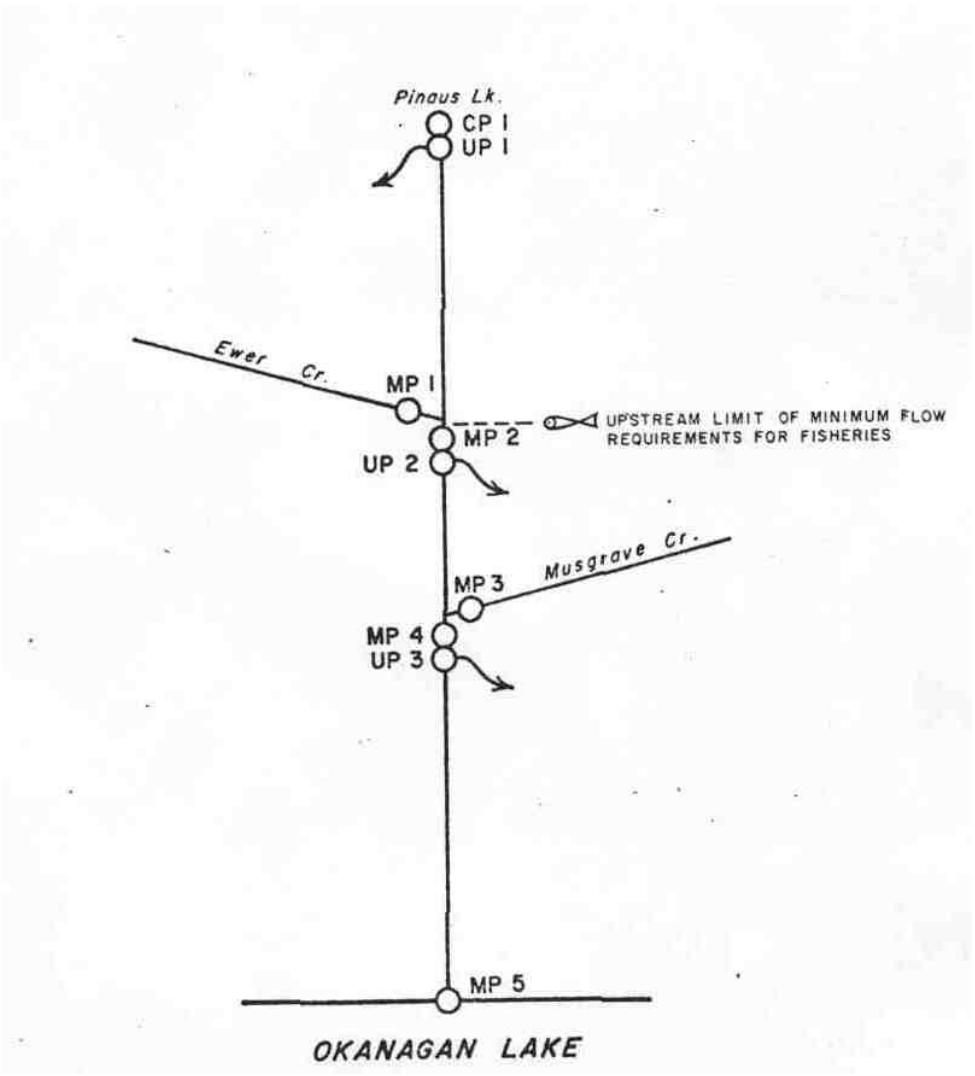
The Equesis Creek watershed serves two small agricultural groupings, one Indian, one non-Indian.

The non-Indian grouping serves 204 acres of irrigated land in the valley bottom of Equesis Creek at an elevation of around 1900 feet. Their water is assumed to be diverted at UP 1 and UP 2.

The Indian grouping occupies a tiny settlement near the Equesis Creek delta. An estimated 204 acres of land is irrigated by diversion at UPS. There are, in fact, four diversion points at which water is taken by ditch to provide



KEY MAP EQUESIS CR.
Figure 9.1



EQUESIS CR. SCHEMATIC Figure 9.2

rill irrigation to areas north and south of the creek. A piped, pressurized domestic water system serves approximately 60 persons near Six Mile Creek.

Plans have been prepared for the conversion of roughly 100 acres of ditch-irrigated land to sprinkler irrigation. To date, these plans have not been implemented.

It is to be noted that, because the coarse alluvial soil is very pervious, serious water losses occur in transit by the ditch irrigation method. Conversion to a piped system would result in marked economics in the quantity of water required.

Equesis Creek and Pinaus Lake are important to the propagation of Rainbow Trout and Kokanee. During winter, the gate on Pinaus Lake is left open to create flow and prevent winter kill of fish downstream.

The computer print-outs are based on a program which does not take account of the small domestic population within the watershed. Input data is shown on Table 9.1.

TABLE 9.1
WATER USERS IN THE EQUESIS CREEK WATERSHED (1970)
(COMPUTER INPUT DATA)

Area Served	Area Irrigated (acres)	Population (approx.) (persons)	Irrigation (ac. ft.)	Diversion Domestic (ac. ft.)	Total (ac. ft.)
Director of Indian Affairs	152	0	435	0	435
Other	204	0	585	0	585
Total	356	0	1020	0	1020

Consumptive use diversions as listed above are assumed to result in no return flow within the Equesis Creek sub-basin. However, consumptive use diversions are expected to provide a return flow to Okanagan Lake. The amount of return flow varies with the type of use and for irrigation is estimtated at 50% of diversion.

From the above, water utilization in terms of the amounts of consumed water and return flow within the Okanagan Lake Basin may be tabulated as follows (Table 9.2):

TABLE 9.2

WATER UTILIZATION IN EQUESIS CREEK (1970)

Requirements	Diversion for Consumptive Use (acre feet)	Consumed Water (acre feet)	Return Flow to Okanagan Lake (acre feet)
Irrigation	1020	510	510
Domestic and Waterworks	0	0	0
Industry	0	0	0
Totals	1020	510	510

A monthly breakdown of diversion requirements during the irrigation season is as shown on Table 9.3.

TABLE 9.3

DIVERSION REQUIREMENTS ON EQUESIS CREEK (1970)

GIVEN IN ACRE FEET

Month	Type	Director of Indian Affairs	Other	Total
A	Agriculture	0	0	0
	Domestic	0	0	0
	Industry	0	0	0
M	Agriculture	88	66	154
	Domestic	0	0	0
	Industry	0	0	0
J	Agriculture	146	109	255
	Domestic	0	0	0
	Industry	0	0	0
J	Agriculture	146	109	255
	Domestic	0	0	0
	Industry	0	0	0
A	Agriculture	146	109	255
	Domestic	0	0	0
	Industry	0	0	0
Total		526	393	919

In order to acquire rights over the use of water, most users, acting either

individually or collectively in an irrigation district, have maintained water licenses for storage and diversion granted by the Crown, in right of the Province. Licenses provide their holder with rights over the stated amount of water and, in cases of shortage, the older license takes precedence over the newer.

Current water licenses in 1970 for both storage and consumptive use are as listed on Table 9.4

TABLE 9.4
WATER LICENSES ON EQUESIS CREEK (1970)

Area Served	Total Licensed Storage (ac. ft.)	Agriculture (ac. ft.)	Licensed Diversion		Total (ac. ft.)	Computed Diversion Requirement (ac. ft.)
			Domestic (ac. ft.)	Industry (ac. ft.)		
Director of Indian Affairs	1590	2385	0	0	2385	435
Other	600	1044	0	0	1044	585
Total	2190	3429	0	0	3429	1020

9.4 ESTIMATED NATURAL WATER SUPPLY

Estimated natural water yields for the area are shown on computer print-out sheets, reproduced on Figure 9.3, (Dry Year), Figure 9.4, (Average Year) and Figure 9.5, (Wet Year).

In summary, the annual precipitation and natural runoff of the Equesis Creek Basin under the three types of year is as follows (Table 9.5):

TABLE 9.5
ESTIMATED NATURAL WATER YIELDS FOR EQUESIS CREEK SUB-BASIN

Type of Year	Annual Runoff		Precipitation (inches)	Remarks
	Kilo acre feet	Inches over Basin		
Dry	10.2	2.5		area = 76.9 sq. miles
Average	17.8	4.3	23.1	
Wet	34.1	8.3		

Note: Abstracted from computer print-out data which is based on simulated flows for period 1921-1970.

Date Of Print-out:
Dec 7, 1972

FLOWS IN AC. FT.

LOCATION	AREA IN K. AC.	J	F	M	A	M	J	J	A	S	O	N	D	YEAR
CPOA 1	9.5	38.	46.	59.	124.	1122.	574.	122.	46.	44.	44.	44.	44.	2307.
MPOA 1	12.4	57.	77.	88.	160.	2271.	1299.	187.	90.	76.	76.	76.	76.	4532.
MPOA 2	33.4	123.	155.	190.	387.	4106.	2211.	400.	166.	151.	151.	150.	150.	8338.
MPOA 3	4.5	16.	17.	25.	56.	396.	185.	51.	17.	17.	17.	17.	17.	829.
MPOA 4	44.2	154.	191.	238.	493.	4952.	2625.	501.	201.	185.	185.	184.	184.	10094.
MPOA 5	49.2	157.	195.	242.	506.	5014.	2653.	511.	204.	188.	188.	187.	187.	10230.

EQUESIS CR. DRY YEAR (NATURAL FLOW) Figure 9.3

Date Of Print-out:
Dec 7, 1972

FLOWS IN AC. FT.

LOCATION	AREA IN K. AC.	J	F	M	A	M	J	J	A	S	O	N	D	YEAR
CPOA 1	9.5	68.	82.	105.	229.	1948.	984.	219.	80.	77.	77.	77.	77.	4025.
MPOA 1	12.4	93.	125.	144.	272.	3614.	2045.	306.	144.	124.	124.	122.	122.	7237.
MPOA 2	33.4	216.	272.	333.	713.	6931.	3674.	715.	282.	259.	259.	258.	258.	14170.
MPOA 3	4.5	30.	32.	46.	106.	726.	340.	95.	31.	31.	31.	31.	31.	1531.
MPOA 4	44.2	276.	340.	423.	922.	8473.	4421.	907.	347.	323.	323.	322.	322.	17398.
MPOA 5	49.2	284.	351.	436.	963.	8653.	4500.	941.	355.	331.	331.	330.	330.	17805.

EQUESIS CR. AVERAGE YEAR (NATURAL FLOW) Figure 9.4

Date Of Print-out:
Dec. 7, 1972

FLOWS IN AC FT

LOCATION	AREA IN K.AC.	J	F	M	A	M	J	J	A	S	O	N	D	YEAR
CPOA 1	9.5	128.	155.	198.	467.	3811.	1805.	421.	150.	145.	145.	145.	145.	7495.
MPOA 1	12.4	167.	223.	257.	506.	6204.	3470.	556.	248.	216.	216.	214.	214.	12492.
MPOA 2	33.4	418.	521.	635.	1439.	12580.	6808.	1399.	521.	484.	484.	483.	483.	26152.
MPOA 3	4.5	60.	64.	90.	215.	1433.	666.	192.	60.	60.	60.	60.	60.	3023.
MPOA 4	44.2	539.	684.	820.	1898.	15787.	8983.	1813.	652.	614.	614.	612.	612.	32668.
MPOA 5	49.2	571.	702.	861.	2049.	16356.	8342.	1939.	679.	641.	641.	639.	639.	34060.

EQUESIS CR. WET YEAR (NATURAL FLOW) Figure 9.5

9.4.1 Storage

Reference is made to Figure 9.2.

In a climate of spring floods and summer droughts it is necessary to store a high proportion of total available water so that it may be used when needed.

As a general rule, in other tributaries storage is approaching maximum development and there is an ever increasing demand for more water. Such is not the case on Equesis Creek which is blessed with a large natural lake to provide storage. Also, since most undeveloped land is within an Indian Reservation, there is a subnormal pressure to develop land and demand increased water supply. This provides an excellent climate in which the Department of Fisheries can enhance an already desirable fishing area.

9.4.2 Pinaus Lake

This is the only major lake in the watershed. It is owned and controlled by the Department of "Indian Affairs with the cooperation of the local white farmers. The low dam, of concrete gravity design, was built in 1953 to replace an earlier dam built around 1922. The spillway is at elevation 3355.4 feet. The control works consist of a 24 inch culvert with an outlet invert set at elevation 3350.0 feet. This provides a maximum drawdown of 5.4 feet.

Hydraulic information on Pinaus Lake is tabulated as follows (Table 9.6)

TABLE 9.6
1970 STORAGES IN THE EQUESIS CREEK SYSTEM

Reservoir	Drainage Area (acres)	Live Storage (acre feet)	Surface Area (acres)	Annual Natural Runoff (acre-feet)		
				Dry Year	Average Year	Wet Year
Pinaus	9500	2156	400	2307	4025	7495

It win be noted that there appears to be a very adequate supply of natural runoff, even in a drought year.

Methods of operation are by no means rigid, but are estimated to follow the pattern outlined on Table 9.7.

Photo 37 PINAUS LAKE - Looking West (Sept. 12, 1973)
Equesis Creek System

Photo 38 KING EDWARD LAKE - Looking North (Sept. 12, 1973)
Vernon Creek System

TABLE 9.7

RULE CURVE VALUES FOR EQUESIS CREEK RESERVOIR

Reservoir Name	Reservoir Capacity	J	F	M	A	M	J	J	A	S	O	N	D
Pinaus	2156	35	35	35	35	100	100	78	57	35	35	35	35

Explanation; For any given month -

1. Percentages shown refer to active storage occupied by water at end of month, e.g., 30% storage occupied by water at end of March.
2. When rule curve value is exceeded, all excess water is released.
3. When rule curve value is not achieved, only stated water requirements are released.
4. Information based on local records of water users.

The above rule curve have been used in computer programming for the production of print-outs showing regulated flows.

At the 1970 stage of development, little special consideration is given to the operation of storage for Fisheries or other non-consumptive use.

9.4.3 Residual Flows

When natural flow is affected by storage changes, diversions to or from the area and withdrawals for irrigation, domestic or industrial purposes, the resulting creek flow is called the "residual flow". These residual flows, for various selected points and three types of weather year at 1970 development, are shown on computer print-outs. They are reproduced as Figure 9.6 (Dry Year), Figure 9.7 (Average Year), and Figure 9.8 (Wet Year).

Reference to these figures will show that residual flows immediately upstream and immediately downstream from the selected point are given. The difference is the amount diverted at the point for consumptive use. It will be noted that there are no "demand deficiencies" at the 1970 stage of development, even in a "dry" year.

Reference to Figure 9.9 and 9.6 will show that, based on Department of Fisheries estimates of need, there would be a considerable shortage of water during winter for non-consumptive use. In the winter of a "Dry" year, when no diversions for irrigation are being made, it appears that Fisheries water shortages range up to 60% of their stated requirement. Even in an "Average"

Date of Print-out:
Oct. 25, 1972

STORAGES GIVEN ARE FOR THE END OF THE MONTH
UNITS FOR DEMANDS, STORAGES, FLOWS, AND DEFICIENCIES ARE ACRE FEET

		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
CONTROL POINT	1													
STORAGE		755.	755.	755.	755.	1037.	2156.	1682.	1229.	755.	755.	755.	755.	
MEASURING POINT	5													
FLOW		157.	195.	243.	505.	1777.	2080.	730.	403.	300.	189.	188.	188.	[illegible]
DEFICIENCY (FISH)		203.	165.	117.	0.	0.	0.	0.	0.	0.	292.	172.	172.	1121.
USE POINT	1													
DEMAND, IRRIGATION		0.	0.	0.	0.	40.	66.	66.	66.	26.	0.	0.	0.	264.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	40.	66.	66.	66.	26.	0.	0.	0.	264.
FLOW, UPSTREAM		35.	45.	57.	124.	40.	255.	596.	497.	518.	44.	44.	44.	2307.
FLOW, DOWNSTREAM		38.	46.	59.	124.	0.	189.	530.	431.	492.	44.	44.	44.	2043.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
USE POINT	2													
DEMAND, IRRIGATION		0.	0.	0.	0.	45.	74.	74.	74.	30.	0.	0.	0.	297.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	45.	74.	74.	74.	30.	0.	0.	0.	297.
FLOW, UPSTREAM		121.	156.	190.	387.	2401.	1827.	809.	551.	598.	150.	150.	150.	8076.
FLOW, DOWNSTREAM		121.	156.	130.	387.	[illegible]	1753.	735.	479.	568.	150.	150.	150.	7779.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY (FISH)		237.	204.	170.	0.	0.	0.	0.	0.	0.	330.	210.	210.	1361.
USE POINT	3													
DEMAND, IRRIGATION		0.	0.	0.	0.	69.	115.	115.	115.	46.	0.	0.	0.	460.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	69.	115.	115.	115.	46.	0.	0.	0.	460.
FLOW, UPSTREAM		154.	192.	219.	493.	3784.	2167.	835.	515.	603.	175.	185.	185.	9537.
FLOW, DOWNSTREAM		154.	192.	219.	493.	3715.	2052.	720.	400.	557.	185.	185.	185.	9077.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY (FISH)		206.	168.	121.	0.	0.	0.	0.	0.	0.	295.	175.	175.	1140.
GRAND TOTALS FOR ALL THE USE POINTS:														
DEMAND, IRRIGATION		0.	0.	0.	0.	154.	255.	255.	255.	102.	0.	0.	0.	1021.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	154.	255.	255.	255.	102.	0.	0.	0.	1021.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

EQUESIS CR. DRY YEAR (1970) Figure 9.6

Date of Print-out:
Oct. 25, 1972

STORAGES GIVEN ARE FOR THE END OF THE MONTH
UNITS FOR DEMANDS, STORAGES, FLOWS, AND DEFICIENCIES ARE ACRE FEET

		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
CONTROL POINT	1													
STORAGE		755.	755.	755.	755.	2156.	2156.	1682.	1229.	755.	755.	755.	755.	
MEASURING POINT	5													
FLOW		284.	351.	436.	964.	7098.	4244.	1159.	553.	703.	331.	329.	329.	16781.
DEFICIENCY (FISH)		76.	9.	0.	0.	0.	0.	0.	0.	0.	149.	31.	31.	296
USE POINT	1													
DEMAND, IRRIGATION		0.	0.	0.	0.	40.	66.	66.	66.	26.	0.	0.	0.	264.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	40.	66.	66.	66.	26.	0.	0.	0.	264.
FLOW, UPSTREAM		68.	82.	105.	229.	547.	984.	693.	533.	551.	77.	77.	77.	4023.
FLOW, DOWNSTREAM		[illegible]	82.	105.	229.	507.	[illegible]	627.	[illegible]	[illegible]	77.	77.	77.	[illegible]
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
USE POINT	2													
DEMAND, IRRIGATION		0.	0.	0.	0.	45.	74.	74.	74.	30.	0.	0.	0.	297.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	45.	74.	74.	74.	30.	0.	0.	0.	297.
FLOW, UPSTREAM		216.	272.	333.	714.	5490.	3607.	1122.	669.	707.	259.	257.	257.	13903.
FLOW, DOWNSTREAM		216.	272.	331.	714.	5445.	3533.	1048.	595.	677.	259.	257.	257.	13606.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY (FISH)		144.	88.	27.	0.	0.	0.	0.	0.	0.	221.	103.	103.	686.
USE POINT	3													
DEMAND, IRRIGATION		0.	0.	0.	0.	69.	115.	115.	115.	46.	0.	0.	0.	460.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	69.	115.	115.	115.	46.	0.	0.	0.	460.
FLOW, UPSTREAM		275.	340.	474.	923.	6287.	4280.	1240.	660.	741.	323.	321.	321.	16085.
FLOW, DOWNSTREAM		275.	340.	474.	923.	[illegible]	[illegible]	1125.	[illegible]	[illegible]	323.	321.	321.	[illegible]
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY (FISH)		85.	20.	0.	0.	0.	0.	0.	0.	0.	167.	39.	39.	340.
GRAND TOTALS FOR ALL THE USE POINTS:														
DEMAND, IRRIGATION		0.	0.	0.	0.	154.	255.	255.	255.	102.	0.	0.	0.	1021.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	154.	255.	255.	255.	102.	0.	0.	0.	1021.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

EOUESIS CR. AVERAGE YEAR (1970) Figure 9.7

Date of Print-out:
Oct. 25, 1972

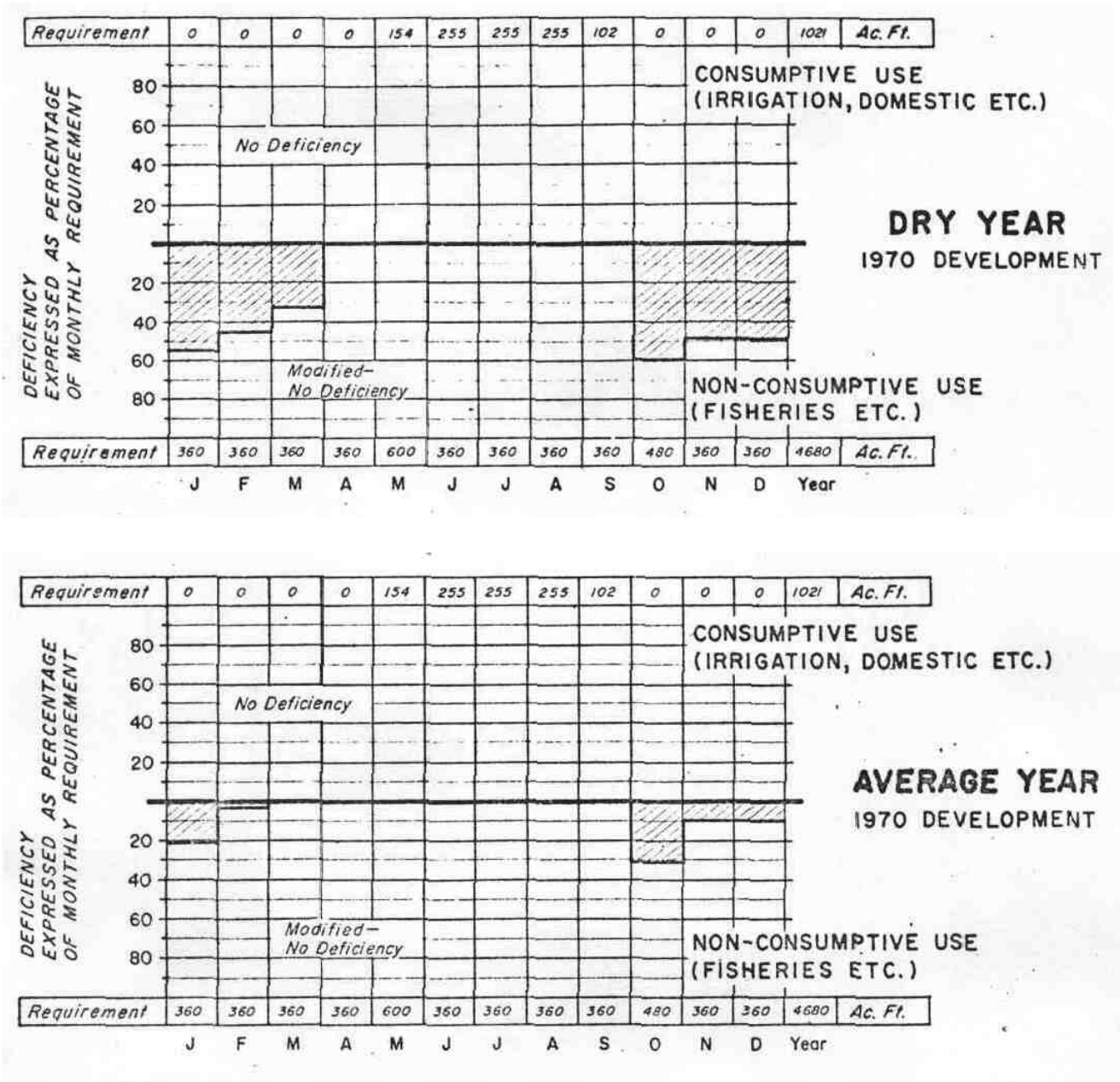
STORAGES GIVEN ARE FOR THE END OF THE MONTH
UNITS FOR DEMANDS, STORAGES, FLOWS, AND DEFICIENCIES ARE ACRE FEET

		JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
CONTROL POINT	1													
STORAGE		755.	755.	755.	755.	2156.	2156.	1642.	1229.	755.	755.	755.	755.	
MEASURING POINT	5													
FLOW		571.	702.	840.	2050.	14801.	6086.	2158.	876.	1012.	840.	678.	638.	33032.
DEFICIENCY (FISH)		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
USE POINT	1													
DEMAND, IRRIGATION		0.	0.	0.	0.	88.	66.	66.	66.	26.	0.	0.	0.	244.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	88.	66.	66.	66.	26.	0.	0.	0.	244.
FLOW, UPSTREAM		128.	155.	198.	447.	2210.	1805.	895.	603.	519.	145.	145.	145.	7495.
FLOW, DOWNSTREAM		128.	155.	199.	447.	2170.	1739.	829.	537.	593.	145.	145.	145.	7251.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
USE POINT	2													
DEMAND, IRRIGATION		0.	0.	0.	0.	45.	74.	74.	74.	10.	0.	0.	0.	297.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	45.	74.	74.	74.	10.	0.	0.	0.	297.
FLOW, UPSTREAM		416.	521.	634.	1439.	11214.	6562.	1807.	908.	937.	484.	482.	482.	25885.
FLOW, DOWNSTREAM		416.	521.	634.	1439.	11193.	6488.	1733.	834.	907.	484.	482.	482.	25588.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY (FISH)		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
USE POINT	3													
DEMAND, IRRIGATION		0.	0.	0.	0.	69.	115.	115.	115.	46.	0.	0.	0.	460.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	69.	115.	115.	115.	46.	0.	0.	0.	460.
FLOW, UPSTREAM		540.	664.	819.	1898.	14380.	7944.	2147.	985.	1031.	613.	611.	611.	32127.
FLOW, DOWNSTREAM		540.	664.	819.	1898.	14211.	7829.	2032.	869.	985.	611.	611.	611.	31882.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEFICIENCY (FISH)		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
GRAND TOTALS FOR ALL THE USE POINTS:														
DEMAND, IRRIGATION		0.	0.	0.	0.	154.	255.	255.	255.	102.	0.	0.	0.	1071.
DEMAND, DOMESTIC		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, INDUSTRIAL		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
DEMAND, TOTAL		0.	0.	0.	0.	154.	255.	255.	255.	102.	0.	0.	0.	1071.
DEMAND, DEFICIENCY		0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

END OF TABLE

EQUESIS CR. WET YEAR (1970)

Figure 9.8



LEGEND
Historic (Simulated) Operation
Modified (Simulated) Operation

NOTES: 1. Consumptive Use deficiencies are totals for whole basin.
2. Non-Consumptive deficiencies are those extant at creek mouth.
3. In a Wet Year, a fisheries deficiency of 0 ac. ft. exists at mouth.

EQUESIS CR. (1970) DEFICIENCY DIAGRAM Figure 9.9

year, Fisheries shortages of up to 30% are noted in winter. It is understood that this apparent shortage does not exist in practice since the gate on the Pinaus Lake Dam is left partially open in winter to prevent fish kill.

In conclusion, the contribution which Equesis Creek makes to the total tributary inflow to Okanagan Lake may be evaluated for various types of year as shown on Table 9.8.

TABLE 9.8

COMPARISON BETWEEN INFLOW TO EQUESIS CREEK AND OKANAGAN LAKE

	Regulated Flows at 1970 Development		
Type of Year	Inflow to Okanagan Lake from Equesis Creek	Total Tributary Inflow to Okanagan Lake from All Sources	Percentage Contribution by Equesis Creek to Okanagan Lake Inflow
	acre feet	acre feet	%
Dry	9,200	279,200	3.3
Average	16,800	516,000	3.3
Wet	33,000	796,700	4.1